



Short Form Catalog 2013

High Power Semiconductors for Industrial Applications





The standard
work for IGBTs

Second Edition

Reference book IGBT Modules Technologies, Driver and Application

The aim of this book is to give the reader an understanding of the specific fundamentals of IGBT in conjunction with their application. This book will provide students of power electronics with valuable information about the main contemporary power semiconductors and the applications in which they are used, while development engineers targeting power electronic converters will find all the essentials of selecting, dimensioning and applying IGBT modules laid out clearly and comprehensively.

IGBT Modules – Technologies, Driver and Applications

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For further information please visit our website:

www.infineon.com/igbt-book



High power semiconductors for your industrial applications

What sets our products apart is based on a deep understanding of our customer's current and future application needs. The core values of quality, reliability, longevity and innovation are therefore an essential part of any new development and product improvement. This applies to our chip design, as well as our module development and manufacturing.

Accordingly, we offer a broad portfolio of power semiconductor products for industrial applications in the power range from 0.5 kW up to several MW. The applications range from traditional industrial drives and complete systems for renewable energies (wind and solar), transportation (traction, construction and utility vehicles), power supplies, welding applications, to medical equipment and Major Home Appliances.

With the short form catalogue (Kuka) 2013, we offer an overview of this range including many details. Through continuous dialogue with our customers we have once again increased the effectiveness this year.

The blue application pictures you'll find inside show the range of applications where the related products are used for. In the electronic version of this catalogue, at www.infineon.com/highpower, you can click on Short-links to find even more information useful for your application

We would welcome your information to assist in improving this catalogue. To do so, please send us your suggestions via the "Contact" form on www.infineon.com/highpower



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Further data sheets are available on request: IGBT-Modules, Thyristor-/Diode-Modules, Fast Thyristors, Thyristors for Phase Control, Power Rectifier Diodes, Snubber and Freewheeling Diodes Actual, extensive data can be obtained in PDF-format from our internet address:

www.infineon.com/powersemiconductors



Legend



Drives



CAV



Telecom



Wind



UPS



Home appliance



Solar



Welding



Server



Induction



SMPS



PC Power



Traction

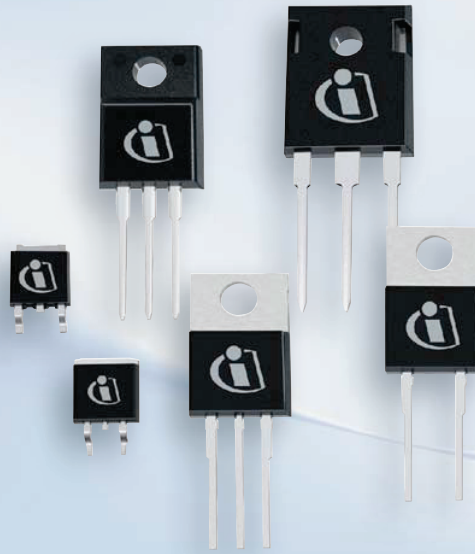


Aircon



AC/DC

Discrete IGBTs



We are famous for IGBT technology leadership and offer a comprehensive portfolio for the general purpose inverters, solar inverters, UPS, Induction heating, Microwave Oven, Rice cookers, Welding and SMPS segments.

Benefits:

- IGBTs offer much higher current density than MOSFET power switches due to bipolar action
- Insulated gate allows bipolar performance with MOSFET gate drive performance
- High efficiency = smaller heat sink which leads to lower overall system cost
- 175°C $T_{j(max)}$ leading to higher reliability

Soft Switching/Resonant and Hard Switching Topologies are Comprehensively Supported

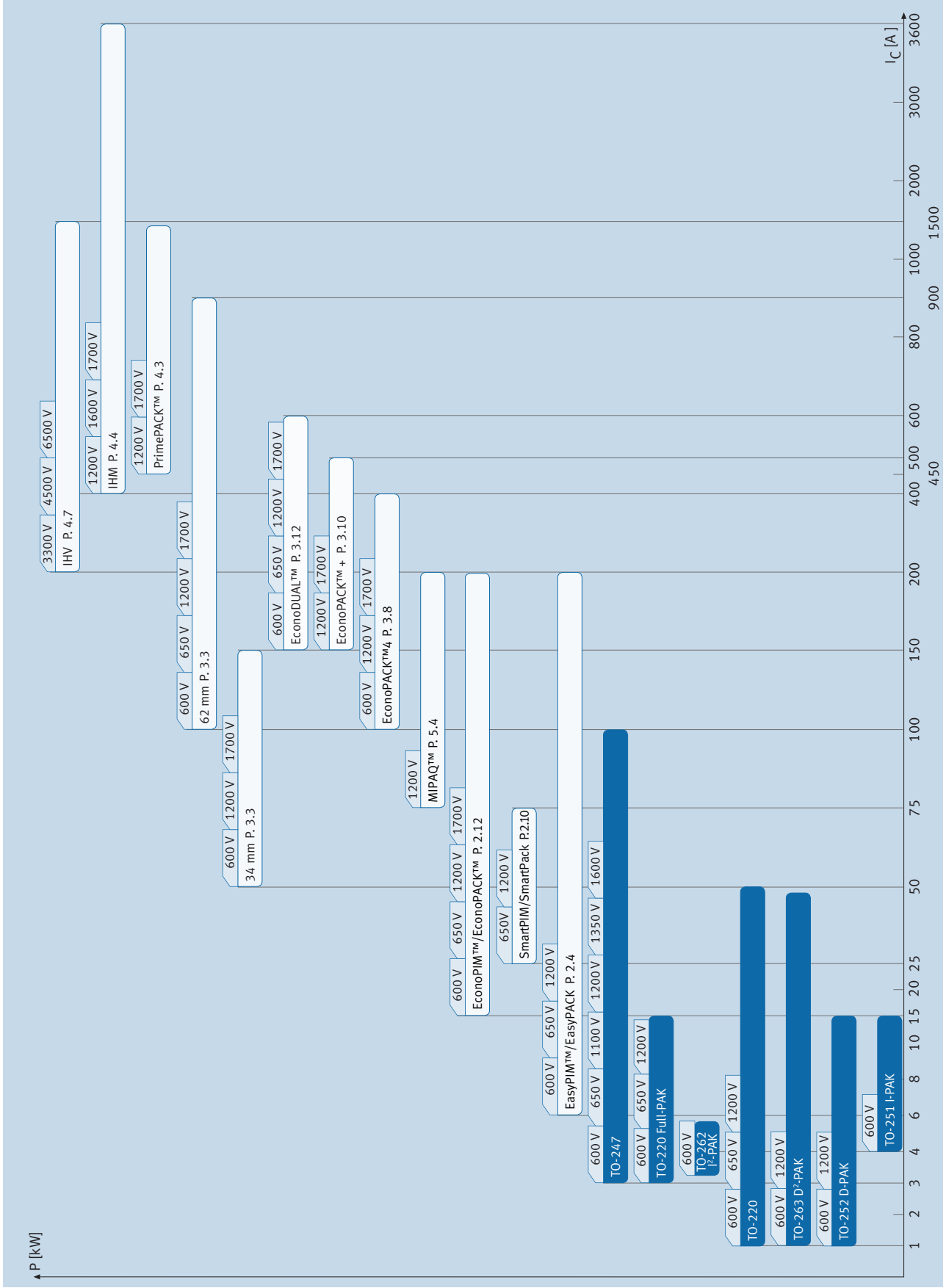
Infineon has a huge portfolio addressing the following two switching techniques:

Soft Switching/resonant

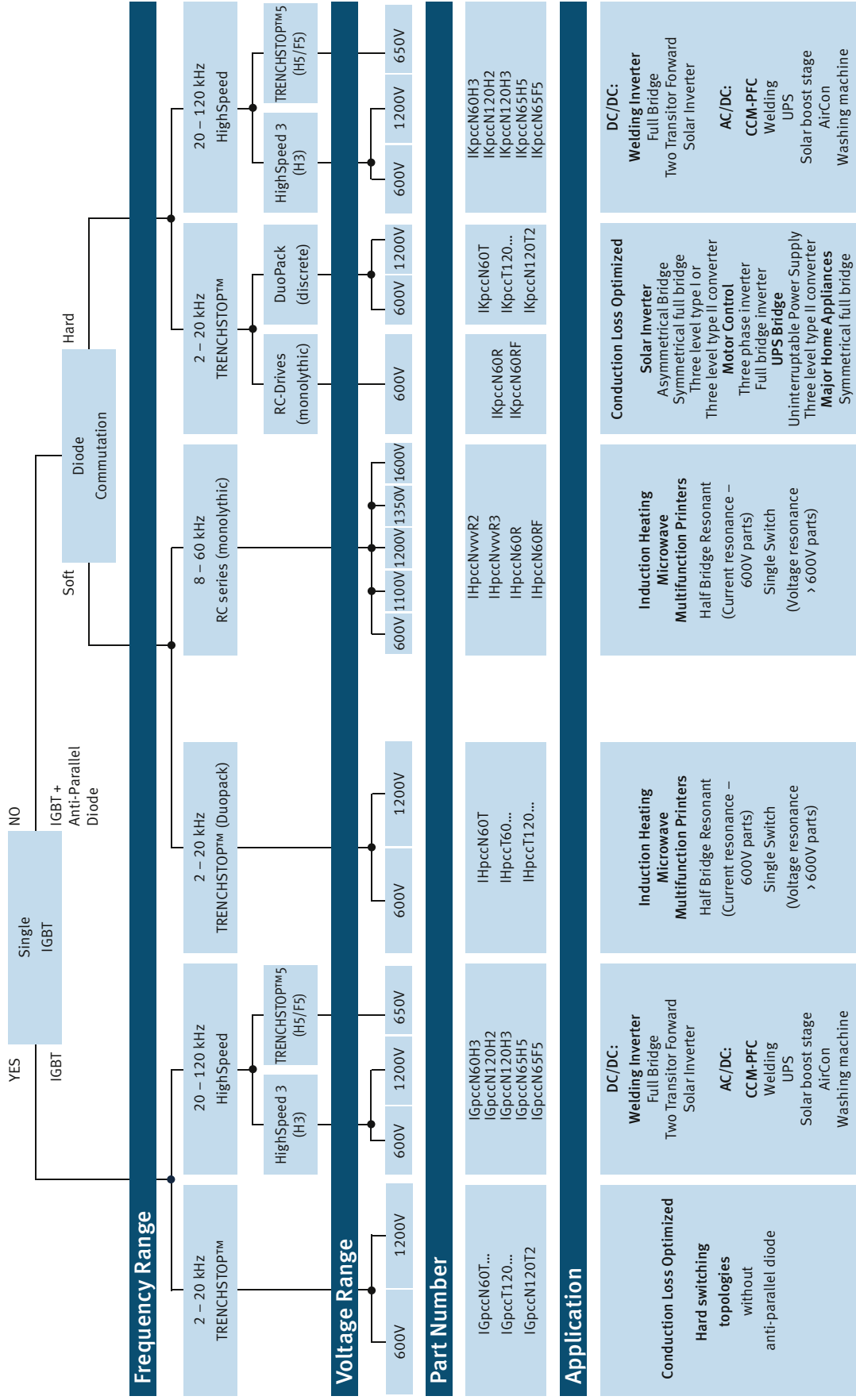
- The world famous IHW series IGBTs – #1 best selling family worldwide
- Available in 600V, 1100V, 1200V, 1350V and 1600V voltage classes
- Best-in-Class efficiency and robustness

Hard Switching

- 600V RC-D IGBTs
- 600V RC-Drives Fast
- 600V TRENCHSTOP™ DuoPack IGBTs
- 600V/1200V HighSpeed 3
- 1200V TRENCHSTOP™ 2
- 650V TRENCHSTOP™ 5



IGBT Selection Tree



Discrete IGBTs

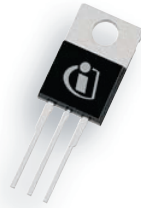
TRENCHSTOP™ 5

Product Spectrum – First Wave



Continuous
Current I_C
 $T_C=100^\circ\text{C}$

TO-220



TO-220FP
Full-Pak




TO-247



Single IGBT	40A	IGP40N65F5 / H5		IGW40N65F5 / H5
	50A			IGW50N65F5 / H5
DuoPack	8A	IKP08N65F5 / H5	IKA08N65F5 / H5	
	15A	IKP15N65F5 / H5	IKA15N65F5 / H5	
	40A	IKP40N65F5 / H5		IKW40N65F5 / H5
	50A			IKW50N65F5 / H5

Induction Cooking Series Portfolio

600V, 1100V, 1200V, 1350V and 1600V

Revolutionary Application Specific – Resonant Converters and Induction Cooking Series IGBTs 

Continuous Current I_C
 $T_C=100^\circ\text{C}$

TO-247



IGBT and Diode	I_C	600V	1100V	1200V	1350V	1600V
	15A				IHW15N120R3	
20A		IKW20N60H3		IHW20N120R3	IHW20N135R3	
25A				IHW25N120R2		
30A		IHW30N60T IKW30N60H3	IHW30N110R3	IHW30N120R3	IHW30N135R3	IHW30N160R2
40A		IHW40T60 IHW40N60R IHW40N60RF		IHW40T120 IHW40N120R3	IHW40N135R3	
50A		IKW50N60H3				
60A		IKW60N60H3				
75A		IKW75N60H3				

TRENCHSTOP™ and RC-Drives IGBT 600 V Product Family

TRENCHSTOP™, RC-Drives and RC-Drives Fast IGBTs



Continuous
Current I_C
 $T_C=100^\circ\text{C}$

TO-251
I-PAK

TO-252
D-PAK

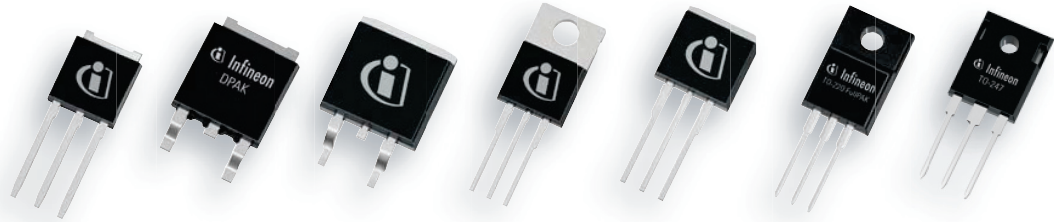
TO-263
D²-PAK

TO-220

TO-262
I²-PAK

TO-220FP
Full-PAK

TO-247




Single IGBT	6A		IGD06N60T		IGP06N60T		
	10A			IGB10N60T	IGP10N60T		
	15A			IGB15N60T	IGP15N60T		
	30A			IGB30N60T			IGW30N60T
	50A			IGB50N60T	IGP50N60T		IGW50N60T
	75A						IGW75N60T

IGBT and Diode	3A		IKD03N60RF				
	4A		IKD04N60R IKD04N60RF		IKP04N60T	IKI04N60T	
	6A		IKD06N60R IKD06N60RF	IKB06N60T	IKP06N60T		IKA06N60T
	10A		IKD10N60R IKD10N60RF	IKB10N60T	IKP10N60T		IKA10N60T
	15A		IKD15N60R IKD15N60RF	IKB15N60T	IKP15N60T		IKA15N60T
	20A			IKB20N60T	IKP20N60T		IKW20N60T
	30A						IKW30N60T
	50A						IKW50N60T
	75A						IKW75N60T

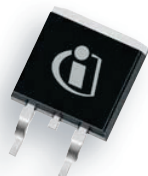
HighSpeed 3 - Single IGBT & DuoPack™ 600V / 1200V Product family

High Speed 3 - Single IGBT & DuoPack™

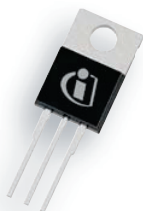


Continuous Current I_C
 $T_C=100^\circ\text{C}$

TO-263
D²-PAK



TO-220



TO-220FP
Full-PAK



TO-247



TO-247



Single IGBT	15A					IGW15N120H3
	20A	IGB20N60H3	IGP20N60H3		IGW20N60H3	
	25A					IGW25N120H3
	30A	IGB30N60H3	IGP30N60H3	IGA30N60H3	IGW30N60H3	
	40A				IGW40N60H3	IGW40N120H3
	50A				IGW50N60H3	
	60A				IGW60N60H3	
	75A				IGW75N60H3	
	100A				IGW100N60H3	
IGBT and Diode	20A	IKB20N60H3	IKP20N60H3		IKW20N60H3	IKW15N120H3
	30A				IKW30N60H3	IKW25N120H3
	60A				IKW40N60H3	IKW40N120H3
	50A				IKW50N60H3	
	60A				IKW60N60H3	
	75A				IKW75N60H3	

TRENCHSTOP IGBT and DuoPack™ 1200V Product Family

TO-247




Continuous
Current I_C
 $T_C=100^\circ\text{C}$



	TRENCHSTOP™		TRENCHSTOP™2
	Single IGBT	8A	IGW08T120
15A		IGW15T120	
25A		IGW25T120	
40A		IGW40T120	
60A		IGW60T120	
DuoPack™	8A	IKW08T120	
	15A	IKW15T120	IKW15N120T2
	25A	IKW25T120	IKW25N120T2
	40A	IKW40T120	IKW40N120T2

HighSpeed 2 IGBT and DuoPack™ 1200V Product Family

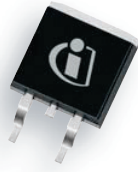
HighSpeed 2 IGBT & DuoPack™ 

Continuous Current I_C
 $T_C=100^\circ\text{C}$

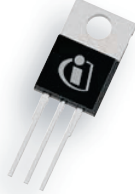
TO-252
D-PAK



TO-263
D²-PAK



TO-220



TO-220FP
Full-PAK



TO-247



Single IGBT	1A	IGD01N120H2	IGB01N120H2	IGP01N120H2		
	3A		IGB03N120H2	IGP03N120H2	IGA03N120H2	IGW03N120H2
DuoPack™	3A		IKB03N120H2	IKP03N120H2	IKA03N120H2	IKW03N120H2

Discrete Emitter Controlled Diodes

Product Family 600 V & 1200 V

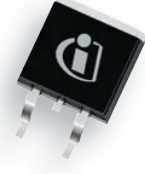


Continuous
Current I_C
 $T_C=100^\circ\text{C}$

TO-252
D-PAK



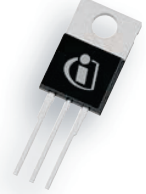
TO-263
D²-PAK



TO-220
Real 2pin



TO-220 FullPAK
Real 2pin



TO-247



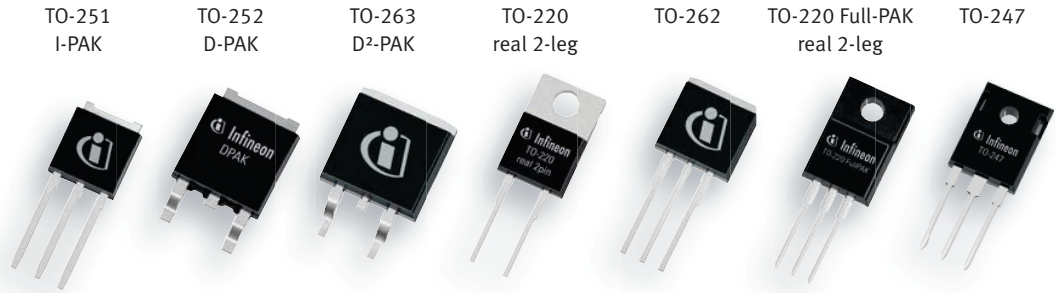
600 V	3 A	IDD03E60				
	6 A	IDD06E60		IDP06E60		
	9 A	IDD09E60	IDB09E60	IDP09E60		
	15 A	IDD15E60	IDB15E60	IDP15E60		
	23 A		IDB23E60	IDP23E60		
	30 A		IDB30E60	IDP30E60	IDV30E60C	IDW30E60
	45 A		IDB45E60	IDP45E60		
	75 A					IDW75E60
	100 A					IDW100E60
1200 V	4 A			IDP04E120		
	9 A			IDP09E120		
	12 A		IDB12E120	IDP12E120		
	18 A		IDB18E120	IDP18E120		
	30 A		IDB30E120	IDP30E120		

Rapid Diode Families 1st Wave Release

650V Product Family

Rapid Diode Families 1st Wave Release




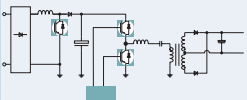
Continuous Current I_C
 $T_C=100^\circ\text{C}$




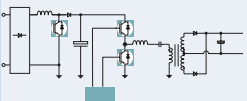
Rapid 1	8A			IDP08E65D1			
	15A			IDP15E65D1			
	30A						IDW30E65D1
	40A						IDW40E65D1

Rapid 2	8A			IDP08E65D2		IDV08E65D2	
	15A			IDP15E65D2		IDV15E65D2	IDW15E65D2
	40			IDP40E65D2			IDW40E65D2

IGBT Discretos HighSpeed 2

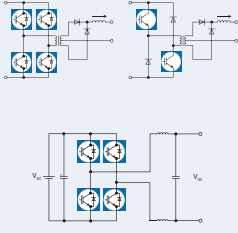
1200V														
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package			
	IGA03N120H2	1200	3	9	2,2	0,140	0,150	n/a			PG-TO220-3			
	IGB01N120H2	1200	1,3	3,5	2,2	0,080	0,060	n/a			PG-TO263-3			
	IGB03N120H2	1200	3,9	9,9	2,2	0,140	0,150	n/a			PG-TO263-3			
	IGD01N120H2	1200	1,3	3,5	2,2	0,080	0,060	n/a			PG-TO252-3			
	IGP01N120H2	1200	1,3	3,5	2,2	0,100	0,100	n/a			PG-TO220-3			
	IGP03N120H2	1200	3,9	9,9	2,2	0,140	0,150	n/a			PG-TO220-3			
	IGW03N120H2	1200	3,9	9,9	2,2	0,200	0,300	n/a			PG-TO247-3			

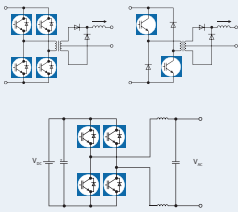
IGBT Discretos HighSpeed 2 DuoPack

1200V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKA03N120H2	1200	3	9	2,2	0,140	0,150	3,9	1,55	230	9,3	PG-TO220-3
	IKB03N120H2	1200	3,9	9,9	2,2	0,140	0,150	3,9	2	230	12 A	PG-TO263-3
	IKP03N120H2	1200	3,9	9,9	2,2	0,140	0,150	3,9	2	230	12 A	PG-TO220-3
	IKW03N120H2	1200	3,9	9,9	2,2	0,140	0,150	3,9	2	230	12 A	PG-TO247-3

IGBT Discretés

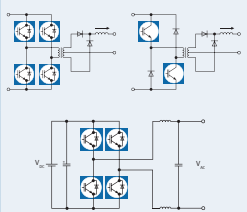
HighSpeed 3

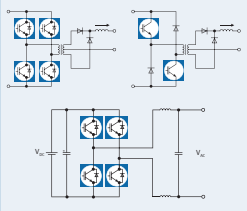
600V												
Product		V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package
	IGA30N60H3	600	11	120	1,95	0,730	0,440		n/a			PG-T0220-3 FP
	IGB20N60H3	600	20	80	1,95	0,450	0,240		n/a			PG-T0263-3
	IGB30N60H3	600	30	120	1,95	0,730	0,440		n/a			PG-T0263-3
	IGP20N60H3	600	20	80	1,95	0,450	0,240		n/a			PG-T0220-3
	IGP30N60H3	600	30	120	1,95	0,730	0,440		n/a			PG-T0220-3
	IGW20N60H3	600	20	80	1,95	0,560	0,240		n/a			PG-T0247-3
	IGW30N60H3	600	30	120	1,95	0,940	0,440		n/a			PG-T0247-3
	IGW40N60H3	600	40	160	1,95	1,100	0,580		n/a			PG-T0247-3
	IGW50N60H3	600	50	200	1,85	1,450	0,910		n/a			PG-T0247-3
	IGW60N60H3	600	60	180	1,85	2,100	1,130		n/a			PG-T0247-3
	IGW75N60H3	600	75	225	1,85	3,000	1,700		n/a			PG-T0247-3
	IGW100N60H3	600	120	300	1,85	3,700	1,900		n/a			PG-T0247-3

1200V												
Product		V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package
	IGW15N120H3	1200	15	60	2,05	1,100	0,450		n/a			PG-T0247-3
	IGW25N120H3	1200	25	100	2,05	1,800	0,850		n/a			PG-T0247-3
	IGW40N120H3	1200	40	160	2,05	3,200	1,200		n/a			PG-T0247-3



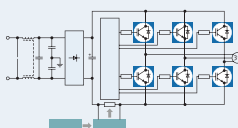
IGBT Discretes

HighSpeed 3 DuoPack



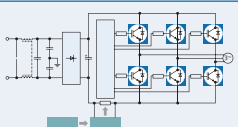
600 V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKB20N60H3	600	20	80	1,95	0,45	0,24	10	1,65	390	11	PG-T0263-3
	IKP20N60H3	600	20	80	1,95	0,45	0,24	10	1,65	390	11	PG-T0220-3
	IKW20N60H3	600	20	80	1,95	0,56	0,24	10	1,65	390	11	PG-T0247-3
	IKW30N60H3	600	30	120	1,95	0,94	0,44	15	1,65	320	12	PG-T0247-3
	IKW40N60H3	600	40	160	1,95	1,1	0,58	20	1,65	810	13,6	PG-T0247-3
	IKW50N60H3	600	50	200	1,85	1,45	0,91	30	1,65	880	16,9	PG-T0247-3
	IKW60N60H3	600	60	180	1,85	2,1	1,13	30	1,65	1200	13	PG-T0247-3
	IKW75N60H3	600	75	225	1,85	3	1,7	50	1,65	1800	19	PG-T0247-3

1200 V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKW15N120H3	1200	15	60	2,05	1,1	0,45	7,5	1,8	800	7,7	PG-T0247-3
	IKW25N120H3	1200	25	100	2,05	1,8	0,85	12,5	1,8	1200	10,4	PG-T0247-3
	IKW40N120H3	1200	40	160	2,05	3,2	1,2	20	1,8	1900	12,8	PG-T0247-3

IGBT Discretetes RC Drives Fast Series DuoPack


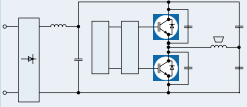
600V  												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKD03N60RF	600	2,5	7,5	2,2	0,05	0,04	2,5	2,1	60	3,8	PG-T0252-3
	IKD04N60RF	600	4	12	2,2	0,06	0,05	4	2,1	90	4,6	PG-T0252-3
	IKD06N60RF	600	6	18	2,2	0,09	0,09	6	2,1	160	7,4	PG-T0252-3
	IKD10N60RF	600	10	30	2,2	0,19	0,16	10	2,1	270	9,1	PG-T0252-3
	IKD15N60RF	600	15	45	2,2	0,27	0,25	15	2,1	420	13,2	PG-T0252-3


IGBT Discretetes RC Drives Series DuoPack


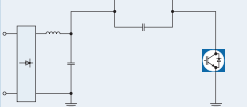
600V  												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKD04N60R	600	4	12	1,65	0,09	0,15	4	1,7	220	7,6	PG-T0252-3
	IKD06N60R	600	6	18	1,65	0,11	0,22	6	1,7	370	12	PG-T0252-3
	IKD10N60R	600	10	30	1,65	0,21	0,38	10	1,7	560	20,3	PG-T0252-3
	IKD15N60R	600	15	45	1,65	0,37	0,53	15	1,7	760	20,5	PG-T0252-3
	IKU15N60R	600	15	45	1,65	0,37	0,53	15	1,7	760	20,5	PG-T0251-3

IGBT Discretes

RC-H Soft & Hard Switching Series


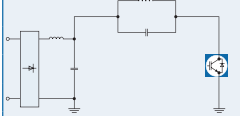
600V 												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	RC-H Fast Soft Switching Series IHW40N60RF	600	40	120	1,85	d.o.r.	0,56	40	1,75	data on request	PG-T0247-3	
	RC-H Soft Switching Series IHW40N60R	600	40	120	1,65	d.o.r.	0,75	40	1,65	data on request	PG-T0247-3	


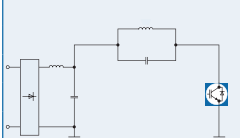
1100V 												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
RC-H3 Soft Switching Series IHW30N110R3	1100	30	90	1,55	d.o.r.	1,15	30	1,35	data on request		PG-T0247-3	

1200V 												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	RC-H2 Soft Switching Series IHW25N120R2	1200	25	75	1,6	d.o.r.	1,59	25	1,5	data on request	PG-T0247-3	
	RC-H3 Soft Switching Series IHW15N120R3	1200	15	45	1,48	d.o.r.	0,7	15	1,55	data on request	PG-T0247-3	
	IHW20N120R3	1200	20	60	1,48	d.o.r.	0,95	20	1,55	data on request	PG-T0247-3	
	IHW30N120R3	1200	30	90	1,55	d.o.r.	1,47	30	1,6	data on request	PG-T0247-3	
	IHW40N120R3	1200	40	120	1,55	d.o.r.	2,02	40	1,6	data on request	PG-T0247-3	

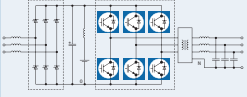
IGBT Discretes

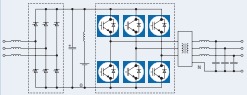
RC-H Soft Switching & Fast Soft Switching Series

1350V 												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	RC-H3 Soft Switching Series											
	IHW20N135R3	1350	20	60	1,6	d.o.r.	1,3	20	1,6	data on request	PG-T0247-3	
	IHW30N135R3	1350	30	90	1,65	d.o.r.	1,93	30	1,65	data on request	PG-T0247-3	
	IHW40N135R3	1350	40	120	1,65	d.o.r.	2,5	40	1,65	data on request	PG-T0247-3	

1600V 												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	RC-H2 Soft Switching Series											
	IHW30N160R2	1600	30	90	1,8	d.o.r.	2,53	30	1,65	data on request	PG-T0247-3	




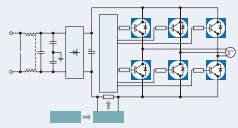
IGBT Discretos
TRENCHSTOP™




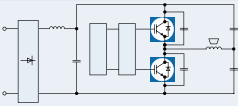
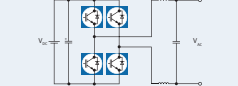
600V												
Product		V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package
	IGB10N60T	600	10	30	1,5	0,16	0,27	n/a				PG-T0263-3
	IGB15N60T	600	15	45	1,5	0,22	0,35	n/a				PG-T0263-3
	IGB30N60T	600	30	90	1,5	0,69	0,77	n/a				PG-T0263-3
	IGB50N60T	600	50	150	1,5	1,2	1,4	n/a				PG-T0263-3
	IGD06N60T	600	6	18	1,5	0,09	0,11	n/a				PG-T0252-3
	IGP06N60T	600	6	18	1,5	0,09	0,11	n/a				PG-T0220-3
	IGP10N60T	600	10	30	1,5	0,16	0,27	n/a				PG-T0220-3
	IGP15N60T	600	15	45	1,5	0,22	0,35	n/a				PG-T0220-3
	IGP50N60T	600	50	150	1,5	1,2	1,4	n/a				PG-T0220-3
	IGW30N60T	600	30	90	1,5	0,69	0,77	n/a				PG-T0247-3
	IGW50N60T	600	50	150	1,5	1,2	1,4	n/a				PG-T0247-3
	IGW75N60T	600	75	225	1,5	2	2,5	n/a				PG-T0247-3
	IHW30N60T	600	30	90	1,5	n/a	0,77	13	1,1	n/a		PG-T0247-3
	IHW40T60	600	40	120	1,55	n/a	0,92	30	1,65	920	16,3	PG-T0247-3




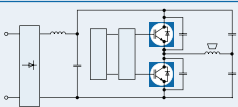
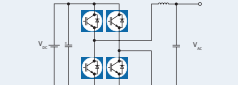
1200V												
Product		V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package
	IGW08T120	1200	8	24	1,7	0,67	0,7	n/a				PG-T0247-3
	IGW15T120	1200	15	45	1,7	1,3	1,4	n/a				PG-T0247-3
	IGW25T120	1200	25	75	1,7	2	2,2	n/a				PG-T0247-3
	IGW40T120	1200	40	105	1,7	3,3	3,2	n/a				PG-T0247-3
	IGW60T120	1200	60	150	1,7	4,3	5,2	n/a				PG-T0247-3
	IKW08T120	1200	8	24	1,7	0,67	0,7	8	1,7	1000	13	PG-T0247-3
	IKW15T120	1200	15	45	1,7	1,3	1,4	15	1,7	1900	17	PG-T0247-3
	IKW25T120	1200	25	75	1,7	2	2,2	25	1,7	2300	21	PG-T0247-3
	IKW40T120	1200	40	105	1,7	3,3	3,2	40	1,75	3800	28	PG-T0247-3

IGBT Discretes

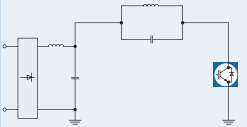
TRENCHSTOP™ Duo Pack

600V												
  												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKA06N60T	600	6,2	18	1,5	0,09	0,11	6,5	1,6	190	5,3	PG-TO220-3
	IKA10N60T	600	7,2	30	1,5	0,16	0,27	7,4	1,6	380	10	PG-TO220-3
	IKA15N60T	600	8,9	45	1,5	0,22	0,35	9	1,65	240	10,4	PG-TO220-3
	IKB06N60T	600	6	18	1,5	0,09	0,11	6	1,6	190	5,3	PG-TO263-3
	IKB10N60T	600	10	30	1,5	0,16	0,27	10	1,6	380	10	PG-TO263-3
	IKB15N60T	600	15	45	1,5	0,22	0,35	15	1,65	240	10,4	PG-TO263-3
	IKB20N60T	600	20	60	1,5	0,31	0,46	20	1,65	310	13,3	PG-TO263-3
	IKI04N60T	600	4	12	1,5	0,061	0,084	4	1,65	79	5,3	PG-TO262-3
	IKP04N60T	600	4	12	1,5	0,061	0,084	4	1,65	79	5,3	PG-TO220-3
	IKP06N60T	600	6	18	1,5	0,09	0,11	6	1,6	190	5,3	PG-TO220-3
	IKP10N60T	600	10	30	1,5	0,16	0,27	10	1,6	380	10	PG-TO220-3
	IKP15N60T	600	15	45	1,5	0,22	0,35	15	1,65	240	10,4	PG-TO220-3
	IKP20N60T	600	20	60	1,5	0,31	0,46	20	1,65	310	13,3	PG-TO220-3
	IKW20N60T	600	20	60	1,5	0,31	0,46	20	1,65	310	13,3	PG-TO247-3
	IKW30N60T	600	30	90	1,5	0,69	0,77	30	1,65	920	16,3	PG-TO247-3
	IKW50N60T	600	50	150	1,5	1,2	1,4	50	1,65	1800	27,7	PG-TO247-3
IKW75N60T	600	75	225	1,5	2	2,5	75	1,65	2400	38,5	PG-TO247-3	

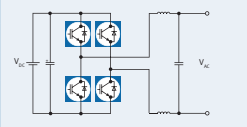
900V												
  												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
 	IHW30N90T	900	30	90	1,5	d.o.r.	0,77	13	1,1	data on request	PG-TO247-3	

1000V												
  												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
 	IHW30N100T	1000	30	90	1,55	d.o.r.	1,6	12	1,1	data on request	PG-TO247-3	
	IKW30N100T	1000	30	90	1,55	2,2	1,6	30	1,65	2100	21	PG-TO247-3

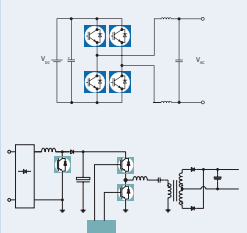
IGBT Discrettes TRENCHSTOP™ DuoPack

1200V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IHW15T120	1200	15	45	1,7	1,3	1,4	13	1,7	950	13,3	PG-T0247-3
	IHW20T120	1200	20	60	1,7	1,8	1,5	13	1,7	950	13,3	PG-T0247-3
	IHW40T120	1200	40	105	1,8	3,3	3,2	19,8	1,65	1880	20,2	PG-T0247-3

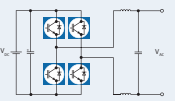
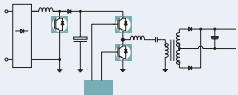
IGBT Discrettes TRENCHSTOP™ F5

650V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IGP40N60F5	650	46	120	1,6	0,36	0,14	n/a			PG-T0220-3	
	IGW40N60F5	650	46	120	1,6	0,36	0,14	n/a			PG-T0247-3	
	IGW50N60F5	650	56	150	1,6	0,49	0,16	n/a			PG-T0247-3	

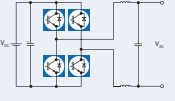
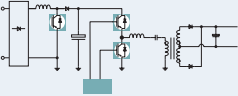
IGBT Discrettes TRENCHSTOP™ F5 DuoPack

650V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKA08N65F5	650	6,8	24	1,6	0,07	0,02	7,3	1,45	140	6,6	PG-T0220-3 FP
	IKA15N65F5	650	8,5	45	1,6	0,13	0,04	7,3	1,45	100	8	PG-T0220-3 FP
	IKP08N65F5	650	11	24	1,6	0,07	0,02	12	1,45	140	6,6	PG-T0220-3
	IKP15N65F5	650	18	45	1,6	0,13	0,04	12	1,45	100	8	PG-T0220-3
	IKW40N60F5	650	46	120	1,6	0,36	0,14	21	1,45	420	12,4	PG-T0247-3
	IKW50N60F5	650	56	150	1,6	0,49	0,16	27	1,45	550	16,5	PG-T0247-3

IGBT Discretes TRENCHSTOP™ H5


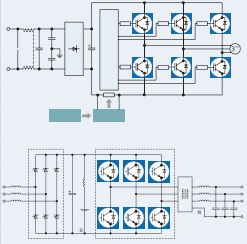
650V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IGP40N65H5	650	46	120	1,65	0,35	0,16	n/a			PG-TO220-3	
	IGW40N65H5	650	46	120	1,65	0,35	0,16	n/a			PG-TO247-3	
	IGW50N65H5	650	56	150	1,65	0,52	0,18	n/a			PG-TO247-3	
												

IGBT Discretes TRENCHSTOP™ H5 DuoPack

650V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKA08N65H5	650	6,8	24	1,65	0,07	0,02	7,3	1,45	130	6,8	PG-TO220-3
	IKA15N65H5	650	8,5	45	1,65	0,12	0,05	7,3	1,45	200	6,7	PG-TO220-3
	IKP08N65H5	650	11	24	1,65	0,07	0,02	12	1,45	130	6,8	PG-TO220-3
	IKP15N65H5	650	18	45	1,65	0,12	0,05	12	1,45	200	6,7	PG-TO220-3
	IKW40N60H5	650	46	120	1,65	0,35	0,16	21	1,45	410	12,5	PG-TO247-3
	IKW50N60H5	650	56	150	1,65	0,52	0,18	27	1,45	570	16,7	PG-TO247-3
												

IGBT Discretes

TRENCHSTOP™2 DuoPack

1200V												
Product	V _{CE} [V]	I _C [A]	I _{Cpuls} [A]	V _{CEsat} [V]	E _{on} [mJ]	E _{off} [mJ]	I _F [A]	V _F [V]	Q _{rr} [nC]	I _{rrm} [A]	Package	
	IKW15N120T2	1200	15	60	1,7	1,25	0,8	15	1,75	1300	10	PG-TO247-3
	IKW25N120T2	1200	25	100	1,7	1,55	1,35	25	1,65	2050	20	PG-TO247-3
	IKW40N120T2	1200	40	160	1,75	3,2	2,05	40	1,75	3300	23	PG-TO247-3

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
HighSpeed 3 600V	Application Note	http://www.infineon.com/highspeed3-600V-appnote
HighSpeed 3 1200V	Application Note	http://www.infineon.com/highspeed3-1200V-appnote
TRENCHSTOP™ IGBT for Soft Switching - 3rd Generation Reverse Conducting IGBT	Application Note	http://www.infineon.com/trenchstop-rc-appnote
TRENCHSTOP™5 650V	Application Note	http://www.infineon.com/trenchstop5-appnote
RC Drives and RC Drives Fast	Application Note	http://www.infineon.com/rc-drives-fast-appnote
IGBT Selection Guide 2012	IGBT Selection Guide 2012	http://www.infineon.com/igbt-selection-guide
HighSpeed 3 1200V 600V	Product Brief	http://www.infineon.com/highspeed3-product-brief
TRENCHSTOP™ IGBT for Soft Switching - 3rd Generation Reverse Conducting IGBT	Product Brief	http://www.infineon.com/trenchstop-rc-product-brief
TrenchStop™ IGBT Technology for Induction Cooking	Product Brief	http://www.infineon.com/trenchstop-induction-cooking-appnote
TRENCHSTOP™5	Product Brief	http://www.infineon.com/trenchstop5-product-brief
RC Drives and RC Drives Fast	Product Brief	http://www.infineon.com/rc-drives-fast-product-brief
TRENCHSTOP™5	Selection Guide	http://www.infineon.com/trenchstop5-selection-guide
Induction Cooking Portfolio	Video	http://www.infineon.com/induction-heating-video
RC Drives Portfolio Extension	Video	http://www.infineon.com/rc-drives-video
TRENCHSTOP™5	Video	http://www.infineon.com/highspeed5-video
TRENCHSTOP™5 Portfolio and Summary	Video	http://www.infineon.com/highspeed5-portfolio-video
TRENCHSTOP™5 Target Application	Video	http://www.infineon.com/highspeed5-targetapplications-video
HighSpeed 3 1200V 600V	Webpage	http://www.infineon.com/highspeed3
TRENCHSTOP™ IGBT for Hard Switching	Webpage	http://www.infineon.com/trenchstop-hard-switching
TRENCHSTOP™ IGBT for Soft Switching - 3rd Generation Reverse Conducting IGBT	Webpage	http://www.infineon.com/trenchstop-reverse-conducting
TRENCHSTOP™5	Webpage	http://www.infineon.com/trenchstop5
RC Drives and RC Drives Fast	Webpage	http://www.infineon.com/rc-drives-fast
Application Notes for all packages & technologies	Application Note Collection	http://www.infineon.com/igbt-modules-application-notes
Product Briefs for all packages & technologies	Product Brief Collection	http://www.infineon.com/igbt-modules-product-briefs

Low Power Modules



Our Easy, Smart and Econo modules are designed for cost effective and compact inverters as well as a simplified and reliable mounting. The Easy and Econo product families are available with the well known solder pins or the new state-of-the-art PressFIT connections.

The new Smart modules combine the PressFIT technology with a sophisticated housing concept. Its new duplex-frame reaches a very high level of reliability during the mounting process and operation. Here the PressFIT pin is connected to the PCB, the PCB is stabilized and the module is mounted on the heat sink in one single step.

The Easy family with different configurations like EasyPIM™, EasyPACK and EasyDUAL covers a full product scope in the power range from nominal current 6A up to 200A at 600V/1200V. These modules without base plates are equipped with screw clamps for a new, fast, reliable and low cost mounting concept. With reduced height from 17mm to 12mm and injected mounting screw clamps, the new Easy1B and Easy2B housings are the optimal choice.

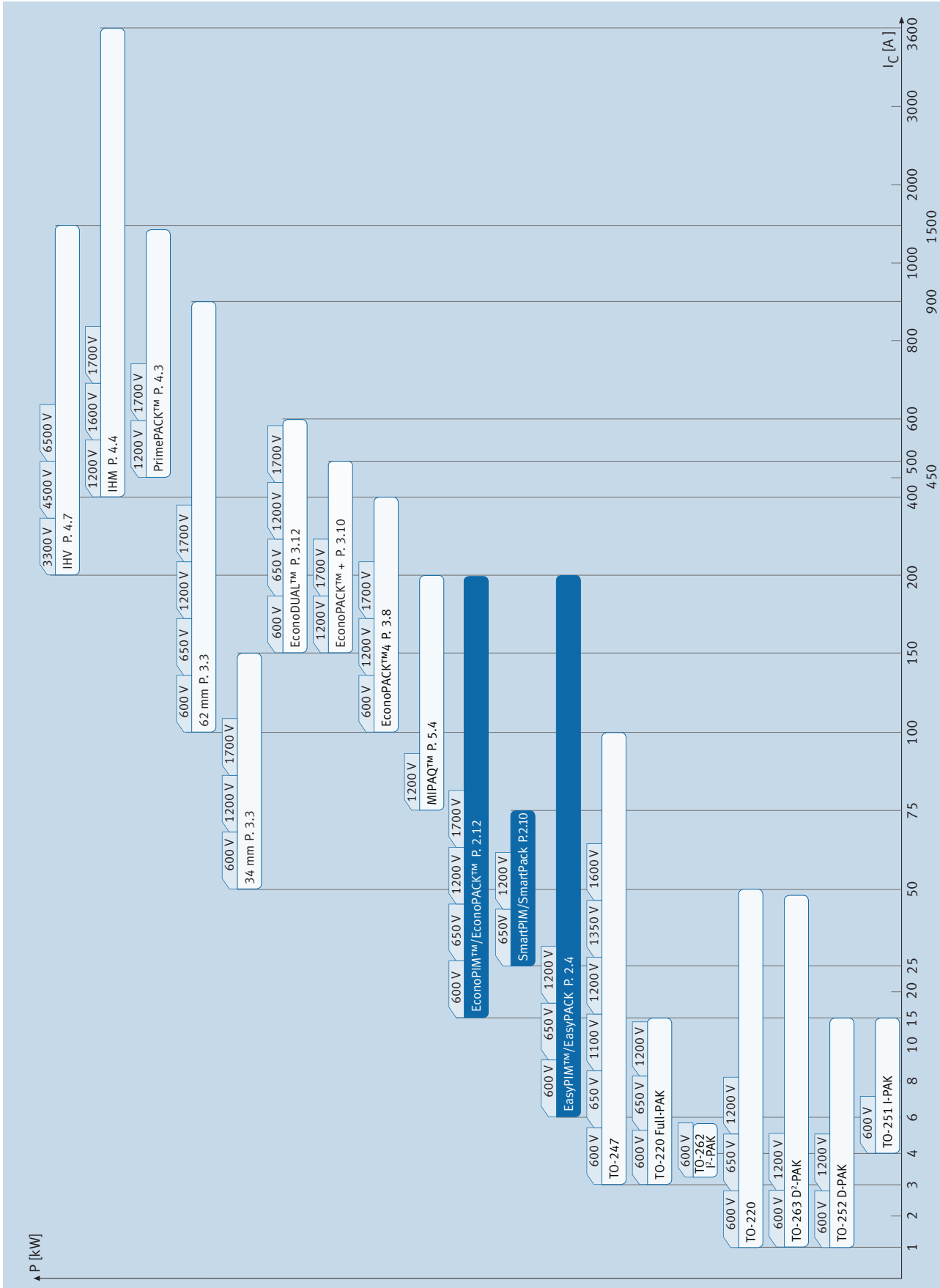
The new Easy 3-Level modules provide a complete phase leg from 30A up to 150A in 600V/650V. The solution offers the significant advantage for designing highly efficient UPS and Solar inverters. New modules for photovoltaic string and multi-string inverters are available.

In the Smart 1 package the possible current range is up to 75A in PACK and 35A in PIM configurations at 650V and 1200V. With its Self-Acting PressFIT assembly and the benefits of the PressFIT technology a new generation of cost saving modules is born.

The Econo family extends the range from 15A up to 200A at 600V/650V/1200V/1700V. The available configurations are the well known EconoPIM™ and EconoPACK™ series. The Econo housing comes with a copper base plate for optimized heat spread and includes a thermistor (NTC).

All module families are also available with the optimized newest IGBT4 technology.

IGBT
Low Power



Easy 1B & 2B Product Portfolio

600 V & 1200 V



I _C	Power Integrated Module		sixpack	
	600 V	1200 V	600 V	1200 V
10 A	FP10R06W1E3 FP10R06W1E3_B11	FP10R12W1T4 FP10R12W1T4_B11		
15 A	FP15R06W1E3 FP15R06W1E3_B11	FP15R12W1T4 FP15R12W1T4_B11 FP15R12W2T4		
20 A	FP20R06W1E3 FP20R06W1E3_B11	FP25R12W2T4 FP25R12W2T4_B11	FS20R06W1E3 FS20R06W1E3_B11	FS25R12W1T4 FS25R12W1T4_B11
35 A	FP30R06W1E3 FP30R06W1E3_B11	FP35R12W2T4 FP35R12W2T4_B11	FS30R06W1E3 FS30R06W1E3_B11	FS35R12W1T4 FS35R12W1T4_B11
50 A	FP50R06W2E3 FP50R06W2E3_B11		FS50R06W1E3 FS50R06W1E3_B11	FS50R12W2T4 FS50R12W2T4_B11
75 A				FS75R12W2T4 FS75R12W2T4_B11
100 A				

W1 = Easy1B **W2 = Easy2B** B11= PressFIT terminals

IGBT
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Econo IGBT4 Product Portfolio for New Designs

650 V, 1200 V & 1700 V



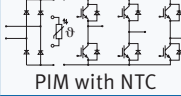
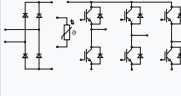
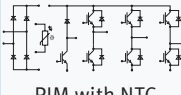
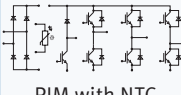
I _C	Power Integrated Module		sixpack		
	650 V	1200 V	650 V	1200 V	1700 V
25 A		FP25R12KT4 FP25R12KT4_B11			
35 A		FP35R12KT4 FP35R12KT4_B11			
50 A	FP50R07N2E4 FP50R07N2E4_B11	FP50R12KT4 FP50R12KT4_B11	FS50R07N2E4 FS50R07N2E4_B11	FS50R12KT4_B15 FS50R12KT4_B11	
75 A	FP75R07N2E4 FP75R07N2E4_B11	FP75R12KT4 FP75R12KT4_B11	FS75R07N2E4 FS75R07N2E4_B11	FS75R12KT4_B15 FS75R12KT4_B11	
100 A	FP100R07N3E4 FP100R07N3E4_B11	FP100R12KT4 FP100R12KT4_B11	FS100R07N2E4 FS100R07N2E4_B11 FS100R07N3E4 FS100R07N3E4_B11	FS100R12KT4 FS100R12KT4_B11 FS100R12KT4G FS100R12KT4G_B11	FS100R17N3E4 FS100R17N3E4_B11
150 A	FP150R07N3E4 FP150R07N3E4_B11		FS150R07N3E4 FS150R07N3E4_B11	FS150R12KT4 FS150R12KT4_B11	FS150R17N3E4 FS150R17N3E4_B11
200 A			FS200R07N3E4R FS200R07N3E4R_B11	FS200R12KT4R FS200R12KT4R_B11	

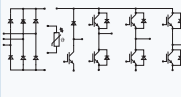
N2 = Econo2 **N3 = Econo3** B11= PressFIT terminals ..._B15 m3 module alternative mechanically compatible to an IGBT3 module

IGBT Low Power Modules

EasyPIM™ Power Integrated Modules

IGBT Low Power

Single Phase 600 V _{CEs}															
Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C	V _{RRM} V	I _d A	R _{thjC} K/W	V _{CE} V	IC* A T _C = 80°C	R _{thjC} K/W max.		
 PIM with NTC	IGBT3														
	FB10R06VE3	600	10	16	1,55	4,10	3,10	0,67	800	10	2,10			L_750a/2.17	
 PIM with NTC	IGBT3														
	FB10R06W1E3	600	10	16	1,55	3,35	2,20	0,50	800	10	1,35			L_B1c/2.20	
	FB15R06W1E3	600	15	22	1,55	2,95	1,85	0,76	800	15	1,05			L_B1c/2.20	
	FB20R06W1E3	600	20	27	1,55	2,70	1,60	1,00	800	20	1,05			L_B1c/2.20	
 PIM with NTC	IGBT3														
	FB30R06W1E3	600	30	37	1,55	2,25	1,30	1,60	800	30	1,05			L_B1c/2.20	
 PIM with NTC	IGBT3														
	FB20R06W1E3_B11	600	20	27	1,55	2,70	1,60	1,00	800	20	1,05	600	20	1,60	L_B1k/2.20
	FB30R06W1E3_B1	600	30	37	1,55	2,25	1,30	1,60	800	30	1,05	600	30	1,30	L_B1d/2.20

Three Phase 600 V _{CEs}															
Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C	V _{RRM} V	I _d A	R _{thjC} K/W	V _{CE} V	IC* A T _C = 80°C	R _{thjC} K/W max.		
 PIM with NTC	IGBT3														
	FP10R06W1E3	600	10	16	1,55	3,35	2,20	0,50	1600	10	1,35	600	10	2,20	L_B1a/2.19
	FP15R06W1E3	600	15	22	1,55	2,95	1,85	0,76	1600	15	1,35	600	15	1,85	L_B1a/2.19
	FP20R06W1E3	600	20	27	1,55	2,70	1,60	1,00	1600	20	1,35	600	20	1,60	L_B1a/2.19
	FP30R06W1E3	600	30	37	1,55	2,25	1,30	1,40	1600	30	1,35	600	30	1,30	L_B1a/2.19
	FP50R06W2E3	600	50	65	1,45	1,45	0,85	2,25	1600	50	1,15	600	50	1,15	L_B2a/2.23
	FP10R06W1E3_B11	600	10	16	1,55	3,35	2,20	0,50	1600	10	1,35	600	10	2,20	L_B1h/2.19
	FP15R06W1E3_B11	600	15	22	1,55	2,95	1,85	0,76	1600	15	1,35	600	15	1,85	L_B1h/2.19
	FP20R06W1E3_B11	600	20	27	1,55	2,70	1,60	1,00	1600	20	1,35	600	20	1,60	L_B1h/2.19
	FP30R06W1E3_B11	600	30	37	1,55	2,25	1,30	1,40	1600	30	1,35	600	30	1,30	L_B1h/2.19
	FP50R06W2E3_B11	600	50	65	1,45	1,45	0,85	2,25	1600	50	1,15	600	50	1,15	L_B2b/2.23

* as specified in data sheet

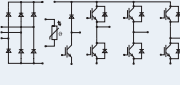
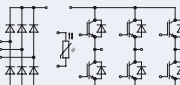
Mounting Hardware see page 2.37

..._B11 PressFIT Modules

..._B1 1-phase rectifier with brake chopper

IGBT Low Power Modules

EasyPIM™ Power Integrated Modules

Three Phase 1200 V _{CES}															
Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	E _{on+} E _{off} , mj T _{vj} = 125°C	V _{RRM} V	I _d A	R _{thjC} K/W	V _{CE} V	I _C * A T _C = 80°C	R _{thjC} K/W max.		
 PIM with NTC	IGBT4														
	FP10R12W1T4	1200	10	20	1,85	2,40	1,40	2,15	1600	10	1,35	1200	10	1,40	L_B1a/2.19
	FP15R12W1T4	1200	15	28	1,85	2,10	1,15	2,95	1600	15	1,35	1200	15	1,15	L_B1a/2.19
	FP15R12W2T4	1200	15	data on request											
	FP25R12W2T4	1200	25	39	1,85	1,45	0,85	4,55	1600	25	1,15	1200	25	0,85	L_B2a/2.23
	FP35R12W2T4	1200	35	54	1,85	1,20	0,70	5,80	1600	35	1,15	1200	35	0,70	L_B2a/2.23
	FP10R12W1T4_B11	1200	10	20	1,85	2,40	1,40	2,15	1600	10	1,35	1200	10	1,40	L_B1h/2.19
	FP15R12W1T4_B11	1200	15	28	1,85	2,10	1,15	2,95	1600	15	1,35	1200	15	1,15	L_B1h/2.19
	FP25R12W2T4_B11	1200	25	39	1,85	1,45	0,85	4,55	1600	25	1,15	1200	25	0,85	L_B2b/2.23
FP35R12W2T4_B11	1200	35	54	1,85	1,20	0,70	5,80	1600	35	1,15	1200	35	0,70	L_B2b/2.23	
 PIM with NTC	IGBT4														
	FP06R12W1T4_B3	1200	6	12	1,50	2,70	1,60	1,35	1600	6	1,60				L_B1b/2.19
	FP10R12W1T4_B3	1200	10	20	1,85	2,40	1,40	2,15	1600	10	1,35				L_B1b/2.19
	FP15R12W1T4_B3	1200	15	28	1,85	2,10	1,15	2,95	1600	15	1,35				L_B1b/2.19

* as specified in data sheet


..._B3 3-phase rectifier without brake chopper


..._B11 PressFIT Modules

IGBT
Low Power

IGBT Low Power Modules

EasyDUAL


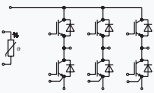
600 V _{CEs}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C		
 dual with NTC	IGBT3								
	FF200R06YE3	600	200	220	1,45	0,43	0,29	9,70	L_2j/2.18


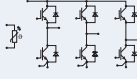
1200 V _{CEs}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C		
 dual with NTC	IGBT3								
	FF75R12YT3	1200	75	100	1,80	0,53	0,36	15,70	L_2j/2.18
	FF100R12YT3	1200	100	140	1,70	0,41	0,28	21,70	L_2j/2.18
	FF150R12YT3	1200	150	200	1,70	0,31	0,20	32,00	L_2j/2.18

IGBT Low Power Modules

EasyPACK

IGBT
Low Power

600 V _{CES}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C		
 sixpack	IGBT3								
	FS10R06VE3	600	10	16	1,55	3,70	3,00	0,50	L_750b/2.17
	FS15R06VE3	600	15	22	1,55	3,00	2,30	0,76	L_750b/2.17
	FS20R06VE3	600	20	25	1,55	2,75	2,00	1,00	L_750b/2.17
 sixpack with NTC	IGBT3								
	FS6R06VE3_B2	600	6	11	1,55	4,60	3,70	0,25	L_750c/2.17
	FS10R06VE3_B2	600	10	16	1,55	3,70	3,00	0,50	L_750c/2.17
	FS15R06VE3_B2	600	15	22	1,55	3,00	2,30	0,76	L_750c/2.17
	FS20R06VE3_B2	600	20	25	1,55	2,75	2,00	1,00	L_750c/2.17
	FS20R06W1E3	600	20	35	1,55	1,90	1,10	1,05	L_B1e/2.21
	FS30R06W1E3	600	30	45	1,55	1,75	1,00	1,58	L_B1e/2.21
	FS50R06W1E3	600	50	70	1,45	1,46	0,73	2,06	L_B1e/2.21
	FS20R06W1E3_B11	600	20	35	1,55	1,90	1,10	1,05	L_B1j/2.21
	FS30R06W1E3_B11	600	30	45	1,55	1,75	1,00	1,58	L_B1j/2.21
	FS50R06W1E3_B11	600	50	70	1,45	1,46	0,73	2,06	L_B1j/2.21

1200 V _{CES}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C		
 sixpack	IGBT3								
	FS10R12VT3	1200	10	16	1,90	2,40	1,95	2,35	L_750f/2.17
	FS15R12VT3	1200	15	24	1,70	1,90	1,45	3,40	L_750f/2.17
 sixpack with NTC	IGBT4								
	FS25R12W1T4	1200	25	45	1,85	1,46	0,74	4,65	L_B1e/2.21
	FS35R12W1T4	1200	35	65	1,85	1,35	0,66	6,65	L_B1e/2.20
	FS50R12W2T4	1200	50	83	1,85	1,05	0,45	9,20	L_B2c/2.23
	FS75R12W2T4	1200	75	107	1,85	0,95	0,40	13,3	L_B2c/2.23
	FS25R12W1T4_B11	1200	25	45	1,85	1,46	0,74	4,65	L_B1j/2.21
	FS35R12W1T4_B11	1200	35	65	1,85	1,35	0,66	6,65	L_B1j/2.21
	FS50R12W2T4_B11	1200	50	83	1,85	1,05	0,45	9,20	L_B2d/2.23
FS75R12W2T4_B11	1200	75	107	1,85	0,95	0,40	13,3	L_B2d/2.23	

* as specified in data sheet

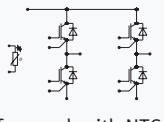
Mounting Hardware see page 2.37 ..._B2 sixpack with NTC

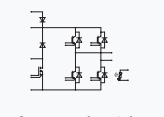


..._B11 PressFIT Modules

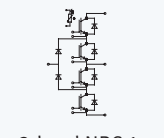
IGBT Low Power Modules

EASY Solar/UPS-High Efficiency Line

IGBT Low Power

600 V _{CEs}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
 fourpack with NTC	IGBT3								
	F4-30R06W1E3	600	30	48	1,55	1,55	0,90	1,58	L_B1f/2.21
	F4-50R06W1E3	600	50	75	1,45	1,30	0,66	2,06	L_B1f/2.21
	F4-75R06W1E3	600	75	100	1,45	1,10	0,55	2,65	L_B1f/2.21


650 V _{CEs}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
 fourpack with booster and NTC	IGBT HighSpeed 3								
	F4-50R07W2H3_B51 	650	50		data on request				L_B2i/2.26
	F4-75R07W2H3_B51 	650	75		data on request				L_B2i/2.26

600/650 V _{CEs}									
Type	IGBT Inverter								Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
 3-level NPC 1	IGBT3								
	F3L30R06W1E3_B11	600	30	45	1,55	1,75	1,0	1,23	L_B1i/2.22
	F3L50R06W1E3_B11	600	50	75	1,45	1,45	0,85	1,85	L_B1i/2.22
	F3L75R07W2E3_B11	650	75	95	1,45	1,10	0,60	2,90	L_B2e/2.24
	F3L100R07W2E3_B11	650	100	117	1,45	0,95	0,50	4,20	L_B2f/2.24
	F3L150R07W2E3_B11	650	150	150	1,45	0,85	0,45	6,85	L_B2f/2.24

* as specified in data sheet

..._B51 fourpack with booster and NTC

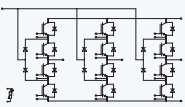


..._B11 PressFIT Modules

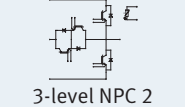

 Based on Infineon Silicon-Carbide technology for higher performance and efficiency

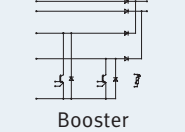


IGBT Low Power Modules

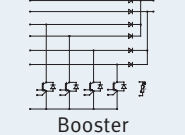

EASY Solar/UPS-High Efficiency Line

IGBT Low Power

650 V _{CES}								
Type	IGBT Inverter							Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C	
	IGBT HighSpeed 3							
	FS3L30R07W2H3F_B11 	650	30	data on request				L_B2k/2.27
	FS3L50R07W2H3F_B11 	650	50	data on request				L_B2k/2.27


1200 V _{CES}									
Type	IGBT Inverter							Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
	IGBT HighSpeed 3								
	F3L80R12W1H3_B11 	1200	80	90	1,55	0,95	0,55	2,53	L_B1j/2.21

1200 V _{CES}									
Type	IGBT Inverter							Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
	IGBT HighSpeed 3								
	DF75R12W1H4F_B11 	1200	data on request						
	DF80R12W2H3_B11	1200	20	50	1,55	1,1	0,65	2,75	L_B2g/2.25
	DF80R12W2H3F_B11 	1200	20	50	1,55	1,1	0,65	2,75	L_B2g/2.25

1200 V _{CES}									
Type	IGBT Inverter							Outline/ page	
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mj T _{vj} = 125°C		
	IGBT HighSpeed 3								
	DF160R12W2H3_B11	1200	20	50	1,55	1,1	0,65	1,52	L_B2h/2.25
	DF160R12W2H3F_B11 	1200	20	50	1,55	1,1	0,65	1,52	L_B2h/2.25


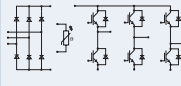
* as specified in data sheet


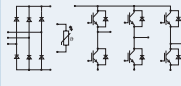
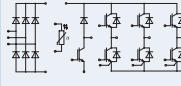
..._B11 PressFIT Modules

 Based on Infineon Silicon-Carbide technology for higher performance and efficiency

IGBT Low Power Modules

SmartPIM Power Integrated Modules


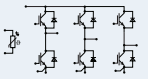
Three Phase 650 V _{CEs}														
Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C	V _{RRM} V	I _d A	R _{thjC} K/W	V _{CE} V	I _C * A T _C = 80°C	R _{thjC} K/W max.	
 IGBT4 ◆ FP30R07U1E4 ◆ FP50R07U1E4 PIM with NTC	650	30	50	1,60	1,75	0,95	2,10	1600	30	0,65	1,60	30	0,95	L_S1a/2.28
	650	50	75	1,55	1,20	0,65	3,35	1600	50	0,65	1,55	50	0,65	L_S1a/2.28


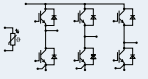
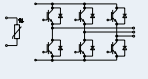
Three Phase 1200 V _{CEs}														
Type	IGBT Inverter							Rectifier Diodes			Brake Chopper			Outline/ page
	V _{CE} V	I _C * A T _C = 80°C	I _C A T _C = 25°C	V _{CEsat} V T _{vj} = 25°C	R _{thjH} K/W typ.	R _{thjC} K/W max.	Eon+ Eoff, mJ T _{vj} = 125°C	V _{RRM} V	I _d A	R _{thjC} K/W	V _{CE} V	I _C * A T _C = 80°C	R _{thjC} K/W max.	
 IGBT4 ◆ FP25R12U1T4 ◆ FP35R12U1T4 PIM with NTC	1200	25	39	1,85	1,30	0,80	4,55	1600	25	1,05	1200	25	0,80	L_S1a/2.28
	1200	35	54	1,85	1,05	0,60	5,80	1600	35	1,05	1200	35	0,60	L_S1a/2.28
 IGBT4 ◆ FP35R12U2T4 ◆ FP50R12U2T4 PIM with NTC	1200	data on request												
	1200	data on request												

◆ New type * as specified in data sheet

IGBT Low Power Modules

SmartPACK Modules

650 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS50R07U1E4	650	50	1,55	230	0,65	L_S1c/2.30
	◆ FS75R07U1E4	650	75	1,55	275	0,55v	L_S1c/2.30

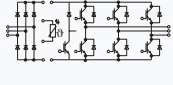
1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS35R12U1T4	1200	35	data on request			L_S1b/2.29
	◆ FS50R12U1T4	1200	50	data on request			L_S1b/2.29
 sixpack with NTC	IGBT4						
	◆ FS75R12U2T4	1200	75	data on request			

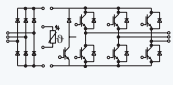
◆ New type * as specified in data sheet

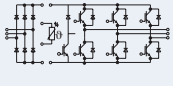
IGBT Low Power Modules

EconoPIM™

IGBT
Low Power

Three Phase 600 V _{CEs}													
Type	IGBT Inverter					Rectifier Diodes				Brake Chopper			Outline/ page
	V _{CE} V	I _C A	R _{thjC} K/W max	V _{CEsat} V T _{vj} = 25°C	V _{RRM} V	I _d A T _c = 80°C	R _{thjC} K/W max	V _f V T _{vj} = 150°C	V _{CEs} V	I _{C,IGBT} A T _c = 80°C	R _{thjC} K/W max		
 PIM with NTC	IGBT3												
	FP30R06KE3	600	30	1,20	1,55	1600	60	0,85	0,90	600	30,0	1,20	M_E2a/2.31
	FP50R06KE3	600	50	0,80	1,45	1600	70	0,85	1,05	600	30,0	1,20	M_E2a/2.31
	FP50R06KE3G	600	50	0,80	1,45	1600	80	0,65	1,00	600	50,0	0,80	M_E3a/2.33
	FP75R06KE3	600	75	0,60	1,45	1600	100	0,50	1,05	600	50,0	0,80	M_E3a/2.33
FP100R06KE3	600	100	0,45	1,45	1600	100	0,50	1,10	600	50,0	0,80	M_E3a/2.33	

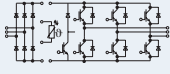
Three Phase 650 V _{CEs}														
Type	IGBT Inverter					Rectifier Diodes				Brake Chopper			Outline/ page	
	V _{CE} V	I _C A	R _{thjC} K/W max	V _{CEsat} V T _{vj} = 25°C	V _{RRM} V	I _d A T _c = 80°C	R _{thjC} K/W max	V _f V T _{vj} = 150°C	V _{CEs} V	I _{C,IGBT} A T _c = 80°C	R _{thjC} K/W max			
 PIM with NTC	IGBT4													
	FP50R07N2E4	650	50	0,80	1,55	1600	80	0,65	1,00	650	50,0	0,80	M_E2o/2.33	
	FP75R07N2E4	650	75	0,60	1,55	1600	80	0,65	1,00	650	50,0	0,80	M_E2o/2.33	
	FP100R07N3E4	650	100	0,45	1,55	1600	100	0,50	1,10	650	75,0	0,60	M_E3g/2.35	
	FP150R07N3E4	650	150	0,35	1,55	1600	150	0,40	1,10	650	100,0	0,45	M_E3g/2.35	
	IGBT4 PressFIT													
	FP50R07N2E4_B11	650	50	0,80	1,55	1600	80	0,65	1,00	650	50,0	0,80	M_E2n/2.33	
	FP75R07N2E4_B11	650	75	0,60	1,55	1600	80	0,65	1,00	650	50,0	0,80	M_E2n/2.33	
	FP100R07N3E4_B11	650	100	0,45	1,55	1600	100	0,50	1,10	650	75,0	0,60	M_E3h/2.35	
FP150R07N3E4_B11	650	150	0,35	1,55	1600	150	0,40	1,10	650	100,0	0,45	M_E3h/2.35		

Three Phase 1200 V _{CEs}														
Type	IGBT Inverter					Rectifier Diodes				Brake Chopper			Outline/ page	
	V _{CE} V	I _C A	R _{thjC} K/W max	V _{CEsat} V T _{vj} = 25°C	V _{RRM} V	I _d A T _c = 80°C	R _{thjC} K/W max	V _f V T _{vj} = 150°C	V _{CEs} V	I _{C,IGBT} A T _c = 80°C	R _{thjC} K/W max			
 PIM with NTC	IGBT2 Fast													
	FP15R12KS4C	1200	15	0,70	3,20	1600	40	1,00	0,95	1200	10,0	1,20	M_E2a/2.31	
	FP25R12KS4C	1200	25	0,55	3,20	1600	40	1,00	1,05	1200	12,5	1,20	M_E2a/2.31	
	FP50R12KS4C	1200	50	0,35	3,20	1600	40	0,65	1,05	1200	25,0	0,55	M_E3a/2.33	
	IGBT3													
	FP15R12KE3G	1200	15	1,20	1,70	1600	50	1,00	0,95	1200	10,0	1,50	M_E2a/2.31	
	FP25R12KE3	1200	25	0,80	1,70	1600	50	1,00	1,05	1200	15,0	1,20	M_E2a/2.31	
	FP40R12KE3	1200	40	0,60	1,80	1600	50	1,00	1,20	1200	15,0	1,20	M_E2a/2.31	
	FP40R12KE3G	1200	40	0,60	1,80	1600	50	1,00	1,20	1200	40,0	0,60	M_E3a/2.33	
	FP50R12KE3	1200	50	0,45	1,70	1600	80	0,65	1,00	1200	40,0	0,60	M_E3a/2.33	
FP75R12KE3	1200	75	0,35	1,70	1600	80	0,65	1,15	1200	40,0	0,60	M_E3a/2.33		

..._B11 PressFIT Modules

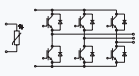
IGBT Low Power Modules

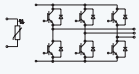
EconoPIM™

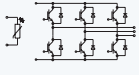
Three Phase 1200 V _{CES}													
Type	IGBT Inverter				Rectifier Diodes				Brake Chopper			Outline/ page	
	V _{CE} V	I _C A	R _{thjC} K/W max	V _{CESat} V T _{vj} = 25°C	V _{RRM} V	I _d A T _c = 80°C	R _{thjC} K/W max	V _f V T _{vj} = 150°C	V _{CES} V	I _{C,IGBT} A T _c = 80°C	R _{thjC} K/W max		
	IGBT3 Fast												
	FP15R12KT3	1200	15	1,20	1,70	1600	50	1,00	0,90	1200	10	1,50	M_E2a/2.31
	FP25R12KT3	1200	25	0,80	1,70	1600	50	1,00	1,05	1200	15	1,20	M_E2a/2.31
	FP40R12KT3	1200	40	0,60	1,80	1600	50	1,00	1,20	1200	15	1,20	M_E2a/2.31
	FP40R12KT3G	1200	40	0,60	1,80	1600	50	1,00	1,20	1200	40	0,60	M_E3a/2.33
	FP50R12KT3	1200	50	0,45	1,70	1600	80	0,65	1,00	1200	40	0,60	M_E3a/2.33
	FP75R12KT3	1200	75	0,35	1,70	1600	80	0,65	1,10	1200	40	0,60	M_E3a/2.33
	IGBT4												
	FP25R12KT4	1200	25	0,95	1,85	1600	80	0,85	0,90	1200	15	1,40	M_E2m/2.32
	FP25R12KT4_B15	1200	25	0,95	1,85	1600	50	0,85	0,90	1200	15	1,40	M_E2a/2.31
	FP35R12KT4	1200	35	0,72	1,85	1600	80	0,85	0,95	1200	25	0,95	M_E2m/2.32
	FP35R12KT4_B15	1200	35	0,72	1,85	1600	80	0,85	0,95	1200	25	1,40	M_E2a/2.31
	FP50R12KT4	1200	50	0,54	1,85	1600	80	0,85	1,05	1200	25	0,95	M_E2m/2.32
	FP50R12KT4G_B15	1200	50	0,54	1,85	1600	80	0,65	1,15	1200	25	1,40	M_E3a/2.33
	FP50R12KT4G	1200	50	0,54	1,85	1600	80	0,85	1,15	1200	25	0,95	M_E3j/2.34
	FP75R12KT4	1200	75	0,39	1,85	1600	140	0,65	1,15	1200	50	0,54	M_E3j/2.34
	FP75R12KT4_B15	1200	75	0,39	1,85	1600	140	0,65	1,15	1200	35	0,72	M_E3a/2.33
	FP100R12KT4	1200	100	0,29	1,75	1600	150	0,40	1,00	1200	50	0,54	M_E3j/2.34
	IGBT4 PressFIT												
	◆ FP25R12KT4_B11	1200	25	0,95	1,85	1600	80	0,85	0,90	1200	15	1,40	M_E2h/2.31
FP35R12KT4_B11	1200	35	0,72	1,85	1600	80	0,85	0,95	1200	25	0,95	M_E2h/2.31	
FP50R12KT4_B11	1200	50	0,54	1,85	1600	80	0,85	1,05	1200	25	0,95	M_E2h/2.31	
FP75R12KT4_B11	1200	75	0,39	1,85	1600	140	0,65	1,15	1200	50	0,54	M_E3f/2.34	
FP100R12KT4_B11	1200	100	0,29	1,75	1600	150	0,40	1,00	1200	50	0,54	M_E3f/2.34	

◆ New type ..._B11 PressFIT Modules ..._B15 module alternative mechanically compatible to an IGBT3 module

IGBT Low Power Modules EconoPACK™

600 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT3						
	FS50R06KE3	600	50	1,45	190	0,80	M_E2b/2.31
	FS75R06KE3	600	75	1,45	250	0,60	M_E2b/2.31
	FS100R06KE3	600	100	1,45	335	0,45	M_E3b/2.34
	FS150R06KE3	600	150	1,45	430	0,35	M_E3b/2.34
	FS200R06KE3	600	200	1,45	600	0,25	M_E3b/2.34

650 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	FS50R07N2E4	650	50	1,55	190	0,80	M_E2b/2.31
	FS75R07N2E4	650	75	1,55	250	0,60	M_E2b/2.31
	FS100R07N2E4	650	100	1,55	335	0,45	M_E2b/2.31
	FS100R07N3E4	650	100	1,55	335	0,45	M_E3b/2.34
	FS150R07N3E4	650	150	1,55	430	0,35	M_E3b/2.34
	FS200R07N3E4 R	650	200	1,55	600	0,25	M_E3b/2.34


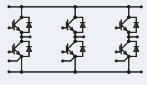
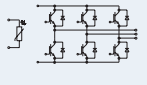
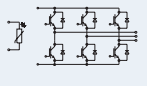
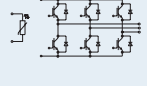
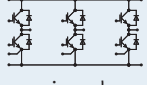
650 V _{CES} PressFIT							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	FS50R07N2E4_B11	650	50	1,55	190	0,80	M_E2p/2.33
	FS75R07N2E4_B11	650	75	1,55	250	0,60	M_E2p/2.33
	FS100R07N2E4_B11	650	100	1,55	335	0,45	M_E2p/2.33
	FS100R07N3E4_B11	650	100	1,55	335	0,45	M_E3e/2.34
	FS150R07N3E4_B11	650	150	1,55	430	0,35	M_E3e/2.34
	FS200R07N3E4R_B11 ^{*)}	650	200	1,55	600	0,25	M_E3e/2.34

..._B11 PressFIT Modules

^{*)} continious operation power limited to 150A rms.

IGBT Low Power Modules

EconoPACK™

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack	IGBT2 Fast						
	FS75R12KS4	1200	75	3,20	500	0,25 M_E3c/2.35	
	FS100R12KS4	1200	100	3,20	660	0,19 M_E3c/2.35	
 sixpack with NTC	IGBT3						
	FS25R12KE3G	1200	25	1,70	145	0,86 M_E2b/2.31	
	FS35R12KE3G	1200	35	1,70	200	0,60 M_E2b/2.31	
	FS50R12KE3	1200	50	1,70	270	0,45 M_E2b/2.31	
	FS75R12KE3	1200	75	1,70	350	0,35 M_E2b/2.31	
	FS75R12KE3G	1200	75	1,70	350	0,35 M_E3b/2.34	
	FS100R12KE3	1200	100	1,70	480	0,26 M_E3b/2.34	
	FS150R12KE3	1200	150	1,70	700	0,18 M_E3b/2.34	
 sixpack with NTC	IGBT3 Fast						
	FS25R12KT3	1200	25	1,70	145	0,86 M_E2b/2.31	
	FS35R12KT3	1200	35	1,70	210	0,60 M_E2b/2.31	
	FS50R12KT3	1200	50	1,70	280	0,45 M_E2b/2.31	
	FS75R12KT3	1200	75	1,70	355	0,35 M_E2b/2.31	
	FS75R12KT3G	1200	75	1,70	355	0,35 M_E3b/2.34	
	FS100R12KT3	1200	100	1,70	480	0,26 M_E3b/2.34	
	FS150R12KT3	1200	150	1,70	700	0,18 M_E3b/2.34	
	IGBT4						
	FS50R12KT4_B15	1200	50	1,85	280	0,54 M_E2b/2.31	
	FS75R12KT4_B15	1200	75	1,85	385	0,39 M_E2b/2.31	
	FS100R12KT4G	1200	100	1,75	515	0,29 M_E3b/2.34	
	FS150R12KT4	1200	150	1,75	750	0,20 M_E3b/2.34	
	FS200R12KT4R ^{*)}	1200	200	1,75	1000	0,15 M_E3b/2.34	
	 sixpack with NTC	IGBT4 PressFIT					
FS50R12KT4_B11		1200	50	1,85	280	0,54 M_E2k/2.32	
FS75R12KT4_B11		1200	75	1,85	385	0,39 M_E2k/2.32	
FS100R12KT4G_B11		1200	100	1,75	515	0,29 M_E3e/2.34	
FS150R12KT4_B11		1200	150	1,75	750	0,20 M_E3e/2.34	
FS200R12KT4R_B11 ^{*)}		1200	200	1,75	1000	0,15 M_E3e/2.34	
 sixpack	IGBT4						
	FS100R12KT4	1200	100	1,75	515	0,29 M_E2i/2.32	
	IGBT4 PressFIT						
	FS100R12KT4_B11	1200	100	1,75	515	0,29 M_E2j/2.32	

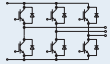
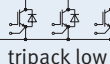

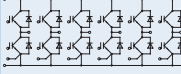
..._B11 PressFIT Modules ..._B15 module alternative mechanically compatible to an IGBT3 module

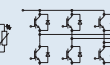

^{*)} continuous operation power limited to 150A rms.

IGBT Low Power Modules

EconoPACK™

IGBT
Low Power

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack for active front-end applications	IGBT3 FS75R12KE3_B9	1200	75	1,7	355	0,35	M_E2l/2.32
	IGBT4 FS150R12KT4_B9	1200	150	1,75	750	0,20	M_E3l/2.35
 tripack low	FT150R12KE4_B5**)	1200	150	data on request			M_E2f/2.31
 fourpack with NTC	IGBT2 Fast F4-50R12KS4	1200	50	3,2	355	0,35	M_E2e/2.31
	F4-75R12KS4	1200	75	3,2	500	0,25	M_E2e/2.31
	F4-100R12KS4	1200	100	3,2	660	0,19	M_E3d/2.34
	F4-150R12KS4	1200	150	3,2	690	0,19	M_E3d/2.34
	IGBT2 Fast PressFIT F4-50R12KS4_B11	1200	50	3,2	355	0,35	M_E2c/2.32
	F4-75R12KS4_B11	1200	75	3,2	500	0,25	M_E2c/2.32
 12-pack	IGBT4 F12-25R12KT4G	1200	25	1,85	160	0,95	M_E3i/2.34
	F12-35R12KT4G	1200	35	1,85	210	0,72	M_E3i/2.34

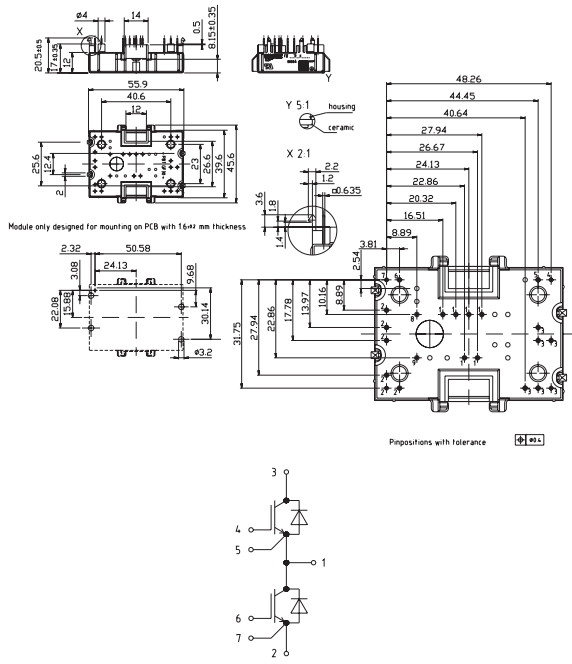
1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT2 fast FS100R17KS4F 	1700	100	4,15	960	0,130	M_E3p/2.35
	IGBT3 FS50R17KE3_B17	1700	50	2,00	345	0,360	M_E2g/2.31
	FS75R17KE3	1700	75	2,00	465	0,270	M_E3b/2.34
	FS100R17KE3	1700	100	2,00	555	0,225	M_E3b/2.34
	IGBT4 FS100R17N3E4	1700	100	1,95	600	0,25	M_E3b/2.34
	FS150R17N3E4	1700	150	1,95	835	0,18	M_E3b/2.34
	IGBT4 PressFIT FS100R17N3E4_B11	1700	100	1,95	600	0,25	M_E3b/2.34
	FS150R17N3E4_B11	1700	150	1,95	835	0,18	M_E3b/2.34

** High side to be found in MIPAQ™ base configuration

..._B5 low side module ..._B9 module for active front-end applications

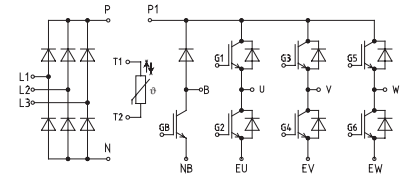
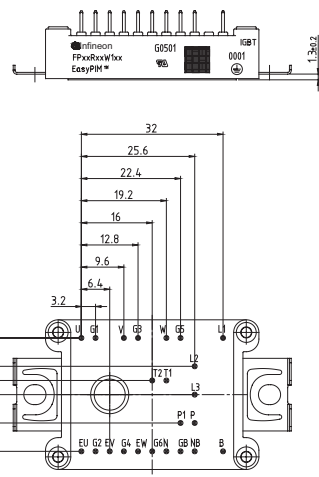
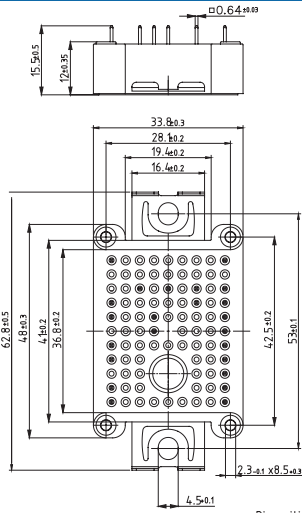
..._B11 PressFIT Modules ..._B17 Module with special pinning for increased creepage distance

 Based on Infineon Silicon-Carbide technology for higher performance and efficiency



EasyPIM™ 1B

L_B1a

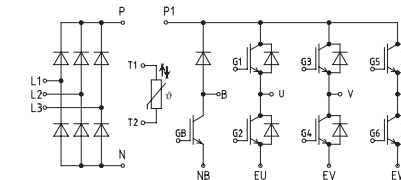
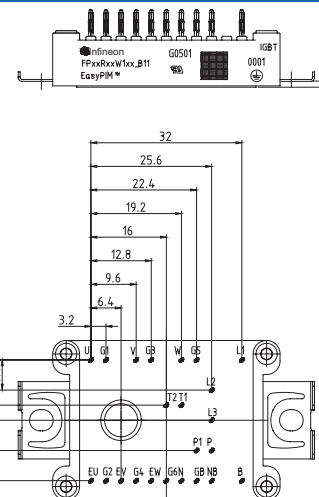
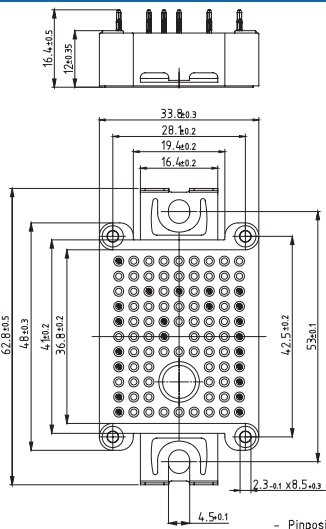


Pinpositions with tolerance ± 0.4

IGBT
Low Power

EasyPIM™ 1B

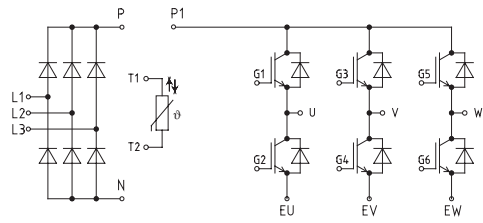
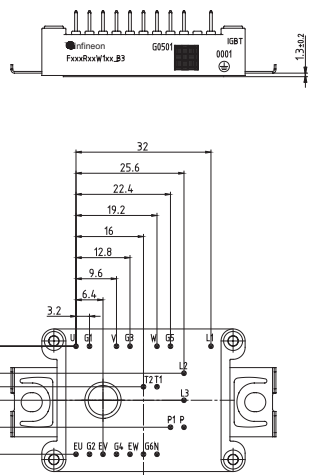
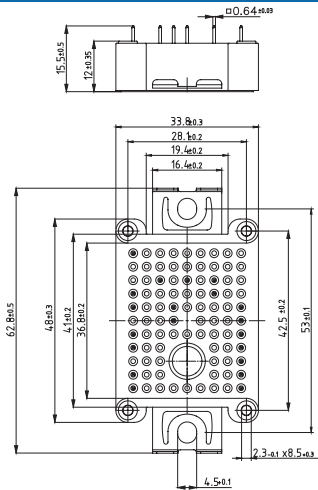
L_B1h



- Pinpositions typ ± 0.4

EasyPIM™ 1B

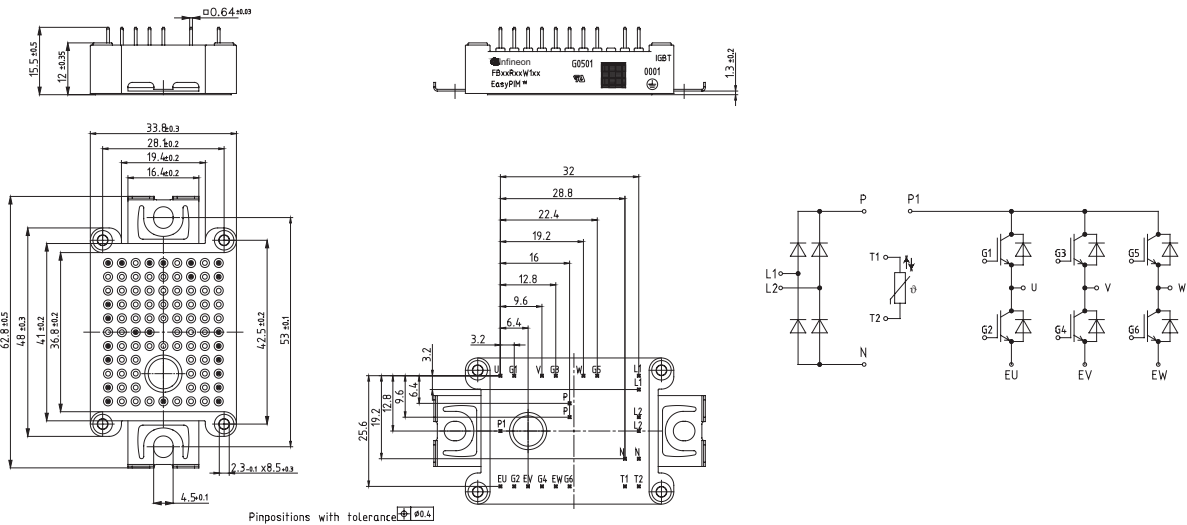
L_B1b



Pinpositions with tolerance ± 0.4

EasyPIM™ 1B

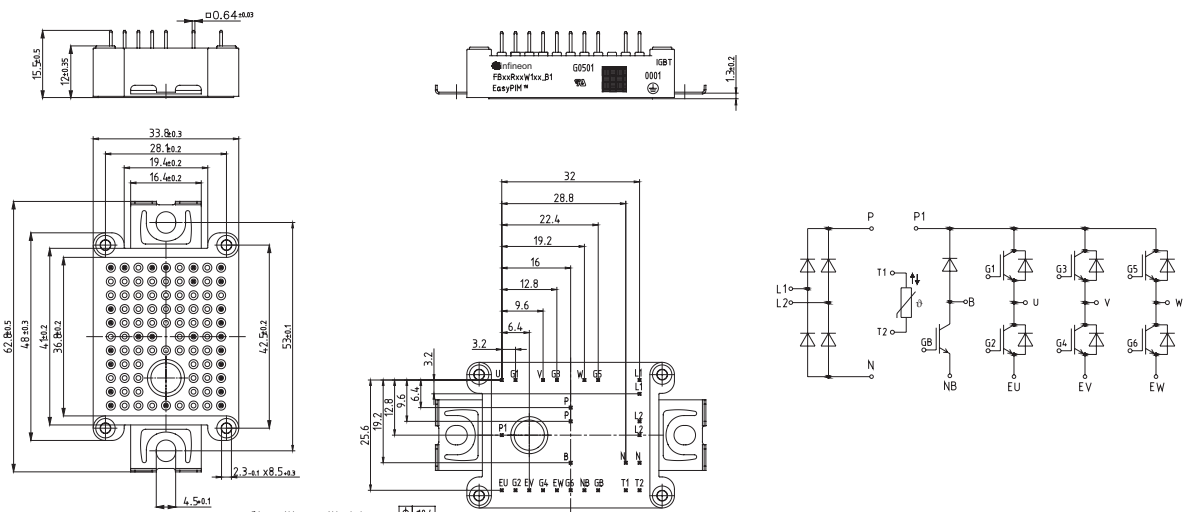
L_B1c



Pinpositions with tolerance ± 0.4

EasyPIM™ 1B

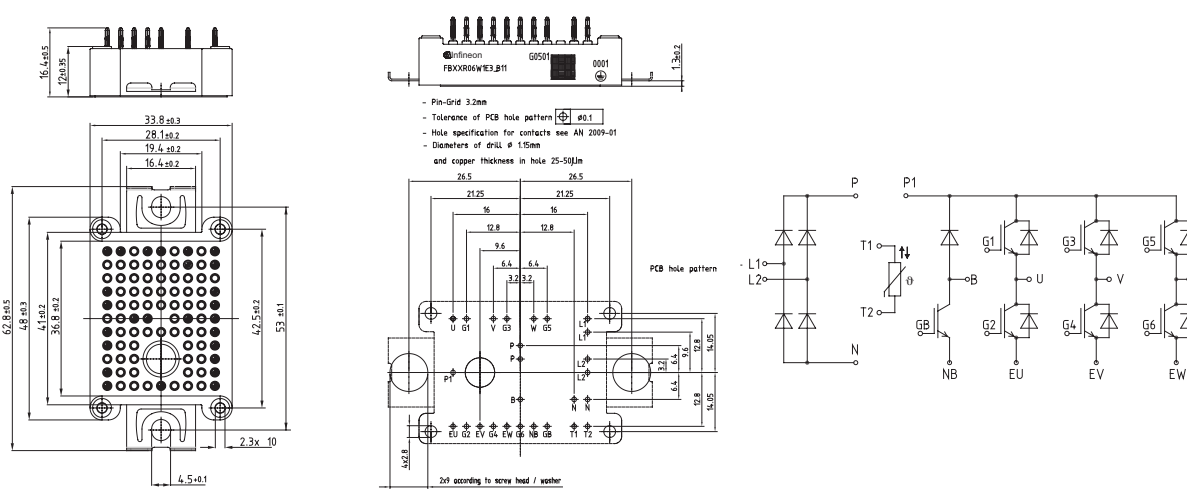
L_B1d



Pinpositions with tolerance ± 0.4

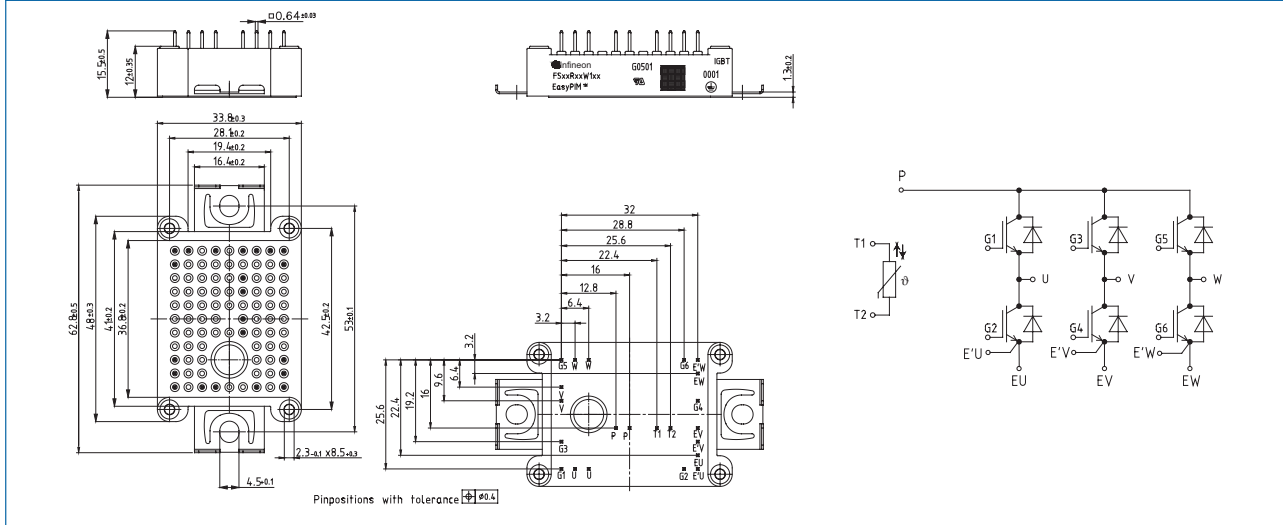
EasyPACK 1B

L_B1k



EasyPACK 1B

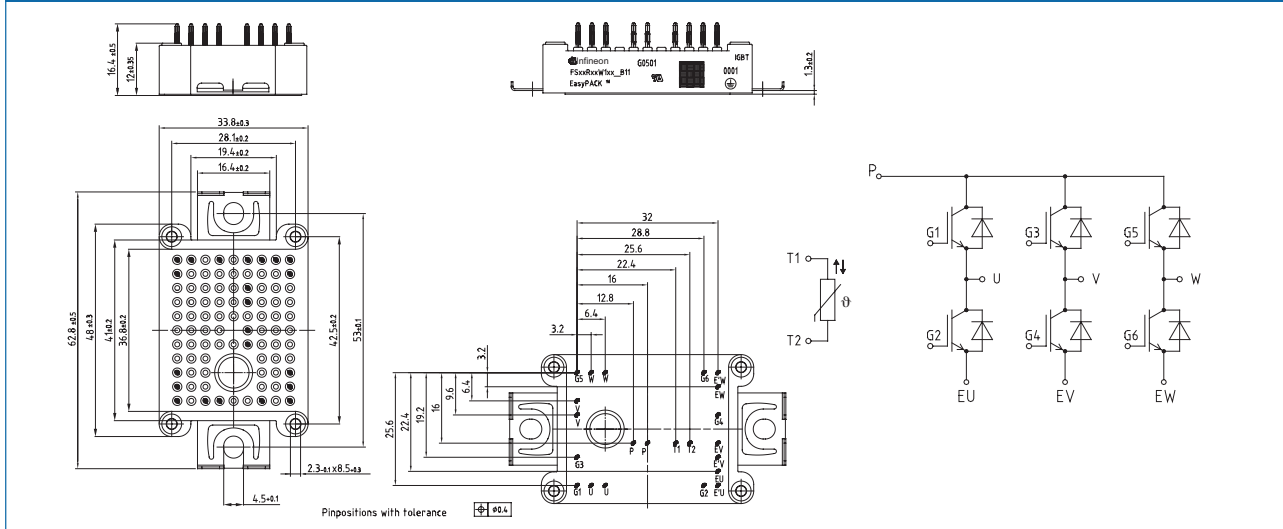
L_B1e



IGBT
Low Power

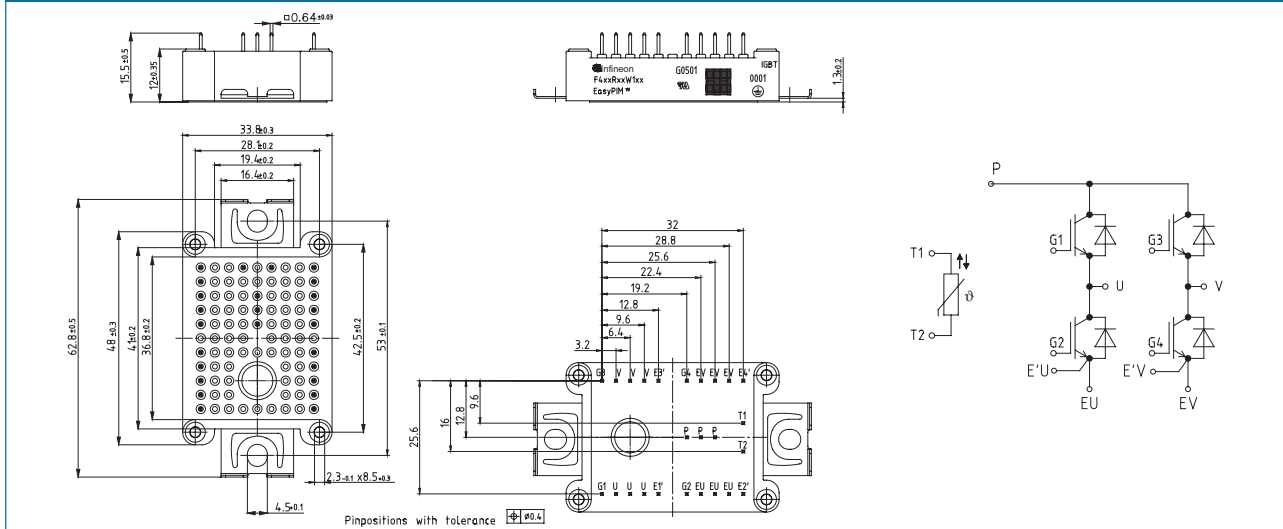
EasyPACK 1B

L_B1j

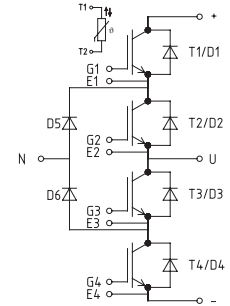
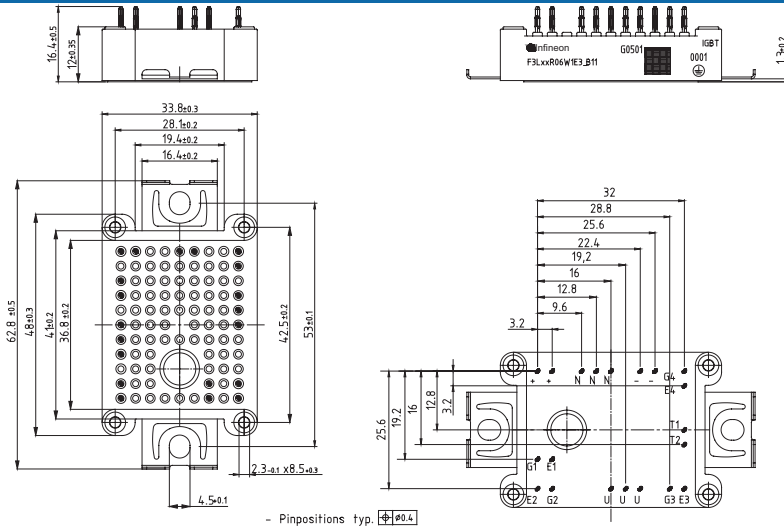


EasyFourPACK 1B

L_B1f



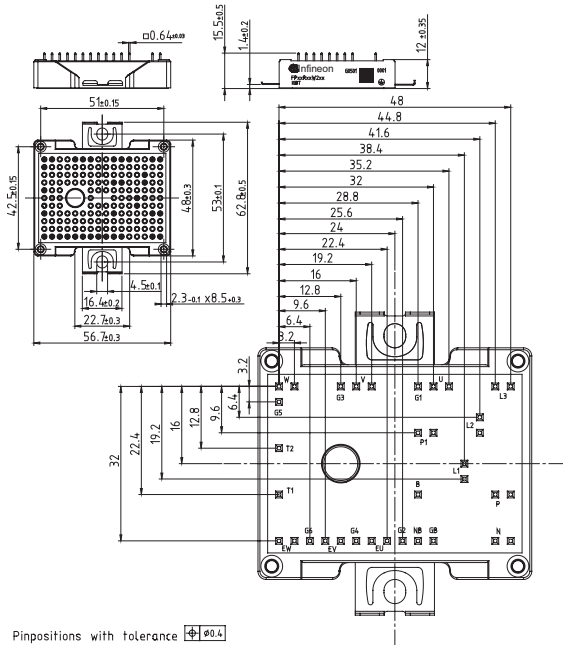
IGBT
Low Power



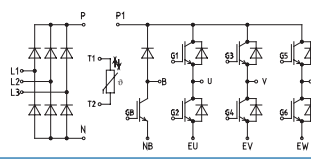
- Pinpositions typ. #0.4

EasyPIM™ 2B

L_B2a

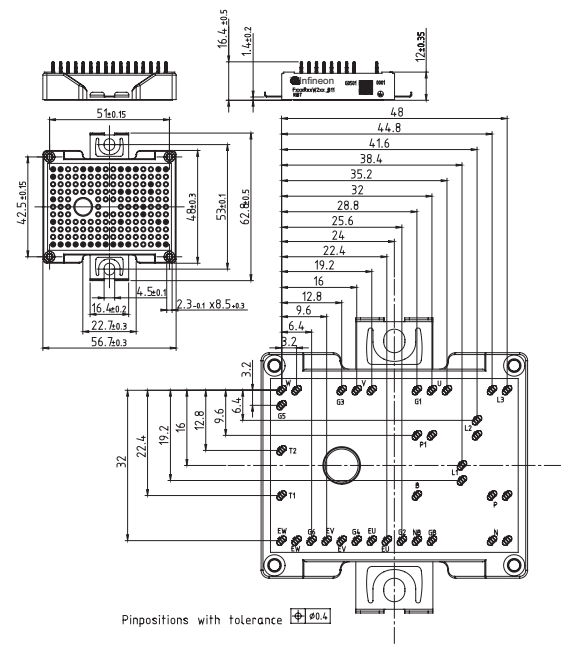


Pinpositions with tolerance ± 0.4

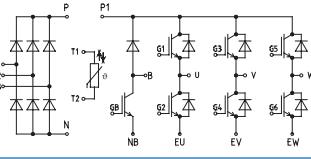


EasyPIM™ 2B

L_B2b

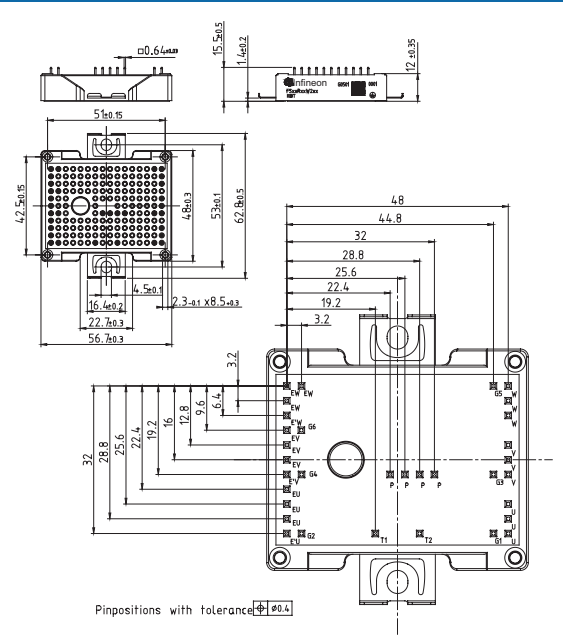


Pinpositions with tolerance ± 0.4

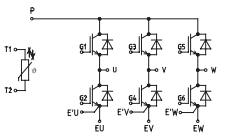


EasyPACK 2B

L_B2c

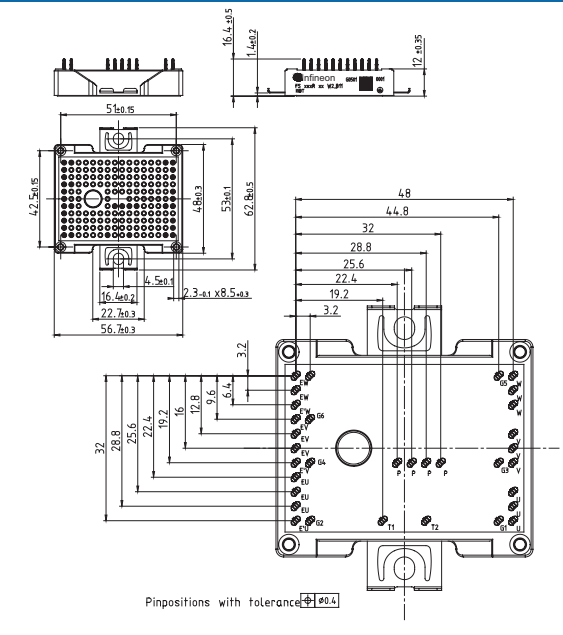


Pinpositions with tolerance ± 0.4

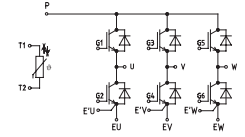


EasyPACK 2B

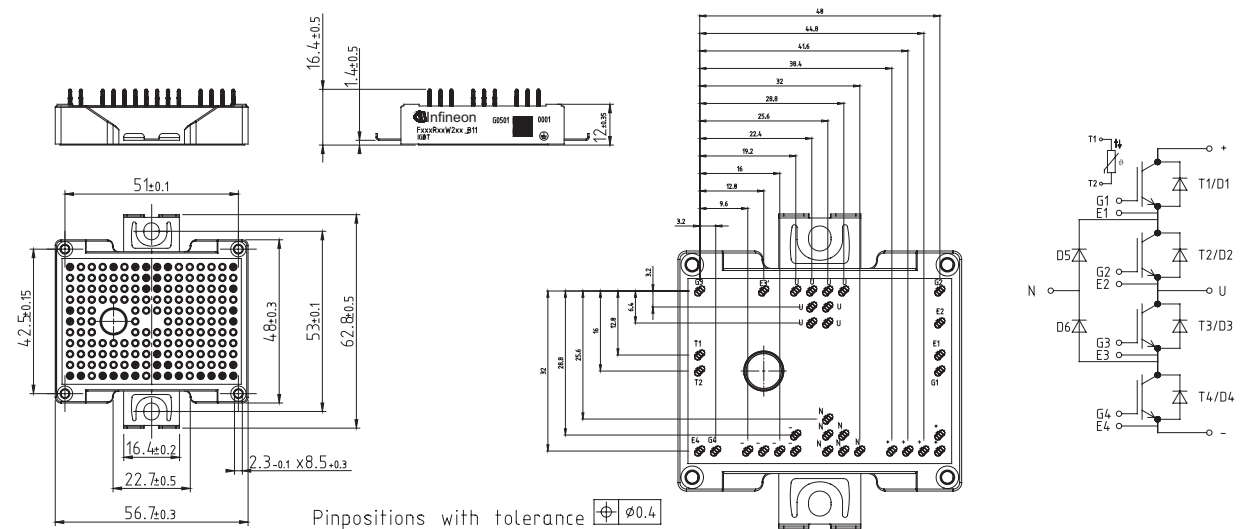
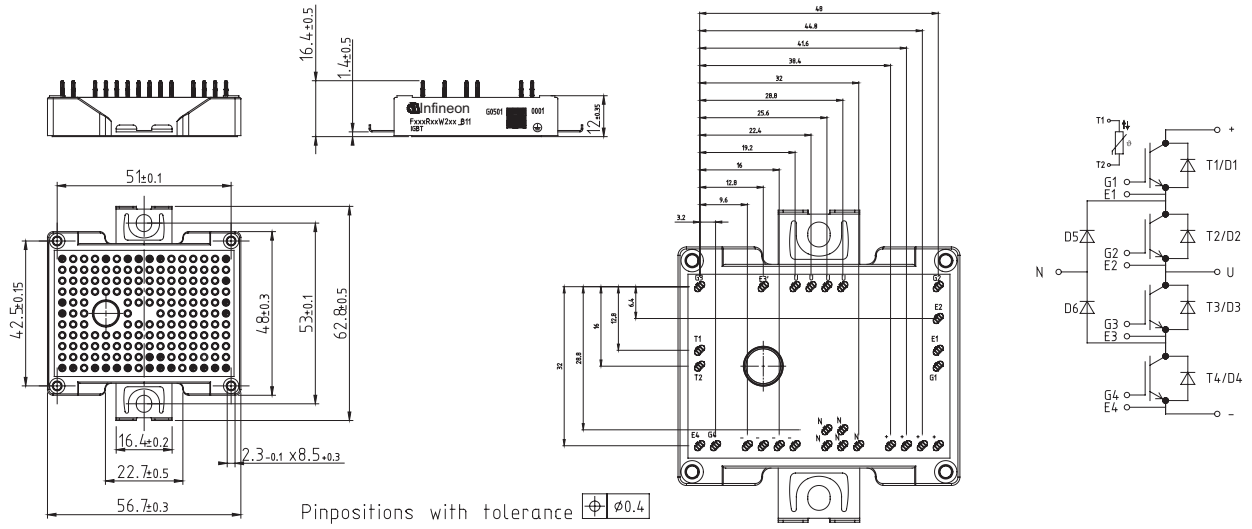
L_B2d

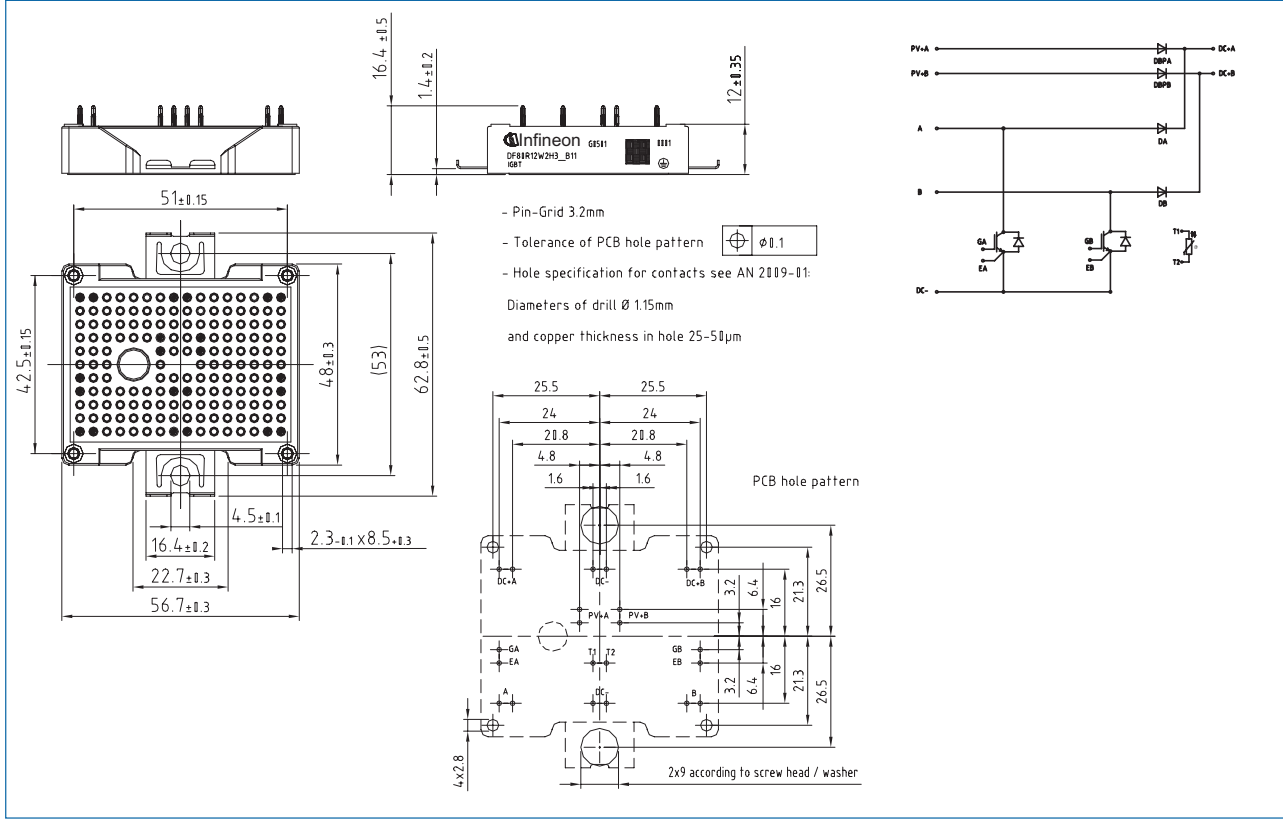


Pinpositions with tolerance ± 0.4

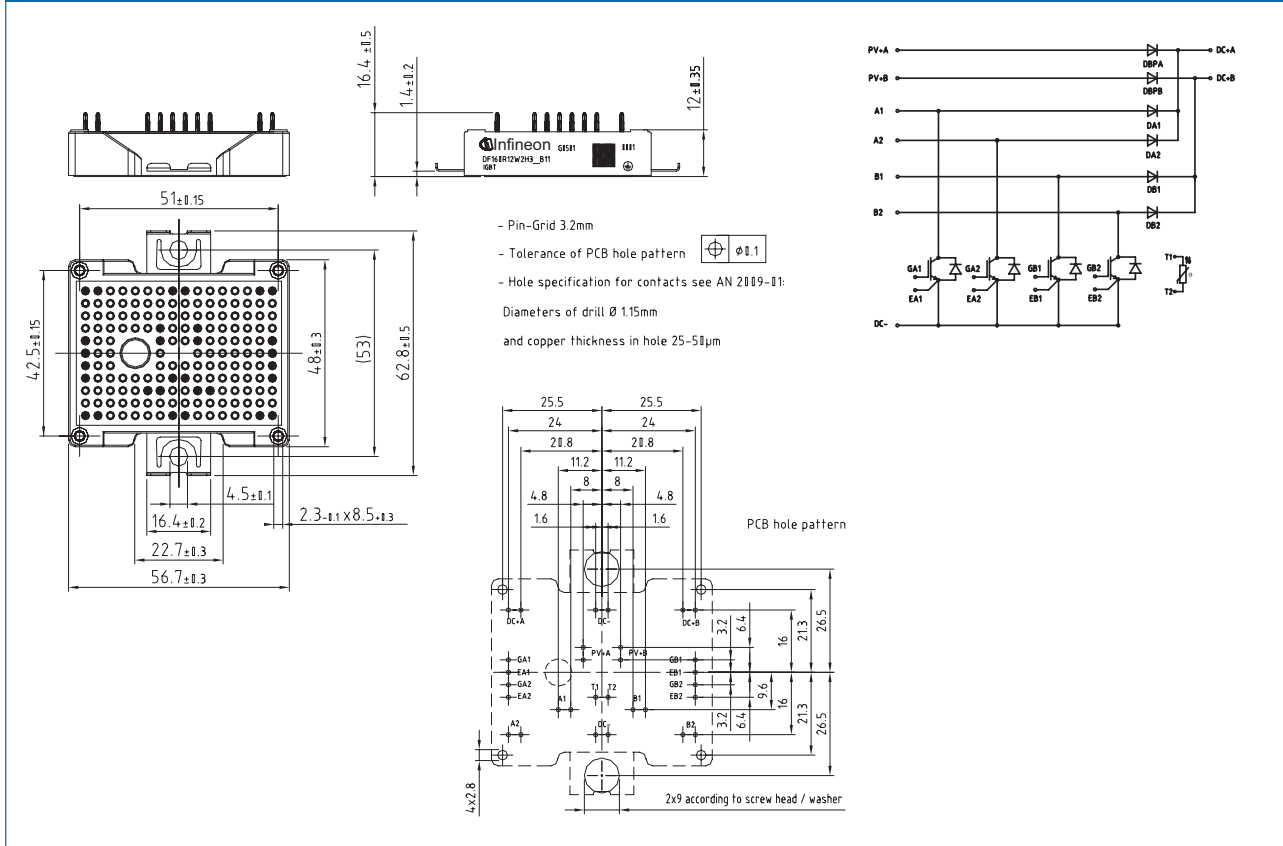


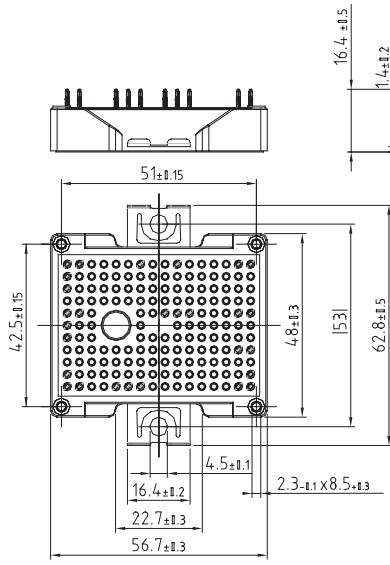
IGBT
Low Power



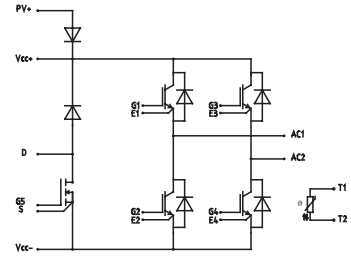
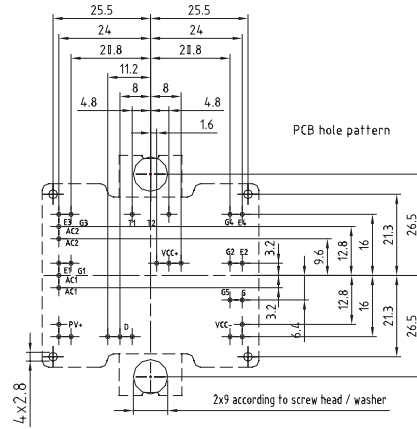


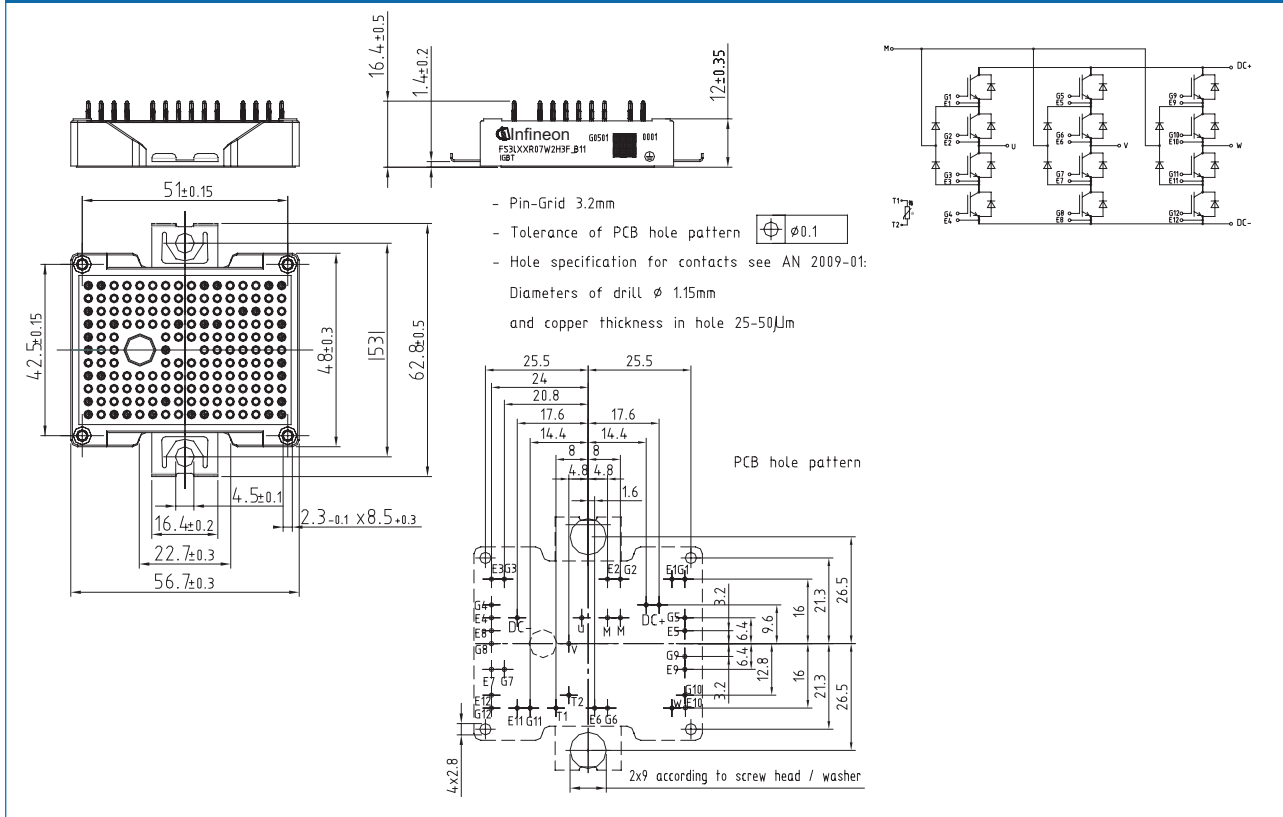
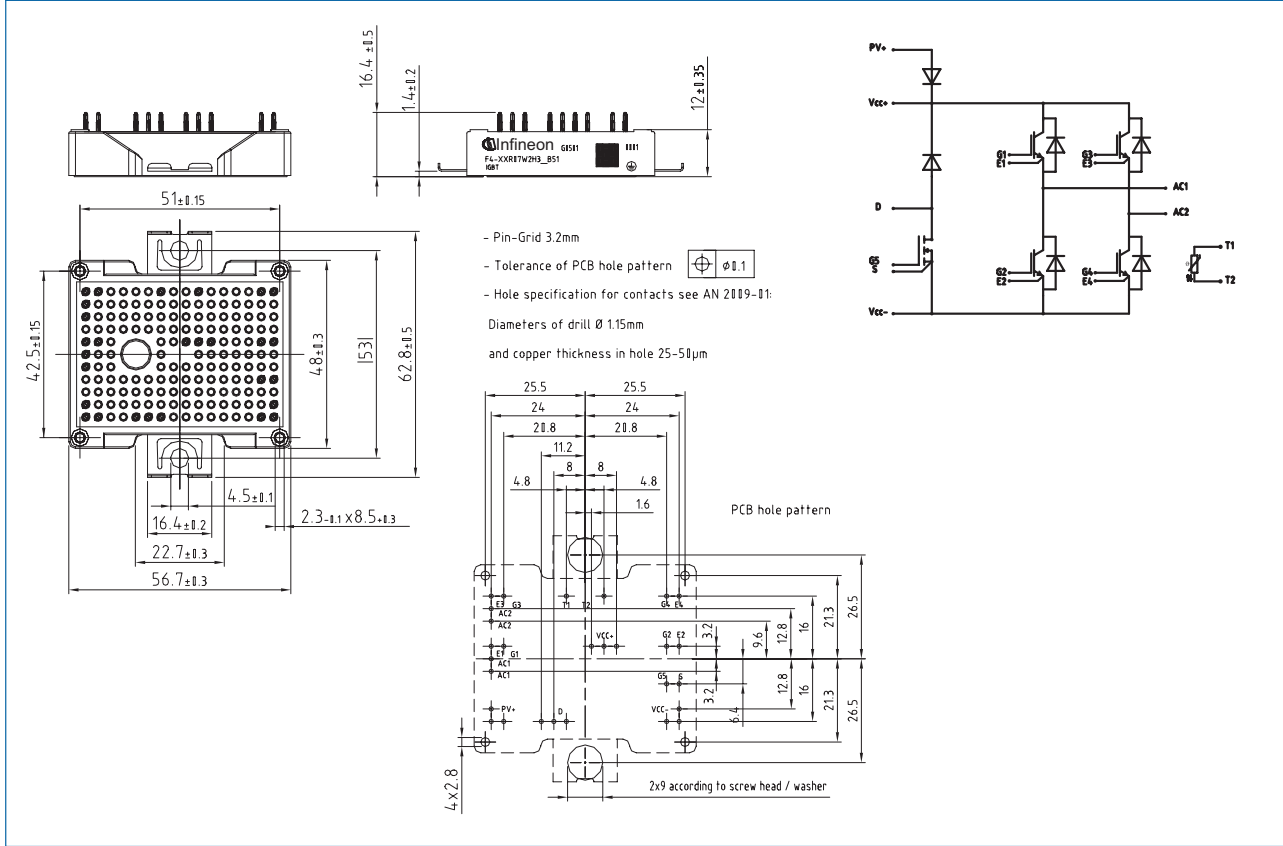
IGBT Low Power



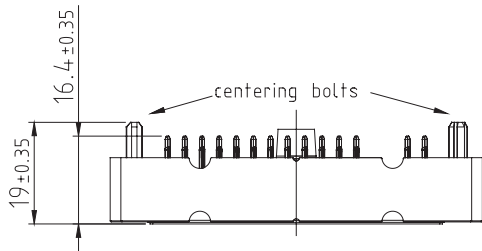
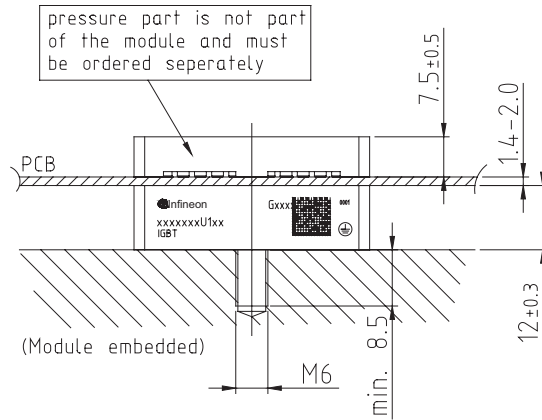
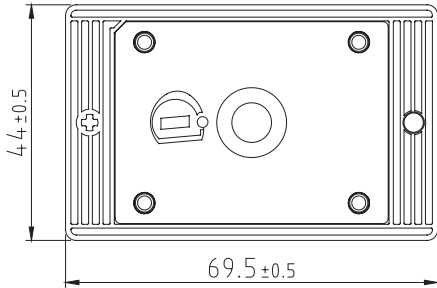


- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern $\pm \phi 1.1$
- Hole specification for contacts see AN 2009-01:
Diameters of drill $\phi 1.15$ mm
and copper thickness in hole 25-50 μ m

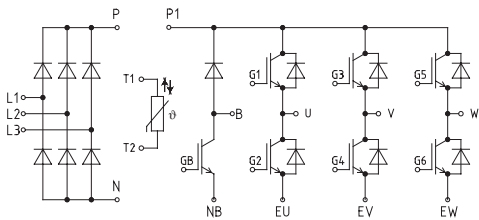
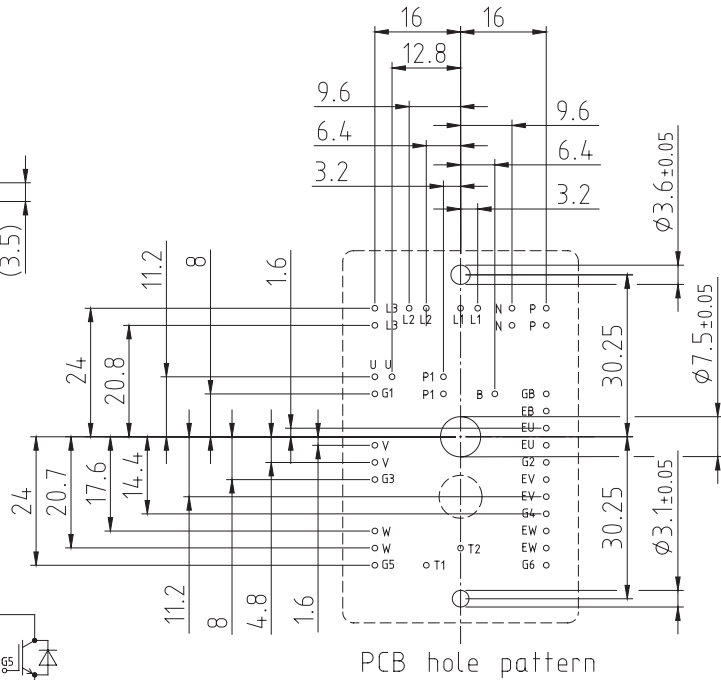
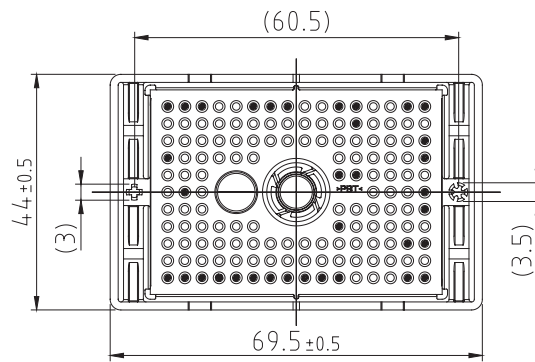




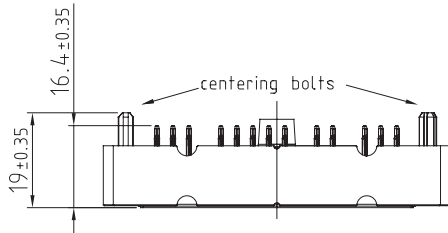
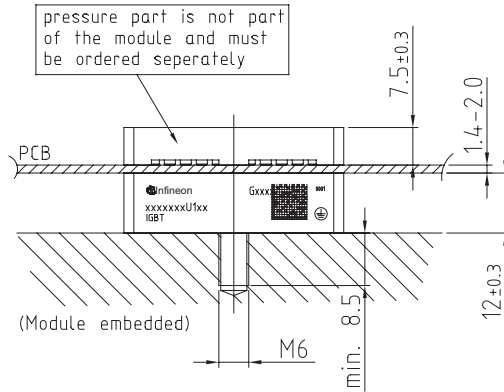
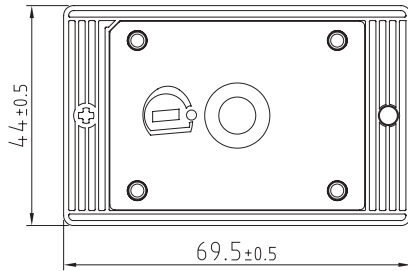
top view of pressure part



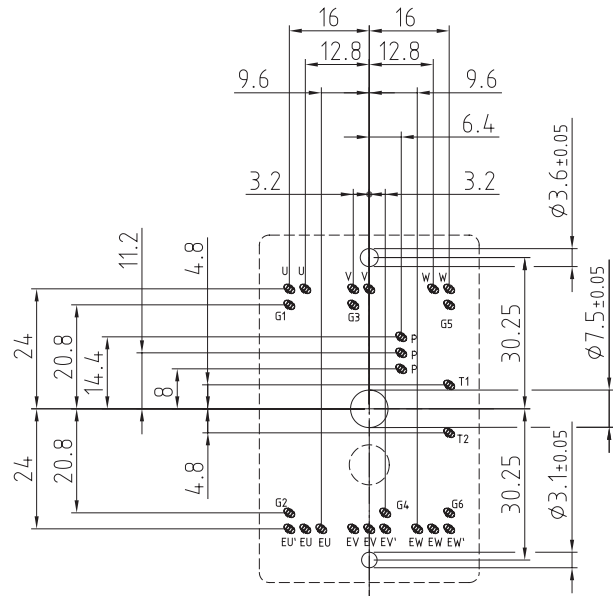
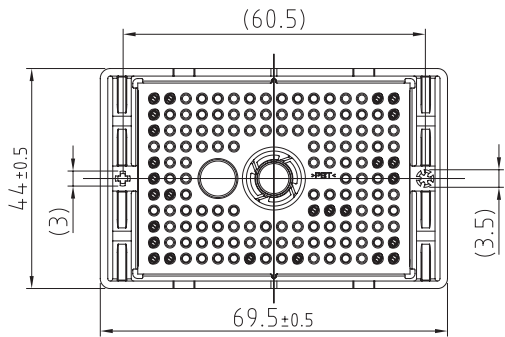
- Recommended screw:
M6 counter sunk (acc. to ISO14581 or DIN7991)
- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern ± 0.1
- Hole specification for contacts see AN 2009-09
Diameters of plated holes $\phi 1.0\text{mm}^{+0.09}_{-0.06}$
Diameters of drill $\phi 1.15\text{mm}$



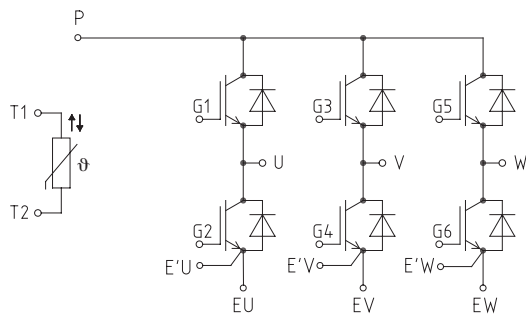
top view of pressure part



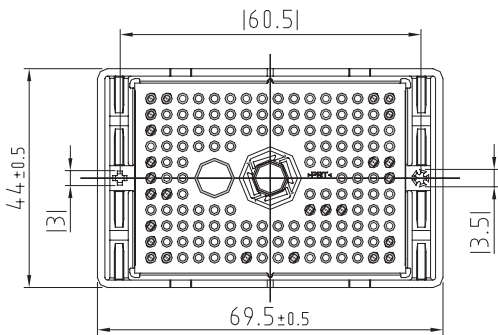
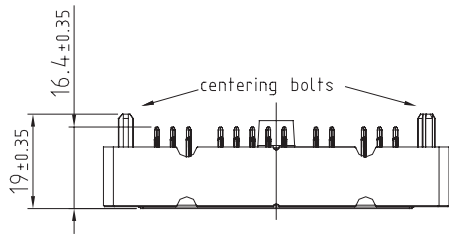
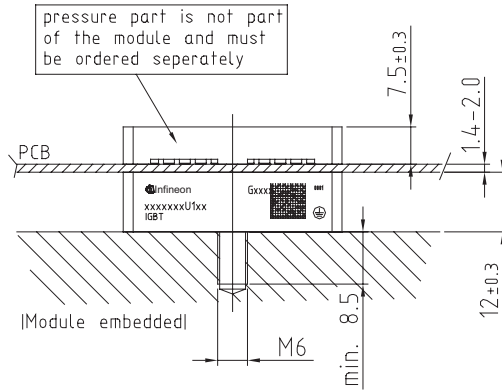
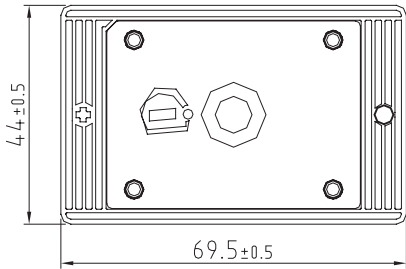
- Recommended screw: M6 counter sunk (acc. to ISO14581 or DIN7991)
- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern $\oplus \phi 0.1$
- Hole specification for contacts see AN 2009-09
 Diameters of plated holes $\phi 1.0\text{mm}^{+0.09}_{-0.06}$
 Diameters of drill $\phi 1.15\text{mm}$



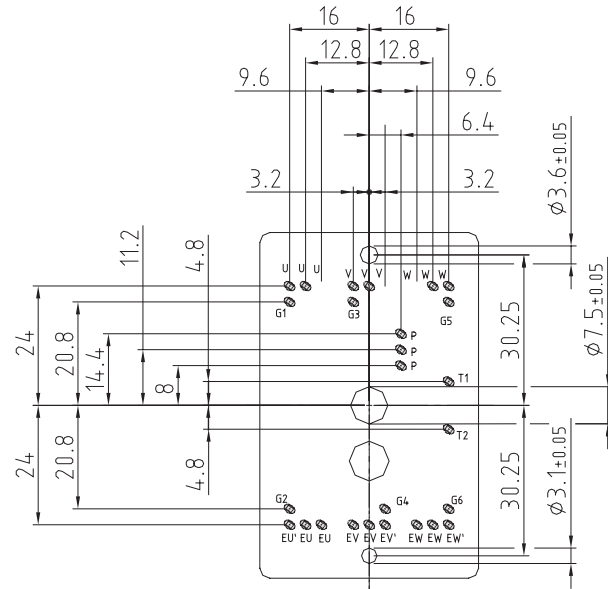
PCB hole pattern



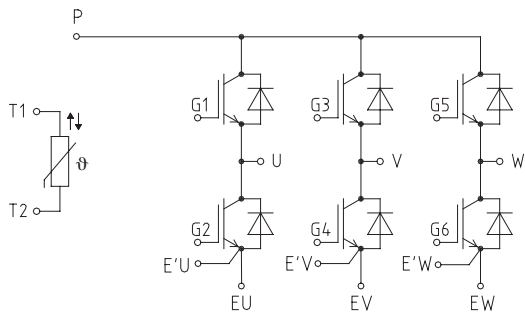
top view of pressure part



- Recommended screw: M6 counter sunk lacc. to ISO14581 or DIN7991
- Pin-Grid 3.2mm
- Tolerance of PCB hole pattern ± 0.1
- Hole specification for contacts see AN 2009-09
 Diameters of plated holes $\phi 1.0\text{mm}^{+0.09}_{-0.06}$
 Diameters of drill $\phi 1.15\text{mm}$

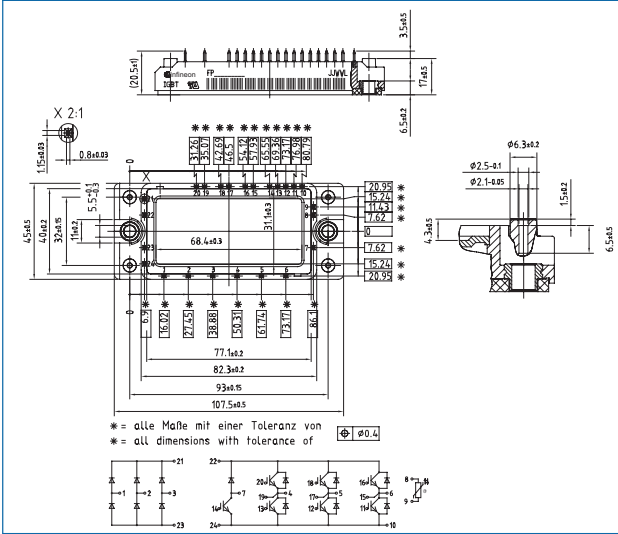


PCB hole pattern



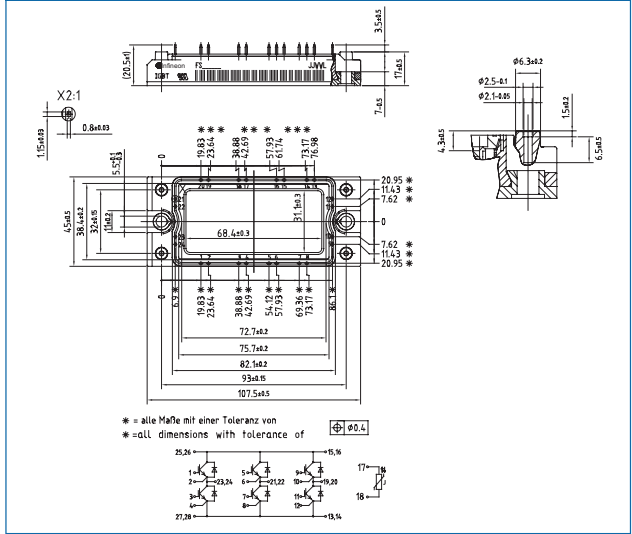
EconoPIM™ C

M_E2a



EconoPACK™ 2B

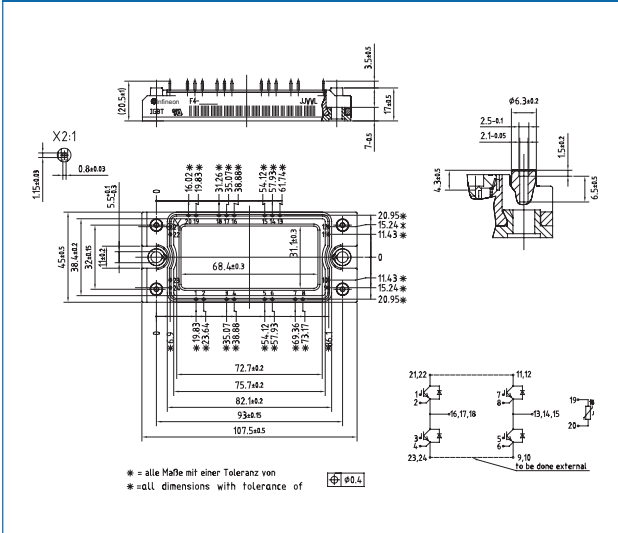
M_E2b



IGBT
Low Power

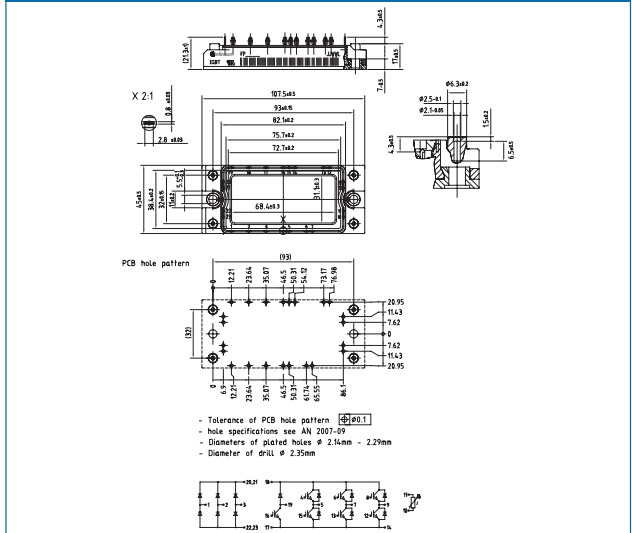
EconoPACK™ 2B FourPACK

M_E2e



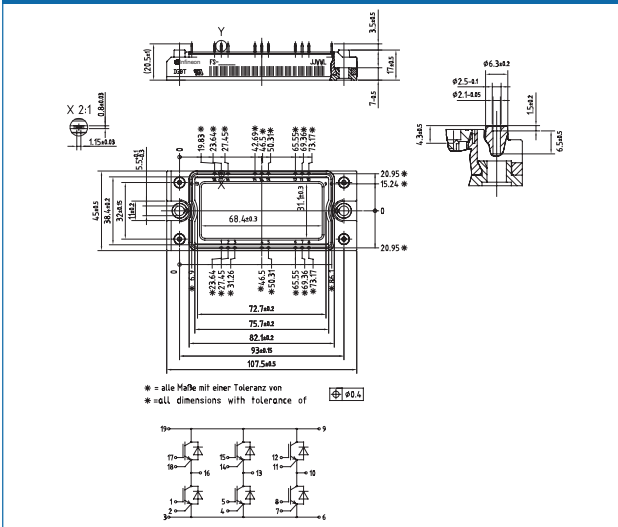
EconoPIM™ 2B PressFIT

M_E2h



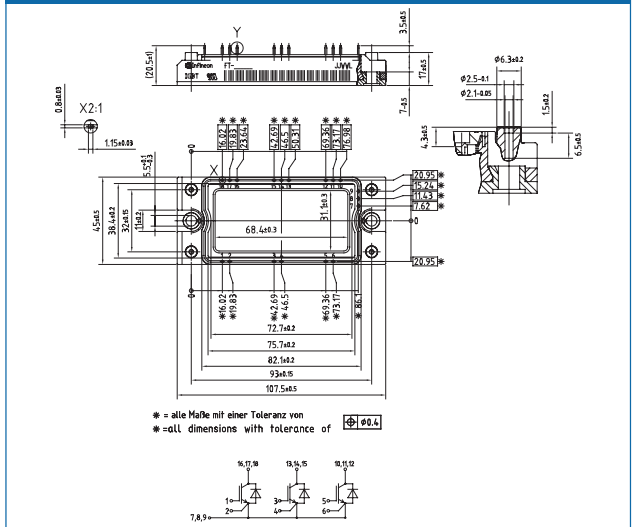
EconoPACK™ 2B

M_E2g



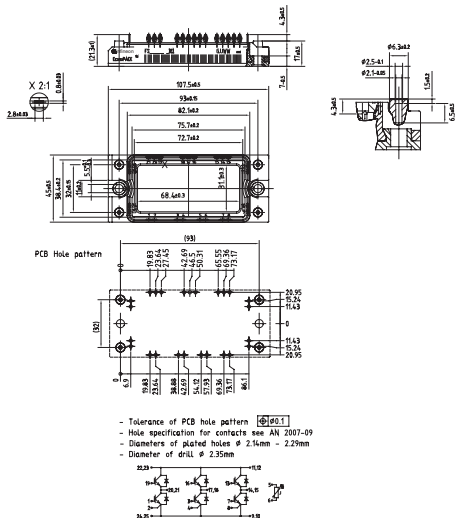
EconoPACK™ 2B (TriPACK-Low)

M_E2f



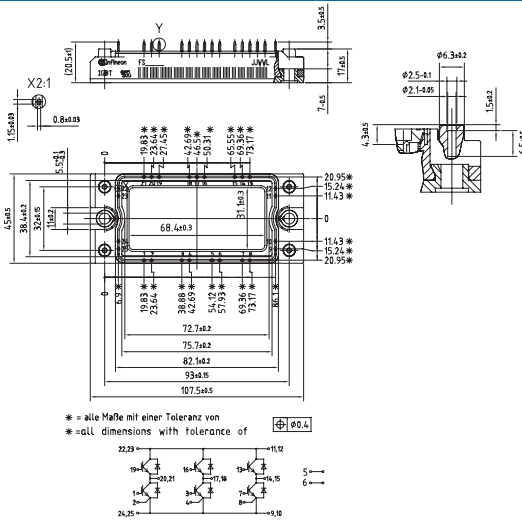
EconoPACK™ 2B PressFIT

M_E2k



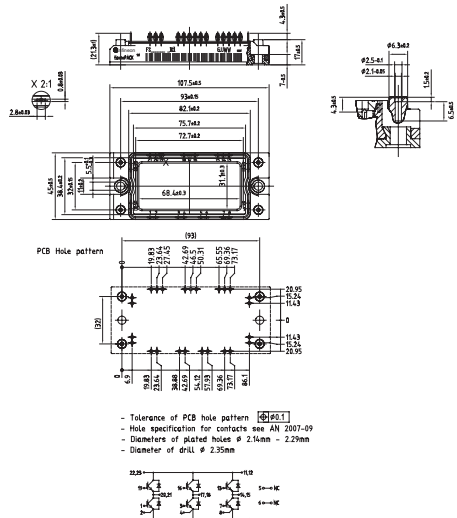
EconoPACK™ 2B

M_E2l



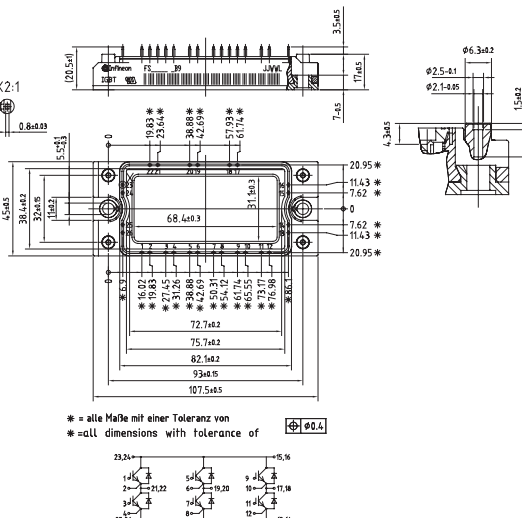
EconoPACK™ 2B PressFIT

M_E2j



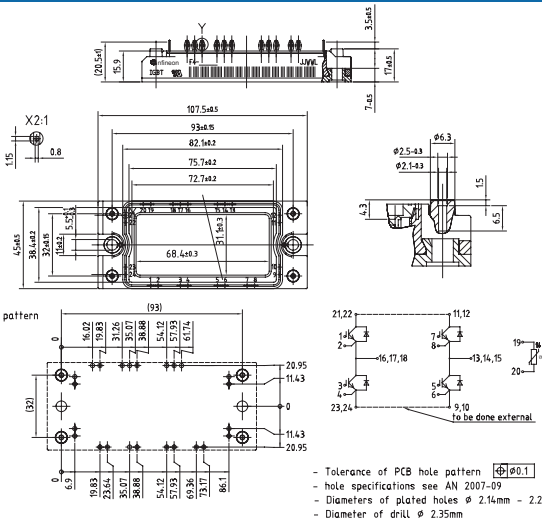
EconoPACK™ 2B

M_E2l



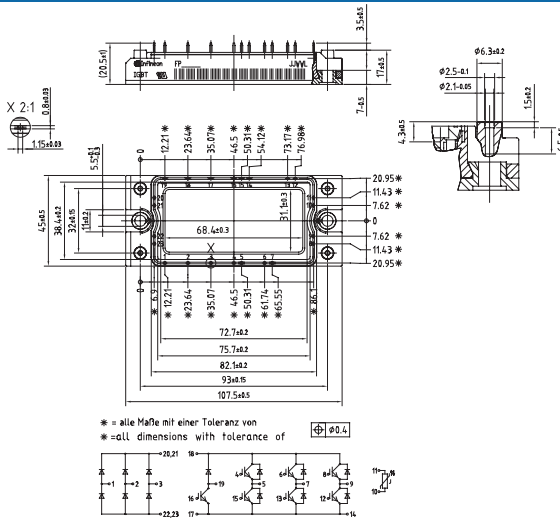
EconoPACK™ 2B FourPACK PressFIT

M_E2c



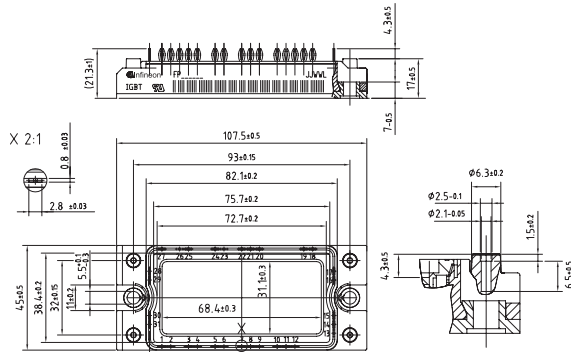
EconoPIM™ 2B

M_E2m

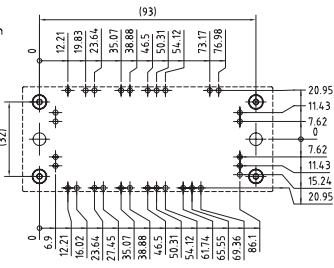


EconoPIM™ 2B PressFIT

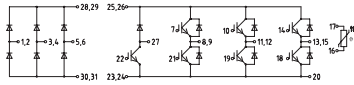
M_E2n



PCB hole pattern

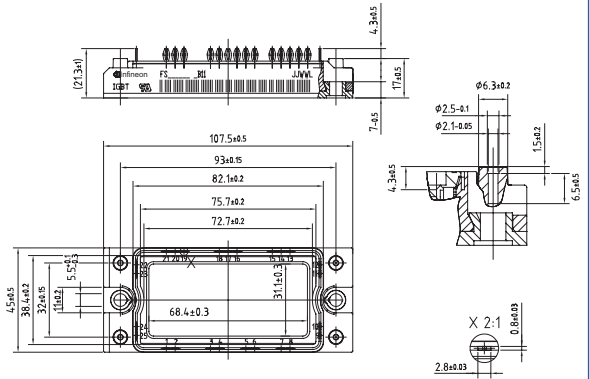


- Tolerance of PCB hole pattern $\pm \phi 0.1$
- hole specifications see AN 2007-09
- Diameters of plated holes ϕ 2.14mm - 2.29mm
- Diameter of drill ϕ 2.35mm

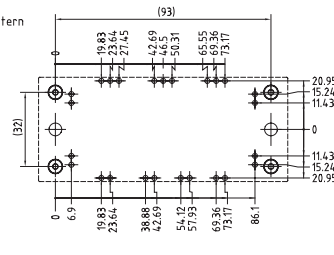


EconoPACK™ 2B PressFIT

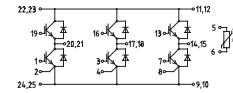
M_E2p



PCB hole pattern

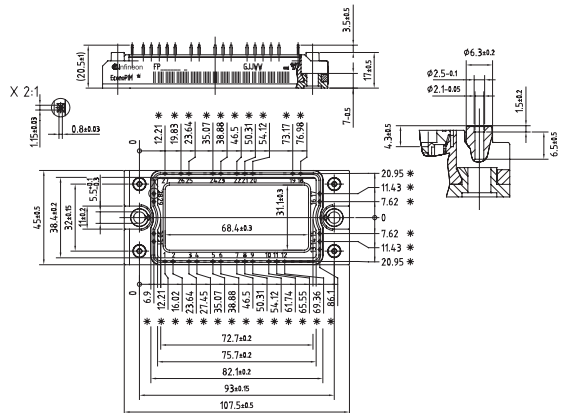


- Tolerance of PCB hole pattern $\pm \phi 0.1$
- hole specifications see AN 2007-09
- Diameters of plated holes ϕ 2.14mm - 2.29mm
- Diameter of drill ϕ 2.35mm

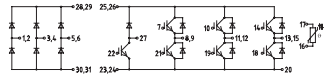


EconoPIM™ 2B

M_E2o

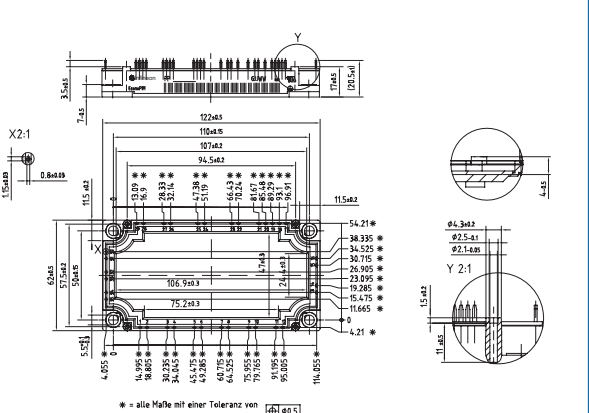


- * = alle Maße mit einer Toleranz von $\pm \phi 0.4$
- * = all dimensions with tolerance of $\pm \phi 0.4$

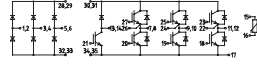


EconoPIM™ 3B

M_E3a



- * = alle Maße mit einer Toleranz von $\pm \phi 0.5$
- * = all dimensions with tolerance of $\pm \phi 0.5$



IGBT
Low Power

Package Units

IGBT Low Power Modules

EasyPIM™ Modules	Housing Size (overall)	Packing Units
EasyPIM™ 750	25,4 mm x 35,6 mm	40
EasyPIM™ 1	33,0 mm x 45,6 mm	20
EasyPIM™ 1B	33,8 mm x 48,0 mm	24
EasyPIM™ 2	45,6 mm x 55,9 mm	20
EasyPIM™ 2B	48,0 mm x 56,7mm	15

EasyPACK Modules	Housing Size (overall)	Packing Units
EasyPACK 750	25,4 mm x 35,6 mm	40
EasyPACK 1	33,0 mm x 45,6 mm	20
EasyPACK 1B	33,8 mm x 48,0 mm	24
EasyPACK 2	45,6 mm x 55,9 mm	20
EasyPACK 2B	48,0 mm x 56,7mm	15

EasyDUAL Modules	Housing Size (overall)	Packing Units
EasyDUAL 2	45,6 mm x 55,9 mm	20

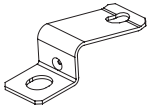
EconoPIM™ Modules	Housing Size (overall)	Packing Units
EconoPIM™ 2	45,0 mm x 107,0 mm	10
EconoPIM™ 3	62,0 mm x 122,0 mm	10

EconoPACK™ Modules	Housing Size (overall)	Packing Units
EconoPACK™ 2	45,0 mm x 107,0 mm	10
EconoPACK™ 3	62,0 mm x 122,0 mm	10

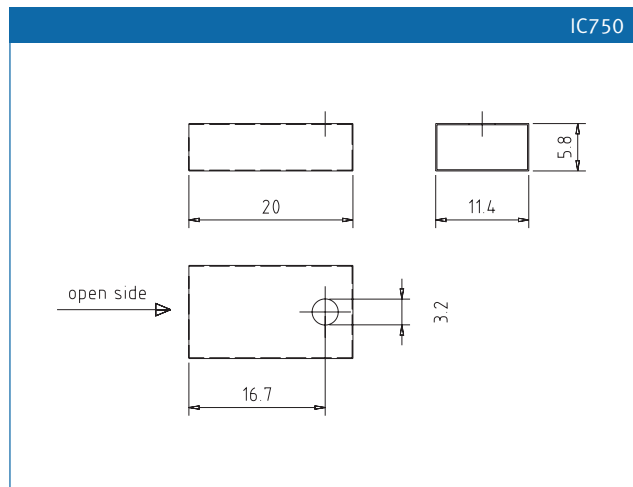
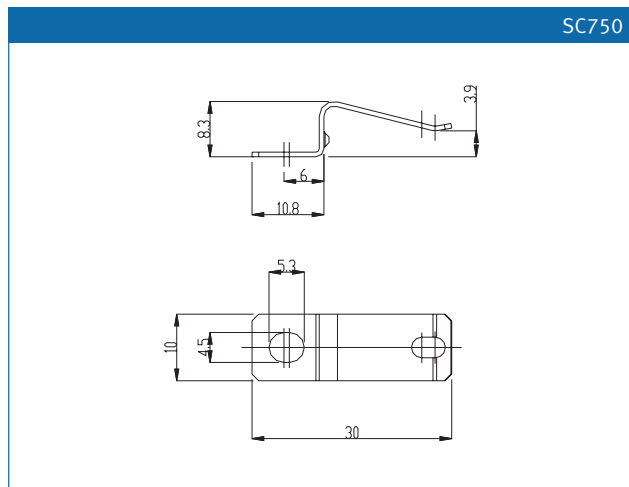
SmartPIM Modules	Housing Size (overall)	Packing Units
SmartPIM 1	44,0 mm x 69,5 mm	30
Counterholder	44,0 mm x 69,5mm	30

SmartPACK Modules	Housing Size (overall)	Packing Units
SmartPACK 1	44,0 mm x 69,5 mm	30
Counterholder	44,0 mm x 69,5 mm	30

Mounting Hardware for EasyPIM™, EasyPACK, EasyBRIDGE and EasyDUAL Modules

	Suitable for	Type	Outline	Part-No.
 SC750	Easy750 housing	ScrewClamp Easy750	SC750	24126
	Easy750housing	IsolationCap Easy750	IC750	27332

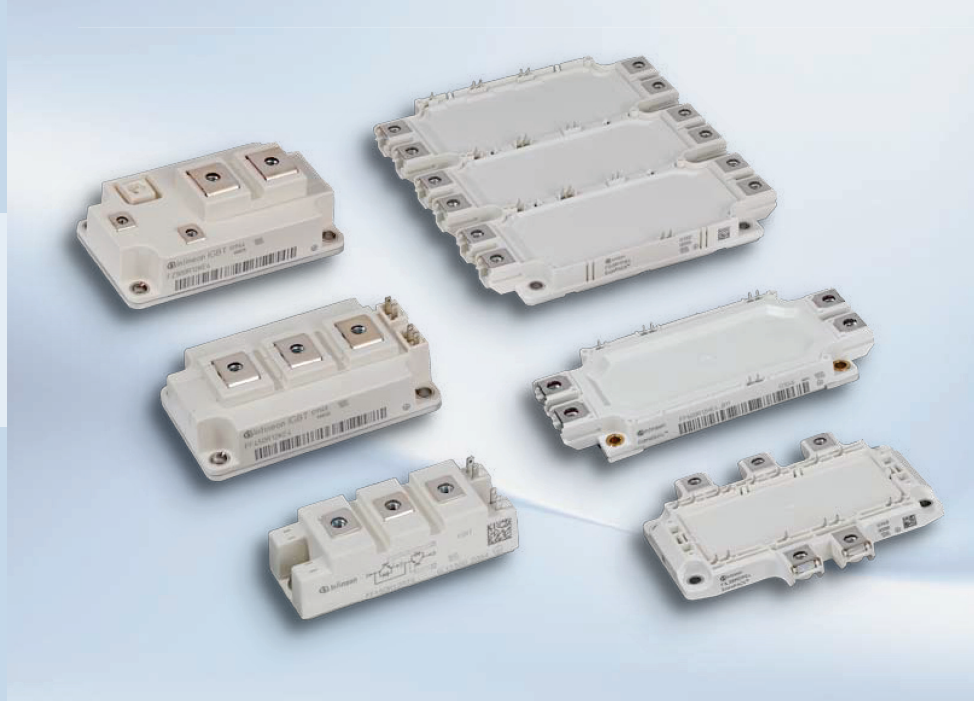
IGBT
Low Power



Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
Easy PressFIT - Mounting Instructions	Application Note	http://www.infineon.com/easy-pressfit-appnote
Smart - Evaluation Board	Application Note	http://www.infineon.com/smart1-evalboard-appnote
Easy B-Series - Mounting Instructions	Application Note (english)	http://www.infineon.com/easy-appnote
Econo (PressFIT)- Mounting Instructions	Application Note (english)	http://www.infineon.com/econo-pressfit-appnote
Smart - Mounting Instructions	Application Note (english)	http://www.infineon.com/smart-appnote
Easy B-Serien - Mounting Instructions	Application Note (german)	http://www.infineon.com/easy-appnote-german
Econo (PressFIT) - Mounting Instructions	Application Note (german)	http://www.infineon.com/econo-pressfit-appnote-german
Smart - Mounting Instructions	Application Note (german)	http://www.infineon.com/smart-appnote-german
3-Level Inverter 650V / 1200V	Product Brief	http://www.infineon.com/3-level-product-brief
Easy B-series modules and Easy750	Product Brief	http://www.infineon.com/easyb-product-brief
Easy & Econo Modules	Product Brief	http://www.infineon.com/easy-econo-product-brief
SmartPIM and SmartPACK - Self-acting PressFIT assembly	Product Brief	http://www.infineon.com/smart-product-brief
PressFIT - Mounting technology	Product Information	http://www.infineon.com/pressfit-product-information
EasyPACK 3-Level Modules	Webpage	http://www.infineon.com/3-level-easy
EconoPIM™ / EconoPACK™ 650V IGBT4	Webpage	http://www.infineon.com/econo650v
Thermal Interface Material	Webpage	http://www.infineon.com/tim
SmartPIM and SmartPACK	Webpage	http://www.infineon.com/smart
Application Notes for all packages & technologies	Application Note Collection	http://www.infineon.com/igbt-modules-application-notes
Product Briefs for all packages & technologies	Product Brief Collection	http://www.infineon.com/igbt-modules-product-briefs

Medium Power Modules

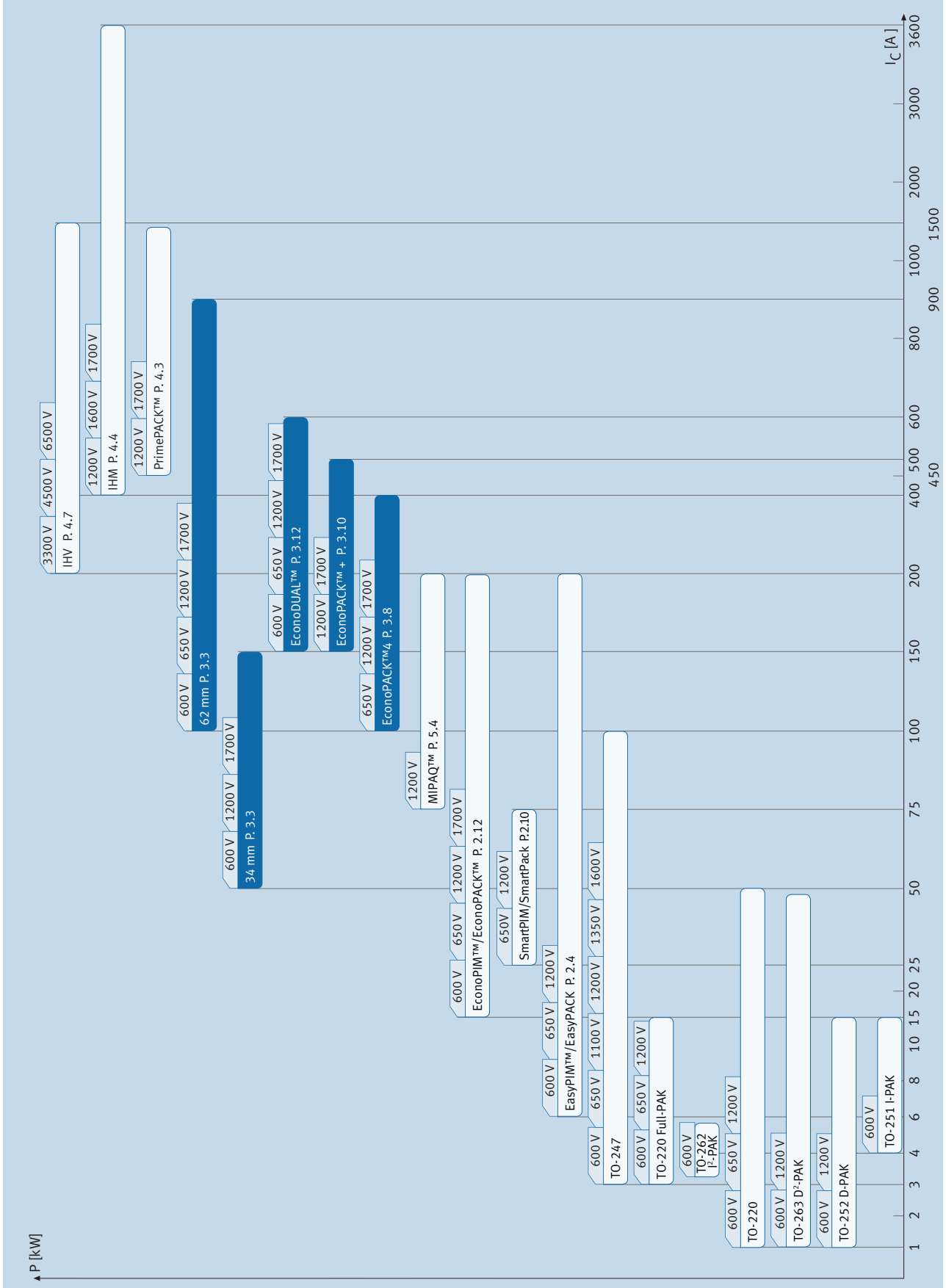


Flexibility, optimal electrical performance, highest reliability. These are the keywords for a successful inverter design. The 34 and 62 mm packages as well as the EconoPACK™ +, EconoDUAL™ and EconoPACK™ 4 modules are the right choice for your design.

Our well known 34 mm and 62 mm standard IGBT modules are available in various configurations like Single Switch, Half Bridge, Chopper and Diode modules. Besides the IGBT chip technologies for low switching losses, saturation voltage and high switching frequency, the 34mm and 62mm modules are also available with the state-of-the-art IGBT4 Trench with Field Stop. The product portfolio covers current ranges from 50 A up to 900 A at 600V/650V/1200V/1700V.






The EconoPACK™ +, EconoDUAL™ and EconoPACK™ 4 modules combine 17 mm height and leading edge IGBT technology for highest power density, enabling inverter applications in the power range from 20 kVA to 250 kVA and above. The key for parallel operation is the symmetrical design of the module, resulting in an optimized current sharing between the IGBT half bridges. This concept allows to create one inverter design for all line voltages up to 690 V AC. The EconoPACK™ +, EconoPACK™ 4 and EconoDUAL™ product lines offer the complete current range from 50 A up to 600 A at 600V/650V/1200V/1700V. Furthermore, all of these packages are now available with solderless high reliable PressFIT control terminals.

IGBT
Medium Power







IGBT Medium Power Modules

34 mm and 62 mm Modules

600 V _{CES}							
  							
Type	V _{CES} V	I _C A	V _{CEsat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 dual modules	IGBT2 Low Loss						
	BSM50GB60DLC	600	50	1,95	280	0,44	M_34a/3.15
	BSM75GB60DLC	600	75	1,95	355	0,35	M_34a/3.15
	BSM100GB60DLC	600	100	1,95	445	0,28	M_34a/3.15
	BSM150GB60DLC	600	150	1,95	595	0,21	M_34a/3.15
	BSM200GB60DLC	600	200	1,95	730	0,17	M_34a/3.15
	IGBT3						
	FF200R06KE3	600	200	1,45	680	0,22	M_62a/3.15
	FF300R06KE3	600	300	1,45	940	0,16	M_62a/3.15
	FF400R06KE3	600	400	1,45	1250	0,12	M_62a/3.15
 FD chopper	IGBT3						
	FD300R06KE3	600	300	1,45	640	0,16	M_62a/3.15

IGBT
Medium Power




650 V _{CES}							
  							
Type	V _{CES} V	I _C A	V _{CEsat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 dual modules	IGBT4						
	◆ FF300R07KE4	650	300	1,55	940	0,16	M_62a/3.15
	◆ FF400R07KE4	650	400	1,55	1250	0,12	M_62a/3.15

◆ New type ..._B1 with auxiliary collector sense

IGBT Medium Power Modules

34 mm and 62 mm Modules

IGBT
Medium Power

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 dual modules	IGBT3						
	FF150R12KE3G	1200	150	1,70	780	0,16	M_62a/3.15
	FF200R12KE3	1200	200	1,70	1040	0,12	M_62a/3.15
	FF300R12KE3	1200	300	1,70	1450	0,085	M_62a/3.15
	FF400R12KE3	1200	400	1,70	2000	0,062	M_62a/3.15
	IGBT3 Fast						
	FF150R12KT3G	1200	150	1,70	780	0,16	M_62a/3.15
	FF200R12KT3	1200	200	1,70	1050	0,12	M_62a/3.15
 dual modules	IGBT4 Fast						
	FF50R12RT4	1200	50	1,75	285	0,53	M_34a/3.15
	FF75R12RT4	1200	75	1,75	395	0,38	M_34a/3.15
	FF100R12RT4	1200	100	1,75	555	0,27	M_34a/3.15
	FF150R12RT4	1200	150	1,75	790	0,19	M_34a/3.15
	FF200R12KT4	1200	200	1,75	1100	0,135	M_62a/3.15
	FF300R12KT4	1200	300	1,75	1600	0,093	M_62a/3.15
	FF450R12KT4	1200	450	1,75	2400	0,062	M_62a/3.15
	IGBT4						
	FF200R12KE4	1200	200	1,75	1100	0,135	M_62a/3.15
	FF300R12KE4	1200	300	1,75	1600	0,093	M_62a/3.15
	FF450R12KE4	1200	450	1,75	2400	0,062	M_62a/3.15
	IGBT2 Fast						
	FF100R12KS4	1200	100	3,20	780	0,160	M_62a/3.15
	FF150R12KS4	1200	150	3,20	1200	0,100	M_62a/3.15
	FF200R12KS4	1200	200	3,20	1400	0,090	M_62a/3.15
	FF300R12KS4	1200	300	3,20	1950	0,060	M_62a/3.15

IGBT Medium Power Modules

34 mm and 62 mm Modules

1200 V _{CES}								
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thJC} K/W max	Outline/ page		
 FD chopper	IGBT2 Fast FD300R12KS4	1200	300	3,20	1950	0,060	M_62a/3.15	
	IGBT3	FD200R12KE3	1200	200	1,70	1040	0,120	M_62a/3.15
		FD300R12KE3	1200	300	1,70	1450	0,085	M_62a/3.15
		FD400R12KE3	1200	400	1,70	2000	0,062	M_62a/3.15
	IGBT4 Fast FD150R12RT4	1200	150	1,75	790	0,19	M_34a/3.15	
 DF chopper	IGBT3							
	DF200R12KE3	1200	200	1,70	1040	0,120	M_62a/3.15	
	DF300R12KE3	1200	300	1,70	1450	0,085	M_62a/3.15	
	DF400R12KE3	1200	400	1,70	2000	0,062	M_62a/3.15	
	IGBT4 Fast DF150R12RT4	1200	150	1,75	790	0,190	M_34a/3.15	
 single switches	IGBT3							
	FZ300R12KE3G	1200	300	1,70	1450	0,085	M_62b/3.15	
	FZ400R12KE3	1200	400	1,70	2250	0,055	M_62b/3.15	
	FZ400R12KE3_B1	1200	400	1,70	2250	0,055	M_62c/ 3.15	
	FZ600R12KE3	1200	600	1,70	2750	0,045	M_62b/3.15	
	FZ600R12KE3_B1	1200	600	1,70	2750	0,045	M_62c/ 3.15	
	FZ800R12KE3	1200	800	1,70	3550	0,035	M_62b/3.15	
	IGBT4							
	FZ400R12KE4	1200	400	1,75	2400	0,062	M_62b/3.15	
	FZ600R12KE4	1200	600	1,75	3000	0,050	M_62b/3.15	
	FZ900R12KE4	1200	900	1,75	4300	0,035	M_62b/3.15	
	FZ400R12KP4	1200	400	1,70	2400	0,062	M_62b/3.15	
	FZ600R12KP4	1200	600	1,70	3000	0,050	M_62b/3.15	
	FZ900R12KP4	1200	900	1,70	4300	0,035	M_62b/3.15	
	IGBT2 Fast							
	FZ400R12KS4	1200	400	3,20	2500	0,050	M_62b/3.15	
	FZ600R12KS4	1200	600	3,20	3900	0,030	M_62b/3.15	



..._B1 with auxiliary collector sense



IGBT
Medium Power

IGBT Medium Power Modules

34 mm and 62 mm Modules

IGBT
Medium Power

1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 dual modules	IGBT2 Standard						
	BSM50GB170DN2	1700	50	3,40	500	0,250	M_34a/3.15
	BSM75GB170DN2	1700	75	3,40	625	0,200	M_34a/3.15
	IGBT3						
	FF200R17KE3	1700	200	2,00	1250	0,100	M_62a/3.15
	FF300R17KE3	1700	300	2,00	1470	0,085	M_62a/3.15
	IGBT4						
FF150R17KE4	1700	150	1,95	1150	0,130	M_62a/3.15	
FF200R17KE4	1700	200	1,95	1650	0,090	M_62a/3.15	
FF300R17KE4	1700	300	1,95	1800	0,083	M_62a/3.15	
 single switches	IGBT3						
	FZ400R17KE3	1700	400	2,00	2270	0,055	M_62b/3.15
	FZ600R17KE3	1700	600	2,00	3120	0,040	M_62b/3.15
	IGBT4						
	FZ400R17KE4	1700	400	1,95	2500	0,060	M_62b/3.15
FZ600R17KE4	1700	600	1,95	3400	0,044	M_62b/3.15	

Diode Modules							
Type	V _{RRM} V	I _C A	V _F V T _{vj} = 25°C typ.	Q _R μAs T _{vj} = 125°C typ.	R _{thjC} K/W max	Outline/ page	
 single diodes	BYM300A120DN2	1200	300	2,30	40	0,125	M_62d/3.15
	BYM600A170DN2	1700	600	2,00	100	0,090	M_62d/3.15
	DZ800S17KE3	1700	800	1,80	345	0,058	M_62d/3.15
 dual diodes	BYM300B170DN2	1700	300	2,20	75	0,120	M_62e/3.15

IGBT Medium Power Modules

34 mm and 62 mm Modules

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CEsat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thjC} K/W max	Outline/ page	
 single switches with series diode	IGBT2 Fast FD300R12KS4_B5	1200	300	3,20	1950	0,064	M_62a/3.15
	IGBT3 FD400R12KE3_B5	1200	400	1,70	2000	0,062	M_62a/3.15
 dual modules with common emitter	IGBT3 Fast FF200R12KT3_E	1200	200	1,70	1050	0,120	M_62f/3.16
	FF300R12KT3_E	1200	300	1,70	1450	0,085	M_62f/3.16
	FF400R12KT3_E	1200	400	1,70	2000	0,062	M_62f/3.16

..._B5 with series diode

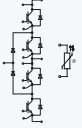




..._E common emitter

IGBT
Medium Power

IGBT Medium Power Modules

EconoPACK™ 4

IGBT
Medium Power

650 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 3-level one-phase NPC1 topology with NTC	IGBT4						
	◆ F3L200R07PE4	650	200	1,55	2,0/12,5	0,22	M_EP4a/3.17
	◆ F3L300R07PE4	650	300	1,55	2,0/17,5	0,16	M_EP4a/3.17
 3-Level one-phase NPC2 topology with NTC	IGBT4						
	◆ F3L400R07PE4_B26	650	400	1,55	11/26,5	0,125	M_EP4b/3.17
 sixpack with NTC	IGBT4						
	FS100R07PE4	650	100	1,55	1,3/4,9	0,45	M_EP4d/3.18
	FS150R07PE4	650	150	1,55	2,65/7,15	0,35	M_EP4d/3.18
 FD Chopper with NTC	IGBT4						
	◆ FD300R07PE4_B6	650	300	1,55	3,3/15,5	0,16	M_EP4d/3.18
 DF Chopper with NTC	IGBT4						
	◆ DF300R07PE4_B6	650	300	1,55	3,85/15,5	0,16	M_EP4d/3.18
	◆ DF400R07PE4R_B6	650	400	1,55	8,95/23,5	0,135	M_EP4d/3.18

◆ New type


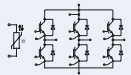
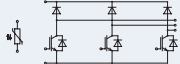
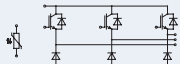
..._B26 3-Level NPC2 inverter part

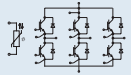
..._B6 three phase chopper

...R... limited DC current

IGBT Medium Power Modules

EconoPACK™ 4

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 3-Level one-phase NPC2 topology with NTC	IGBT4						
	◆ F3L300R12PT4_B26	1200	300	1,75	1,15/19,0	0,09	M_EP4b/3.17
	◆ F3L400R12PT4_B26	1200	400	1,75	13,0/26,0	0,07	M_EP4b/3.17
 sixpack with NTC	IGBT4						
	FS100R12PT4	1200	100	1,75	9,3/8,3	0,30	M_EP4d/3.18
	FS150R12PT4	1200	150	1,75	14/12,5	0,22	M_EP4d/3.18
 FD Chopper with NTC	IGBT4						
	◆ FD200R12PT4_B6	1200	200	1,75	17,5/21,0	0,14	M_EP4d/3.18
 DF Chopper with NTC	IGBT4						
	◆ DF200R12PT4_B6	1200	200	1,75	19,5/21,0	0,135	M_EP4d/3.18


1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	FS100R17PE4	1700	100	1,95	19/29	0,25	M_EP4d/3.18
	FS150R17PE4	1700	150	1,95	29/43,5	0,18	M_EP4d/3.18

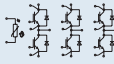
◆ New type ..._B26 3-Level NPC2 inverter part ..._B6 three phase chopper

IGBT Medium Power Modules

EconoPACK™ +

IGBT
Medium Power


1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT3						
	■ FS150R12KE3G	1200	150	1,70	11/24	0,180	M_E+a/3.19
	■ FS225R12KE3	1200	225	1,70	15/36	0,110	M_E+a/3.19
	■ FS300R12KE3	1200	300	1,70	22/43	0,085	M_E+a/3.19
	■ FS450R12KE3	1200	450	1,70	33/65	0,060	M_E+a/3.19
	IGBT4						
	■ FS225R12KE4	1200	225	1,85	12,5/26,5	0,140	M_E+a/3.19
■ FS300R12KE4	1200	300	1,75	17/37,5	0,094	M_E+a/3.19	
■ FS450R12KE4	1200	450	1,75	26/55,5	0,066	M_E+a/3.19	

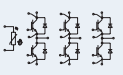
1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT3						
	■ FS150R17KE3G	1700	150	2,00	48/47	0,120	M_E+a/3.19
	■ FS225R17KE3	1700	225	2,00	71,5/70,5	0,090	M_E+a/3.19
	■ FS300R17KE3	1700	300	2,00	95/94	0,075	M_E+a/3.19
	■ FS450R17KE3	1700	450	2,00	140/140	0,055	M_E+a/3.19
	IGBT4						
	■ FS225R17KE4	1700	225	1,95	67,5/73,5	0,099	M_E+a/3.19
■ FS300R17KE4	1700	300	1,95	92/98,5	0,083	M_E+a/3.19	
■ FS450R17KE4	1700	450	1,95	135/155	0,060	M_E+a/3.19	

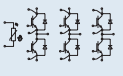
■ Not for new design

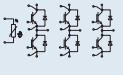
IGBT Medium Power Modules

EconoPACK™ + D-Series

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS225R120E4	1200	225	1,75	20/28,5	0,120	M_E+d/3.19
	◆ FS300R120E4	1200	300	1,75	29,5/38,0	0,091	M_E+d/3.19
	◆ FS450R120E4	1200	450	1,75	40,5/56,5	0,067	M_E+d/3.19

1200 V _{CES} – Modules with preapplied Thermal Interface Material (TIM)							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS225R120E4P	1200	225	1,75	20/28,5	0,120	M_E+d/3.19
	◆ FS300R120E4P	1200	300	1,75	29,5/38	0,091	M_E+d/3.19
	◆ FS450R120E4P	1200	450	1,75	40,5/56,5	0,067	M_E+d/3.19

1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS225R170E4	1700	225	1,95	60/73,5	0,100	M_E+d/3.19
	◆ FS300R170E4	1700	300	1,95	90,5/93	0,082	M_E+d/3.19
	◆ FS450R170E4	1700	450	1,95	165/135	0,062	M_E+d/3.19
	◆ FS500R170E4D	1700	500	1,95	165/155	0,05	M_E+d/3.19







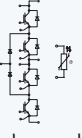
1700 V _{CES} – Modules with preapplied Thermal Interface Material (TIM)							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 sixpack with NTC	IGBT4						
	◆ FS225R170E4P	1700	225	1,95	60/73,5	0,100	M_E+d/3.19
	◆ FS300R170E4P	1700	300	1,95	90,5/93	0,082	M_E+d/3.19
	◆ FS450R170E4P	1700	450	1,95	165/135	0,062	M_E+d/3.19
	◆ FS500R170E4DP	1700	500	1,95	165/155	0,05	M_E+d/3.19

◆ New type ...P = preapplied Thermal Interface Material (TIM) ...D with enhanced diode

IGBT Medium Power Modules

EconoDUAL™


IGBT
Medium Power

600 V _{CES} /650 V _{CES}		   					
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 dual modules with NTC	IGBT3 FF450R06ME3	600	450	1,45	6,3/17,5	0,120	M_ED3/3.20
	FF600R06ME3	600	600	1,45	9,9/25	0,090	M_ED3/3.20
	IGBT4 ◆ FF300R07ME4_B11	650	300	1,55	2,8/18	0,140	M_ED3_PF/3.20
	◆ FF450R07ME4_B11	650	450	1,75	26/55,5	0,066	M_ED3_PF/3.20
	◆ FF600R07ME4_B11	650	600	1,75	83/72	0,041	M_ED3_PF/3.20
 chopper modules with NTC	IGBT3 FD600R06ME3_S2	600	600	1,30	6,1/17,5	0,055	M_ED3/3.20
 3-level one-phase NPC1 topology with NTC	IGBT4 ◆ F3L400R07ME4_B22	650	400	1,55	12/25,5	0,13	M_ED3/3.20
	◆ F3L400R07ME4_B23	650	400	1,55	12/25,5	0,13	M_ED3/3.20

◆ New type ..._B11 PressFIT Modules ..._S2 low V_{CESat} ..._B22 3-Level NPC1 upper switch ..._B23 3-Level NPC1 lower switch

IGBT Medium Power Modules

EconoDUAL™

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 dual modules with NTC	IGBT4 Fast FF200R12MT4	1200	200	1,75	18,5/16,5	0,140	M_ED2a/3.21
	IGBT2 Fast FF150R12MS4G	1200	150	3,20	14,5/11	0,100	M_ED3/3.20
	FF225R12MS4	1200	225	3,20	20/15	0,085	M_ED3/3.20
	FF300R12MS4	1200	300	3,20	25/15	0,064	M_ED3/3.20
	IGBT3 FF150R12ME3G	1200	150	1,70	11/24	0,180	M_ED3/3.20
	FF225R12ME3	1200	225	1,70	15/36	0,110	M_ED3/3.20
	FF300R12ME3	1200	300	1,70	22/43	0,085	M_ED3/3.20
	FF450R12ME3	1200	450	1,70	33/65	0,060	M_ED3/3.20
	IGBT4 FF225R12ME4	1200	225	1,85	12,5/26,5	0,140	M_ED3/3.20
	FF300R12ME4	1200	300	1,75	17/37,5	0,094	M_ED3/3.20
	FF450R12ME4	1200	450	1,75	26/55,5	0,066	M_ED3/3.20
	◆ FF600R12ME4	1200	600	1,75	83/72	0,041	M_ED3/3.20
	◆ FF600R12ME4C	1200	600	1,75	data on request	0,037	M_ED3/3.20
	◆ FF225R12ME4_B11	1200	225	1,85	12,5/26,5	0,140	M_ED3_PF/3.20
	◆ FF300R12ME4_B11	1200	300	1,75	17/37,5	0,094	M_ED3_PF/3.20
	◆ FF450R12ME4_B11	1200	450	1,75	26/55,5	0,066	M_ED3_PF/3.20
	◆ FF600R12ME4_B11	1200	600	1,75	83/72	0,041	M_ED3_PF/3.20
	◆ FF600R12ME4C_B11	1200	600	1,75	data on request	0,037	M_ED3_PF/3.20

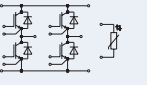
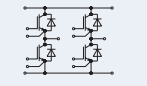
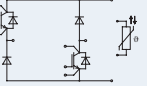
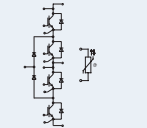
◆ New type ...C soft diode performance ..._B11 PressFIT Modules


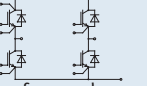
IGBT
Medium Power

IGBT Medium Power Modules

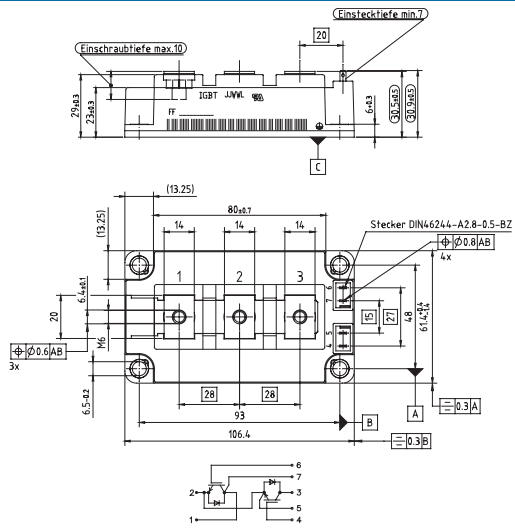
EconoDUAL™

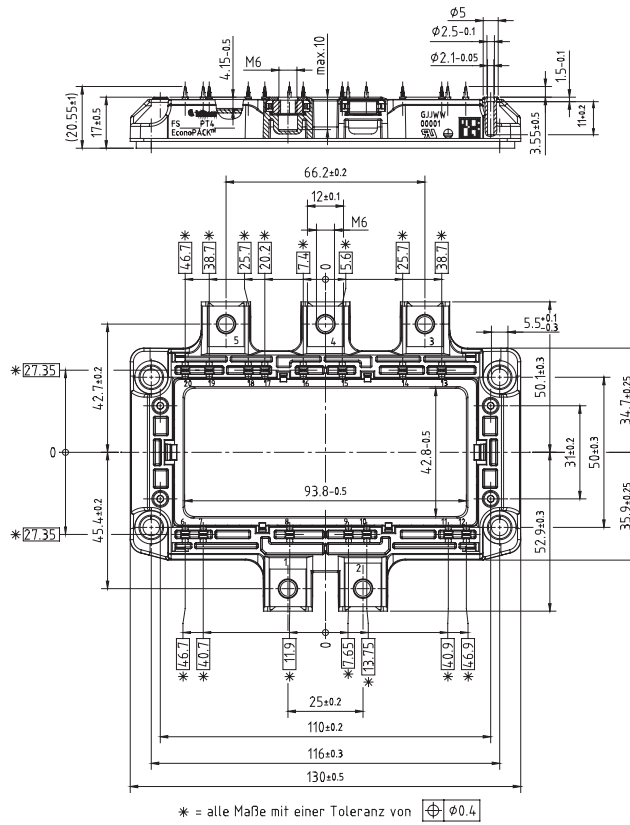
IGBT
Medium Power

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 fourpack with NTC	IGBT2 Fast F4-50R12MS4	1200	50	3,20	6/2,5	0,350	M_ED2b/3.21
	F4-75R12MS4	1200	75	3,20	9/3,8	0,250	M_ED2b/3.21
 fourpack without NTC	IGBT4 F4-100R12MT4	1200	100	1,75	11,0/11,0	0,230	M_ED3/3.20
	F4-100R12MT4	1200	200	1,75	19,0/18,0	0,160	M_ED3/3.20
 chopper	IGBT4 ◆ F4-400R12ME4_B29	1200	400	data on request			M_ED3/3.20
 3-level one-phase NPC1 topology with NTC	IGBT4 ◆ F3L300R12ME4_B22	1200	300	1,75	24/36,5	0,097	M_ED3/3.20
	◆ F3L300R12ME4_B23	1200	300	1,75	24/36,5	0,097	M_ED3/3.20

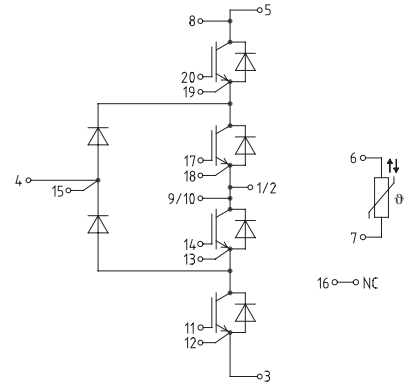
1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W max	Outline/ page	
 dual modules with NTC	IGBT3 FF150R17ME3G	1700	150	2,00	48/47	0,120	M_ED3/3.20
	FF225R17ME3	1700	225	2,00	71,5/70,5	0,090	M_ED3/3.20
	FF300R17ME3	1700	300	2,00	95/94	0,075	M_ED3/3.20
	FF450R17ME3	1700	450	2,00	140/140	0,055	M_ED3/3.20
	IGBT4 FF225R17ME4	1700	225	1,95	67,5/73,5	0,099	M_ED3/3.20
	FF300R17ME4	1700	300	1,95	92/98,5	0,083	M_ED3/3.20
	FF450R17ME4	1700	450	1,95	135/155	0,060	M_ED3/3.20
	◆ FF600R17ME4	1700	600	1,95	210/180	0,037	M_ED3/3.20
	◆ FF225R17ME4_B11	1700	225	1,95	67,5/73,5	0,099	M_ED3_Pf/3.20
	◆ FF300R17ME4_B11	1700	300	1,95	92/98,5	0,083	M_ED3_Pf/3.20
 fourpack without NTC	IGBT4 ◆ F4-100R17ME4	1700	100	1,95	22,0/30,0	0,250	M_ED3/3.20
	◆ F4-150R17ME4	1700	150	1,95	30,0/44,0	0,180	M_ED3/3.20
	◆ F4-250R17MP4	1700	250	1,75	95,0/110,0	0,100	M_ED3/3.20

◆ New type ..._B29 Chopper ..._B22 3-Level NPC1 upper switch ..._B23 3-Level NPC1 lower switch ..._B11 PressFIT Modules

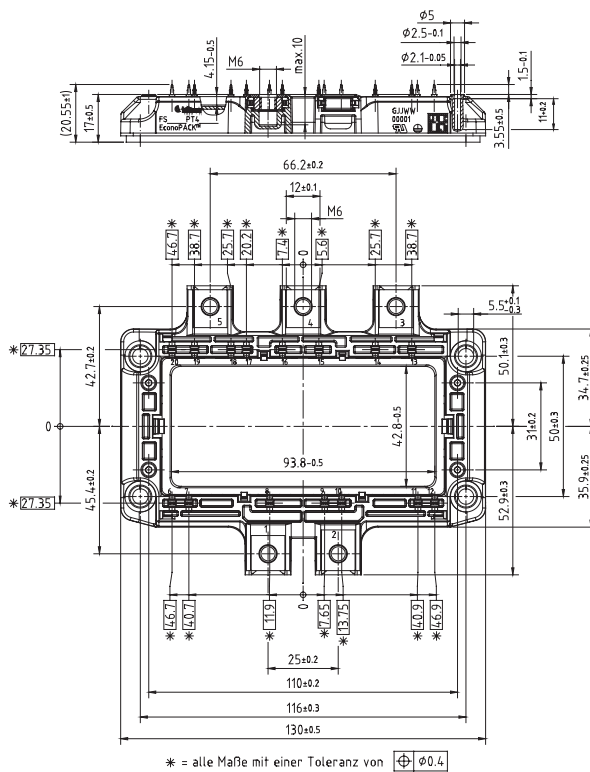




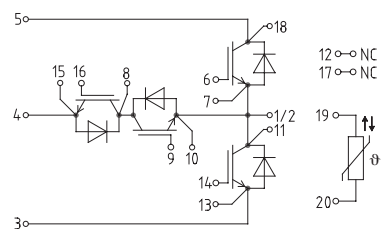
3-level one-phase NPC1 topology with NTC

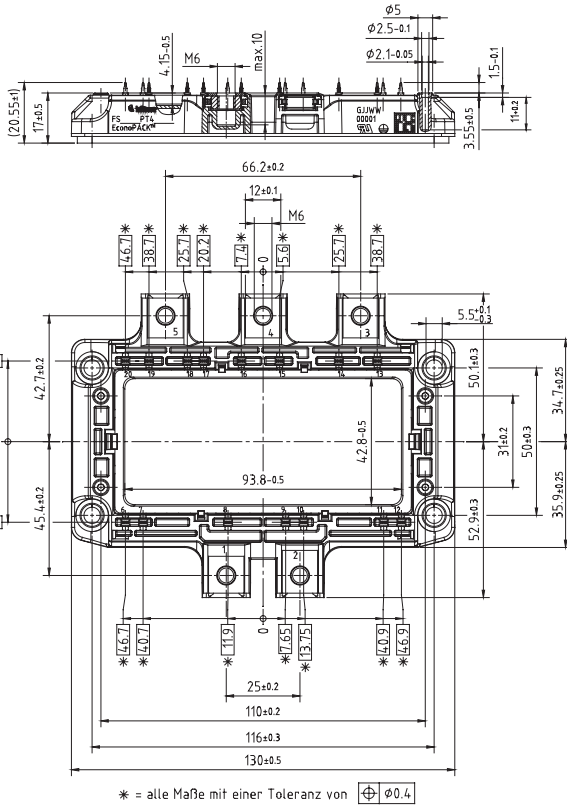


IGBT
Medium Power

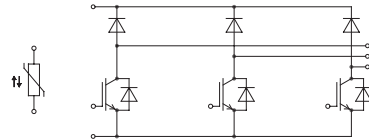


3-level one-phase NPC2 topology with NTC

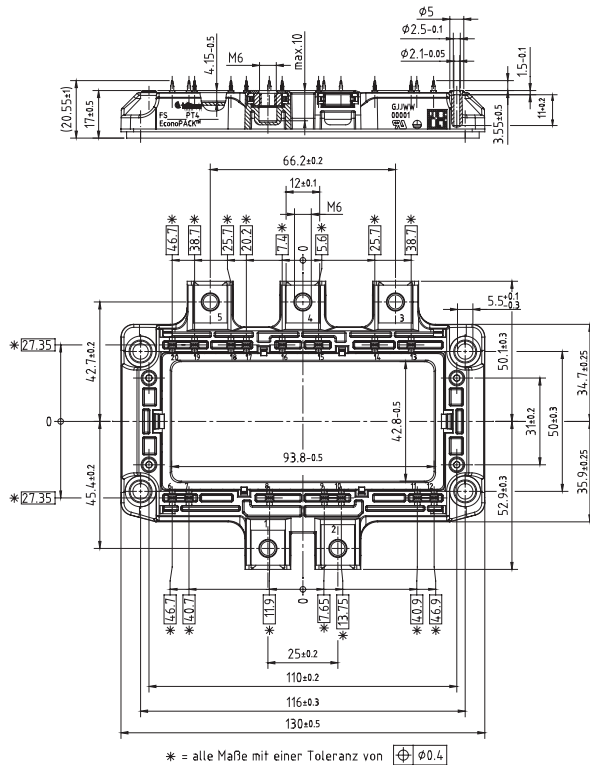
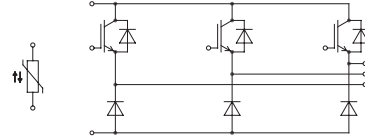




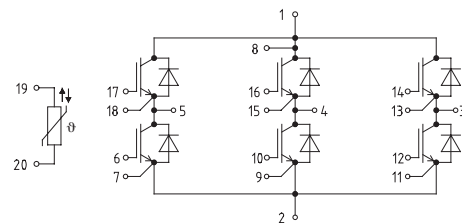
FD chopper with NTC

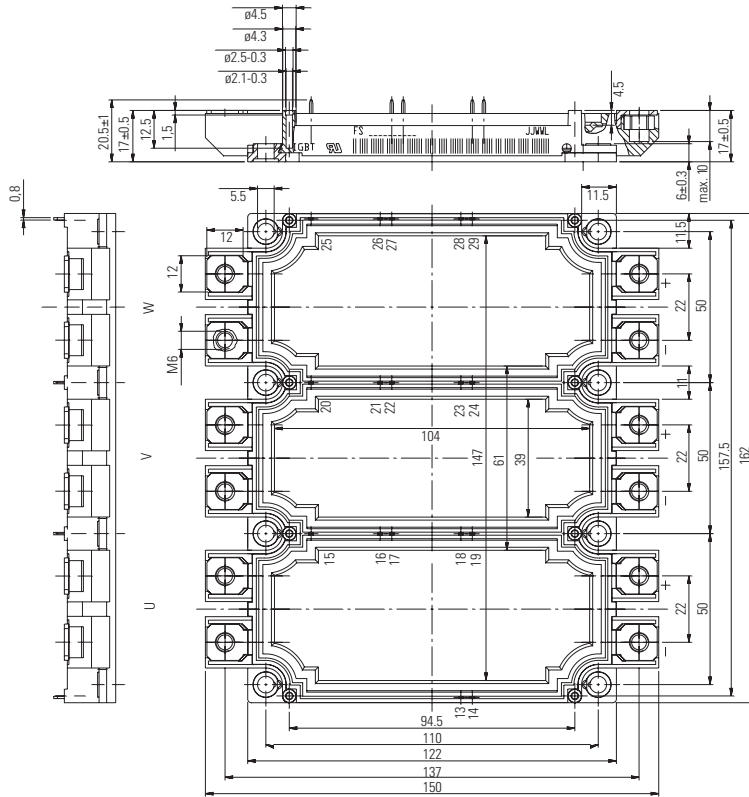


DF chopper with NTC

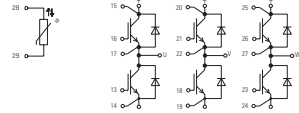


sixpack with NTC

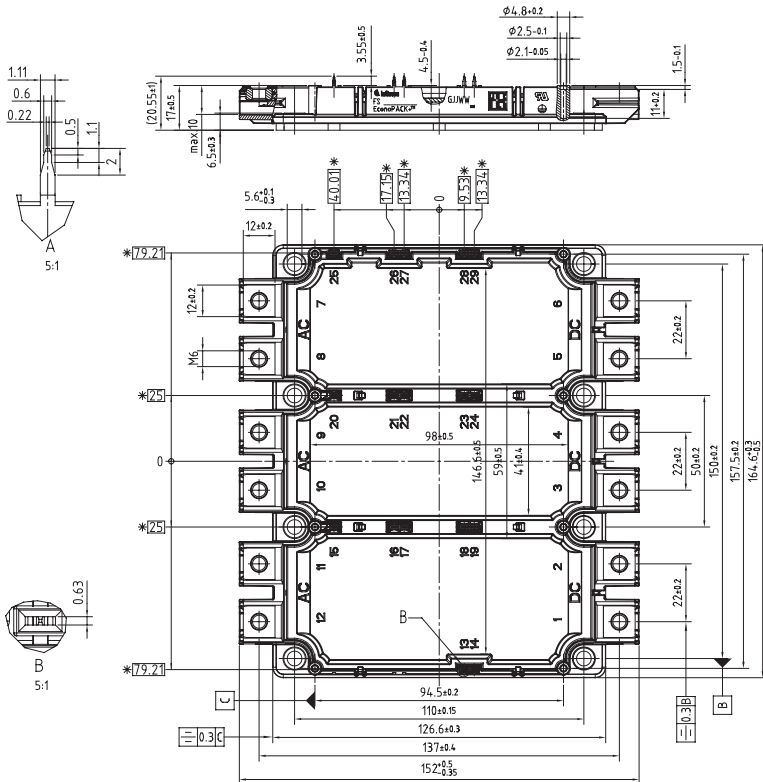




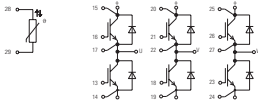
sixpack with NTC



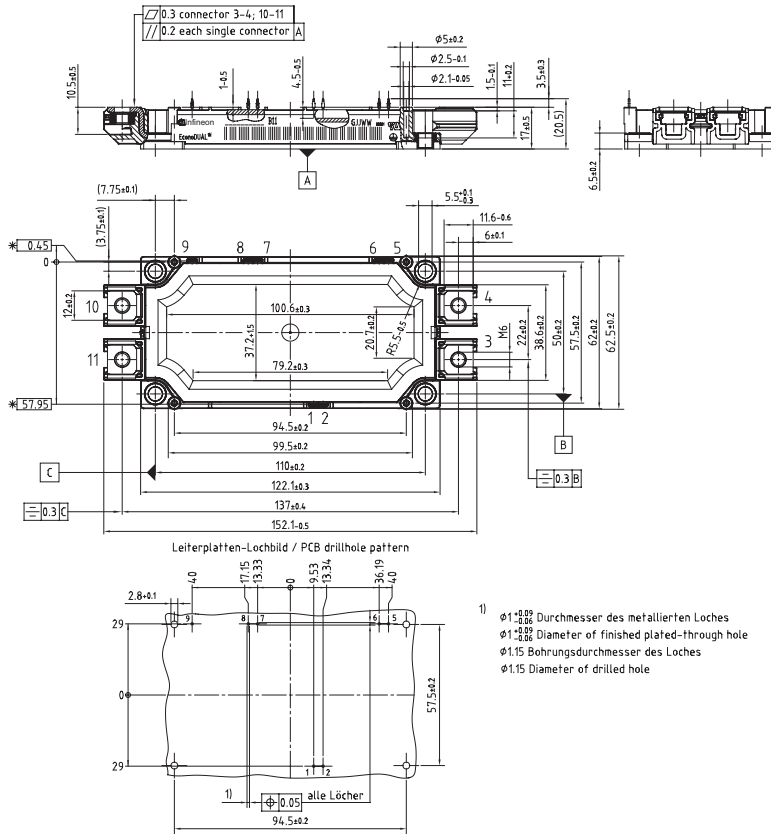
IGBT
Medium Power



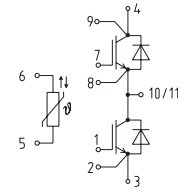
sixpack with NTC



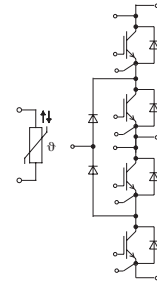
* = alle Maße mit einer Toleranz von ± 0.4
 * = all dimensions with a tolerance of ± 0.4



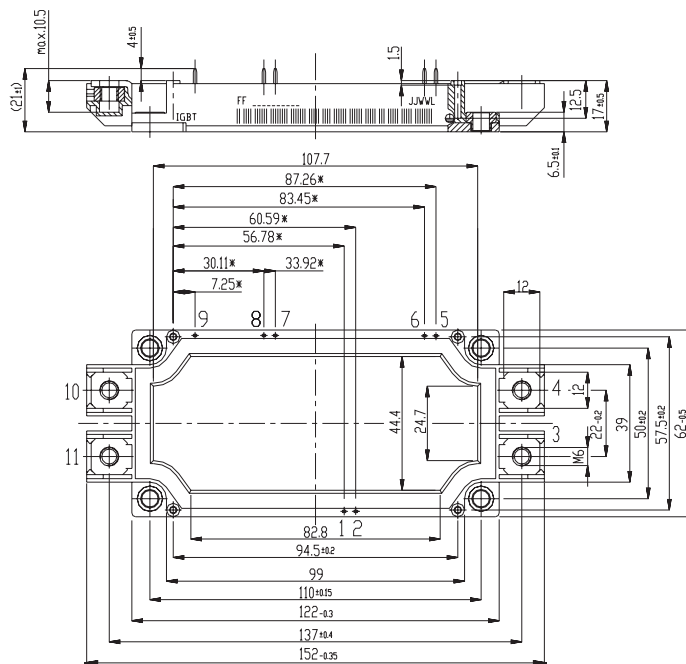
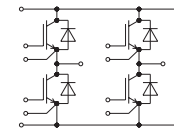
dual modules with NTC



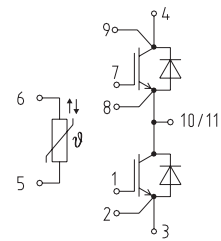
3-level one-phase NPC1 topology with NTC



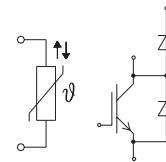
fourpack without NTC

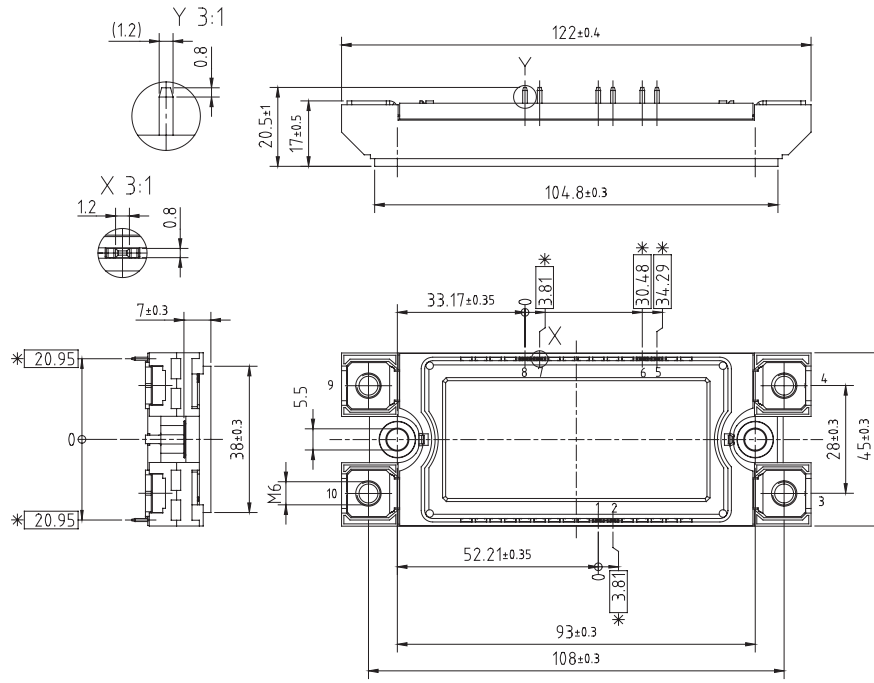


dual modules with NTC

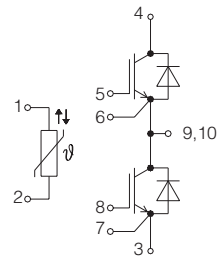


chopper modules with NTC



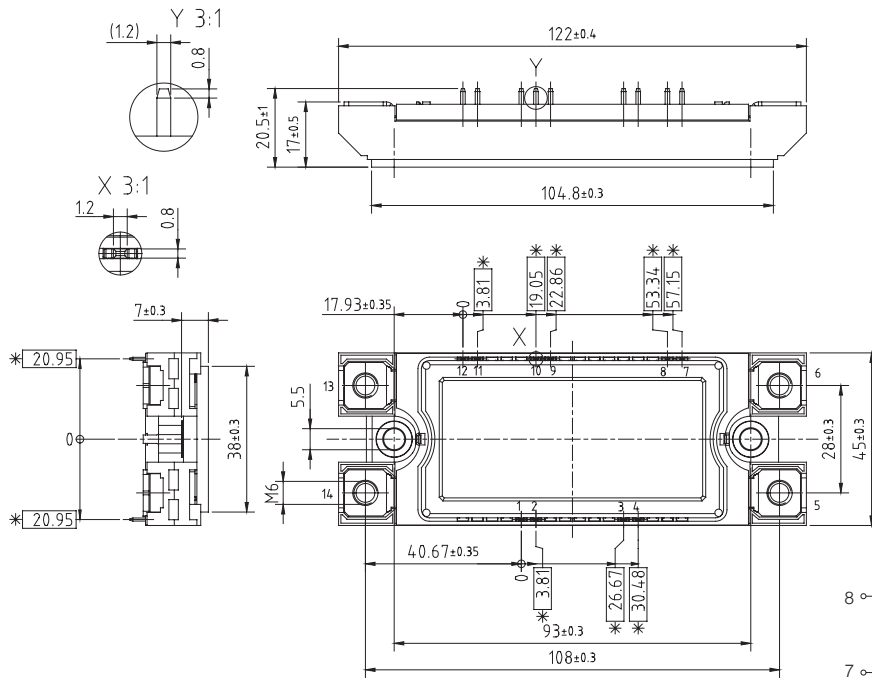


dual modules with NTC

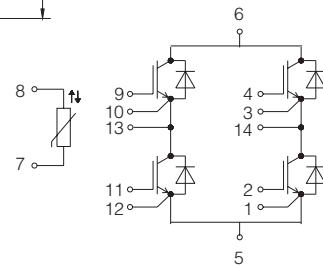


* = Pinpositions with tolerance $\varnothing 0.4$

IGBT
Medium Power



fourpack with NTC



* = Pinpositions with tolerance $\varnothing 0.4$

Package Units

IGBT Medium Power Modules

	Housing Size (overall)	Packing Units
Standard 34mm	34,0 mm x 94,0 mm	10
Standard 62mm	62,0 mm x 106,4 mm	10

	Housing Size (overall)	Packing Units
EconoPACK™ +	162,0 mm x 150,0 mm	4
EconoPACK™ 4	130,0 mm x 103,0 mm	6
EconoDUAL™ 2	45,0 mm x 122,0 mm	14
EconoDUAL™ 3	62,0 mm x 152,0 mm	10
EconoDUAL™ 3 PressFIT	62,0 mm x 152,0 mm	6

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
34 & 62mm IGBT Modules	Product Brief	http://www.infineon.com/34mm-62mm-product-brief
3-Level Inverter 650V / 1200V	Product Brief	http://www.infineon.com/3-level-product-brief
EconoDUAL™ , EconoPACK™ 4, EconoPACK™ +	Product Brief	http://www.infineon.com/econo-medium-power-product-brief
EconoPACK™ 4 - The new world standard	Product Brief	http://www.infineon.com/econopack4-product-brief
EconoPACK™ 4 - IGBT Modules	Webpage	http://www.infineon.com/econopack4
EconoPACK™+ D-series - Fit for the future	Webpage	http://www.infineon.com/econopack-d-series
EconoDUAL™ 3 - 1200V, 600A - best in class	Webpage	http://www.infineon.com/dual3
Application Notes for all packages & technologies	Application Note Collection	http://www.infineon.com/igbt-modules-application-notes
Product Briefs for all packages & technologies	Product Brief Collection	http://www.infineon.com/igbt-modules-product-briefs

High Power Modules



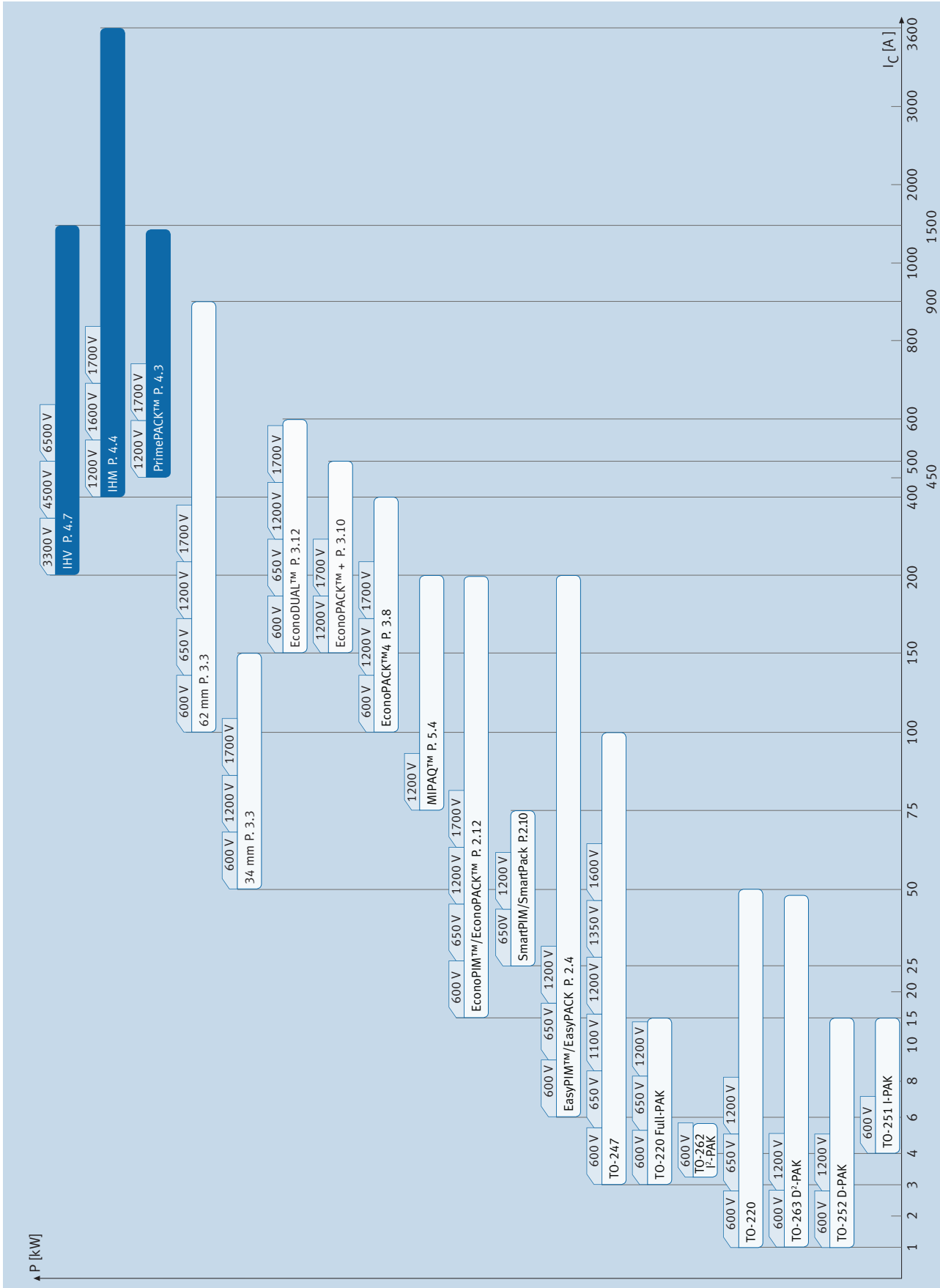
The High Power IGBT modules are used for applications in power range of 0.5 MW (1200V, 450A) till 6 MW (1700V, 3600A) and are offered in 3 different package categories, namely PrimePACK™, IHM (IGBT High power Module) and IHV (IGBT High Voltage). For high voltage applications (3.3, 4.5 and 6.5 KV) the IHV modules are available in various flavors with current ratings from 200A to 1500A. Different available topologies: chopper, diode, dual, half-bridge, and single switch enhance the high power modules product portfolio further.

The innovative PrimePACK™ (1200V & 1700V, 450...1400A), IHM (1200V & 1700V, 400...3600A) and IHV housing introduced by us is very well accepted in the market and has established itself as an industry standard which is adopted by all well known manufacturers and used in countless applications worldwide.

Our high power modules are highly integrated, robust, and work with 100% reliability under any temperature conditions ranging from -40...+150°C. Low leaking current and continuously improved thermal properties of these PrimePACK™, IHM and IHV modules are well appreciated by the customers. Electrical separation between power and auxiliary terminals reduces the stray inductance influence on sense contacts thereby making the module easy to control and safe to use. The widely accepted driving techniques and vastly available design support solutions make these modules a preferred choice for a powerful, compact and modular converter design.




Our products today are contributing to daily demanding secure transportation applications, CAV (Construction & Agriculture Vehicles), working excellently even under harsh and rough conditions in power- generation & -distribution, industrial drives and are the innovative semiconductor solutions for energy efficiency and secure mobility.



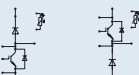
IGBT
High Power



IGBT High Power Modules

PrimePACK™

1200 V _{CES} ¹⁾							
							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W per arm	Outline/ page	
 halfbridge with NTC	IGBT4						
	FF450R12IE4	1200	450	1,75	59/52	0,0590 H_PP2/4.10	
	FF600R12IE4	1200	600	1,75	61/73	0,0450 H_PP2/4.10	
	FF600R12IP4	1200	600	1,70	77/105	0,0450 H_PP2/4.10	
	FF600R12IS4F	1200	600	3,20	20/40	0,0340 H_PP2/4.10	
	FF900R12IE4	1200	900	1,75	70/120	0,0295 H_PP2/4.10	
	FF900R12IP4	1200	900	1,70	100/160	0,0295 H_PP2/4.10	
	FF900R12IP4D	1200	900	1,70	100/160	0,0295 H_PP2/4.10	
FF1400R12IP4	1200	1400	1,75	80/280	0,0195 H_PP3/4.10		
 DF FD chopper modules with NTC	IGBT4						
	FD600R12IP4D	1200	600	1,70	77/105	0,0450 H_PP2/4.10	
	DF600R12IP4D	1200	600	1,70	77/105	0,0450 H_PP2/4.10	
	FD900R12IP4D	1200	900	1,70	100/160	0,0295 H_PP2/4.10	
	DF900R12IP4D	1200	900	1,70	100/160	0,0295 H_PP2/4.10	
	FD1400R12IP4D	1200	1400	1,75	80/280	0,0195 H_PP3/4.10	
	DF1400R12IP4D	1200	1400	1,75	80/280	0,0195 H_PP3/4.10	

1700 V _{CES} ¹⁾							
							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W per arm	Outline/ page	
 halfbridge with NTC	IGBT4						
	FF450R17IE4	1700	450	2,00	200/140	0,054 H_PP2/4.10	
	FF650R17IE4	1700	650	2,00	300/205	0,036 H_PP2/4.10	
	FF650R17IE4D_B2	1700	650	2,00	260/205	0,036 H_PP2/4.10	
	FF1000R17IE4	1700	1000	2,00	390/295	0,024 H_PP3/4.10	
	FF1000R17IE4D_B2	1700	1000	2,00	365/315	0,024 H_PP3/4.10	
	FF1400R17IP4	1700	1400	1,75	500/625	0,024 H_PP3/4.10	
 DF FD chopper modules with NTC	IGBT4						
	FD650R17IE4	1700	650	2,00	300/205	0,036 H_PP2/4.10	
	DF650R17IE4	1700	650	2,00	300/205	0,036 H_PP2/4.10	
	FD1000R17IE4	1700	1000	2,00	390/295	0,024 H_PP3/4.10	
	DF1000R17IE4	1700	1000	2,00	390/295	0,024 H_PP3/4.10	
	FD 650R17IE4D_B2	1700	650	2,00	260/205	0,036 H_PP2/4.10	
	DF 650 R17IE4D_B2	1700	650	2,00	260/205	0,036 H_PP2/4.10	
	FD1000 R17IE4D_B2	1700	1000	2,00	365/315	0,024 H_PP3/4.10	
	DF1000 R17IE4D_B2	1700	1000	2,00	365/315	0,024 H_PP3/4.10	

¹⁾ PrimePACK™: T_{vj,op} = 150°C

All modules with internal NTC

All modules are UL recognized

..._B2: Traction

...F: SiC Diodes

IGBT High Power

IGBT High Power Modules

IHM Modules

1200 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W per arm	Outline/ page	
 dual modules	IGBT3						
	FF600R12KE3	1200	600	1,70	120/95	0,0440	H_IH2/4.10
	FF800R12KE3	1200	800	1,70	160/125	0,0320	H_IH2/4.10
	FF1200R12KE3	1200	1200	1,70	245/190	0,0250	H_IH2/4.10
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R12HP4	1200	1200	1,70	155/265	0,0210	H_IH4B/4.10
	FZ1600R12HP4	1200	1600	1,70	250/370	0,0160	H_IH4B/4.10
	FZ1800R12HP4_B9	1200	1800	1,70	330/405	0,0140	H_IH7B/4.11
	FZ2400R12HP4	1200	2400	1,70	460/560	0,0120	H_IH4B/4.10
	FZ2400R12HP4_B9	1200	2400	1,70	460/560	0,0110	H_IH7B/4.11
	FZ3600R12HP4	1200	3600	1,70	595/895	0,0080	H_IH7B/4.11
	IGBT4 Fast (IHM B) ¹⁾						
	FZ1200R12HE4	1200	1200	1,75	115/145	0,0210	H_IH4B/4.10
	FZ1800R12HE4_B9	1200	1800	1,75	245/245	0,0140	H_IH7B/4.11
	FZ2400R12HE4_B9	1200	2400	1,95	510/630	0,0097	H_IH7B/4.11

¹⁾ IHM B / IHV B: T_{vj,op} = 150°C

All modules are UL recognised

..._B9: Bigger Housing

IGBT High Power Modules

IHM Modules

1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W per arm	Outline/ page	
 dual modules	IGBT3						
	FF600R17KE3	1700	600	2,00	185/210	0,034 H_IH2/4.10	
	FF800R17KE3	1700	800	2,00	240/280	0,028 H_IH2/4.10	
	FF1200R17KE3	1700	1200	2,00	350/445	0,021 H_IH2/4.10	
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R17HP4	1700	1200	1,90	365/415	0,0190 H_IH4B/4.10	
	FZ1600R17HP4	1700	1600	1,90	500/570	0,0145 H_IH4B/4.10	
	FZ1800R17HP4_B9	1700	1800	1,90	510/620	0,0130 H_IH7B/4.11	
	FZ2400R17HP4	1700	2400	1,90	570/830	0,0110 H_IH4B/4.10	
	FZ2400R17HP4_B9	1700	2400	1,90	620/870	0,0097 H_IH7B/4.11	
	FZ3600R17HP4	1700	3600	1,90	800/1450	0,0072 H_IH7B/4.11	
	IGBT4 Fast (IHM B) ¹⁾						
	FZ1200R17HE4	1700	1200	1,95	225/315	0,0220 H_IH4B/4.10	
	FZ1800R17HE4_B9	1700	1800	1,95	390/410	0,0130 H_IH7B/4.11	
	FZ2400R17HE4_B9	1700	2400	1,95	510/630	0,0097 H_IH7B/4.11	
FZ3600R17HE4	1700	3600	1,95	650/1100	0,0072 H_IH7B/4.11		
 FD... FD...-K chopper modules	IGBT3						
	FD600R17KE3-K_B5	1700	600	2,00	185/220	0,029 H_IH11/4.11	
	FD1200R17KE3-K	1700	1200	2,00	350/445	0,021 H_IH4/4.10	

¹⁾ IHM B / IHV B: T_{vj,op} = 150°C

All modules are UL recognised






..._B5: 6.5kV housing / 10.2kV insulation
 ..._B9: Bigger Housing

IGBT High Power

IGBT High Power Modules

IHM Modules

IGBT High Power

1700 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W per arm	Outline/ page	
 dual modules	IGBT2 Low Loss						
	■ FF401R17KF6C_B2	1700	400	2,60	190/150	0,040 H_IH9/4.11	
	■ FF800R17KF6C_B2	1700	800	2,60	290/335	0,020 H_IH2/4.10	
	IGBT3						
	FF600R17KE3_B2	1700	600	2,00	185/220	0,029 H_IH2/4.10	
	IGBT4 Standard						
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R17HP4_B2	1700	1200	1,90	245/415	0,0175 H_IH4B/4.10	
	FZ1600R17HP4_B2	1700	1600	1,90	330/570	0,0140 H_IH4B/4.10	
	FZ1600R17HP4_B21	1700	1600	1,90	415/570	0,0115 H_IH4B/4.10	
	FZ1800R17HP4_B29	1700	1800	1,90	380/620	0,0115 H_IH7B/4.11	
	FZ2400R17HP4_B2	1700	2400	1,90	680/830	0,0105 H_IH4B/4.10	
	FZ2400R17HP4_B28	1700	2400	1,90	680/870	0,0078 H_IH7B/4.11	
	FZ2400R17HP4_B29	1700	2400	1,90	450/870	0,0093 H_IH7B/4.11	
 FD...  FD...-K chopper modules	IGBT2 Low Loss						
	■ FD1600/1200R17KF6C_B2	1700	1600	2,60	430/670	0,010 H_IH7/4.11	
	IGBT3						
	FD600R17KE3_B2	1700	600	2,00	185/220	0,029 H_IH2/4.10	
	FD800R17KE3_B2	1700	800	2,00	240/295	0,024 H_IH2/4.10	
	■ FD1200R17KE3-K_B2	1700	1200	2,00	350/445	0,019 H_IH4/4.10	
	IGBT4 Standard (IHM B) ¹⁾						
	FD800R17HP4-K_B2	1700	800	1,90	250/385	0,0280 H_IH4B/4.10	
	FD1200R17HP4-K_B2	1700	1200	1,90	350/440	0,0215 H_IH4B/4.10	
	FD1600/1200R17HP4_B2	1700	1600	1,90	460/570	0,0140 H_IH7B/4.11	

¹⁾ IHM B / IHV B: T_{vj,op} = 150°C ■ Not recommended for new design

All modules are UL recognised

..._B2: AlSiC base-plate and bigger diode






..._B21: AlSiC base-plate with standard diode

..._B28: bigger housing, AlSiC base-plate and standard diode

..._B29: bigger housing, AlSiC base-plate and bigger diode

IGBT High Power Modules

IHV Modules

3300 V _{CES}							
Type		V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thjC} K/W	Outline/ page
 dual modules	IGBT2 Standard						
	FF200R33KF2C	3300	200	3,40	365 /255	0,0570	H_IH9/4.11
	FF400R33KF2C	3300	400	3,40	730 /510	0,0260	H_IH6/4.11
 single switches	IGBT2 Standard						
	FZ800R33KF2C	3300	800	3,40	1450/1000	0,0130	H_IH4/4.10
	FZ1200R33KF2C	3300	1200	3,40	2200/1550	0,0085	H_IH7/4.11
	High Insulation						
	FZ400R33KL2C_B5	3300	400	3,00	1200/600	0,0260	H_IH10/4.12
FZ800R33KL2C_B5	3300	800	3,00	2250/1250	0,0130	H_IH11/4.12	
FZ1200R33KL2C_B5	3300	1200	3,00	3150/1900	0,0085	H_IH12/4.12	
 FD...  FD...-K chopper modules	IGBT2 Standard						
	FD400R33KF2C	3300	400	3,40	730/510	0,0260	H_IH4/4.10
	FD800R33KF2C	3300	800	3,40	1450/1000	0,0130	H_IH7/4.11
	IGBT2 Standard						
	FD400R33KF2C-K	3300	400	3,40	730/510	0,0260	H_IH4/4.10
	FD800R33KF2C-K	3300	800	3,40	1450/1000	0,0130	H_IH7/4.11
	High Insulation						
	FD800R33KL2C-K_B5	3300	800	3,40	2250/1250	0,0130	H_IH12/4.12
IGBT3 in IHV B ¹⁾							
FD1000R33HE3-K	3300	1000	2,55	1700/1400	0,0130	H_IH7B/4.11	
 single switches	IGBT3 in IHV B ¹⁾						
	FZ1000R33HE3	3300	1000	2,55	1700/1400	0,0130	H_IH4B/4.10
	FZ1200R33HE3	3300	1200	2,7	1950/1800	0,0110	H_IH7B/4.11
	FZ1500R33HE3	3300	1500	2,55	2550/2100	0,0085	H_IH7B/4.11
	FZ1000R33HL3	3300	1000	2,40	2150/1950	0,0130	H_IH4B/4.10
FZ1500R33HL3	3300	1500	2,40	3200/2950	0,0085	H_IH7B/4.11	


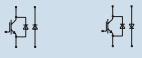
¹⁾ IHV B / IHV B: T_{vj,op} = 150°C

..._B5: 6.5kV housing / 10.2kV insulation

IGBT High Power Modules

IHV Modules



IGBT High Power

4500 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thJC} K/W	Outline/ page	
 single switches	IGBT3 in IHV B ¹⁾						
	◆ FZ1200R45HL3	4500	1200	data on request		H_IH7B/4.11	
	◆ FZ800R45HL3	4500	800	data on request		H_IH4B/4.10	
	IGBT3 in B5 housing						
single switches	◆ FZ1200R45KL3_B5	4500	1200	2,50	6500/5300	0,0074	H_IH12/4.12
	◆ FZ800R45KL3_B5	4500	800	2,50	4350/3550	0,0110	H_IH11/4.12
 FD... FD...-K chopper modules	IGBT3 in IHV B ¹⁾						
	◆ FD800R45HL3-K	4500	800	data on request		H_IH7B/4.11	
	IGBT3 in B5 housing						
	◆ FD800R45KL3-K_B5	4500	800	2,50	4350/3550	0,0110	H_IH12/4.12

¹⁾ IHV B / IHV B: T_{vj,op} = 150°C

..._B5: 6.5kV housing / 10.2kV insulation

◆ New type

6500 V _{CES}							
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} /E _{off} mWs T _{vj} =125°C typ.	R _{thJC} K/W	Outline/ page	
 single switches	IGBT2 Standard						
	■ FZ200R65KF2	6500	200	4,30	1900/1200	0,0330	H_IH10/4.12
	■ FZ400R65KF2	6500	400	4,30	4000/2300	0,0170	H_IH11/4.12
	■ FZ600R65KF2	6500	600	4,30	5900/3500	0,0110	H_IH12/4.12
	IGBT3 Standard						
	◆ FZ250R65KE3	6500	250	3,00	2200/1400	0,0260	H_IH10/4.12
	◆ FZ400R65KE3	6500	400	3,00	3450/2250	0,0150	H_IH11/4.12
single switches	FZ500R65KE3	6500	500	3,00	4300/2800	0,0130	H_IH11/4.12
	FZ600R65KE3	6500	600	3,00	5200/3400	0,0100	H_IH12/4.12
	FZ750R65KE3	6500	750	3,00	6500/4200	0,0087	H_IH12/4.12
	IGBT2 Standard						
	■ FD200R65KF2-K	6500	200	4,30	1900/1200	0,0330	H_IH11/4.12
 chopper modules	■ FD400R65KF2-K	6500	400	4,30	4000/2300	0,0170	H_IH12/4.12
	IGBT3 Standard						
	◆ FD250R65KE3-K	6500	250	3,00	2200/1400	0,0260	H_IH10/4.12
	◆ FD500R65KE3-K	6500	500	3,00	4300/2800	0,0130	H_IH12/4.12

◆ New type

■ Not recommended for new design

IGBT High Power Modules

Diode Modules

Diode Modules						
Type	V_{RRM} V	I_F A	Q_r μ As $T_{vj}=125^\circ\text{C}$ typ.	R_{thjC} K/W per arm	Outline/ page	
 diode modules	IGBT4 Standard (IHM B) ¹⁾					
	◆ DD800S17H4_B2	1700	800	320	0,051	H_IH4B/4.10
	◆ DD1200S12H4	1200	1200	195	0,04	H_IH4B/4.10
	◆ DD1200S17H4_B2	1700	1200	460	0,038	H_IH4B/4.10
	Standard					
	■ DD400S17K6C_B2	1700	400	145	0,016	H_IH1/4.10
	DD600S17K3_B2	1700	600	260	0,051	H_IH4/4.10
	DZ3600S17K3_B2	1700	3600	1450	0,014	H_IH7/4.11
	Standard					
	DD200S33K2C	3300	200	220	0,108	H_IH9/4.11
	DD400S33K2C	3300	400	440	0,051	H_IH4/4.10
	DD800S33K2C	3300	800	900	0,025	H_IH4/4.10
	DD1200S33K2C	3300	1200	1300	0,017	H_IH4/4.10
	Low Loss					
	DD1200S33KL2C_B5	3300	1200	1450	0,017	H_IH11/4.12
	Standard in IHV B ¹⁾					
	◆ DD500S33HE3	3300	500	450	0,044	H_IH4B/4.10
	◆ DD1000S33HE3	3300	1000	900	0,0235	H_IH4B/ 4.10
	Standard in IHV B ¹⁾					
	◆ DD800S45HL3	4500	800	data on request		H_IH4B/ 4.10
◆ DD1200S45HL3	4500	1200	data on request		H_IH7B/ 4.11	
Standard in B5 housing						
◆ DD400S45KL3_B5	4500	400	700	0,051	H_IH11/4.12	
◆ DD800S45KL3_B5	4500	800	data on request		H_IH11/4.12	
◆ DD1200S45KL3_B5	4500	1200	2100	0,017	H_IH11/4.12	
 diode modules	Standard					
	◆ DD250S65K3	6500	250	540	0,056	H_IH11/4.12
	◆ DD500S65K3	6500	500	1050	0,028	H_IH11/4.12
	◆ DD600S65K3	6500	600	1300	0,022	H_IH11/4.12
	◆ DD750S65K3	6500	750	1600	0,0185	H_IH11/4.12

¹⁾ IHM B / IHV B: $T_{vj,op} = 150^\circ\text{C}$

◆ New type

■ Not recommended for new design

..._B2: AISiC base-plate

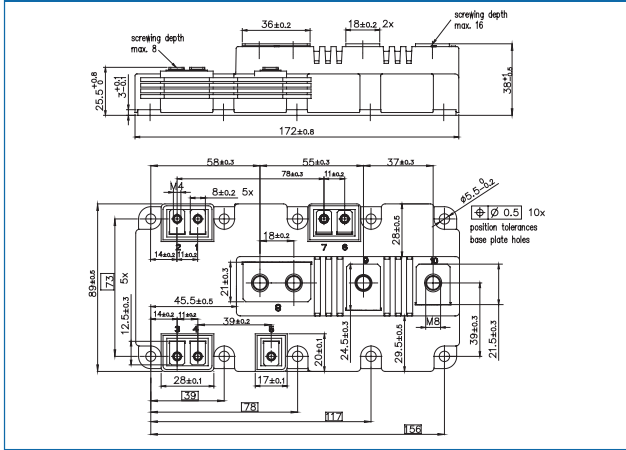
..._B5: 6.5kV housing / 10.2kV insulation

IGBT High Power

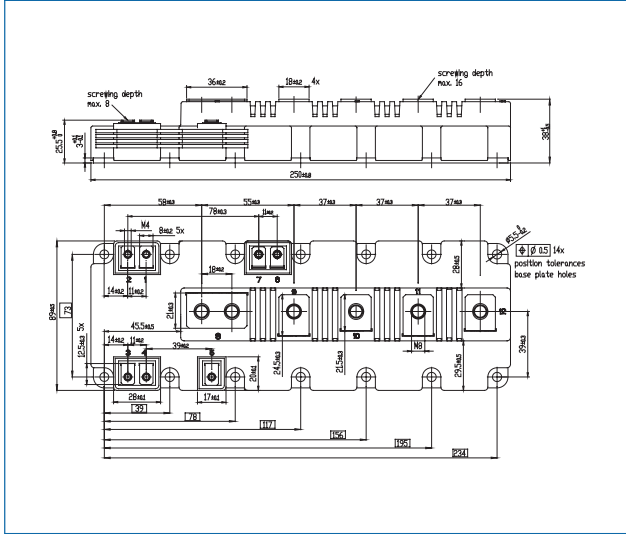
Outlines

IGBT High Power

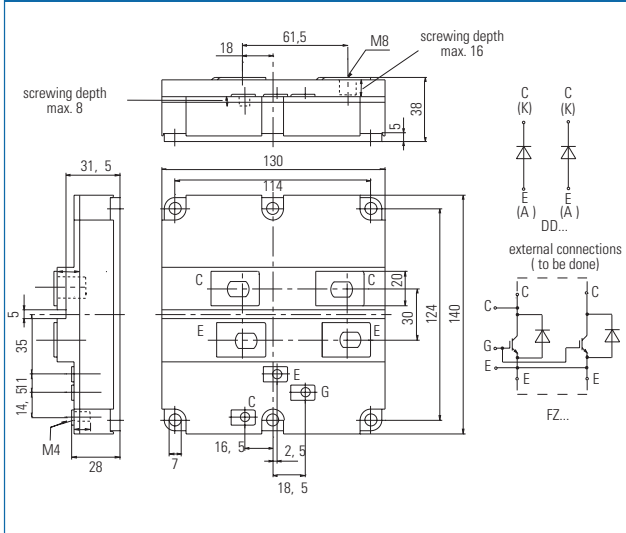
PrimePACK™ 2 H_PP2



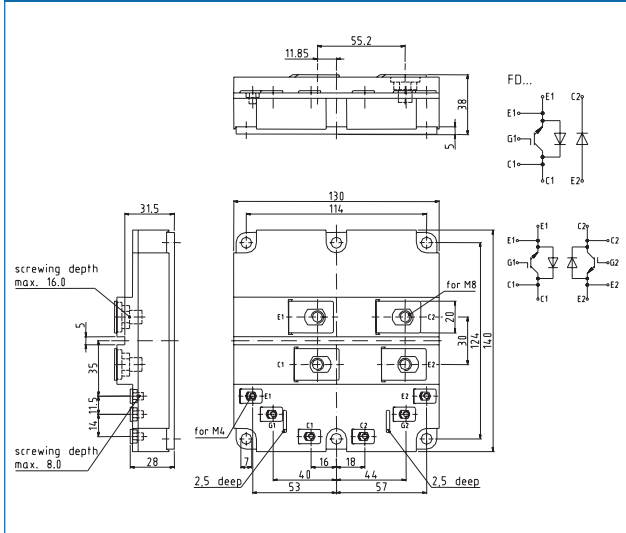
PrimePACK™ 3 H_PP3



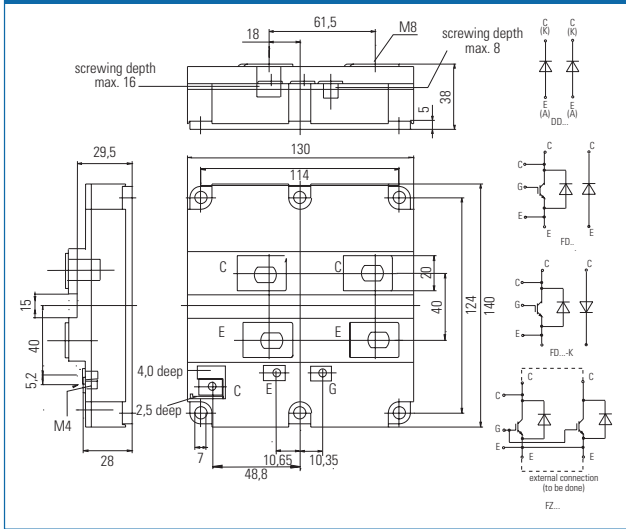
IHM H_IH1



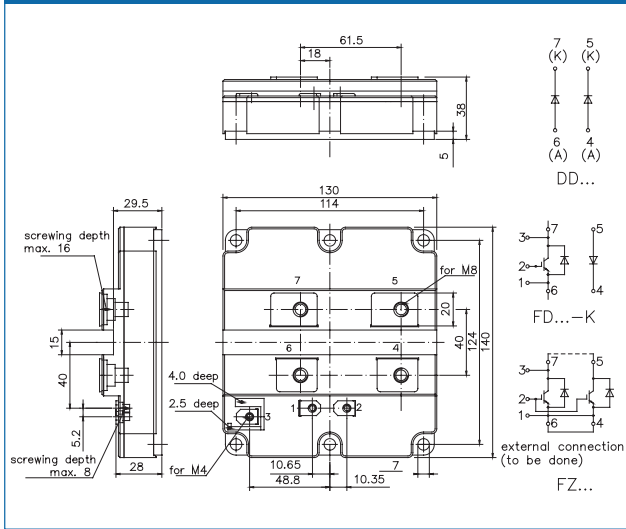
IHM H_IH2

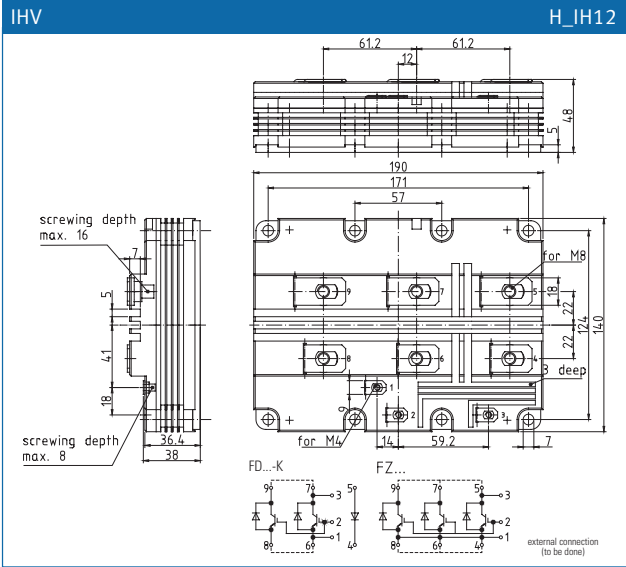
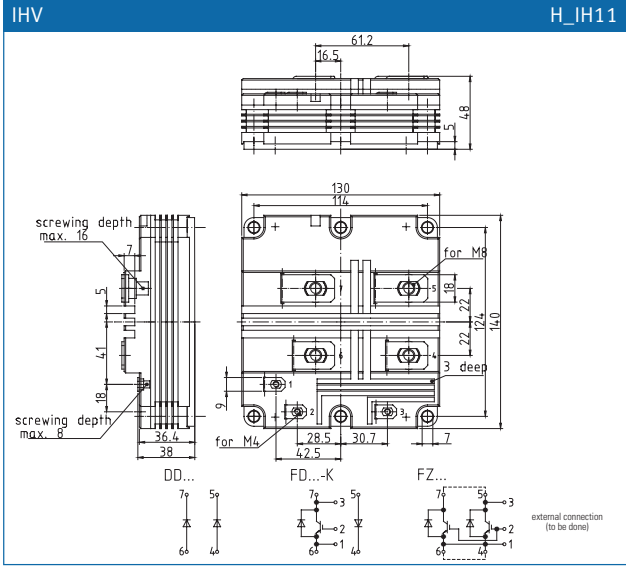
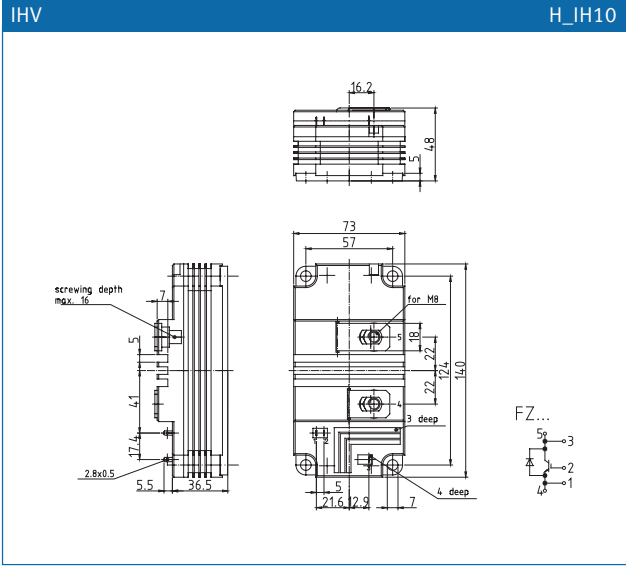


IHM/IHV H_IH4



IHM/IHV H_IH4B





Package Units

IGBT High Power Modules

IHM Modules	Housing Size (overall)	Packing Units
IHM 73	73,0 mm x 140,0 mm	4
IHM 130	130,0 mm x 140,0 mm	2
IHM B 130	130,0 mm x 140,0 mm	2
IHM190	190,0 mm x 140,0 mm	1
IHM B 190	190,0 mm x 140,0 mm	1

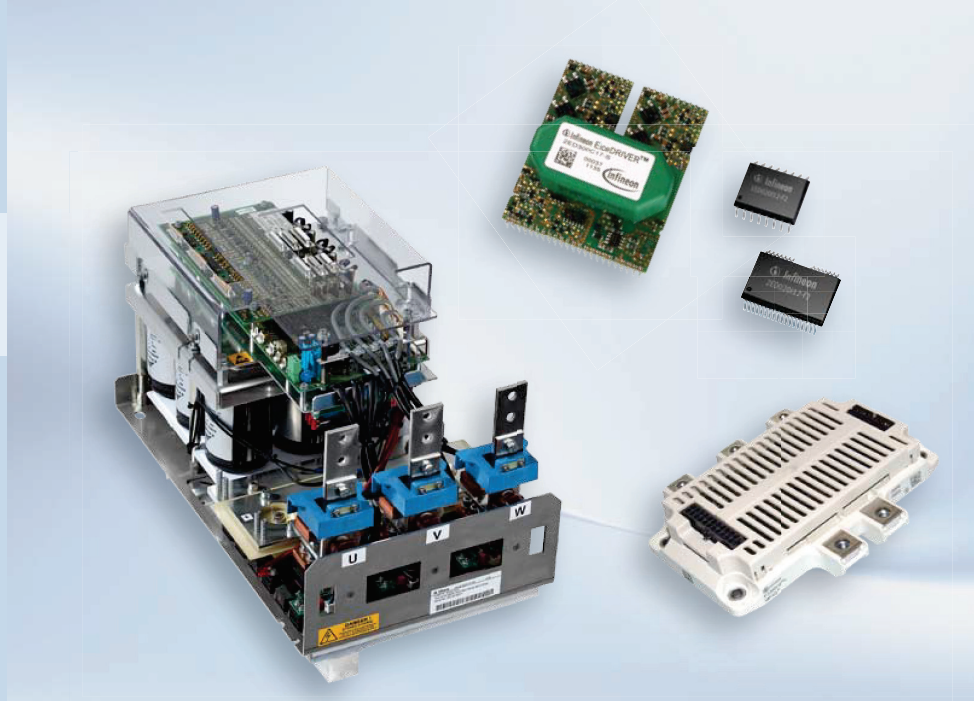
IHV Modules	Housing Size (overall)	Packing Units
IHV 73	73,0 mm x 140,0 mm	4
IHV 130	130,0 mm x 140,0 mm	2
IHV 190	190,0 mm x 140,0 mm	1
IHV B 130	130,0 mm x 140,0 mm	2
IHV B 190	190,0 mm x 140,0 mm	1

PrimePACK™ Modules	Housing Size (overall)	Packing Units
PP2	89,0 mm x 172,0 mm	3/12
PP3	89,0 mm x 250,0 mm	2/8

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
IHM, IHV Modules & PrimePACK™	Product Brief	http://www.infineon.com/ihm-ihv-primepack-product-brief
4.5kV modules in IHV portfolio	Webpage	http://www.infineon.com/ihv
3rd generation 6.5kV IGBT and diode modules	Webpage	http://www.infineon.com/6.5kV-Modules
IHM / IHV IGBT modules B-series	Webpage	http://www.infineon.com/ihm-b
PrimePACK™ IGBT Modules	Webpage	http://www.infineon.com/primepack
Application Notes for all packages & technologies	Application Note Collection	http://www.infineon.com/igbt-modules-application-notes
Product Briefs for all packages & technologies	Product Brief Collection	http://www.infineon.com/igbt-modules-product-briefs

Systems and Drivers



Today, system designers are challenged to reach the targets in terms of energy efficiency, reliability as well as rapid time to market. In addition to this, costs need to be optimized. To meet these demands, industries need solutions tailored to their applications. Infineon's system expertise, broad application competence and decades of experience in industrial electronics enable us to provide innovative, reliable and energy-saving power solutions.

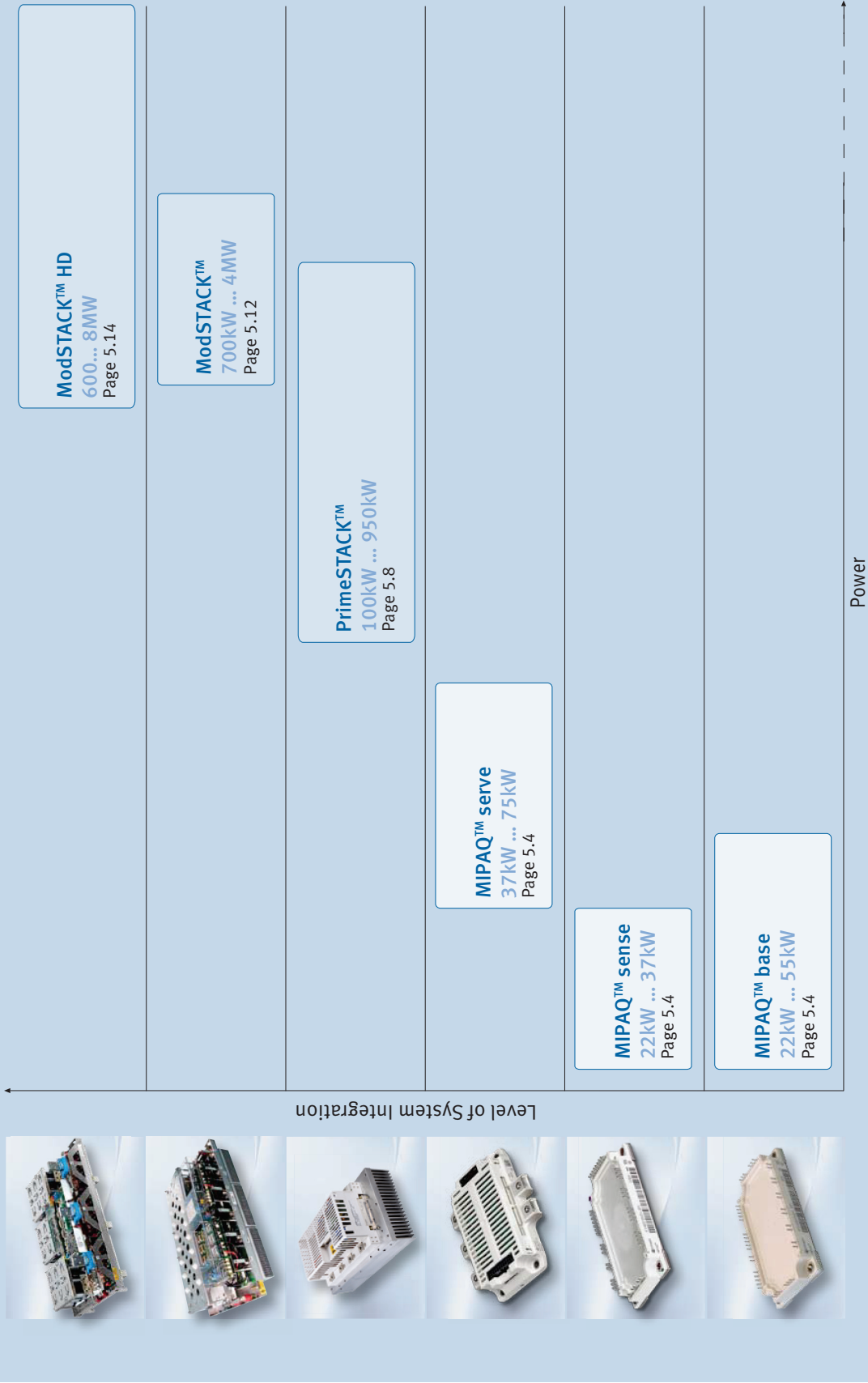
With MIPAQ™, Stacks and EiceDRIVER™ Infineon provides end-to-end solutions at different levels of system integration covering a power range from 1 kW up to 8 MW.

MIPAQ™ is Infineon's integrated IGBT module family and offers a very high level of functionality. The MIPAQ™ (Modules Integrating Power, Application and Quality) products are optimized solutions in mastering the challenge of designing powerful and compact inverters with enhancements in efficiency and ruggedness.

Stacks are based on Infineon's latest IGBT modules and IGBT technologies combined with thermal management, capacitors, drivers, sensors and temperature monitoring. The power section and control electronics are fully separated from each other by "reinforced isolation". Infineon's modules are developed for high efficiency, low inductance and simple paralleling of modules. In combination with specially designed high performance heat exchangers, the modules can easily reach maximum output power. All inverter- and various converter-topologies are available.

The **EiceDRIVER™** family provides a solution to control and protect Infineon's IGBT modules reliably and efficiently. Infineon's HV Gate Drivers are the best choice to drive all IGBT modules up to 1700 V.

Overview Stacks and MIPAQ™



MIPAQ™


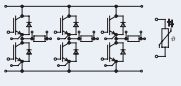
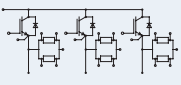


The MIPAQ™ family was developed in order to offer Modules Integrating Power, Application and Quality. It is a functional product family within Infineon's IGBT modules portfolio and as such dedicated to useful integration of electronics into power modules. The combination of an IGBT module and integrated sensing and driving electronics leads to an optimized solution in mastering the challenge of designing powerful and compact inverters for low and medium power. It eases the cost situation on the one hand and contributes to energy saving on the other hand. Thus, it improves the profitability and protects our environment at the same time.


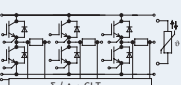
The module family starts with MIPAQ™ base, which provides an IGBT sixpack plus current sense shunts inside. Due to the integration of specially designed shunts, the performance with regard to system cost is excellent. MIPAQ™ base modules in sixpack configuration with NTC are available in the well-proven EconoPACK™ 3 housing with 75 A, 100 A and even 150 A nominal current and 1200 V blocking voltage. MIPAQ™ base shunt modules save space and help to manage the temperature on the PCB with very high measurement accuracy.

The next level of integration is represented by MIPAQ™ sense and MIPAQ™ serve. MIPAQ™ sense integrates an IGBT sixpack in the range up to 100 A at 1200 V and fully digital current measurement with galvanically isolated output signals. The measurement principle uses the Sigma Delta method. The MIPAQ™ serve consists of an IGBT sixpack plus a full set of drivers and temperature measurement on top of the IGBT module. It is a plug and play solution for high current drive applications. Inside the module, there are galvanically isolated drivers based on Infineon's Coreless Transformer Technology. The temperature measurement of the base plate inside the module offers an isolated signal as well. MIPAQ™ serve covers a range from 100 A up to 200 A at 1200 V blocking voltage and features the EconoPACK™ 4 package.


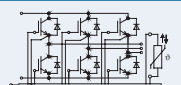
MIPAQ™ base

1200 V _{CES}								
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thJC} K/W max	R _{shunt} mΩ T _{vj} = 25°C typ.	Outline/ page	
 sixpack with shunts & NTC	IGBT 4							
	IFS75B12N3T4_B31	1200	75	1,85	385	0,39	2,40 M_E3n/5.5	
	IFS100B12N3T4_B31	1200	100	1,75	515	0,29	1,50 M_E3n/5.5	
IFS150B12N3T4_B31	1200	150	1,75	750	0,20	1,00 M_E3n/5.5		
 tripack high with shunts	IGBT 4							
	IFT150B12N3E4*	1200	150	1,75	750	0,20	1,20 M_E3h/5.5	

MIPAQ™ sense

1200 V _{CES}								
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	P _{tot} W	R _{thJC} K/W max	R _{shunt} mΩ T _{vj} = 25°C typ.	Outline/ page	
 $\Sigma / \Delta + CLT$	IGBT 4							
	IFS75S12N3T4_B11	1200	75	1,85	350	0,43	2,40 M_E3o/5.5	
	IFS100S12N3T4_B11	1200	100	1,75	455	0,33	1,50 M_E3o/5.5	

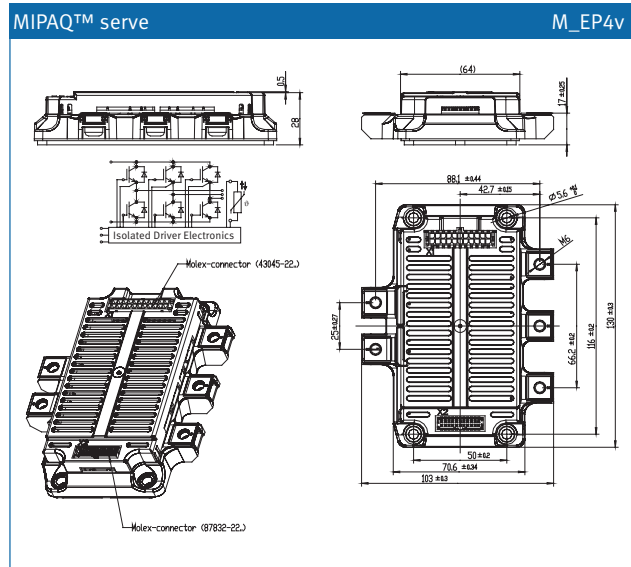
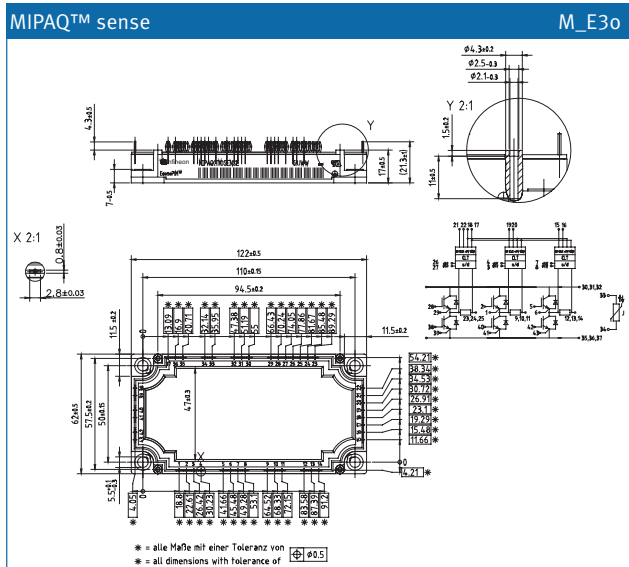
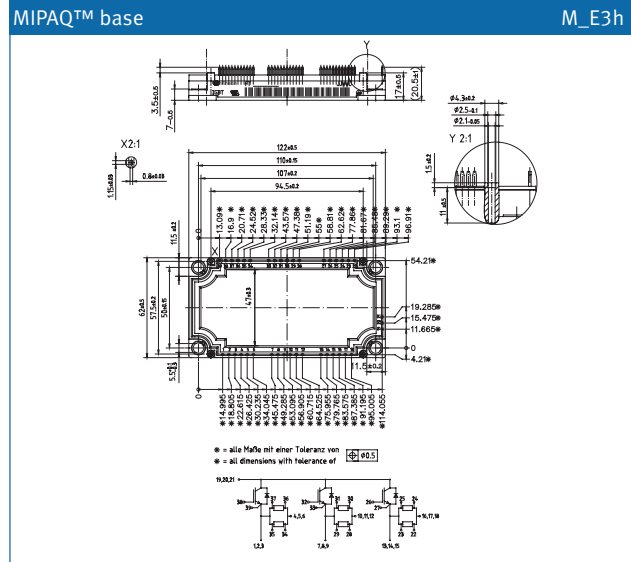
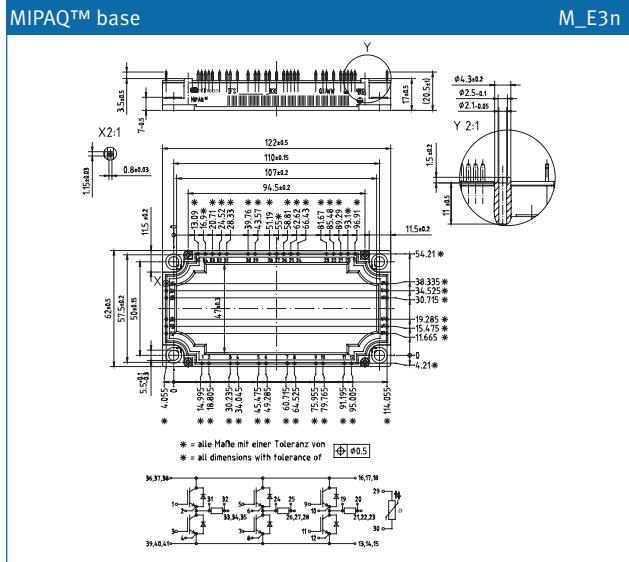
MIPAQ™ serve

1200 V _{CES}								
Type	V _{CES} V	I _C A	V _{CESat} V T _{vj} = 25°C typ.	E _{on} +E _{off} mWs T _{vj} =125°C typ.	R _{thJC} K/W max	Outline/ page		
 Isolated Driver Electronics	IGBT 4							
	IFS100V12PT4	1200	100	1,75	22	0,30 M_EP4v/5.5		
	IFS150V12PT4	1200	150	1,75	34	0,22 M_EP4v/5.5		
	IFS200V12PT4	1200	200	1,75	40	0,15 M_EP4v/5.5		

...B11 PressFIT modules ...B31 modules with pins for solder connection

* Low side to be found in EconoPACK™ configuration on page 1.14.

Outlines



Systems and Drivers

PrimeSTACK™



The PrimeSTACK™ family is a complete switch solution for power electronic circuits containing all the necessary components for current, voltage and temperature measurements, and uses the field proved 62 mm Infineon IGBT modules.

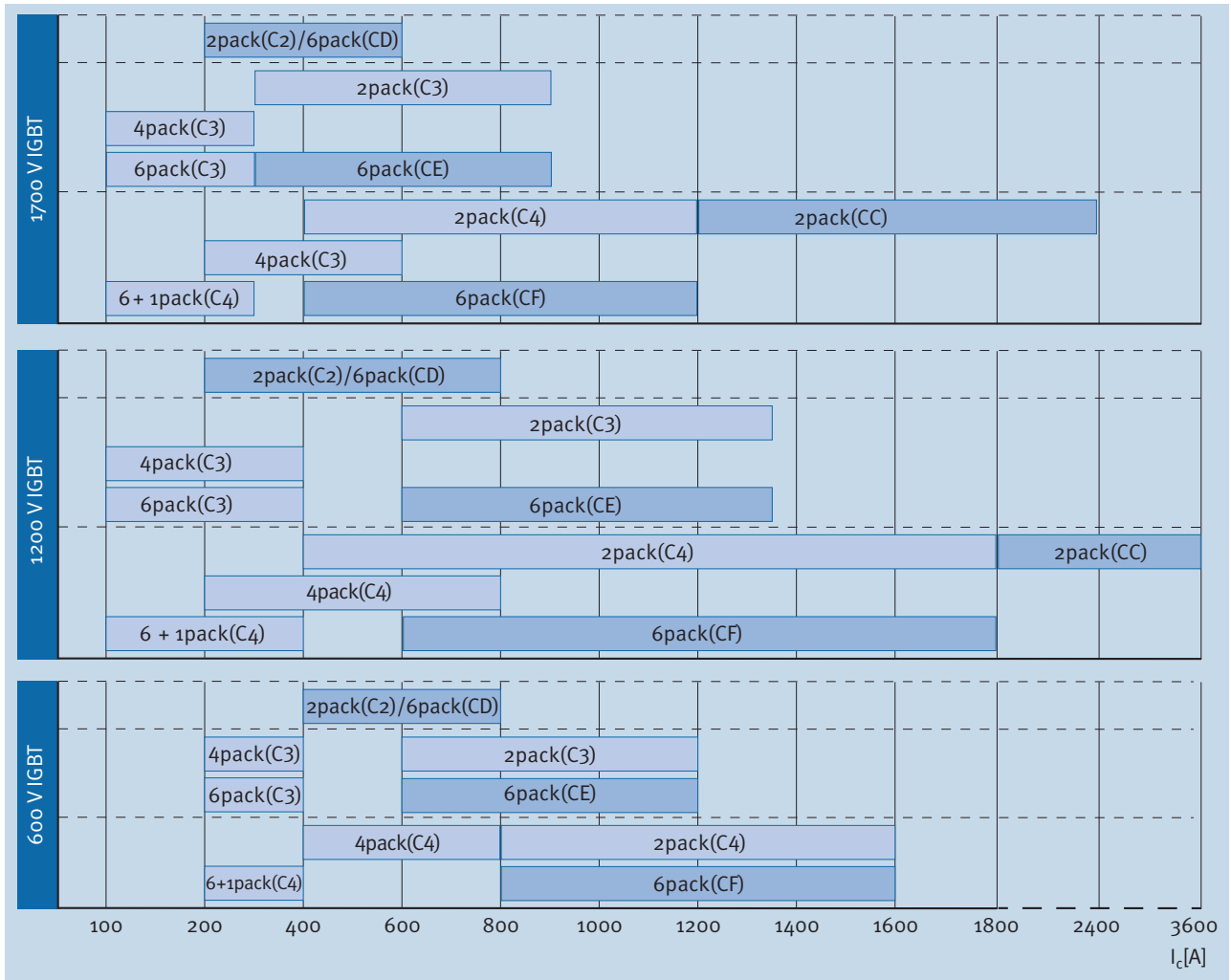
Control electronics and the power connections are fully separated from each other by “reinforced isolation”. With several superior monitor functions, PrimeSTACK™ offers a self protecting switch function. PrimeSTACK™ enables the development of highly efficient and safe inverters, quickly and with the minimum effort for the designer. The product scope covers chip current ratings from 100A up to 3600A at 600V, 1200V or 1700V.

General features

- 600V, 1200V, 1700V IGBT implemented
- EiceDRIVER™ inside
- Based on Infineon standard IGBT modules
- Current sense of every output leg
- Temperature sense
- Optional DC-link voltage monitoring
- Analogue output of all sensor signals
- Reinforced isolation according to EN50178

Available configurations

Systems and Drivers



IGBT PrimeSTACK™ Topology	Description
	1/2 B2I (2pack)
	B2I (4pack)
	B6I (6pack)
	B6I + 1/2 B2IHK (6pack + chopper)

New PrimeSTACK™ packages	
CC: 2 x C4 per heatsink	
CD: 3 x C2 CE: 3 x C3 CF: 3 x C4 per heatsink	

PrimeSTACK™

IGBT3 600 V _{CES}								
V _{AC} = 230 V _{RMS} /V _{DC} =370 V								
P _{max} ⁴⁾ [kW]	I _{RMS} ¹⁾ [A]	f _{SWmax} [kHz]	Stack type	Topology	Implemented IGBT3 Modules	Case Cooling	Weight [kg]	Width x depth x height [mm]
2 x 70	2 x 208	20	4PS02006E33G31632	B2I (4pack)	2 x FF200R06KE3	C3 air	9.1	216 x 280 x 167
95	283	20	6PS04006E33G29000 *)	B6I (6pack)	3 x FF400R06KE3	C3 air	9.1	216 x 280 x 167



IGBT2 Fast 1200 V _{CES}								
V _{AC} = 400 V _{RMS} /V _{DC} =650 V								
P _{max} ⁴⁾ [kW]	I _{RMS} ²⁾ [A]	f _{SWmax} [kHz]	Stack type	Topology	Implemented IGBT2 Modules	Case Cooling	Weight [kg]	Width x depth x height [mm]
215	366	13	2PS06012S42G28187 *)	½B2I(2pack)	2 x FF300R12KS4	C2 air	6.3	216x200x167
2 x 73	2 x 125	20	4PS01512S43G34512	B2I (4pack)	2 x FF150R12KS4	C3 air	9.1	216x280x167
2 x 107	2 x 183	20	4PS03012S43G30699	B2I (4pack)	2 x FF300R12KS4	C3 air	9.1	216x280x167
100	168	16	6PS03012S43G28199 *)	B6I (6pack)	3 x FF300R12KS4	C3 air	9.1	216x280x167



IGBT3 1200 V _{CES}								
V _{AC} = 400 V _{RMS} /V _{DC} =650 V								
P _{max} ⁴⁾ [kW]	I _{RMS} ²⁾ [A]	f _{SWmax} [kHz]	Stack type	Topology	Implemented IGBT3 Modules	Case Cooling	Weight [kg]	Width x depth x height [mm]
335	569	8	2PS12012E33G27261 *)	½B2I(2pack)	3 x FF400R12KE3	C3 air	9.2	216x280x167
422	717	6	2PS16012E34G26571 *)	½B2I(2pack)	4 x FF400R12KE3	C4 air	11.8	216x360x167
2 x 84	2 x 143	20	4PS01512E33G30487 *)	B2I (4pack)	2 x FF150R12KE3G	C3 air	9.1	216x280x167
79	134	20	6PS01512E33G30863 *)	B6I (6pack)	3 x FF150R12KE3G	C3 air	9.1	216x280x167
107	181	20	6PS03012E33G27093 *)	B6I (6pack)	3 x FF300R12KE3	C3 air	9.1	216x280x167
124	210	20	6PS04012E33G26572 *)	B6I (6pack)	3 x FF400R12KE3	C3 air	9.2	216x280x167
140	237	20	6PS04012E33G30188 *)	B6I (6pack)	3 x FF400R12KE3	C3 air ⁵⁾	8.9	216x280x165



IGBT3 1700 V _{CES}								
V _{AC} = 690 V _{RMS} /V _{DC} =1100 V								
P _{max} ⁴⁾ [kW]	I _{RMS} ³⁾ [A]	f _{SWmax} [kHz]	Stack type	Topology	Implemented IGBT3 Modules	Case Cooling	Weight [kg]	Width x depth x height [mm]
330	325	20	2PS06017E32G28213 *)	½B2I(2pack)	2 x FF300R17KE3	C2 air	6.3	216x200x167
580	571	6	2PS12017E34G28217 *)	½B2I(2pack)	4 x FF300R17KE3	C4 air	11.8	216x360x167
2 x 168	2 x 165	20	4PS03017E33G30260 *)	B2I (4pack)	2 x FF300R17KE3	C3 air	9.1	216x280x167
179	176	15	6PS03017E33G30907 *)	B6I (6pack)	3 x FF300R17KE3	C3 air ⁵⁾	9.9	216x280x165



- 1) typical output current at V_{DC}= 370V, V_{AC}=230V, f_{SW}=5kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤125°C
- 2) typical output current at V_{DC}= 650V, V_{AC}=400V, f_{SW}=5kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤125°C
- 3) typical output current at V_{DC}=1100V, V_{AC}=690V, f_{SW}=2kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤125°C
- 4) P_{max} for 3-phase systems
- 5) high efficient heatsink
- *) without V-option

PrimeSTACK™ with DC Link

IGBT4 1200 V _{CES}										
V _{AC} = 400V _{RMS} /V _{DC} =650V										
P _{max} [kW]	I _{RMS} ¹⁾ [A]	f _{SW} [kHz]	f _{SWmax} [kHz]	Stack type	Implemented IGBT4 Modules	DC link [mF]	Topology	Case Cooling	Width x depth x height [mm]	
180	306	5	20	6PS04012E4DG36022	6 x FF200R12KE4	2.4	3 x 2pack	CD air (3xC2)	645 x 310 x 300	
236 ²⁾	401	5	12	2PS09012E42G35567 ^{*)}	2 x FF450R12KE4	0.8	2pack	C2 air	216 x 230 x 288	
254	432	5	12	6PS09012E4DG35566	6 x FF450R12KE4	2.4	3 x 2pack	CD air (3xC2)	645 x 310 x 300	
429	729	5	6	6PS18012E4FG35689	12 x FF450R12KE4	4.8	3 x 2pack	CF air (3xC4)	645 x 438 x 300	
487	828	5	6	6PS18012E4FG34676	12 x FF450R12KE4	4.8	3 x 2pack	CF air (3xC4) with high efficient heatsink	645 x 438 x 300	
453 ²⁾	770	5	6	2PS18012E44F34383	4 x FF450R12KE4	8.48	2pack	C4 air with high efficient heatsink and fan	324 x 651 x 381	
952 ²⁾	1616	3	3	2PS36012E4CG34996	8 x FF450R12KE4	4.0	2pack	CC air (2xC4)	371 x 475 x 312	
952	1616	3	3	6PS36012E4CG35121	24 x FF450R12KE4	12.0	3 x 2pack	3 x CC air	1142 x 475 x 318	
		5	12	6PS04512E43W37986	3 x FF450R12KE4	2.4	3 x 2pack	C3 air	216 x 315 x 390	

IGBT4 1700 V _{CES}										
V _{AC} = 690V _{RMS} /V _{DC} =1100V										
P _{max} [kW]	I _{RMS} ³⁾ [A]	f _{SW} [kHz]	f _{SWmax} [kHz]	Stack type	Implemented IGBT4 Modules	DC link [mF]	Topology	Case Cooling	Width x depth x height [mm]	
583 ²⁾	574	2	7	2PS12017E44G35911 ^{*)}	4 x FF300R17KE4	1.6	2pack	C4 air	216 x 360 x 288	
643 ²⁾	633	2	7	2PS12017E44F36671 ^{*)}	4 x FF300R17KE4	1.6	2pack	C4 air with high efficient heatsink and fan	270 x 671 x 291	
600	591	2	7	6PS12017E4FG35151 ^{*)}	12 x FF300R17KE4	4.8	3 x 2pack	CF air (3xC4)	645 x 438 x 300	
640 ²⁾	630	2	7	2PS12017E44F38055	4 x FF300R17KE4	1.6	2pack	C4 air with high efficient heatsink and fan	270 x 671 x 291	

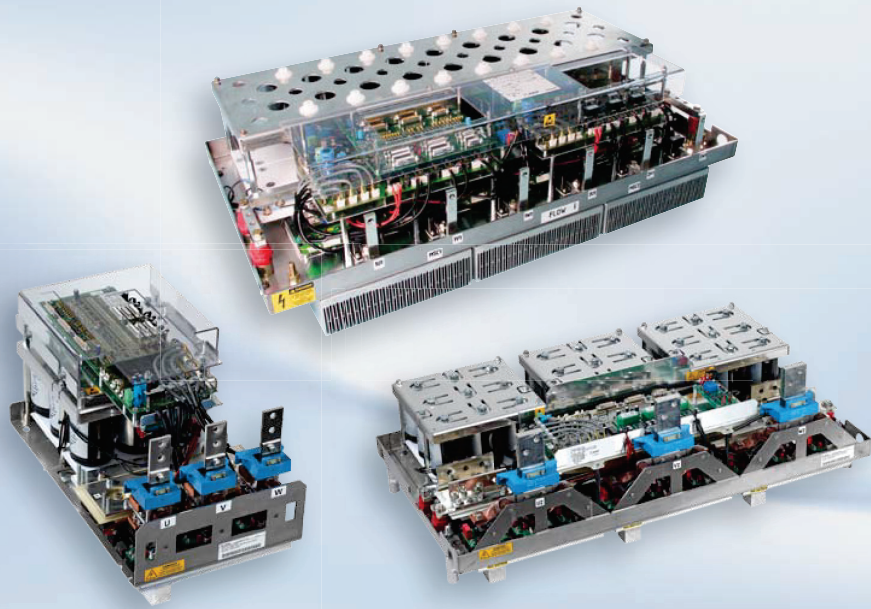
1) typical output current at V_{DC} = 650V, V_{AC}=400V, f_{SW}=5kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤125°C

2) P_{max} for 3-phase systems likewise 3 x 2pack types

3) typical output current at V_{DC}=1100V, V_{AC}=690V, f_{SW}=2kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤125°C.

*) without V-option

ModSTACK™ ModSTACK™ HD

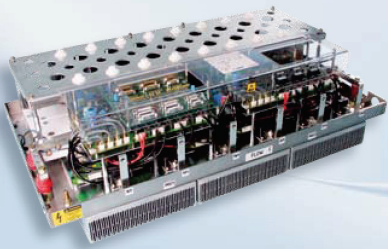


The ModSTACK™ Family combines Infineon Technologies IGBT modules and IGBT gate-drivers to achieve current ratings from 600 A up to 2050 A at line supply up to 690 V AC. The appropriate interfaces and thermal management are included. The available topologies include three-phase inverters.


General features

- Modular stack system designed for industrial approved cabinets
- Low inductance DC link with polypropylene or electrolytic capacitors
- Integrated IGBT driver
- Voltage signals for control and monitoring
(currents, voltages, short circuit, heat sink temperature, failure signals)
- Liquid or forced air cooling available
- Electrical or optical interface for digital control signals available
- Up to 4 units can be operated in parallel

ModSTACK™

		
	ModSTACK™ 3	
Maximum dimensions Width x Depth x Height [mm]	1090 x 596 x 470	
Cooling	forced air	liquid
Topology	B6I	B6I
Max. current*) [I _{RMS}] at U _{DC} =800...1100V (≈450...690V _{AC})	700	1082
Approximate maximum power *) With cos(φ) = 0.85	840 kVA 710 kW	1290 kVA 1100 kW

*) typical output current at V_{DC}=1100V, f_{sw}=2 kHz, V_{AC}=690V, f₀=50Hz, cos_φ=0.85, T_a=40°C, T_{jmax}=T_{jop}

IGBT3 1700 V _{CES} V _{AC} = 690 V _{RMS} / V _{DC} = 1100V									
P _{max} [kW]	I _{RMS} ¹⁾ [A]	f _{sw} [kHz]	cos(φ)	f _{swmax} ²⁾ [kHz]	Stack type	Implemented IGBT3 Modules	Topology	Case Cooling	Width x depth x height [mm]
744	629	2.0	-0.99	3.0	6MS24017E33F33878	6x FF1200R17KE3_B2	B6I	MS3 air ³⁾	1090 x 596 x 470
784	663	2.0	0.99	6.0	6MS12017E33F33879	6x FF600R17KE3_B2	B6I	MS3 air ³⁾	1090 x 596 x 470
711	700	2.0	0.85	3.0	6MS24017E33G32859	6x FF1200R17KE3_B2	B6I	MS3 air	1090 x 596 x 330
634	536	2.0	0.99	3.0	6MS12017E33W33373	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 496 x 258
710	600	2.0	-0.99	3.0	6MS12017E33W33372	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 496 x 258
824	726	3.0	0.95	3.0	6MS24017E33W31361	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 273
824	726	3.0	0.95	3.0	6MS24017E33W32274 ⁴⁾	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 274
852	750	2.5	0.95	3.0	6MS24017E33W32605	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 251
852	750	2.5	0.95	3.0	6MS24017E33W32607 ^{*)}	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 251
832	800	2.5	0.87	2.5	6MS24017E33W32859	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 330
832	800	2.5	0.87	2.5	6MS24017E33W32860	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 330
987	860	3.5	0.96	3.5	6MS24017E33W32832	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 329
987	860	3.5	0.96	3.5	6MS24017E33W32780	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 329
852	750	2.5	0.95	3.0	6MS24017E33W33846	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 272
852	750	2.5	0.95	3.0	6MS24017E33W33847	6x FF1200R17KE3	B6I	MS3 liquid	1090 x 596 x 272
1048	974	2.0	0.90	4.5	6MS16017E33W32630	6x FF800R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 257
1164	974	1.7	1.00	5.0	6MS16017E33W32779	6x FF800R17KE3	B6I	MS3 liquid	1090 x 596 x 329
1165	975	1.7	1.00	5.0	6MS16017E33W32831	6x FF800R17KE3	B6I	MS3 liquid	1090 x 596 x 329
1164	1082	2.0	0.90	3.0	6MS24017E33W32629	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 257
1164	1082	2.0	0.90	3.0	6MS24017E33W34402	6x FF1200R17KE3_B2	B6I	MS3 liquid	1090 x 596 x 257

¹⁾ typical output current at V_{DC}=1100V, V_{AC}=690V, 2...3.5kHz (see table), f₀=50Hz, cos(φ)=0.85...1 (see table), T_a=40°C, T_{vjmax}≤125°C

²⁾ Current derating may be required

³⁾ with fan included

⁴⁾ stack contains customize filter resisitors at output

^{*)} without V-option

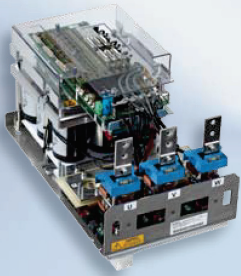
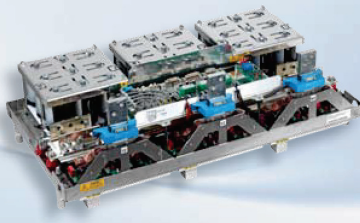
ModSTACK™

IGBT4 1700 V _{CES} V _{AC} = 690 V _{RMS} / V _{DC} = 1100V									
P _{max} [kW]	I _{RMS} ¹⁾ [A]	f _{SW} [kHz]	cos(φ)	f _{SWmax} ²⁾ [kHz]	Stack type	Implemented IGBT4 Modules	Topology	Case Cooling	Width x depth x height [mm]
893	880	2.0	0.85	5.0	6MS16017P43W37047	6x FF800R17KP4_B2	B6I	MS3 liquid	1090 x 496 x 273
893	880	2.0	0.85	5.0	6MS16017P43W37962	6x FF800R17KP4_B2	B6I	MS3 liquid	1090 x 496 x 273


¹⁾ typical output current at V_{DC}=1100V, V_{AC}=690V, 2...3.5kHz (see table), f₀=50Hz, cos(φ)=0.85...1 (see table), T_A=40°C, T_{vjmax}≤125°C

²⁾ Current derating may be required

ModSTACK™ HD

			
	ModSTACK™ HD1	ModSTACK™ HD3	
Maximum dimensions Width x Depth x Height [mm]	338 x 590 x 375	1090 x 596 x 366	
Cooling	liquid	liquid	
Topology	B6I	B6I	B6I + B6I
Max current ¹⁾ [I _{RMS}]	3 x 680	3 x 2050	Rect.: 3 x 680 Inv.: 3 x 1360
Maximum power ¹⁾ With cos(φ) = 0.85	813 kVA 691 kW	2438 kVA 2072 kW	Rect.: 813 kVA, 691 kW Inv.: 1626 kVA, 1382 kW

¹⁾ typical output current at V_{DC}=1100V, V_{AC}=690V, f_{SW}= 3 kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤150°C.

IGBT4 1700 V _{CES} V _{AC} = 690V _{RMS} / V _{DC} = 1100V								
P _{max} ³⁾ [kW]	I _{RMS} ¹⁾ [A]	f _{SW} [kHz]	f _{SWmax} ²⁾ [kHz]	Stack type	Implemented IGBT4 Modules	Topology	Case Cooling	Width x depth x height [mm]
609	600	3	5	6MS10017E41W36460	9 x FF1000R17IE4	B6I	MS HD1 liquid (copper)	338 x 590 x 350
691	680	3	5	6MS10017E41W36775	3 x FF1000R17IE4	B6I	MS HD1 liquid (aluminium)	338 x 590 x 375
1219	1200	3	4	6MS20017E43W37032	6 x FF1000R17IE4	B6I	MS HD3 liquid (copper)	1090 x 596 x 342
1219	1200	3	4	6MS20017E43W38170 ⁴⁾	6 x FF1000R17IE4	B6I	MS HD3 liquid (copper)	1090 x 596 x 342
1828	1800	3	3	6MS30017E43W35613	9 x FF1000R17IE4	B6I	MS HD3 liquid (copper)	1090 x 596 x 342
1828	1800	3	4	6MS30017E43W38169 ⁴⁾	9 x FF1000R17IE4	B6I	MS HD3 liquid (copper)	1090 x 596 x 342
1828	1800	3	3	6MS30017E43W33015	9 x FF1000R17IE4	B6I	MS HD3 liquid (aluminium)	1090 x 596 x 342
2082	2050	3	3	6MS30017E43W34404	9 x FF1000R17IE4	B6I	MS HD3 liquid (aluminium)	1090 x 596 x 366
691 1382	680 1360	3 3	8 4	12MS20017E43W35155	3 x FF1000R17IE4 6 x FF1000R17IE4	B6I + B6I	MS HD3 liquid (aluminium)	1090 x 596 x 342

¹⁾ typical output current at V_{DC}=1100V, V_{AC}=690V, f_{SW}= 3 kHz, f₀=50Hz, cos(φ)=0.85, T_A=40°C, T_{vjmax}≤150°C.

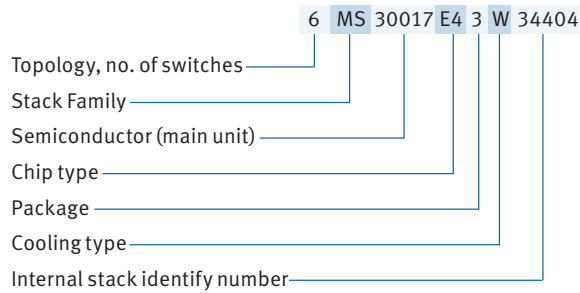
²⁾ Current derating may be required

³⁾ P_{max} for 3-phase system likewise B6I types

⁴⁾ Optical interface included

Type designation and topologies for IGBT Stacks

Type Designation for IGBT Stacks



Topology, no. of Switches

- 2 1/2 B2I
- 4 B2I
- 6 B6I
- 12 2B6I or B6I+B6I

Stack family

- MS ModSTACK
- PS PrimeSTACK

Semiconductor (main unit)

- 060 Rated Chip Current at T_{Cmax} divided by 10
- 12 V_{CES} maximum Collector-Voltage divided by 100

Chip type

- E3 KE3
- E4 KE4 or IE4
- S4 KS4
- F6 KF6C

Package

- 2 MS2 or C2 for PS
- 3 MS3 or C3 for PS
- 4 C4 for PS
- C 2xC4 for PS
- D 3xC2 for PS
- E 3xC3 for PS
- F 3xC4 for PS

Cooling type

- G Air cooled by cabinet fan
- F Air cooled with fan included
- W Water cooled

Topology	Acronym
	1/2B2IHA
	1/2B2IHK
	1/2B2I
	B2IH
	B2I

Topology	Acronym
	B6I
	1/2B2I+B6I
	1/2B2IHK+B6I
	B6I+B2I
	B6I+B6I

EiceDRIVER™



EiceDRIVER™ solutions from Infineon are the expert's choice. With its HV Gate Driver Boards and HV Gate Driver ICs Infineon provides a broad spectrum of solutions for reliable and efficient controls for Infineon's IGBT and MOSFET products.

The **HV Gate Driver ICs** families with Silicon-On-Insulator (SOI) or Coreless Transformer Technology (CLT) meet the requirements for high performance gate driver ICs in all power electronic applications. The combination of EiceDRIVER™ ICs with Infineon IGBTs and MOSFETs in discretes and modules enables customers to design and build highly reliable and efficient systems. The integrated safety and protection features like Desaturation detection, Two Level Turn Off and Undervoltage Lockout enable customers to strengthen their design.

HV Gate Driver Boards are suitable for all IGBT modules up to 1700V and can be operated with various IGBT module designs. With the help of additional carrier hardware, it can be adapted to be used on large six packs, duals and Infineon's high-power modules. Outstanding protection measures and integrated fault management provide safe operation, even if used within noise-intense industrial environments.

HV Gate Driver ICs

EiceDRIVER™ ICs

The EiceDRIVER™ **single channel** products 1ED020I12-F2 and 1ED020I12-B2 start with features like desaturation detection (DESAT), active Miller Clamp, undervoltage lockout (UVLO) and shut down in functional or basic isolation. Both devices 1ED020I12-FT and 1ED020I12-BT also support two-level-turn-off (TLTO) for safe overcurrent shut down. In 2ED020I12-F2, two independent channels are implemented in a compact package providing same functions as 1ED020I12-F2.

2ED020I12-FI and 2ED020I06-FI are Infineon's cost efficient **half bridge** driver ICs with shut down and interlocking feature. The 1200V 2ED020I12-FI also implements an operational amplifier (OpAmp) and a comparator (Comp) for current measurement or overvoltage detection circuits.

Infineon's **three phase** driver IC family now includes six new variants for low power drive applications. 6ED003L06-F2 and 6ED003L02-F2 in 600V and 200V provide basic functions like undervoltage lockout for IGBT levels, overcurrent shut down (ITRIP), interlocking and enable (EN). 6EDL04I06NT and 6EDL04I06PT supplement this functionality with a high speed bootstrap circuit for each high-side driver stage. To complete the family, 6EDL04N06PT and 6EDL04N02PR are optimized for MOSFET operation.

Coreless Transformer (CLT) **Technology** allows the integration of a pulse transformer into an IC, combining the advantages of HVIC technology with the capability of a magnetic coupler. This results in an extremely rugged IC with high insulation capability. CLT allows faster switching speeds with no performance degradation compared to optocouplers, therefore providing constant reliability over the projected lifetime.

Thin-Film Silicon On Insulator (SOI) technology is an advanced technique for MOS/CMOS fabrications. It differs from the conventional bulk process by placing the active transistor layer on the top of an insulator. This leads to outstanding robustness against latch-up when exposed to extreme temperature and voltage conditions.

Infineon's EiceDRIVER™ high voltage Driver IC family covers a wide power range and enables customers to build reliable and efficient drive applications.

HV Gate Driver ICs

EiceDRIVER™ ICs

1ED020I12-B2 EiceDRIVER™ E

Single Channel isolated gate driver

- Basic isolation according to EN60747-5-2, recognized under UL1577
- Fully functional at transient +/- 1420V and static voltages of +/- 1200V
- High voltage side status feedback
- 2A sink and source rail-to-rail output
- Max. Tj = 150 °C
- Package SO16 300 mil
- Protection functions:
 - Enhanced desaturation detection
 - Active Miller clamp
 - Under voltage lockout
 - Shut down
 - Watchdog timer

1ED020I12-F2 EiceDRIVER™ E

Single Channel isolated gate driver

- Same functions and features as 1ED020I12-B2
- Functional Isolation of 1200V

1ED020I12-BT EiceDRIVER™ E

Single channel isolated gate driver

- Same functions and features as 1ED020I12-F2
- Basic isolation according to EN60747-5-2, recognized under UL1577
- Adjustable two level turn-off function
- Desaturation detection with 500 μA

1ED020I12-FT EiceDRIVER™ E

Single channel isolated gate driver

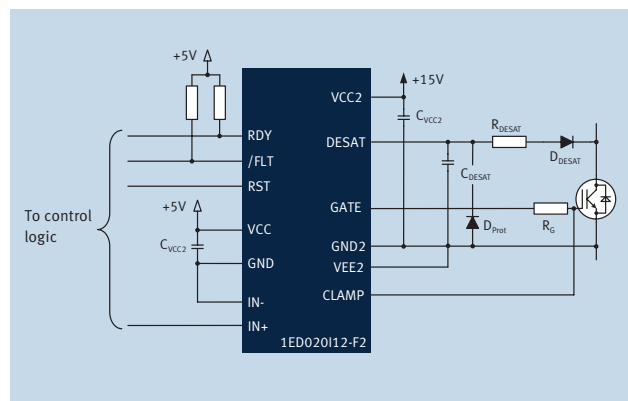
- Same functions and features as 1ED020I12-BT
- Functional isolation of 1200V

2ED020I12-F2 EiceDRIVER™ E

Dual channel isolated gate driver

- Same functions and features as two times 1ED020I12-F2
- Package SO36 300mil

Typical application 1ED020I12-F2



HV Gate Driver ICs

EiceDRIVER™ ICs

2ED020I12-FI

1200V Isolated high side half bridge gate driver

- Galvanic isolation of high side driver
- 2A sink current, 1 A source current
- Fully functional at transient and static voltages of +/- 1200V
- Integrated operational amplifier and comparator
- Matched delay times of high side and low side
- Max. T_j = 150 °C
- Package SO18 300 mil
- Protection function:
 - Hardware input interlocking
 - Under voltage lockout
 - Shut down function

2ED020I06-FI

650V isolated high side half bridge gate driver

- Galvanic isolation of high side driver
- 2A sink current, 1 A source current
- Fully functional at transient and static voltages of +/-650V
- Matched delay times of high side and low side
- Max. T_j = 150 °C
- Package SO18 300 mil
- Protection function:
 - Hardware input interlocking
 - Under voltage lockout

HV Gate Driver ICs Product Type

Products	Packages	Topology	I _{o,+/-}	Turn On Propagation Delay (max)	T _j (max)	Safety Isolation Typ*	
1200V	1ED020I12-F2	PG-DSO-16	Single	2.0 - 2.0 A	195.0 ns	150.0 degC	-
	1ED020I12-B2	PG-DSO-16	Single	2.0 - 2.0 A	195.0 ns	150.0 degC	Basic
	1ED020I12-FT	PG-DSO-16	Single	2.0 - 2.0 A	2,000.0 ns	150.0 degC	-
	1ED020I12-BT	PG-DSO-16	Single	2.0 - 2.0 A	2,000.0 ns	150.0 degC	Basic
	2ED020I12-F2	PG-DSO-36	Dual	2.0 - 2.0 A	195.0 ns	150.0 degC	-
	2ED020I12-FI	PG-DSO-18	Half Bridge	1.0 - 2.0 A	105.0 ns	150.0 degC	-
650V	2ED020I06-FI	PG-DSO-18	Half Bridge	1.0 - 2.0 A	105.0 ns	150.0 degC	-
600V	2EDL05I06PF	PG-DSO-8	Half Bridge	0.25 - 0.5 A	600.0 ns	125.0 degC	-
	2EDL05I06BF	PG-DSO-8	Half Bridge	0.25 - 0.5 A	600.0 ns	125.0 degC	-
	2EDL05N06PF	PG-DSO-8	Half Bridge	0.25 - 0.5 A	450.0 ns	125.0 degC	-
	2EDL05I06PJ	PG-DSO-14	Half Bridge	0.25 - 0.5 A	600.0 ns	125.0 degC	-
	2EDL23I06PJ	PG-DSO-14	Half Bridge	1.5 - 2.3 A	600.0 ns	125.0 degC	-
	2EDL23N06PJ	PG-DSO-14	Half Bridge	1.5 - 2.3 A	450.0 ns	125.0 degC	-
	6ED003L06-F2	PG-DSO-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-
	6EDL04I06NT	PG-DSO-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-
	6EDL04I06PT	PG-DSO-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-
	6EDL04N06PT	PG-DSO-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-
200V	6ED003L02-F2	PG-TSSOP-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-
	6EDL04N02PR	PG-TSSOP-28	3-Phase	180 - 380 mA	800.0 ns	125.0 degC	-

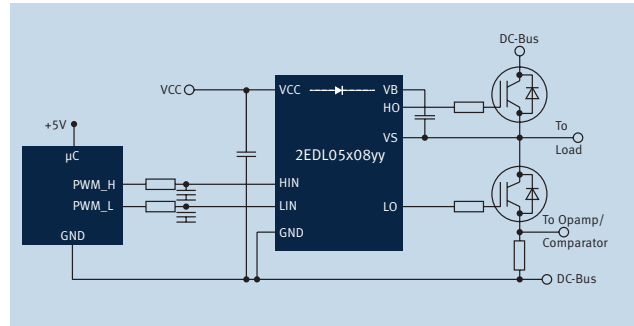
* Certified according to DIN EN 60747-5-2

2EDL Compact Family



- Ultra fast integrated bootstrap diode
- SO8 and SO14 package
- Enable function (2EDL23x only)
- Fault indication (2EDL23x only)
- Protection function:
 - Asymmetric undervoltage lockout
 - Active shut down
 - Undervoltage lockout levels for MOSFET and IGBT
 - Over current protection (2EDL23x only)
 - Interlock optional
 - Fixed HW dead time optional

Typical application 2EDL05x06yy



	UVLO_ON_max	Fault Reporting	Shutdown / Enable	Input Logic Type	Interlock	Two Level Turn Off	Package Outline/Page
	12.6 V	DESAT	/RST	pos/neg	-	no	PG-DSO-16-15/5.23
	12.6 V	DESAT	/RST	pos/neg	-	no	PG-DSO-16-15/5.23
	12.6 V	DESAT	/RST	pos/neg	-	yes	PG-DSO-16-15/5.23
	12.6 V	DESAT	/RST	pos/neg	-	yes	PG-DSO-16-15/5.23
	12.6 V	DESAT	/RST	pos/neg	no	no	PG-DSO-36-58/5.23
	13.5 V	OCF	/SD	pos	yes	no	PG-DSO-18-2/5.23
	13.5 V	-	/SD	pos	yes	no	PG-DSO-18-2/5.23
	12.4 V	-	EN	pos	yes	no	PG-DSO-8/5.24
	12.4 V	-	EN	pos	-	no	PG-DSO-8/5.24
	12.4 V	-	EN	pos	yes	no	PG-DSO-8/5.24
	12.4 V	-	EN	pos	yes	no	PG-DSO-14/5.24
	12.4 V	OCF	EN	pos	yes	no	PG-DSO-14/5.24
	12.4 V	OCF	EN	pos	yes	no	PG-DSO-14/5.24
	12.5 V	ITRIP	EN	neg	yes	no	PG-DSO-28-17/5.24
	12.5 V	ITRIP	EN	neg	yes	no	PG-DSO-28-17/5.24
	12.5 V	ITRIP	EN	pos	yes	no	PG-DSO-28-17/5.24
	9.8 V	ITRIP	EN	pos	yes	no	PG-DSO-28-17/5.24
	12.5 V	ITRIP	EN	neg	yes	no	PG-TSSOP-28-1/5.24
	9.8 V	ITRIP	EN	pos	yes	no	PG-TSSOP-28-1/5.24

HV Gate Driver ICs

EiceDRIVER™ ICs

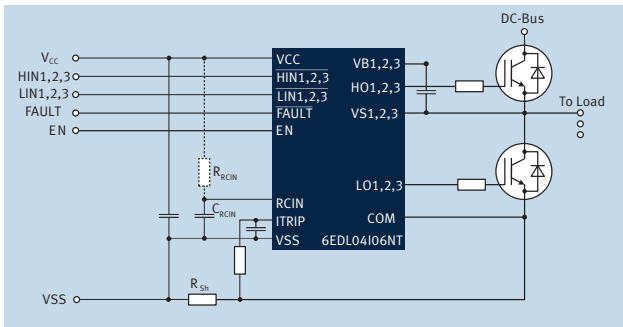
6ED family – 2nd generation EiceDRIVER™ C

200V and 600V 3-phase gate driver

- Ultra fast integrated bootstrap diode
- Fully functional at neg. transient voltages down to -50V (500 ns)
- Programmable restart after over current protection
- Shut down of all outputs in case of UVLO, OCP
- Package SO28 300 mil (600V) and package TSSOP28 (200V)
- Protection functions:
 - Over current protection (OCP)
 - Hard ware input interlocking
 - Under voltage lockout (UVLO)
 - Fixed hard ware dead time of high side and low side
 - Enable function
 - Pin compatible variants of first generation available

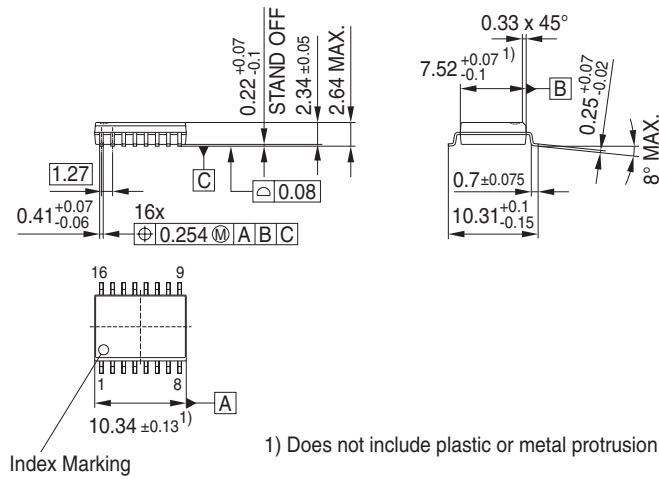
Typical application 6EDL04I06NT

Systems and Drivers



Package Outlines

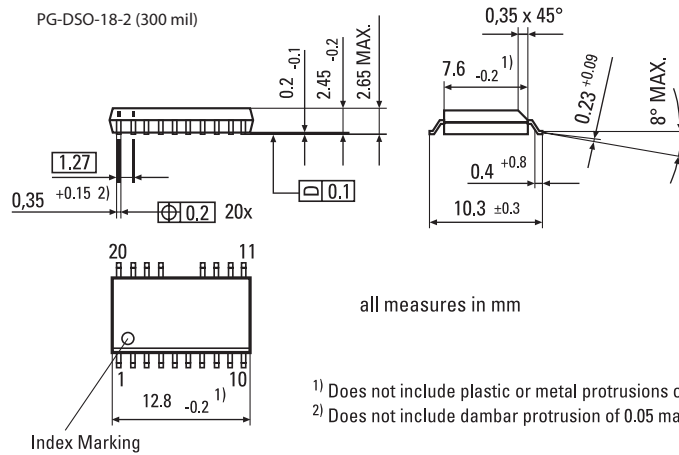
PG-DSO-16-15



1) Does not include plastic or metal protrusion of 0.15 max. per side

PG-DSO-16-4, -15-PO V06

PG-DSO-18-2

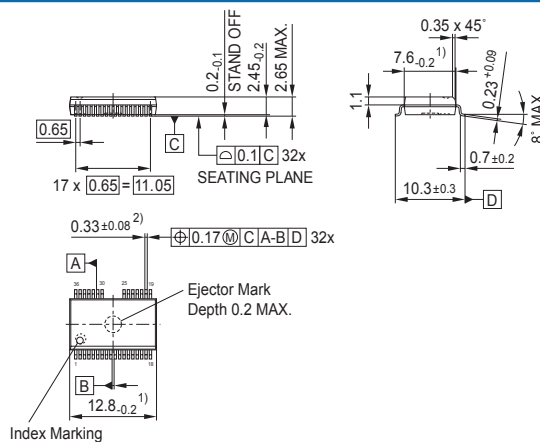


all measures in mm

1) Does not include plastic or metal protrusions of 0.15 max. per side
2) Does not include dambar protrusion of 0.05 max. per side

Systems and Drivers

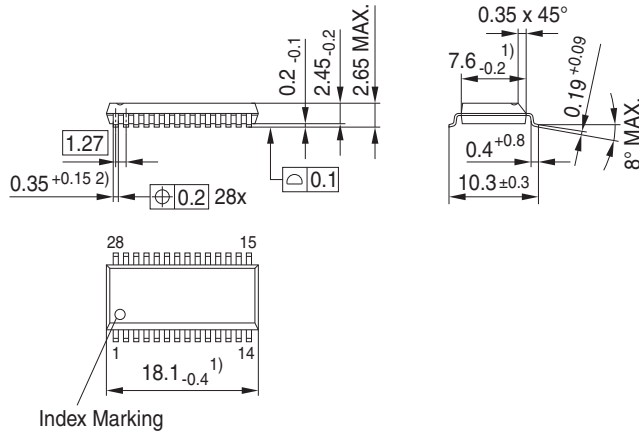
PG-DSO-36-58



1) Does not include plastic or metal protrusion of 0.15 max. per side
2) Does not include dambar protrusion of 0.05 max. per side

Package Outlines

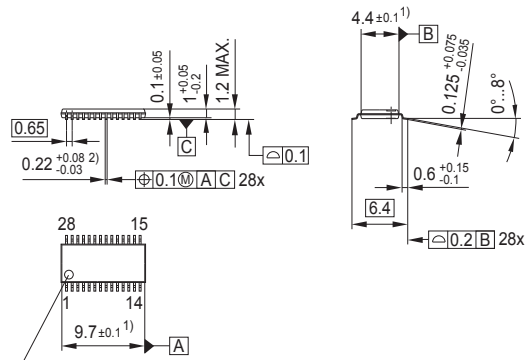
PG-DSO-28-17



Index Marking

- 1) Does not include plastic or metal protrusion of 0.15 max. per side
- 2) Does not include dambar protrusion of 0.05 max. per side

PG-TSSOP-28-1

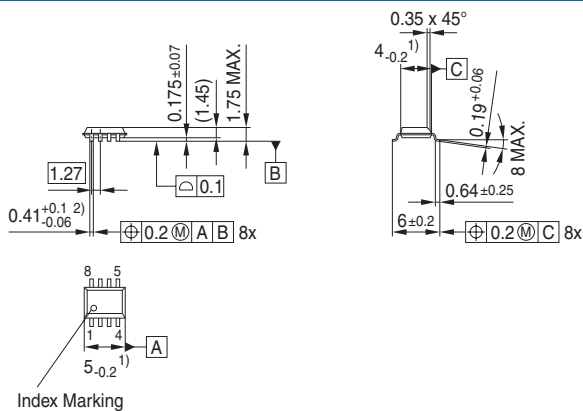


Index Marking

- 1) Does not include plastic or metal protrusion of 0.15 max. per side
- 2) Does not include dambar protrusion

GPS05867

DSO-8

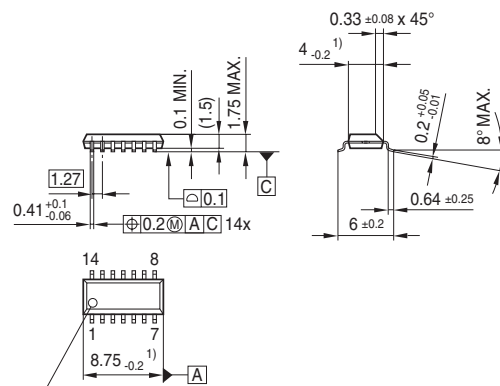


Index Marking

- 1) Does not include plastic or metal protrusion of 0.15 max. per side
- 2) Lead width can be 0.61 max. in dambar area

GPS01181

DSO-14




Index Marking

- 1) Does not include plastic or metal protrusion of 0.15 max. per side

HV Gate Driver Boards

EiceDriver™ Boards

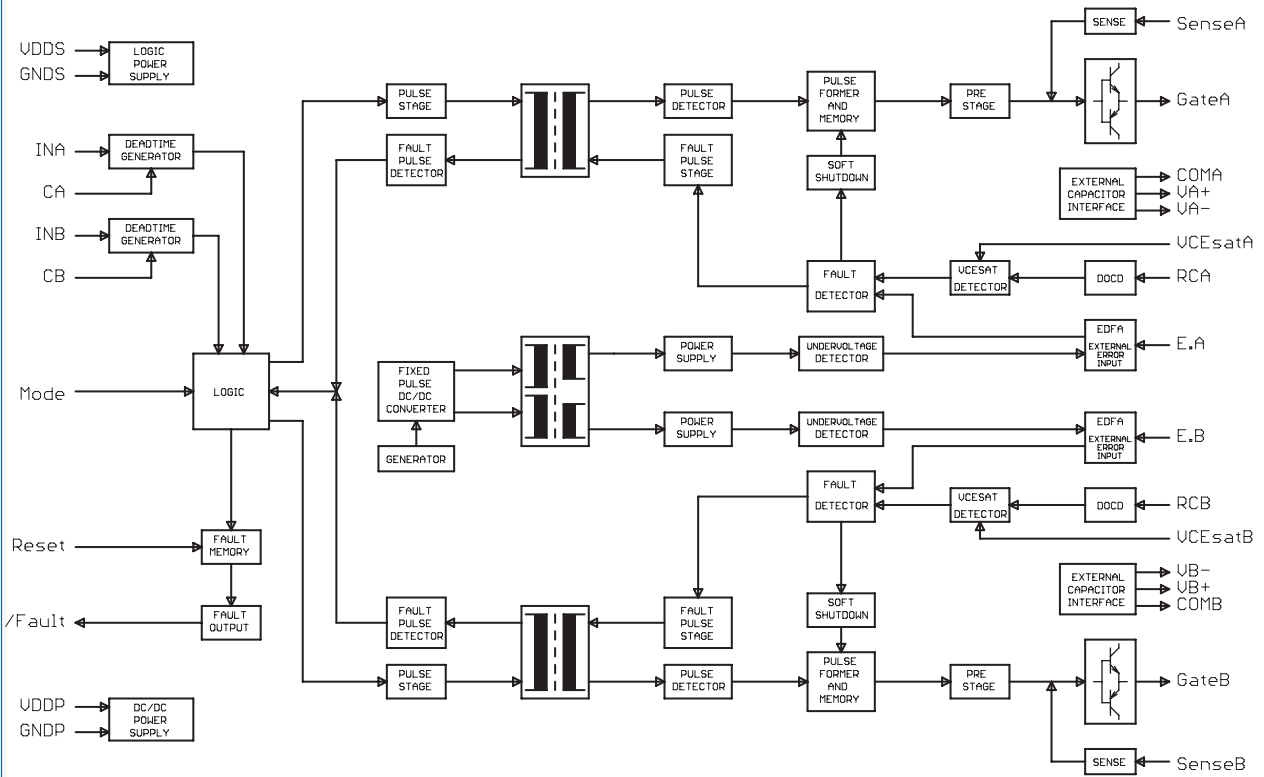
	Type	Channels	Control Interface	IGBT max V_{CE} V	V_{ISO} kV	I_{GM} A	P_{OUT} W	T_{OP} °C	size mm x mm	mounting by	for modules	Outline/ page
	2ED300C17-S	2	15V CMOS logic	1700	5	±30	8	-25/85	60,5 x 72	solde-ring	EconoPACK™+, 62 mm, IHM, EconoDUAL™, PrimePACK™	5.26
	2ED300C17-ST	2	15V CMOS logic	1700	5	±30	8	-40/85	60,5 x 72	solde-ring	EconoPACK™+, 62 mm, IHM, EconoDUAL™, PrimePACK™	5.26

Datasheets available under www.infineon.com/eicedriver-boards

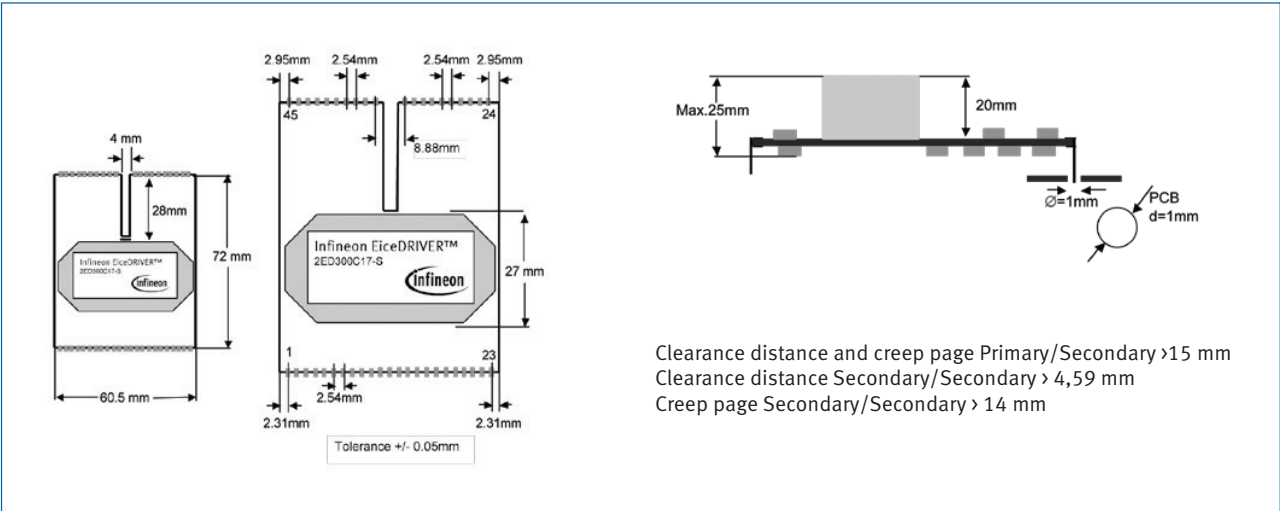
Technical features 2ED300C17-S / 2ED300C17-ST



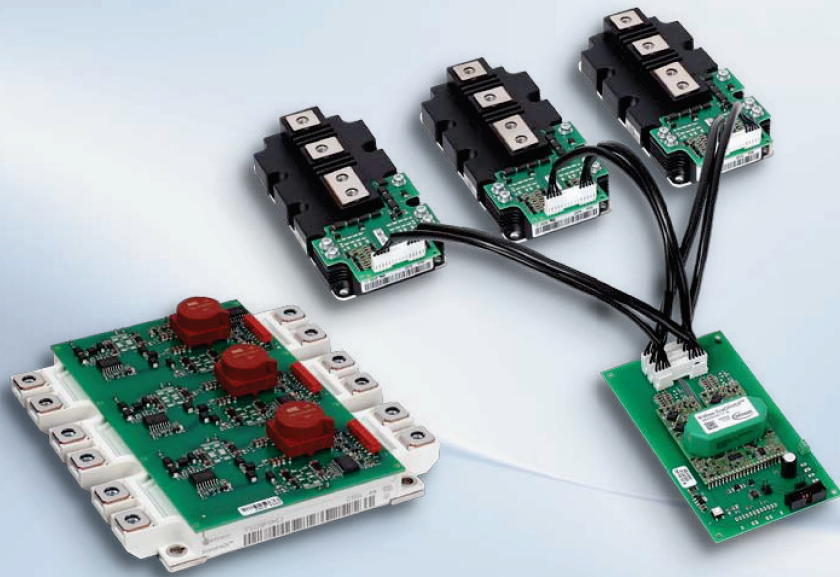
- Half-bridge or direct mode can be chosen
- Symmetric ±15 V output gate drive voltage
- 15V CMOS level signal processing
- Low-resistance and therefore noise immune 15V PWM signal input
- Minimum pulse suppression 400ns
- Interlocking and dead time generation in half-bridge mode included
- Dynamic over-current detection by monitoring the saturation voltage
- Soft shutdown in case of failure shutdown
- Failure output
- Reset input and PWM reset
- External detected failure analysis
- Additional ±16V supply outputs
- 2ED300C17-S: temperature range -25°C/85°C
- 2ED300C17-ST: temperature range -40°C/85°C



Systems and Drivers



Evaluation and Adapter Boards



Infineon's evaluation boards have been designed in several configurations to drive IGBT modules. These boards are using specially designed transformers for driving power modules as well as coreless driver ICs like the 1ED0201 12-F from Infineon.

Module selection chart for Evaluation Boards and driver circuitry

Driver Families Product Families	EiceDRIVER™ 2ED300C17-S	1ED (CLT chip)	2ED (CLT chip)	Other
IHM	2ED300E17-SFO MA401E17 MA401E12 MA400E17 MA400E12			
PrimePACK™	2ED300E17-SFO MA300E12 MA300E17	2ED250E12-F		
EconoPACK™+		6ED100E12-F2		
EconoDUAL™ 3	MA200E17 MA200E12	2ED100E12-F2		
62mm Modules	MA070E12 MA070E17			
EconoPACK™ 4 3-level		F3L020E07-F-P MA3L080E07 F3L2020E07-F-P MA3L120E07 F3L2020E12-F-P MA3L120E12		
SmartPIM 1			7ED020E12-FI-U1	
EasyPACK 2B 3-level		F3L030E07-F-W2		
EasyPIM™ 2B			7ED020E12-FI-W2	
MIPAQ™				MA3AE12 MA040E12

Evaluation Boards

	Name of Evaluation Board	Supported Products	Description
	7ED020E12-FI-W2	EasyPIM™ 2B 2ED020I12-FI	<ul style="list-style-type: none"> ■ Evaluation Driver Board for EasyPIM™ ■ Designed for Easy PressFIT ■ Designed with 2ED020I12-FI
	F3L030E07-F-W2	EasyPACK 2B 3-level	<ul style="list-style-type: none"> ■ Evaluation Board for EasyPACK 2B 3-level NPC1-Topology ■ Designed with 1ED020I12-F
	7ED020E12_FI_U1	SmartPIM 1	<ul style="list-style-type: none"> ■ Evaluation Board for SmartPIM 1 ■ Designed with 2ED020I12-FI
	MA3AE12	MIPAQ™ base	<ul style="list-style-type: none"> ■ Isolating amplifier for current measurement with MIPAQ™ base
	MA040E12	MIPAQ™ serve	<ul style="list-style-type: none"> ■ Isolated gate driver power supply and logic interface for MIPAQ™ serve
	F3L020E07-F-P	EconoPACK™ 4 3-Level	<ul style="list-style-type: none"> ■ Evaluation Driver Board for EconoPACK™ 4 3-Level modules in NPC1-Topology (650V) ■ Designed with 1ED020I12-F
	F3L2020E07-F-P	EconoPACK™ 4 3-Level	<ul style="list-style-type: none"> ■ Evaluation Driver Board for EconoPACK™ 4 3-Level modules in NPC2-Topology (650V) ■ Designed with 1ED020I12-F
	F3L2020E12-F-P	EconoPACK™ 4 3-Level	<ul style="list-style-type: none"> ■ Evaluation Driver Board for EconoPACK™ 4 3-Level modules in NPC-2-topology (1200V) ■ Designed with 1ED020I12-F
	2ED100E12-F2	EconoDUAL™ 3 EiceDRIVER™ 1ED020I12-F	<ul style="list-style-type: none"> ■ Evaluation Driver Board for EconoDUAL™ 3 modules ■ Designed with 1ED020I12-F ■ Suitable for 600V & 1200V
	6ED100E12-F2	EconoPACK™ + EiceDRIVER™ 1ED020I12-F	<ul style="list-style-type: none"> ■ Evaluation Driver Boards for EconoPACK™+ modules ■ Designed with 1ED020I12-F ■ Suitable for 600V & 1200V
	2ED250E12-F	PrimePACK™ 1200V EiceDRIVER™	<ul style="list-style-type: none"> ■ Evaluation Driver Board for 1200V PrimePACK™ modules
	MA300E12	PrimePACK™ Adapter Board	<ul style="list-style-type: none"> ■ PrimePACK™ - Adapter Board for 1200V modules
	MA300E17	PrimePACK™ Adapter Board	<ul style="list-style-type: none"> ■ PrimePACK™ - Adapter Board for 1700V modules

Power portion not included.

Evaluation Boards

	Name of Evaluation Board	Supported Products	Description
	MA3L080E07	EconoPACK™ 4 3-Level	■ EconoPACK™ 4 3-Level Adapter Board for 650V modules in NPC1-Topology
	MA3L120E07	EconoPACK™ 4 3-Level	■ EconoPACK™ 4 3-Level Adapter Board for 650V modules in NPC2-Topology
	MA3L120E12	EconoPACK™ 4 3-Level	■ EconoPACK™ 4 3-Level Adapter Board for 1200V modules in NPC2-topology
	MA070E12	62mm Modules	■ Adapter Board for 62mm Modules (1200V)
	MA070E17	62mm Modules	■ Adapter Board for 62mm Modules (1700V)
	MA200E12	EconoDUAL™ 3	■ EconoDUAL™ 3 Adapter Board for 1200V modules
	MA200E17	EconoDUAL™ 3	■ EconoDUAL™ 3 Adapter Board for 1700V modules
	MA400E12	IHM 130 mm x 140 mm	■ IH4 Adapter Board for 1200V modules
	MA400E17	IHM 130 mm x 140 mm	■ IH4 Adapter Board for 1700V modules
	MA401E12	IHM 140 mm x 190 mm	■ IH7 Adapter Board for 1200V modules
	MA401E17	IHM 140 mm x 190 mm	■ IH7 Adapter Board for 1700V modules
	2ED300E17-SFO	EiceDRIVER™ 2ED300C17-S / -ST	■ Evaluation Board for EiceDRIVER™ 2ED300C17-S / -ST

Power portion not included.

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
MIPAQ™ serve	Application Note	http://www.infineon.com/mipaq-serve-appnote
MIPAQ™ base	Application Note	http://www.infineon.com/mipaq-base-appnote
MIPAQ™ sense	Application Note	http://www.infineon.com/mipaq-sense-appnote
Technical Description 1ED Family	Application Note	http://www.infineon.com/tech-descript-1ED-family
Technical Description 6ED Family	Application Note	http://www.infineon.com/tech-descript-6ED-family
MIPAQ™ – More Than You Expect!	Brochure	http://www.infineon.com/mipaq-brochure
ModSTACK™ HD	Product Brief	http://www.infineon.com/modstack-hd-product-brief
Evaluation Boards	Product Information	http://www.infineon.com/evaluation-boards-product-information
STACKs - We are the experts for power solutions	Product Information	http://www.infineon.com/stacks-product-information
EiceDRIVER™ Overview	Webpage	http://www.infineon.com/eicedriver
EiceDRIVER™ Boards	Webpage	www.infineon.com/eicedriver-boards
Evaluation & Driver Boards - Productpage	Webpage	http://www.infineon.com/evaluation-boards
MIPAQ™	Webpage	http://www.infineon.com/mipaq
Products Driver IC	Webpage	http://www.infineon.com/gatedriver
STACKs - Productpage	Webpage	http://www.infineon.com/stacks


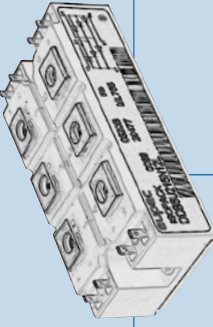
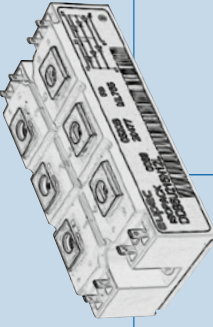
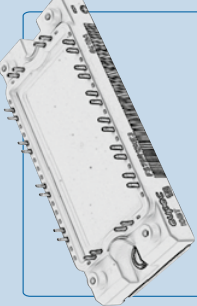
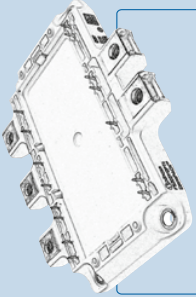
Bridge Rectifier & AC-Switches



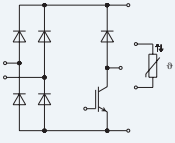
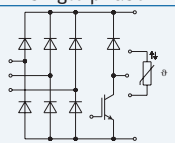
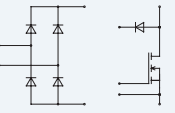
We offer bridge rectifier modules in solder pin design like EasyBRIDGE or eupec™ EconoBRIDGE™ modules. The available configurations are fully- and half controlled rectifiers with brake IGBT and optional NTC resistor. They cover the current range from 25 A up to 180 A at 800V, 1600V and 1800V.

The IsoPACK™ family with screwable load terminals are fully-, half- and uncontrolled rectifier modules. The three phase AC Switches complete the IsoPACK™ product family. The current range covers 85 A up to 205 A at 1600 V.

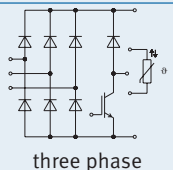
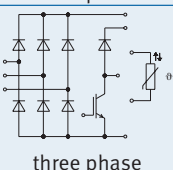
Overview Bridge Rectifier, AC-Switches

2000		EasyBRIDGE	$I_d = 25 - 75A$	Configuration B2U B6U
1800		eupec™ IsoPACK™ Bridge	$I_d = 85 - 205A$	Configuration B6 U/HK/C
1600		eupec™ IsoPACK™ AC-Switch	$I_{RMS} = 85 - 145A$	Configuration W3C
		eupec™ EconoBRIDGE™ 2	$I_d = 84 - 180A$	Configuration B6U B6HK
		eupec™ EconoBRIDGE™ 4	$I_d = 240 - 360 A$	Configuration B6HK
V_{RRM}				

EasyBRIDGE

800 V _{CEs}										
Type	V _{RRM} V	I _d A	Diode			Brake Chopper			Outline/ page	
			R _{thjC} K/W max.	V _{t0} V T _{vj} = 150°C	r _t mΩ	V _{CE} V	I _C * A T _C = 80°C	R _{thjC} K/W max.		
 <p>single phase</p>	DDB2U30N08VR	800	48	1,30	0,75	6,95	600	20	1,50	L_750d/6.7
 <p>three phase</p>	DDB6U30N08VR	800	30	1,80	0,85	8,30	600	20	1,50	L_750e/6.7
	DDB2U50N08W1R_B23	800	50	1,20			600	50	0,25	data on request

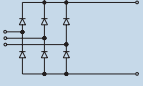

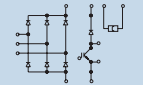
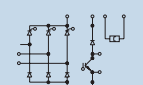
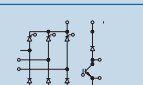
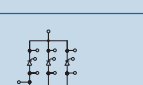
EasyBRIDGE

1600 V _{CEs}										
Type	IGBT Inverter					Brake Chopper			Outline/ page	
	V _{RRM} V	I _d A	R _{thjC} K/W max.	V _{t0} V T _{vj} = 150°C	r _t mΩ	V _{CE} V	I _C * A T _C = 80°C	R _{thjC} K/W max.		
 three phase	DDB6U25N16VR	1600	30	1,55	0,76	7,60	1200	15	1,45	L_750e/6.7
 three phase	DDB6U75N16W1R	1600	75	0,72			1200	50	0,45	L_1ba/6.7
	DDB6U75N16W1R_B11	1600	75	0,72			1200	50	0,45	L_1ba/6.7

* as specified in data sheet

..._B11 PressFIT Modules

eupec™ EconoBRIDGE™ Rectifier

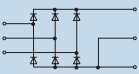
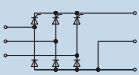
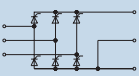
Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100V$	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms $T_{vj\ max}$	I_d/T_c A/°C	$V_{(TO)}$ V $T_{vj} =$ $T_{vj\ max}$	r_T mΩ $T_{vj} =$ $T_{vj\ max}$	R_{thJC} °C/W per arm 120° el Square wave	$T_{vj\ max}$ °C	V_{CES} V	I_C A	Outline/ page	
 <p>3 phase bridge rectifier, uncontrolled</p>	DDB6U100N16R	1600	60	550	100/100	0,75	5,5	1,15	150		M_EB2a/6.8	
	DDB6U144N16R	1600	100	1000	145/100	0,75	3,1	0,89	150		M_EB2a/6.8	
 <p>3 phase bridge rectifier, uncontrolled with brake chopper</p>	DDB6U84N16RR	1600	60	550	85/100	0,75	5,50	1,45	150	1200	50	M_EB2b/6.8
	DDB6U100N16RR	1600	60	550	100/100	0,75	5,50	1,15	150	1200	50	M_EB2b/6.8
 <p>3 phase bridge rectifier, uncontrolled with brake chopper and NTC</p>	DDB6U104N16RR	1600	60	550	105/100	0,75	5,50	1,08	150	1200	50	M_EB2c/6.8
	DDB6U104N18RR	1800	60	550	105/100	0,75	5,50	1,08	150	1200	50	M_EB2c/6.8
	DDB6U134N16RR	1600	80	550	134/100	0,75	6,30	0,70	150	1200	70	M_EB2c/6.8
 <p>3 phase bridge rectifier, halfcontrolled with brake chopper and NTC</p>	TDB6HK124N16RR	1600	70	550	125/85	0,75	6,30	0,63	125	1200	70	M_EB2d/6.8
 <p>3 phase bridge rectifier, halfcontrolled with brake chopper</p>	TDB6HK180N16RR	1600	150	1400	180/80	0,83	2,30	0,35	150	1200	100	M_EB2f/6.8
	TDB6HK180N16RR_B11	1600	150	1400	180/80	0,83	2,30	0,35	150	1200	100	M_EB2e/6.8
 <p>3 phase bridge rectifier, half-controlled with NTC</p>	◆ TDB6HK240N16P	1600	240	data on request							M_EB4a/6.9	
	◆ TDB6HK360N16P	1600	360	data on request							M_EB4a/6.9	

◆ New type
_B11 PressFIT Modules

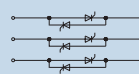
eupec™ EconoBRIDGE™ Rectifiers are UL recognized

SCR
Diode Modules

eupec™ IsoPACK™ Bridge Rectifier

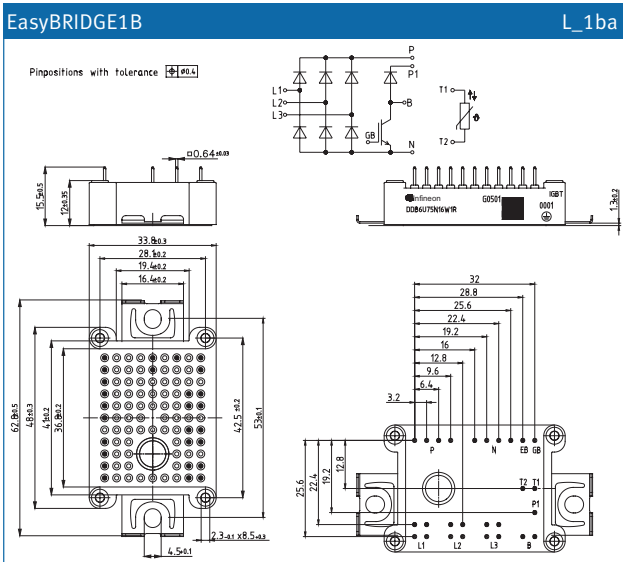
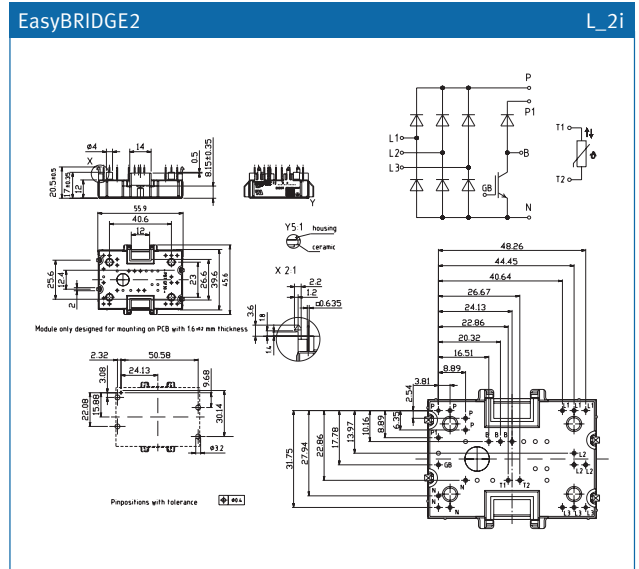
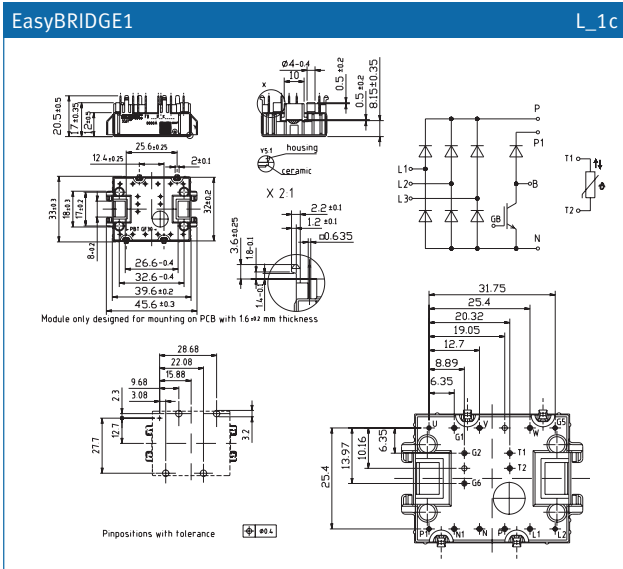
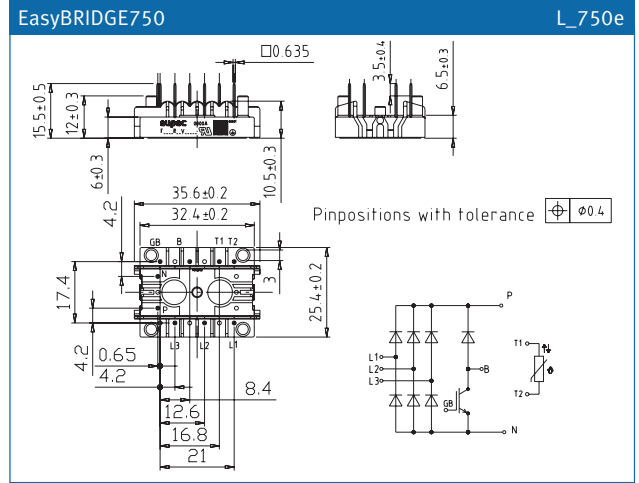
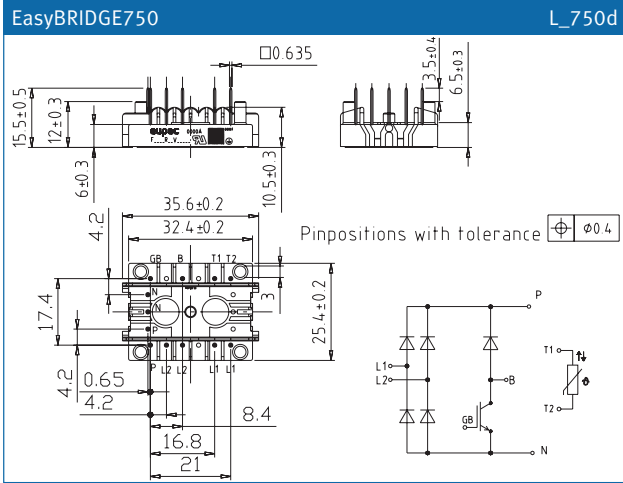
	Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100V$	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms $T_{vj\ max}$	I_d/T_c A/°C	$V_{(TO)}$ V $T_{vj} =$ $T_{vj\ max}$	r_T mΩ $T_{vj} =$ $T_{vj\ max}$	R_{thJC} °C/W per arm 120° el Square wave	$T_{vj\ max}$ °C	Outline/ page
 <p>3 phase bridge rectifier, uncontrolled</p>	DDB6U85N16L	1600	60	550	85/100	0,75	5,50	1,45	150	M_1Pa/6.9
	DDB6U145N16L	1600	100	1000	145/100	0,75	3,10	0,89	150	M_1Pa/6.9
	DDB6U205N16L	1600	120	1375	205/100	0,75	2,20	0,59	150	M_1Pa/6.9
	DDB6U215N16L	1600	125	1850	215/100	0,75	1,60	0,49	150	M_1Pa/6.9
 <p>3 phase bridge rectifier, half controlled</p>	TDB6HK95N16LOF	1600	75	620	95/85	0,95	5,50	0,82	125	M_1Pb/6.9
	TDB6HK135N16LOF	1600	100	870	135/85	0,95	4,30	0,59	125	M_1Pb/6.9
	TDB6HK165N16LOF	1600	120	1050	165/85	0,95	3,20	0,49	125	M_1Pb/6.9
 <p>3 phase bridge rectifier, fully controlled</p>	TTB6C95N16LOF	1600	75	620	95/85	0,95	5,50	0,82	125	M_1Pb/6.9
	TTB6C135N16LOF	1600	100	870	135/85	0,95	4,30	0,59	125	M_1Pb/6.9
	TTB6C165N16LOF	1600	120	1050	165/85	0,95	3,20	0,49	125	M_1Pb/6.9

eupec™ IsoPACK™ AC-Switches

	Type	V_{DRM}, V_{RRM} V $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100V$	I_{FRMSM} (I_{TRMSM}) A	I_{FSM} (I_{TSM}) A 10 ms $T_{vj\ max}$	I_d/T_c A/°C	$V_{(TO)}$ V $T_{vj} =$ $T_{vj\ max}$	r_T mΩ $T_{vj} =$ $T_{vj\ max}$	R_{thJC} °C/W per arm 120° el Square wave	$T_{vj\ max}$ °C	Outline/ page
 <p>3 phase AC-Switches, fully controlled</p>	TTW3C85N16LOF	1600	75	620	85/85	0,95	5,50	0,70	125	M_1Pb/6.9
	TTW3C115N16LOF	1600	100	870	115/85	0,95	4,30	0,50	125	M_1Pb/6.9
	TTW3C145N16LOF	1600	120	1050	145/85	0,95	3,20	0,42	125	M_1Pb/6.9

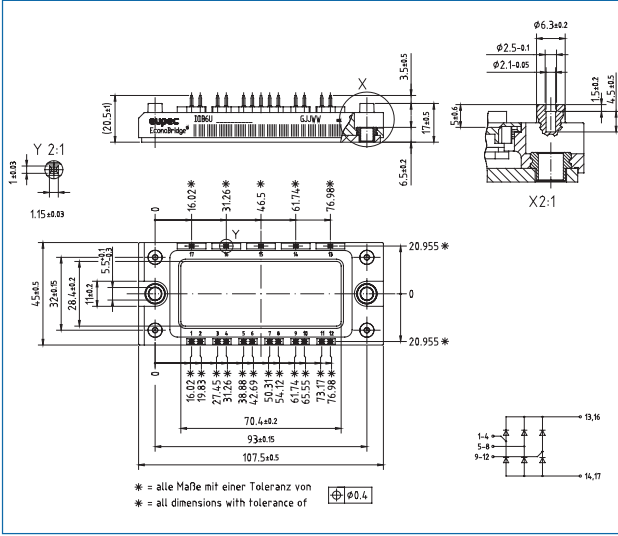
eupec™ IsoPACK™ modules are UL recognized

Outlines

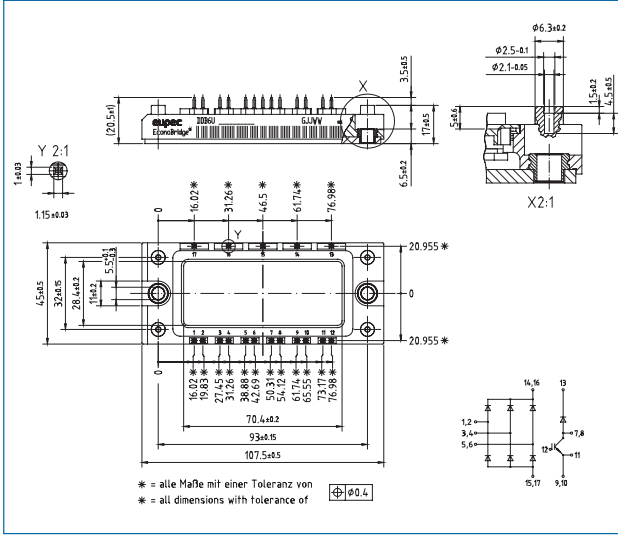


SCR Diode Modules

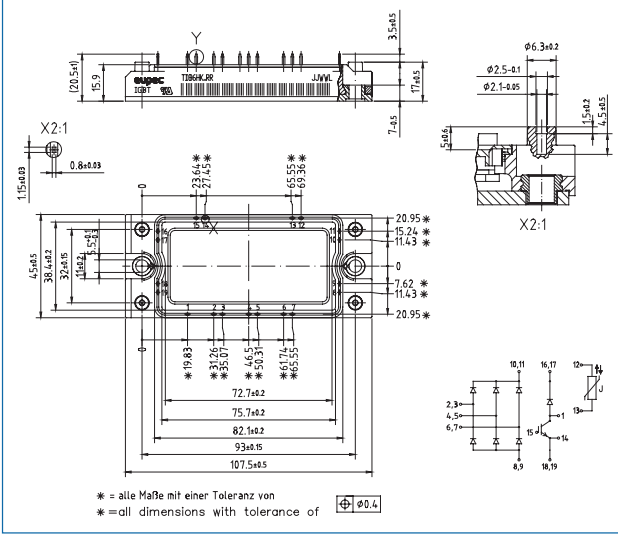
eupec™ EconoBRIDGET™ 2 Rectifier M_EB2a



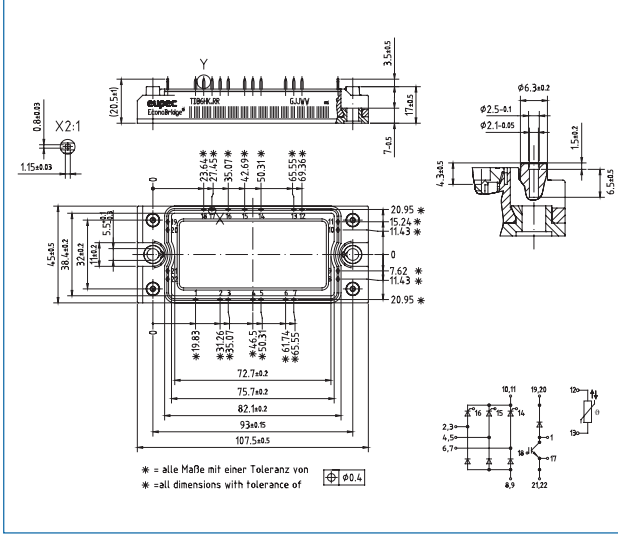
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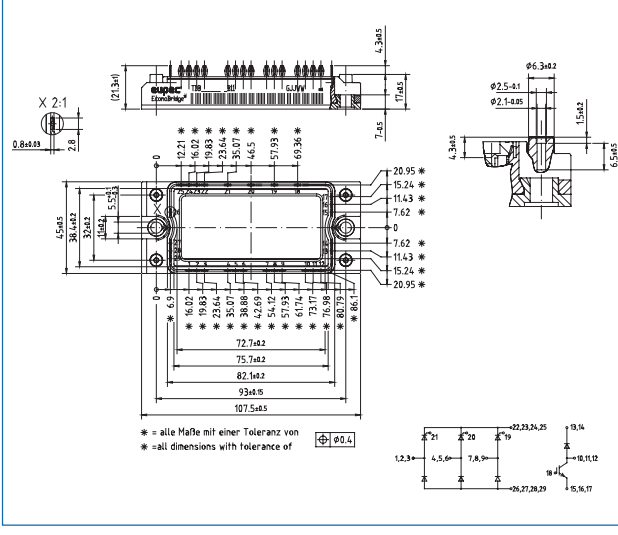
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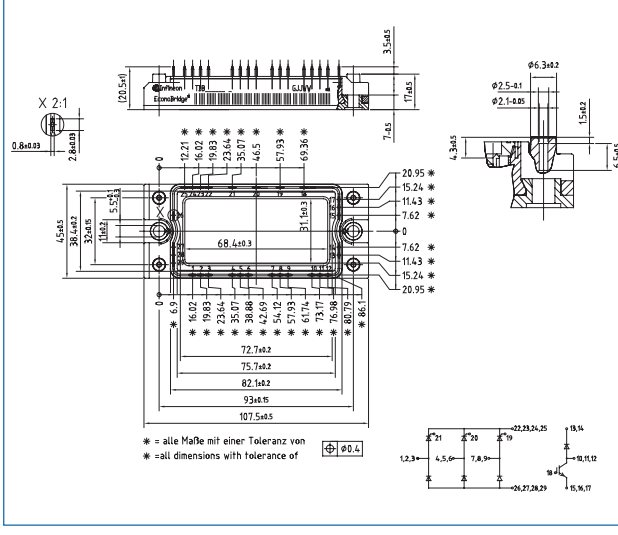
eupec™ EconoBRIDGET™ 2 Rectifier M_EB2d



eupec™ EconoBRIDGET™ 2 Rectifier M_EB2e

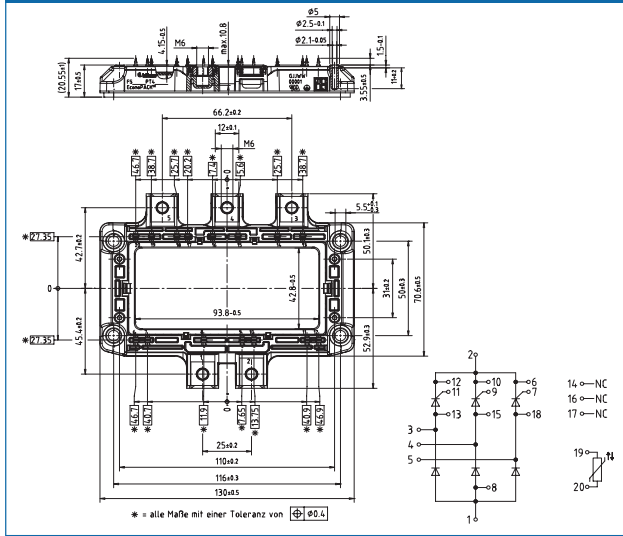


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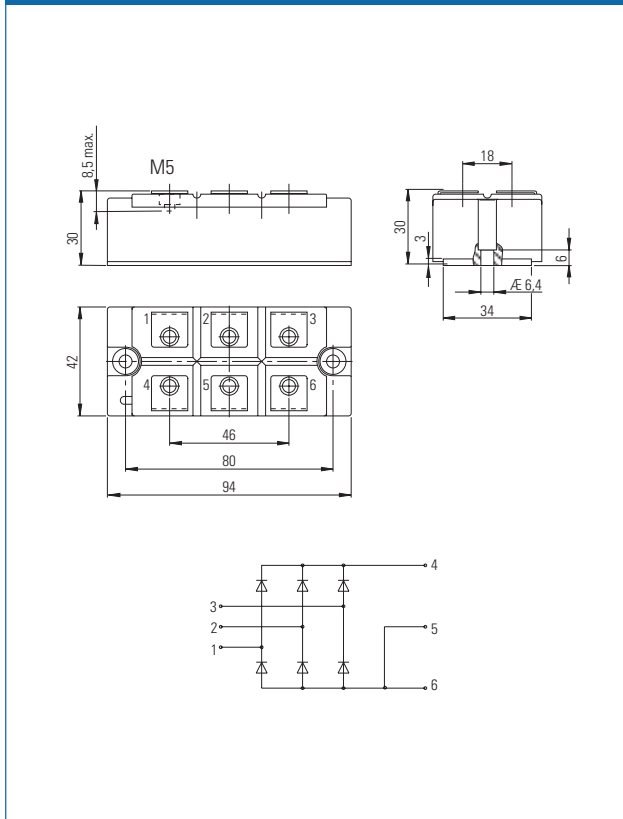
eupec™ EconoBRIDGE™ 4

M_EB4a



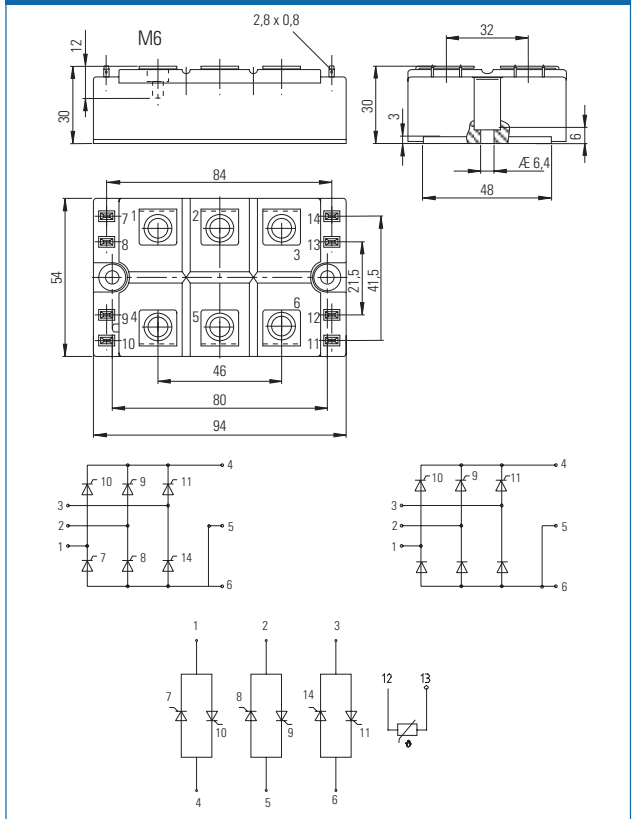
eupec™ IsoPACK™ 42

M_1Pa



eupec™ IsoPACK™ 54

M_1Pb



SCR
Diode Modules

Package Units

Rectifier Modules	Housing Size (overall)	Packing Units
IsoPACK™	42 mm	4
	54 mm	3
eupec EconoBRIDGE™ 2	45 mm x 107 mm	10
eupec EconoBRIDGE™ 4	130,0 mm x 103,0 mm	6
EasyBRIDGE 750	25,4mm x 35,6 mm	40
EasyBRIDGE 1	33 mm x 45,6 mm	20
EasyBRIDGE 2	45,6 mm x 55,9 mm	20

Thyristor & Diode Modules



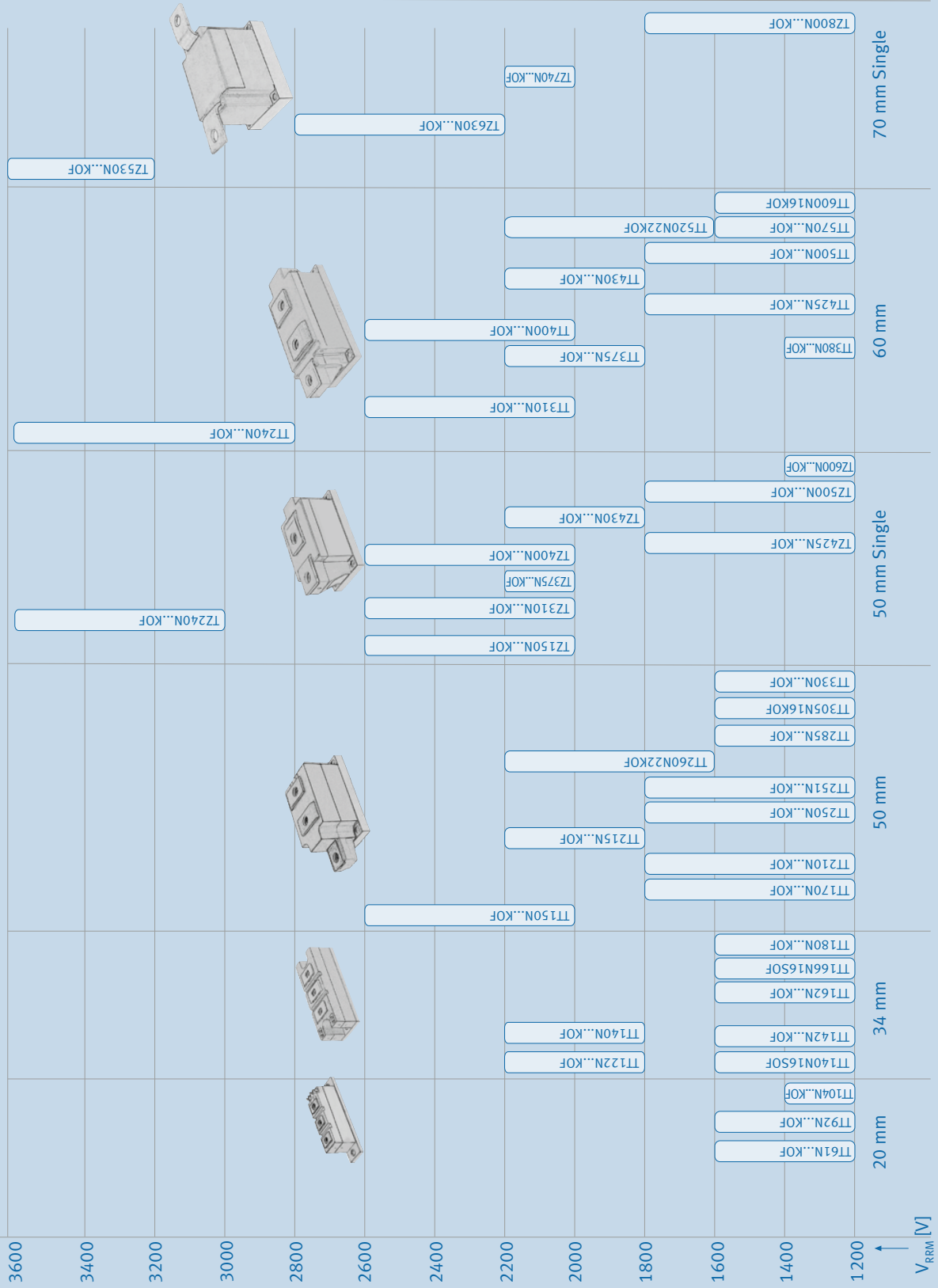
We offer a broad range of PowerBLOCK modules containing thyristor and diode pellets in a voltage range of 1200V to 4400V and a current range of 61A up to 1070A.

The modules are designed and assembled in high reliable pressure contact technology using an isolated copper base plate.

They are offered in several dual and single device topologies for almost all phase control or rectifier applications.

Application areas for our modules are e.g. electrical drives, as well as low voltage soft starters and general purpose power supplies.

Overview PowerBLOCK Thyristor Modules for Phase Control



PowerBLOCK

Thyristor Modules for Phase Control

Type		V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100$ V	I_{TSM} [A] @10ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] 10 ms, $T_{vj\ max}$	I_{TAVM}/T_c [A/°C] @180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	t_q [μs] typisch	R_{thJC} [K/W] @180° el sin	R_{thCK} [K/W] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
Base plate = 20 mm	TT 61 N16 KOF	1600	1400	9,8	60/85	0,80	3,40	150	120	0,52	0,16	125	TP20/6.23
	TT 92 N16 KOF	1600	1800	16,2	92/85	0,85	2,15	150	150	0,37	0,10	130	TP20/6.23
	TT 104 N14 KOF	1400	1800	16,2	104/85	0,85	2,15	150	150	0,37	0,10	140	TP20/6.23
Base plate = 34 mm	TT 122 N22 KOF	2200	2950	43,5	122/85	1,00	2,15	100	300	0,20	0,06	125	TP34/6.23
	TT 140 N22 KOF	2200	3200	51,2	140/85	0,90	1,75	150	300	0,19	0,06	125	TP34/6.23
	◆ TT 140 N16 SOF	1600	data on request										TS34/6.23
	TT 142 N16 KOF	1600	4100	84,0	142/85	0,90	1,10	150	200	0,22	0,06	125	TP34/6.23
	◆ TT 166 N16 SOF	1600	data on request										TS34/6.23
	TT 162 N16 KOF	1600	4400	97,0	162/85	0,85	0,95	150	200	0,20	0,06	125	TP34/6.23
	TT 180 N16 KOF	1600	4100	84,0	180/85	0,85	0,90	150	200	0,20	0,06	130	TP34/6.23
Base plate = 50 mm	TT 150 N26 KOF	2600	4000	80	150/85	1,20	2,30	60	300	0,130	0,04	125	TP50/6.23
	■ TT 170 N18 KOF	1800	4600	106	170/85	0,95	1,00	150	250	0,170	0,04	125	TP50A/6.23
	TT 210 N18 KOF	1800	5800	168	210/85	1,00	0,85	150	200	0,130	0,04	125	TP50A/6.23
	TT 215 N22 KOF	2200	6300	198	215/85	0,95	0,92	100	300	0,130	0,04	125	TP50A/6.23
	TT 250 N18 KOF	1800	7000	245	250/85	0,80	0,70	150	250	0,130	0,04	125	TP50A/6.23
	TT 251 N18 KOF	1800	8000	320	250/85	0,80	0,70	250	250	0,130	0,04	125	TP50A/6.23
	TT 260 N22 KOF	2200	8000	320	260/85	0,85	0,64	250	250	0,120	0,04	130	TP50A/6.23
	TT285 N16 KOF	1600	8000	320	285/92	0,80	0,70	250	250	0,117	0,04	135	TP50A/6.23
	◆ TT 305 N16 KOF	1600	9000	400	305/85	0,80	0,58	250	250	0,120	0,04	130	TP50A/6.23
	TT 330 N16 KOF	1600	8000	320	330/85	0,80	0,60	250	250	0,117	0,04	135	TP50A/6.23
Base plate = 60 mm	■ TT 240 N36 KOF	3600	5500	151	240/85	1,17	1,70	100	350	0,078	0,02	125	TP60/6.24
	■ TT 310 N26 KOF	2600	9000	405	310/85	1,00	0,86	120	300	0,078	0,02	125	TP60/6.24
	■ TT 375 N22 KOF	2200	10600	561	375/85	0,85	0,56	120	300	0,078	0,02	125	TP60/6.24
	■ TT 380 N14 KOF	1400	11000	605	380/85	1,00	0,38	120	250	0,078	0,02	125	TP60/6.24
	TT 400 N26 KOF	2600	11000	605	400/85	1,00	0,50	150	300	0,065	0,02	125	TP60/6.24
	TT 425 N18 KOF	1800	12500	781	425/85	0,90	0,30	120	250	0,078	0,02	125	TP60/6.24
	TT 430 N22 KOF	2200	12000	720	430/85	0,95	0,45	150	300	0,065	0,02	125	TP60/6.24
	TT 500 N18 KOF	1800	14500	1051	500/85	0,90	0,27	200	250	0,065	0,02	125	TP60/6.24
	◆ TT 520 N22 KOF	2200	14500	1051	520/85	0,85	0,35	200	250	0,058	0,02	125	TP60A/6.24
	TT 570 N16 KOF	1600	14000	980	570/87	0,90	0,27	200	250	0,065	0,02	125	TP60/6.24
	◆ TT 600 N16 KOF	1600	17500	1531	600/85	0,80	0,26	200	250	0,058	0,02	125	TP60A/6.24

PowerBLOCK modules are UL recognized

Common anode or cathode on request

◆ New type

■ Not for new design

PowerBLOCK

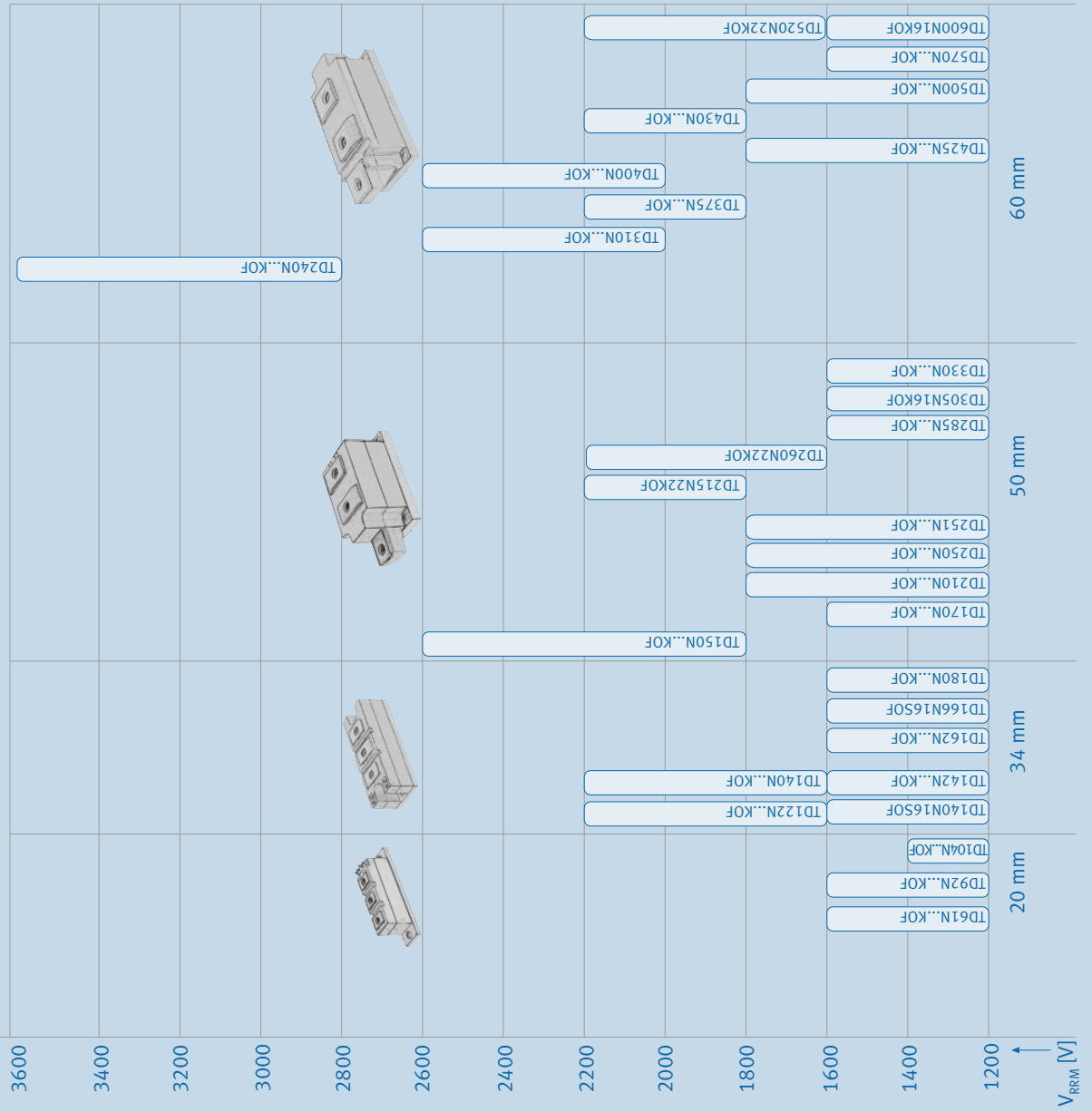
Single Thyristor Modules for Phase Control

Type		V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100 \text{ V}$	I_{TSM} [A] @10ms, $T_{vj \max}$	$\int i^2 dt$ [A ² s · 10 ³] 10 ms, $T_{vj \max}$	I_{TAVM}/T_c [A/°C] @180° el sin	$V_{(TO)}$ [V] @ $T_{vj \max}$	r_T [mΩ] @ $T_{vj \max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	t_q [μs] typisch	R_{thJC} [K/W] @180° el sin	R_{thCK} [K/W] @180° el sin	$T_{vj \max}$ [°C]	Outline / page
Base plate = 50 mm	■ TZ 150 N26 KOF	2600	4000	80	150/85	1,20	2,30	60	300	0,130	0,02	125	TP50.1/6.24
	TZ 240 N36 KOF	3600	5500	151	240/85	1,17	1,70	100	350	0,078	0,02	125	TP50.1/6.24
	TZ 310 N26 KOF	2600	8000	320	310/85	1,00	0,86	120	300	0,078	0,02	125	TP50.1/6.24
	TZ 400 N26 KOF	2600	11000	605	400/85	1,00	0,50	150	300	0,065	0,02	125	TP50.1/6.24
	TZ 425 N18 KOF	1800	12500	781	425/85	0,90	0,30	120	250	0,078	0,02	125	TP50.1/6.24
	TZ 430 N22 KOF	2200	12000	720	430/85	0,95	0,45	150	300	0,065	0,02	125	TP50.1/6.24
	TZ 500 N18 KOF	1800	14500	1051	500/85	0,90	0,27	200	250	0,065	0,02	125	TP50.1/6.24
TZ 600 N16 KOF	1600	14000	980	600/85	0,90	0,27	200	250	0,065	0,02	125	TP50.1/6.24	
Base plate = 70 mm	TZ 530 N36 KOF	3600	20000	2000	530/85	1,05	0,49	80	400	0,045	0,01	125	TP70/6.24
	TZ 630 N28 KOF	2800	23000	2650	630/85	0,95	0,37	150	400	0,042	0,01	125	TP70/6.24
	TZ 749 N22 KOF	2200	26500	3500	740/85	0,90	0,21	200	350	0,042	0,01	125	TP70/6.24
	TZ 800 N18 KOF	1800	30000	4500	800/85	0,85	0,17	200	240	0,042	0,01	125	TP70/6.24

PowerBLOCK modules are UL recognized

■ Not for new design

Overview PowerBLOCK Thyristor/Diode Modules for Phase Control



SCR
Diode Modules

PowerBLOCK

Thyristor/Diode Modules for Phase Control



Type		V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100\text{ V}$	I_{TSM} [A] @10ms, $T_{vj\text{ max}}$	$\int i^2 dt$ [A ² s · 10 ³] 10 ms, $T_{vj\text{ max}}$	I_{TAVM}/T_c [A/°C] @180° el sin	$V_{(TO)}$ [V] @ $T_{vj\text{ max}}$	r_T [mΩ] @ $T_{vj\text{ max}}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	t_q [μs] typisch	R_{thJC} [K/W] @180° el sin	R_{thCK} [K/W] @180° el sin	$T_{vj\text{ max}}$ [°C]	Outline / page
Base plate = 20 mm	TD 61 N16 KOF	1600	1400	9,8	60/85	0,80	3,40	150	120	0,52	0,16	125	TP20/6.23
	TD 92 N16 KOF	1600	1800	16,2	92/85	0,85	2,15	150	150	0,37	0,10	130	TP20/6.23
	TD 104 N14 KOF	1400	1800	16,2	104/85	0,85	2,15	150	150	0,37	0,10	140	TP20/6.23
Base plate = 34 mm	TD 122 N22 KOF	2200	2950	43,5	122/85	1,00	2,15	100	300	0,20	0,06	125	TP34/6.23
	TD 140 N22 KOF	2200	3200	51,2	140/85	0,90	1,75	150	300	0,19	0,06	125	TP34/6.23
	TD 140 N16 SOF	1600	data on request										TS34/6.23
	TD 142 N16 KOF	1600	4100	84	142/85	0,90	1,10	150	200	0,22	0,06	125	TP34/6.23
	TD 162 N16 KOF	1600	4400	97	162/85	0,85	0,95	150	200	0,20	0,06	125	TP34/6.23
	TD 166 N16 SOF	1600	data on request										TS34/6.23
	TD 180 N16 KOF	1600	4100	84	180/85	0,85	0,90	150	200	0,20	0,06	130	TP34/6.23
Base plate = 50 mm	TD 150 N26 KOF	2600	4000	80	150/85	1,20	2,30	60	300	0,130	0,04	125	TP50/6.23
	■ TD 170 N16 KOF	1600	4600	106	170/85	0,95	1,00	150	250	0,170	0,04	125	TP50A/6.23
	TD 210 N18 KOF	1800	5800	168	210/85	1,00	0,85	150	200	0,130	0,04	125	TP50A/6.23
	TD 215 N22 KOF	2200	6300	198	215/85	0,95	0,92	100	300	0,130	0,04	125	TP50A/6.23
	TD 250 N18 KOF	1800	7000	245	250/85	0,80	0,70	150	250	0,130	0,04	125	TP50A/6.23
	TD 251 N18 KOF	1800	8000	320	250/85	0,80	0,70	250	250	0,130	0,04	125	TP50A/6.23
	◆ TD 260N22 KOF	2200	8000	320	260/85	0,85	0,64	250	250	0,120	0,04	130	TP50A/6.23
	TD 285 N16 KOF	1600	8000	320	285/92	0,80	0,70	250	250	0,117	0,04	135	TP50A/6.23
	◆ TD 305 N16 KOF	1600	9000	400	305/85	0,80	0,58	250	250	0,120	0,04	130	TP50A/6.23
	TD 330 N16 KOF	1600	8000	320	330/85	0,80	0,60	250	250	0,117	0,04	135	TP50A/6.23
Base plate = 60 mm	■ TD 240 N36 KOF	3600	5500	151	240/85	1,17	1,70	100	350	0,078	0,02	125	TP60/6.24
	■ TD 310 N26 KOF	2600	9000	405	310/85	1,00	0,86	120	300	0,078	0,02	125	TP60/6.24
	TD 400 N26 KOF	2600	11000	605	400/85	1,00	0,50	150	300	0,065	0,02	125	TP60/6.24
	TD 425 N18 KOF	1800	12500	781	425/85	0,90	0,30	120	250	0,078	0,02	125	TP60/6.24
	TD 430 N22 KOF	2200	12000	720	430/85	0,95	0,45	150	300	0,065	0,02	125	TP60/6.24
	TD 500 N18 KOF	1800	14500	1051	500/85	0,90	0,27	200	250	0,065	0,02	125	TP60/6.24
	◆ TD 520 N22 KOF	2200	14500	1051	520/85	0,85	0,35	200	250	0,058	0,02	125	TP60A/6.24
	TD 570 N16 KOF	1600	14000	980	570/87	0,90	0,27	200	250	0,065	0,02	135	TP60/6.24
	◆ TD 600 N16 KOF	1600	17500	1531	600/85	0,80	0,26	200	250	0,058	0,02	125	TP60A/6.24

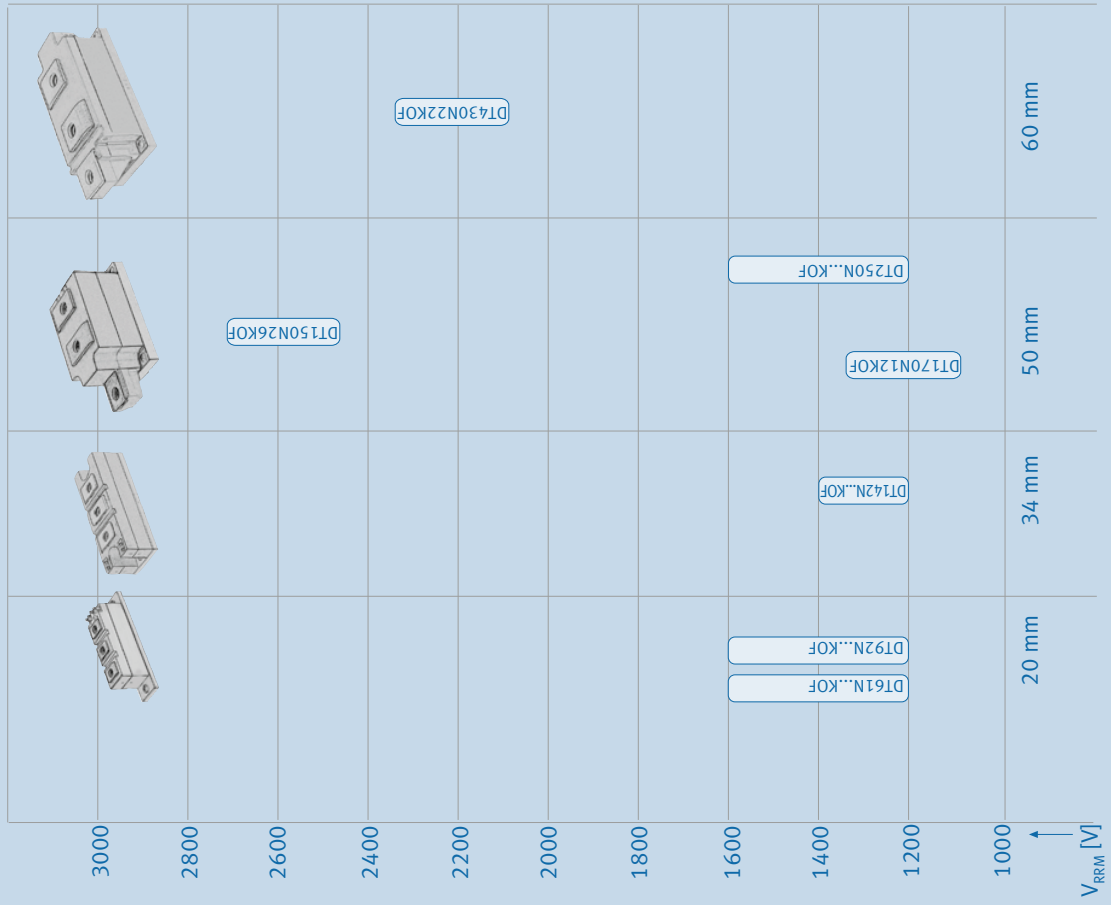
PowerBLOCK modules are UL recognized

Common anode or cathode on request

◆ New type ■ Not for new design

SCR
Diode Modules

Overview PowerBLOCK Diode/Thyristor Modules for Phase Control



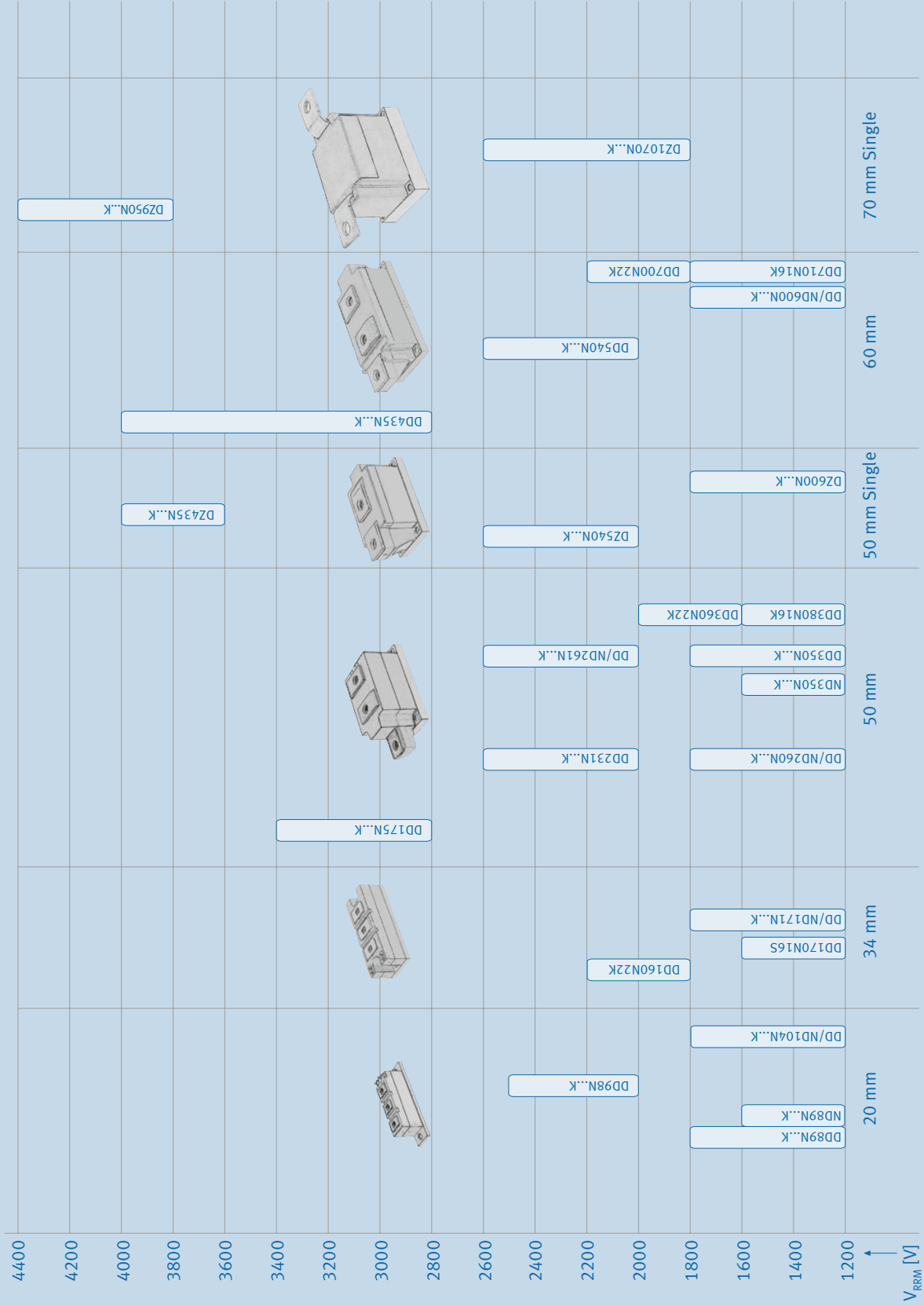
PowerBLOCK

Diode/Thyristor Modules for Phase Control

Type		V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100 V$	I_{TSM} [A] @10ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] 10 ms, $T_{vj\ max}$	I_{TAVM}/T_c [A/°C] @180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	t_q [μs] typisch	R_{thJC} [K/W] @180° el sin	R_{thCK} [K/W] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
Base plate = 20 mm	DT 61 N16 KOF	1600	1400	9,8	60/85	0,80	3,40	150	120	0,52	0,16	125	TP20/6.23
	DT 92 N16 KOF	1600	1800	16,2	92/85	0,85	2,15	150	150	0,37	0,10	130	TP20/6.23
Base plate = 34 mm	DT 142 N12 KOF	1200	4100	84	142/85	0,90	1,10	150	200	0,22	0,06	125	TP34/6.23
Base plate = 50 mm	DT 150 N26 KOF	2600	4000	80	150/85	1,20	2,30	60	300	0,13	0,04	125	TP50/6.23
	DT 170 N12 KOF	1200	4600	106	170/85	0,95	1,00	150	250	0,17	0,04	125	TP50/6.23
	DT 250 N16 KOF	1600	7000	245	250/85	0,80	0,70	150	250	0,13	0,04	125	TP50/6.23
Base plate = 60 mm	DT 430 N22 KOF	2200	12000	720	430/85	0,95	0,45	150	300	0,065	0,02	125	TP60/6.24

PowerBLOCK modules are UL recognized

Overview PowerBLOCK Diode Modules for Phase Control



PowerBLOCK

Rectifier Diode Modules



Type		V_{RRM} [V]	I_{FSM} [A] @10ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj\ max}$	I_{FAVM}/T_c [A] @180° el sin	$V_{(T0)}$ [V] $T_{vj\ max}$	r_T [mΩ] $T_{vj\ max}$	R_{thjc} [K/W] @180° el sin	R_{thch} [K/W] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page	
Base plate = 20 mm	DD 89 N18 K	1800	2400	28,8	89/100	0,75	2,3	0,45	0,10	150	DP20/6.25	
	ND 89 N16 K	1600	2400	28,8	89/100	0,75	2,3	0,45	0,10	150	DP20/6.25	
	DD 98 N25 K	2500	2000	20	98/100	0,82	2,0	0,39	0,10	150	DP20/6.25	
	DD 104 N18 K	1800	2500	31,25	104/100	0,70	2,1	0,39	0,10	150	DP20/6.25	
	ND 104 N18 K	1800	2500	31,25	104/100	0,70	2,1	0,39	0,10	150	DP20/6.25	
Base plate = 34 mm	DD 160 N22 K	2200	4600	105,8	160/100	0,80	1,00	0,26	0,06	150	DP34/6.25	
	DD 170 N16 S	1600	data on request									DS34/6.25
	DD 171 N18 K	1800	5600	157	170/100	0,75	0,8	0,26	0,06	150	DP34/6.25	
	ND 171 N18 K	1800	5600	157	170/100	0,75	0,8	0,26	0,06	150	DP34/6.25	
Base plate = 50 mm	DD 175 N34 K	3400	4000	80	175/100	0,90	1,80	0,17	0,04	150	DP50/6.25	
	DD 231 N26 K	2600	6400	205	231/100	0,80	1,84	0,17	0,04	150	DP50/6.25	
	DD 260 N18 K	1800	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50/6.25	
	ND 260 N16 K	1600	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50ND/6.26	
	DD 261 N24 K	2400	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50/6.25	
	ND 261 N26 K	2600	8300	344	260/100	0,70	0,68	0,17	0,04	150	DP50ND/6.26	
	DD 285 N04 K	400*)	8300	344	285/100	0,75	0,40	0,17	0,04	150	DP50/6.25	
	DD 350 N18 K	1800	11000	605	350/100	0,75	0,40	0,13	0,04	150	DP50/6.25	
	ND 350 N18 K	1800	11000	605	350/100	0,75	0,40	0,13	0,04	150	DP50ND/6.26	
	◆ DD 380 N 16 K	1600	11500	660	380/100	0,75	0,32	0,125	0,04	150	DP50A/6.25	
	◆ DD 360 N 22 K	2200	11500	550	360/100	0,75	0,40	0,125	0,04	150	DP50A/6.25	
	DZ 435 N40 K	4000	12000	720	435/100	0,84	0,60	0,078	0,02	150	DP50.1/6.26	
	DZ 540 N26 K	2600	14000	980	540/100	0,78	0,31	0,078	0,02	150	DP50.1/6.26	
DZ 600 N18 K	1800	19000	1805	600/100	0,75	0,22	0,078	0,02	150	DP50.1/6.26		
Base plate = 60 mm	DD 435 N40 K	4000	12000	720	435/100	0,84	0,60	0,078	0,02	150	DP60/6.25	
	DD 540 N26 K	2600	14000	980	540/100	0,78	0,31	0,078	0,02	150	DP60/6.25	
	DD 600 N18 K	1800	19000	1800	600/100	0,75	0,22	0,078	0,02	150	DP60/6.25	
	ND 600 N18 K	1800	19000	1800	600/100	0,75	0,22	0,078	0,02	150	DP60/6.25	
	◆ DD 700 N22 K	2200	21000	2205	700/100	0,78	0,19	0,065	0,02	150	DP60A/6.26	
	◆ DD 710 N16 K	1600	22000	2420	710/100	0,75	0,145	0,065	0,02	150	DP60A/6.26	
Base plate = 70 mm	DZ 950 N44 K	4400	29000	4205	950/100	0,85	0,28	0,042	0,01	150	DP70/6.26	
	DZ 1070 N26 K	2600	35000	6125	1070/100	0,8	0,17	0,045	0,01	160	DP70/6.26	

PowerBLOCK modules are UL recognized

Common anode or cathode on request

*) $V_{RSM} = V_{RRM} + 50V$

◆ New type

PowerBLOCK

Fast Diode Modules

Type		V_{RRM} [V] $V_{RSM} =$ $V_{RRM} + 100\text{ V}$	I_{FSM} [A] @10ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s·10 ³] @10ms, $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	I_{RM} [A] @ $T_{vj\ max}$ di/dt = 100 A/μs	R_{thjc} [K/W] @180° el sin	R_{thch} [K/W] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
Base plate = 20 mm	DD 46 S12 K	1200 ^{*)}	820	3,6	45/85	0,9	3,9		0,68	0,16	125	DP20/6.25
	DD 61 S14 K	1400	1600	12,8	61/100	1	2,2	82	0,62	0,16	150	DP20/6.25
	DD 81 S14 K	1400	1900	18,1	81/100	0,95	1,7	87	0,48	0,16	150	DP20/6.25
	DD 82 S10 K	1000 ^{*)}	1900	18,1	81/100	0,95	1,7	65	0,48	0,16	150	DP20/6.25
Base plate = 50 mm	DD 230 S26 K	2600	7500	281	230/100	1,0	0,8		0,15	0,04	150	DP50/6.25
	DD 241 S14 K	1400 ^{*)}	7500	281	240/100	1,1	0,5	135	0,15	0,04	150	DP50/6.25
	ND 241 S14 K	1400 ^{*)}	7500	281	240/100	1,1	0,5	135	0,15	0,04	150	DP50ND/6.26
	DD 242 S10 K	1000 ^{*)}	7500	281	240/100	1,1	0,5	98	0,15	0,04	150	DP50/6.25
	ND 242 S10 K	1000 ^{*)}	7500	281	240/100	1,1	0,5	98	0,15	0,04	150	DP50ND/6.26

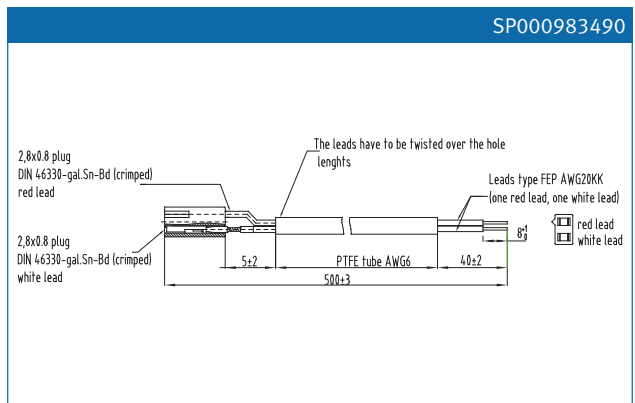
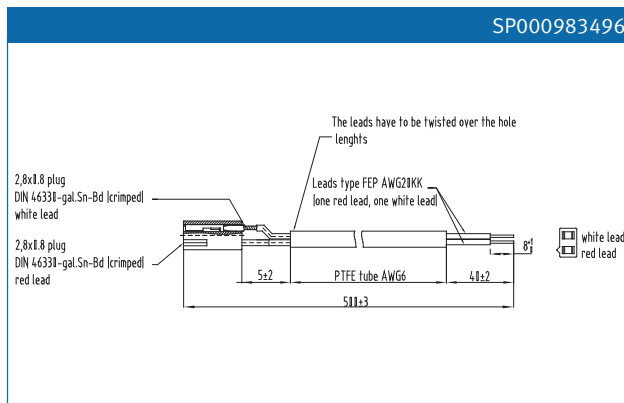
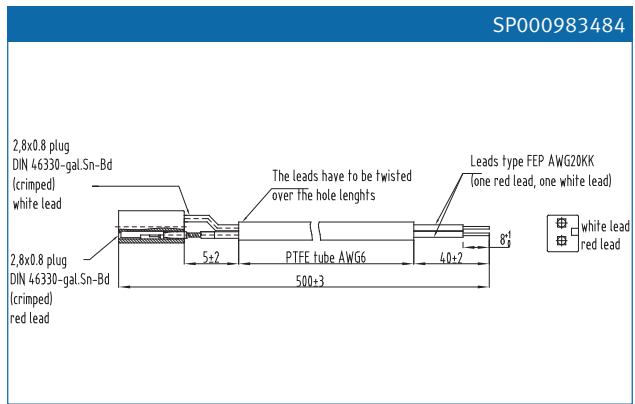
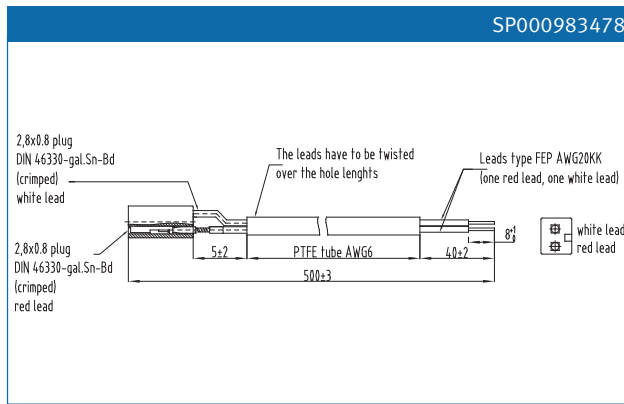
PowerBLOCK modules are UL recognized
Common anode or cathode on request

^{*)} $V_{RRM} \leq 1000\text{ V} : V_{RSM} = V_{RRM} + 50\text{ V}$

Gate Leads for PowerBLOCK Thyristor Modules

Gate leads must be ordered separately

Base plate width [mm]	Type	Terminal #	Terminal descr.	gate lead color	"HK" lead color	length [mm]	Ordering Code
20	Gatelead L=500 PB20 G1/K1	5/4	G1/K1	red	white	500	SP000983478
	Gatelead L=500 PB20 G2/K2	6/7	G2/K2	red	white	500	SP000983484
34, 50, 60	Gatelead L=500 PB34-60 G1/K1	5/4	G1/K1	red	white	500	SP000983496
	Gatelead L=500 PB34-60 G2/K2	6/7	G2/K2	red	white	500	SP000983490
50 single	Gatelead L=500 PB34-60 G1/K1	5/4	G1/K1	red	white	500	SP000983496
70 single	Gatelead L=500 PB34-70 G2/K2	5/4	G1/K1	red	white	500	SP000983490



SCR Diode Modules

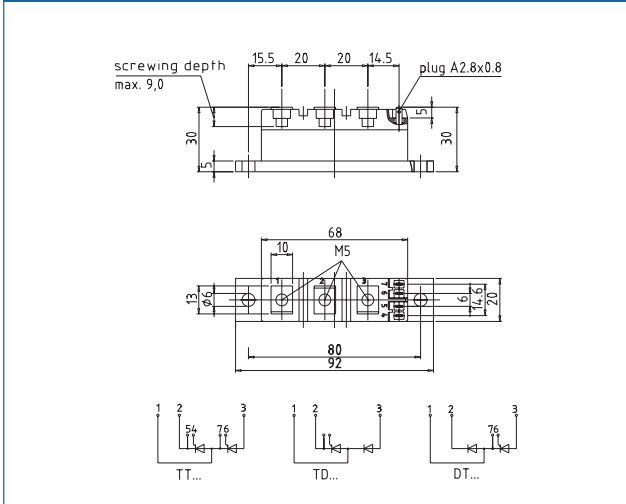
Screws for electrical connection of PowerBLOCK Thyristor and Diode Modules

screws must be ordered separately

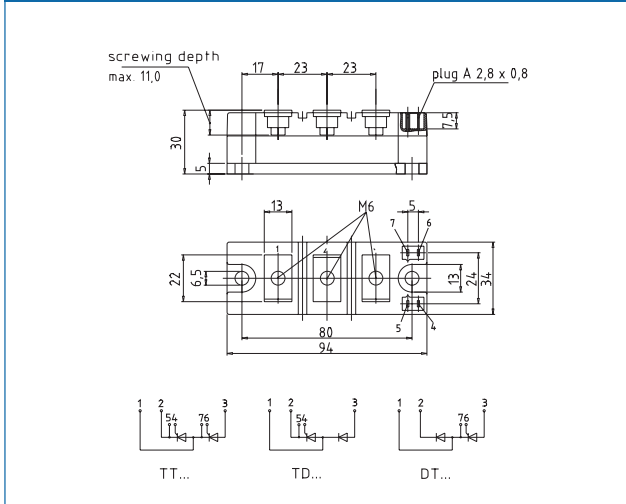
Base plate	screw	Salesname	packing unit	SP No
20 mm	M5x11	SHR DIN7985-M5X11	500	SP000485868
50 mm	M8x18	SHR DIN933-M8X18	500	SP000485876
50 mm single	M10x23	SHR DIN933-M10X23	500	SP000485880
60 mm	M10x23	SHR DIN933-M10X23	500	SP000485880

Outlines

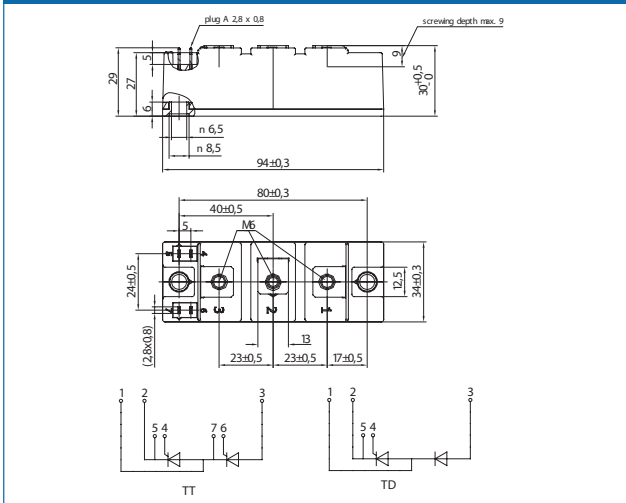
20 mm TP20



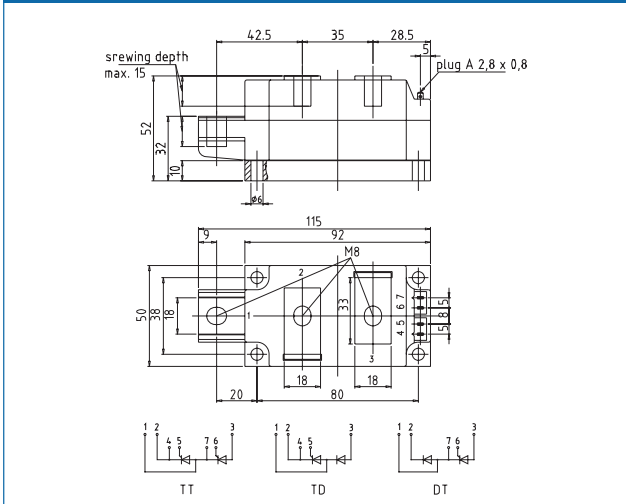
34 mm TP34



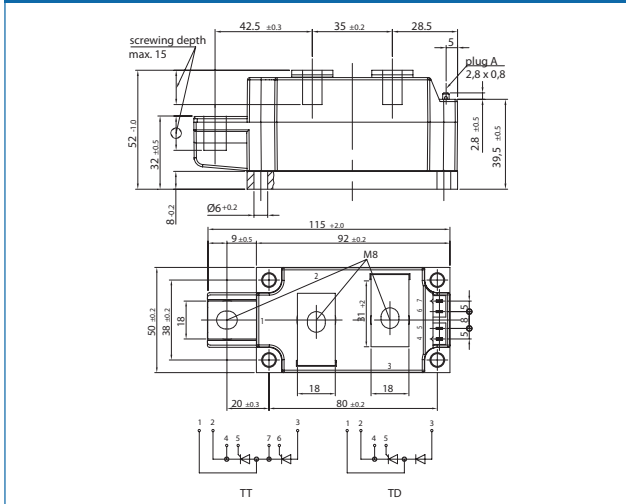
34 mm TS34



50 mm TP50



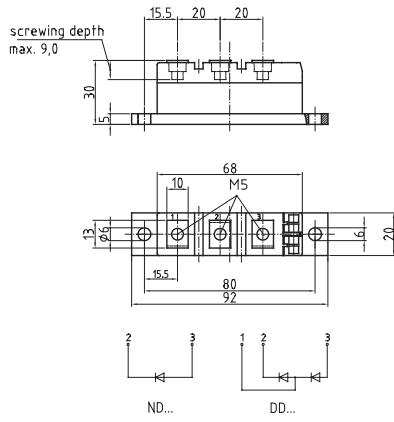
50 mm TP50A



SCR Diode Modules

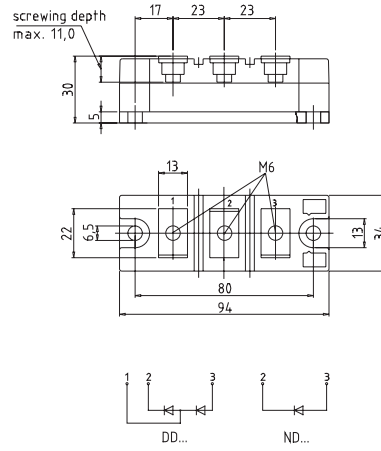
20 mm

DP20



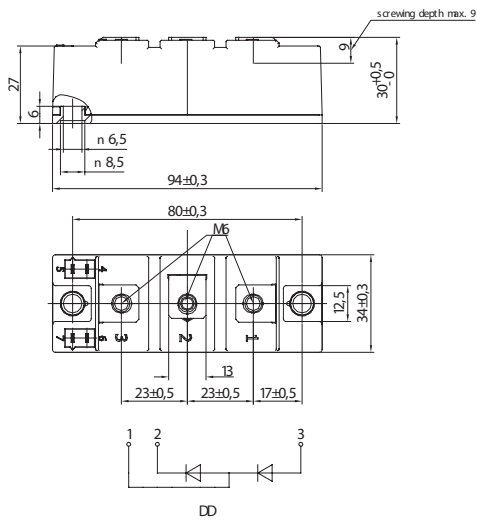
34 mm

DP34



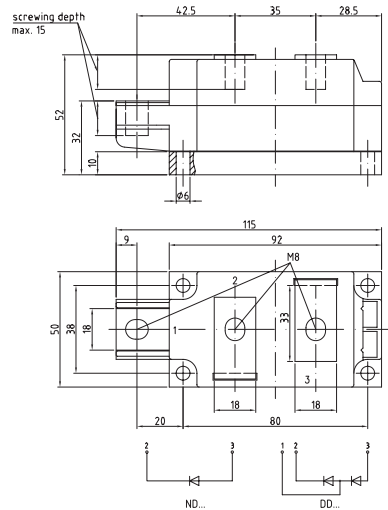
34 mm

DS34



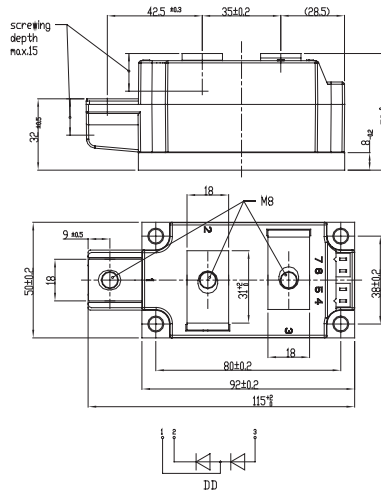
50 mm

DP50



50 mm

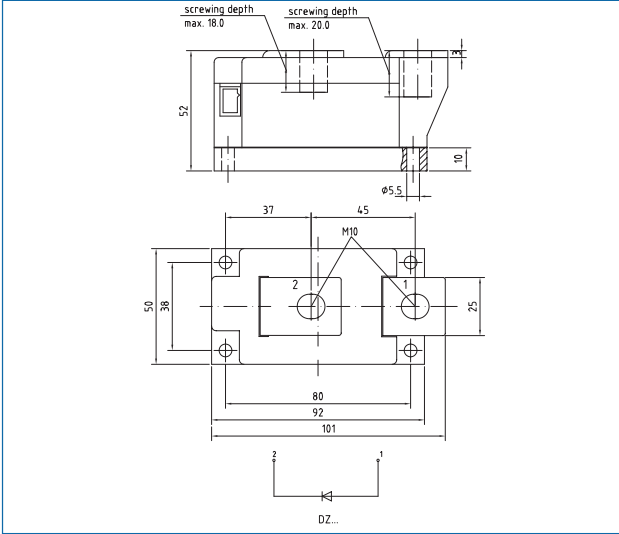
DP50A



SCR Diode Modules

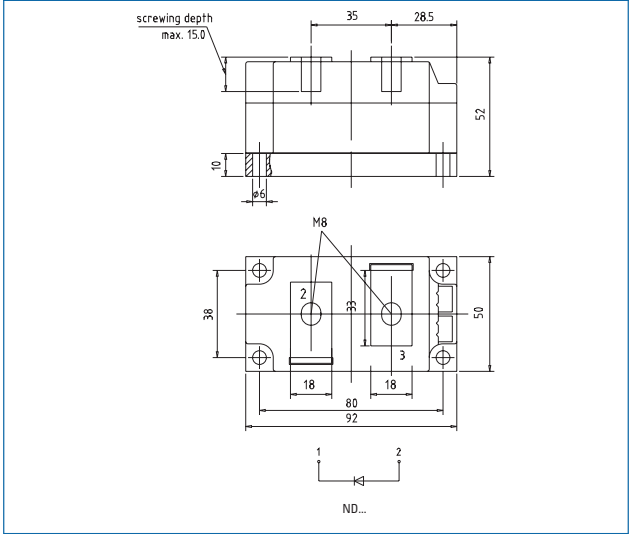
50 mm

DP50.1



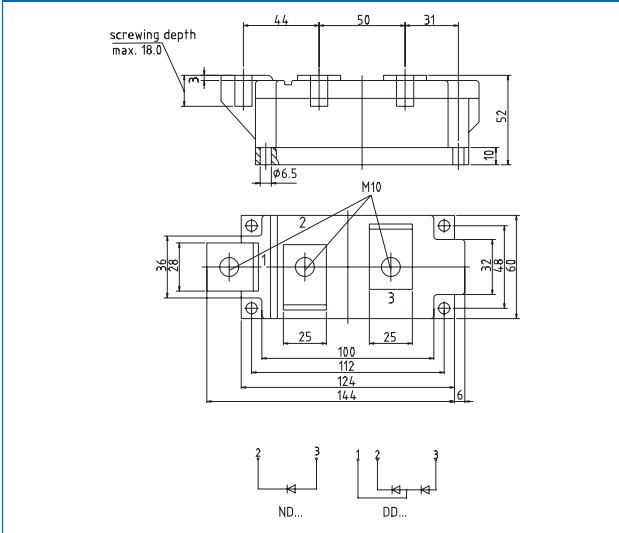
50 mm

DP50ND



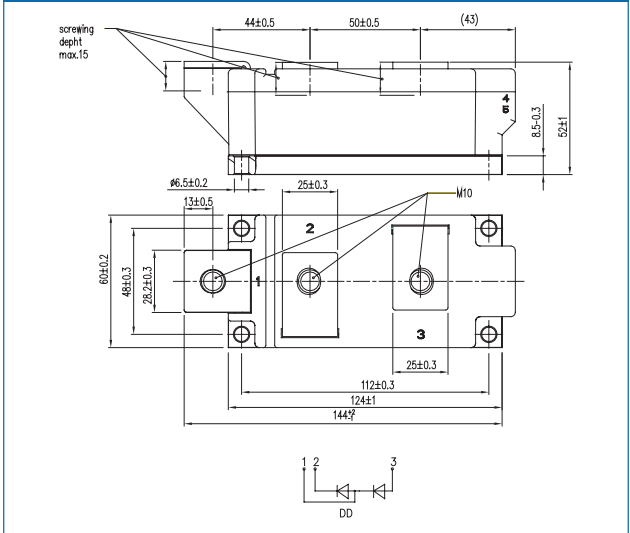
60 mm

DP60



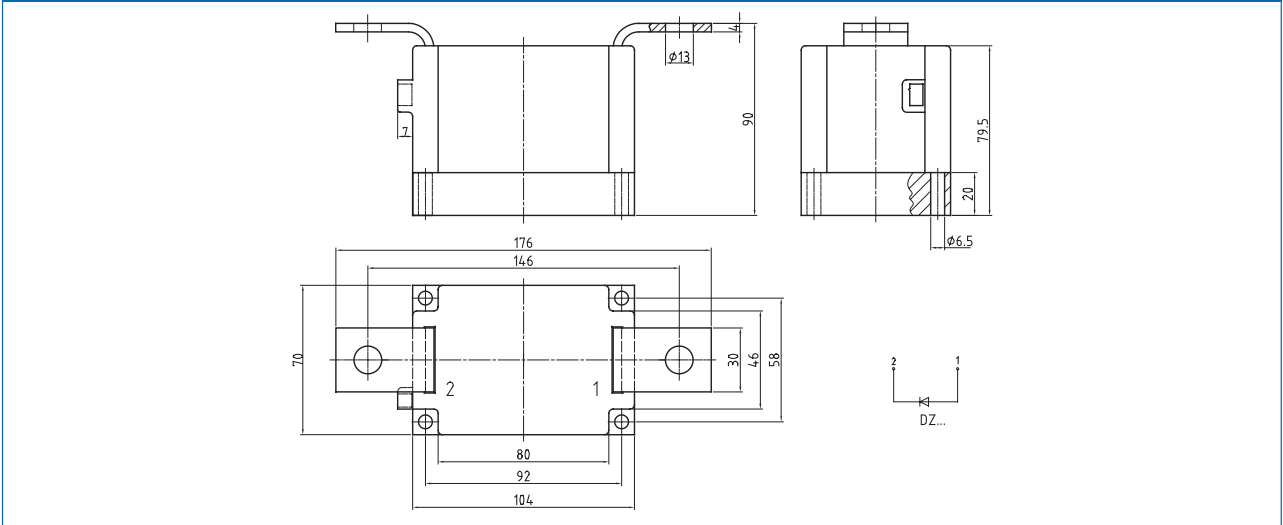
60 mm

DP60A



70 mm

DP70



Package Units

PowerBLOCK Modules

Type	Outline	Housing	Packing units
TT 61 N...KOF	TP20/6.23	PB20	15
TT 92 N...KOF	TP20/6.23	PB20	15
TT 104 N...KOF	TP20/6.23	PB20	15
TT 122 N...KOF	TP34/6.23	PB34	8
TT 140 N...KOF	TP34/6.23	PB34	8
TT 140 N 16 SOF	TS34/6.23	SB34	8
TT 142 N...KOF	TP34/6.23	PB34	8
◆ TT 160 N 16 SOF	TS34/6.23	SB34	8
TT 162 N...KOF	TP34/6.23	PB34	8
TT 180 N...KOF	TP34/6.23	PB34	8
TT 150 N...KOF	TP50/6.23	PB50	3
TT 170 N...KOF	TP50/6.23	PB50AT	3
TT 210 N...KOF	TP50/6.23	PB50AT	3
TT 215 N...KOF	TP50/6.23	PB50AT	3
TT 250 N...KOF	TP50/6.23	PB50AT	3
TT 251 N...KOF	TP50/6.23	PB50AT	3
◆ TT 260 N 22 KOF	TP50A/6.23	PB50AT	3
TT 285 N...KOF	TP50/6.23	PB50AT	3
◆ TT 305 N 16 KOF	TP50/6.23	PB50AT	3
TT 330 N...KOF	TP50/6.23	PB50	3
TT 330 N 16 AOF	TP50A/6.23	PB50AT	3
TT 240 N...KOF	TP60/6.24	PB60	2
TT 310 N...KOF	TP60/6.24	PB60	2
TT 375 N...KOF	TP60/6.24	PB60	2
TT 380 N...KOF	TP60/6.24	PB60	2
TT 400 N...KOF	TP60/6.24	PB60	2
TT 425 N...KOF	TP60/6.24	PB60	2
TT 430 N...KOF	TP60/6.24	PB60	2
TT 500 N...KOF	TP60/6.24	PB60	2
TT 520 N 22 KOF	TP60A/6.24	PB60AT	2
TT 570 N...KOF	TP60/6.24	PB60	2
◆ TT 600 N 16 KOF	TP60A/6.24	PB60AT	2
TZ 150 N...KOF	TP50.1/6.24	PB50.1	3
TZ 240 N...KOF	TP50.1/6.24	PB50.1	3
TZ 310 N...KOF	TP50.1/6.24	PB50.1	3
TZ 375 N...KOF	TP50.1/6.24	PB50.1	3
TZ 400 N...KOF	TP50.1/6.24	PB50.1	3
TZ 425 N...KOF	TP50.1/6.24	PB50.1	3
TZ 430 N...KOF	TP50.1/6.24	PB50.1	3
TZ 500 N...KOF	TP50.1/6.24	PB50.1	3
TZ 600 N...KOF	TP50.1/6.24	PB50.1	3
TZ 530 N...KOF	TP70/6.24	PB70	1
TZ 630 N...KOF	TP70/6.24	PB70	1
TZ 749 N...KOF	TP70/6.24	PB70	1
TZ 800 N...KOF	TP70/6.24	PB70	1
TD 61 N...KOF	TP20/6.23	PB20	15
TD 92 N...KOF	TP20/6.23	PB20	15
TD 104 N...KOF	TP20/6.23	PB20	15
TD 122 N...KOF	TP34/6.23	PB34	8
TD 140 N...KOF	TP34/6.23	PB34	8
◆ TD 140 N 16 SOF	TS34/6.23	SB34	8
TD 142 N...KOF	TP34/6.23	PB34	8
TD 162 N...KOF	TP34/6.23	PB34	8
◆ TD 160 N 16 SOF	TS34/6.23	SB34	8
TD 180 N...KOF	TP34/6.23	PB34	8

◆ New type

Type	Outline	Housing	Packing units
TD 150 N...KOF	TP50/6.23	PB50	3
TD 170 N...KOF	TP50/6.23	PB50AT	3
TD 210 N...KOF	TP50/6.23	PB50AT	3
TD 215 N...KOF	TP50/6.23	PB50AT	3
TD 250 N...KOF	TP50/6.23	PB50AT	3
TD 251 N...KOF	TP50/6.23	PB50	3
◆ TD 270 N 16 AOF	TP50A/6.23	PB50AT	3
◆ TD 260 N 22 AOF	TP50A/6.23	PB50AT	3
TD 285 N...KOF	TP50/6.23	PB50AT	3
TD 330 N...KOF	TP50/6.23	PB50	3
TD 330 N 16 AOF	TP50A/6.23	PB50AT	3
TD 240 N...KOF	TP60/6.24	PB60	2
TD 310 N...KOF	TP60/6.24	PB60	2
TD 375 N...KOF	TP60/6.24	PB60	2
TD 400 N...KOF	TP60/6.24	PB60	2
TD 425 N...KOF	TP60/6.24	PB60	2
TD 430 N...KOF	TP60/6.24	PB60	2
TD 500 N...KOF	TP60/6.24	PB60	2
TD520 N 22 KOF	TP60A/6.24	PB60AT	2
TD 570 N...KOF	TP60/6.24	PB60	2
TD600 N 16 KOF	TP60A/6.24	PB60AT	2
DT 61 N...KOF	TP20/6.23	PB20	15
DT 92 N...KOF	TP20/6.23	PB20	15
DT 142 N...KOF	TP34/6.23	PB34	8
DT 150 N...KOF	TP50/6.23	PB50	3
DT 170 N...KOF	TP50/6.23	PB50AT	3
DT 250 N...KOF	TP50/6.23	PB50AT	3
DT 430 N...KOF	TP60/6.24	PB60	2
DD 89 N...K...K	DP20/6.25	PB20	15
ND 89 N...K	DP20/6.25	PB20	15
DD 98 N...K	DP20/6.25	PB20	15
DD 104 N...K	DP20/6.25	PB20	15
ND 104 N...K	DP20/6.25	PB20	15
◆ DD 140 N 16 S	DS34/6.25	SB34	8
DD 160 N...K	DP34/6.25	PB34	8
◆ DD160 N 16 S	DS34/6.25	SB34	8
DD 171 N...K	DP34/6.25	PB34	8
ND 171 N...K	DP34/6.25	PB34	8
DD 175 N...K	DP50/6.25	PB50	3
DD 231 N...K	DP50/6.25	PB50	3
DD 260 N...K	DP50/6.25	PB50	3
KD 260 N...K	DP50ND/6.26	PB50ND	3
DD 261 N...K	DP50/6.25	PB50AT	3
ND 261 N...K	DP50ND/6.26	PB50ND	3
DD 285 N...K	DP50/6.25	PB50	3
DD 350 N...K	DP50/6.25	PB50AT	3
ND 350 N...K	DP50ND/6.26	PB50ND	3
DD 380 N 16 AOF	DP50A/6.25	PB50AT	3
◆ DD 360 N 22 AOF	DP50A/6.25	PB50AT	3
DZ 435 N...K	DP50.1/6.25	PB50.1	3
DZ 540 N...K	DP50.1/6.25	PB50.1	3
DZ 600 N...K	DP50.1/6.25	PB50.1	3
DD 435 N...K	DP60/6.26	PB60	2
DD 540 N...K	DP60/6.26	PB60	2
DD 600 N...K	DP60/6.26	PB60	2

SCR
Diode Modules

Package Units

PowerBLOCK Modules

Type	Outline	Housing	Packing units
ND 600 N...K	DP60/6.26	PB60	2
DD 700 N...K	DP60/6.26	PB60	2
◆ DD 710 N 16 K	DP60A/6.26	PB60AT	2
DZ 950 N...K	DP70/6.26	PB70	1
DZ 1070 N...K	DP70/6.26	PB70	1
DD 46 S...K	DP20/6.25	PB20	15
DD 61 S...K	DP20/6.25	PB20	15
DD 81 S...K	DP20/6.25	PB20	15
DD 82 S...K	DP20/6.25	PB20	15
DD 230 S...K	DP50/6.25	PB50	3
DD 241 S...K	DP50/6.25	PB50	3
ND 241 S...K	DP50ND/6.26	PB50ND	3
DD 242 S...K	DP50/6.25	PB50	3
ND 242 S...K	DP50ND/6.26	PB50ND	3

◆ New type

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
Technical Information for Bipolar Semiconductors (english)	Application Note	http://www.infineon.com/technical-information-appnote
Technical Information for Bipolar Semiconductors (german)	Application Note	http://www.infineon.com/technical-information-appnote-german
IFBIP Company Brochure	Brochure	http://www.infineon.com/ifbip-company-brochure
IFBIP Web shop	Webpage	http://www.ifbip-shop.com
Thyristor and Diode Modules	Product Brief	http://www.infineon.com/thyristor-and-diodes-product-brief
Thyristor/Diode Modules in solder bond technology	Product Brief	http://www.infineon.com/solder-bond-modules-product-brief
Standard gate leads for PowerBLOCK modules	Product Information	http://www.infineon.com/gate-leads-for-powerblock-modules-product-information



Core Components for Soft Starters



Broadest portfolio of SCR for Soft Starters Applications

- Isolated SCR modules from 1.2 kV up to 3.6 kV
- SCR Discs from 1.2 kV to >6.5 kV
- Current capability from 100A to >3000A
- Robust designs for highest performance and highest reliability
- Global sales and distribution network
- Excellent service and support

For further information please visit our website.

Thyristor & Diode Presspacks



We offer a broad range of Press pack disc housings containing thyristor and diode pellets in a voltage range of 200V to 9500V and a current range of 56 A to 8400 A.

All discs are assembled in highly reliable, robust and hermetic sealed ceramic housings in order to avoid mechanical damages as well as almost any negative environmental influences as e.g. high humidity.

Beside the standard electrical triggered thyristor disc types for phase control applications and diode disc types for rectifier applications, we offer a range of discs as fast switching diodes, as well as soft and fast recovery freewheeling diodes for IGCT and IGBT switches.

As an extension, our product portfolio contains disc types as light triggered thyristors (LTT). These ceramic discs offer an easy way of triggering by using fiber optics to avoid insulation problems between load and trigger unit. Higher reliability thanks to less electronic components on high electric potential by using monolithic integrated protection functions (BoD and dv/dt protection). The power range covers blocking voltages from 5200V up to 8000V and current ratings from 550A up to 3500A.

Phase Control Thyristors

up to 600 V												
Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 50 V$	I_{TSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj\ max}$	V_T/I_T [V/kA] $T_{vj\ max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj\ max}$	rT [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thjC} [K/kW] @180 ° el sin	$T_{vj\ max}$ [°C]	Outline / page
T 580 N06 TOF	600	5,5	151	1,63/1,5	568	1,00	0,400	200	200	62,0	140	T42.14K0/7.8
T 690 N06 TOF	600	6,7	225	1,76/2,0	694	0,80	0,440	200	200	51,0	140	T42.14K0/7.8
T 920 N06 TOF	600	12,0	720	1,65/2,5	925	1,00	0,230	300	150	39,0	140	T48.14K0/7.8
T 1080 N06 TOF	600	14,5	1050	1,81/3,5	1075	1,02	0,200	200	150	33,0	140	T48.14K0/7.8
T 1410 N06 TOF	600	20,0	2000	1,50/4,5	1490	1,00	0,100	120	200	27,0	140	T58.14K0/7.8
T 2510 N06 TOF VT	600	42,0	8820	1,22/6,0	2509	0,75	0,072	200	200	18,4	140	T75.26K0/7.9
T 3710 N06 TOF VT	600	60,0	18000	1,50/15,0	3710	0,75	0,048	200	200	12,5	140	T100.26K0/7.9

up to 1800 V												
Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100 V$	I_{TSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj\ max}$	V_T/I_T [V/kA] $T_{vj\ max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj\ max}$	rT [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thjC} [K/kW] @180 ° el sin	$T_{vj\ max}$ [°C]	Outline / page
T 86 N16 BOF	1600	2,0	20	1,99/0,4	86	1,00	2,600	150	200	300	125	TSW27/7.7
T 130 N18 BOF	1800	3,0	45	1,96/0,6	130	1,08	1,530	150	180	200	125	TSW27/7.7
T 130 N16 EOF	1600	3,0	45	1,96/0,7	130	1,08	1,530	150	180	200	125	TFL36/7.7
T 160 N18 BOF	1800	3,4	58	1,96/0,6	160	1,08	1,530	150	200	150	125	TSW27/7.7
T 160 N18 EOF	1800	3,4	58	1,96/0,7	160	1,08	1,530	150	200	150	125	TFL36/7.7
T 221 N18 BOF	1800	5,7	163	1,74/0,8	221	1,10	0,750	150	200	120	125	TSW41/7.7
T 300 N18 TOF	1800	3,4	58	2,20/0,8	303	0,90	1,350	150	200	69	125	T42.14K0/7.8
T 345 N18 EOF	1800	6,9	238	1,56/1,0	345	0,80	0,700	150	250	80	125	TFL54/7.7
T 390 N16 TOF	1600	4,3	91	2,00/1,1	381	0,85	0,900	150	200	62	125	T42.14K0/7.8
T 430 N18 TOF	1800	4,6	106	2,07/1,2	433	0,85	0,900	150	250	51	125	T42.14K0/7.8
T 470 N16 TOF	1600	6,4	202	1,85/1,2	470	0,80	0,750	150	250	51	125	T42.14K0/7.8
T 420 N18 TOF	1800	6,4	205	2,10/1,5	424	0,90	0,750	120	220	56	125	T48.14K0/7.8
T 560 N18 TOF	1800	6,9	238	1,92/1,6	559	0,80	0,600	120	250	44	125	T48.14K0/7.8
T 590 N18 TOF	1800	8,0	320	2,15/2,4	588	0,80	0,500	200	250	45	125	T58.26K0/7.8
T 640 N18 TOF	1800	8,0	320	2,15/2,4	644	0,80	0,500	200	250	39	125	T48.14K0/7.8
T 680 N14 TOF	1400	9,5	451	1,75/2,0	681	0,80	0,420	200	250	39	125	T48.14K0/7.8
T 720 N18 TOF	1800	12,5	781	1,94/3,0	718	0,85	0,350	120	250	38	125	T58.26K0/7.8
T 830 N18 TOF	1800	12,5	781	1,94/3,0	844	0,85	0,300	120	250	30	125	T58.14K0/7.8
T 880 N18 TOF	1800	15,5	1200	1,95/3,6	879	0,85	0,270	200	250	32	125	T58.26K0/7.8
T 940 N18 TOF	1800	15,5	1200	1,95/3,6	959	0,85	0,270	200	250	28	125	T58.14K0/7.8
T 1190 N18 TOF VT	1800	22,5	2530	2,05/5,4	1190	0,90	0,190	200	240	23	125	T75.26K0/7.9
T 1500 N18 TOF VT	1800	33,5	5611	2,10/7,0	1500	0,90	0,150	200	240	18,4	125	T75.26K0/7.9
T 2180 N18 TOF VT	1800	36,0	6480	2,05/8,0	2180	0,90	0,106	200	250	12,5	125	T100.26K0/7.9
T 3160 N18 TOF VT	1800	57,0	16245	1,37/6,0	3160	0,85	0,082	200	250	8,5	125	T111.26K0/7.9

...VT -> VT-class printed on housing

Presspacks

Phase Control Thyristors

up to 3000 V												
Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100 V$	I_{TSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj\ max}$	V_T/I_T [V/kA] $T_{vj\ max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj\ max}$	rT [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thjC} [K/kW] @180 ° el sin	$T_{vj\ max}$ [°C]	Outline / page
T 360 N28 TOF	2800	4,5	101	2,88/1,1	360	1,10	1,600	60	350	44,0	125	T48.14K0/7.8
T 460 N26 TOF	2600	9,0	405	2,75/2,0	459	1,00	0,840	120	300	45,5	125	T58.26K0/7.8
T 660 N26 TOF	2600	11,5	660	2,53/2,85	659	1,00	0,500	150	300	33,0	125	T58.26K0/7.8
T 700 N22 TOF	2200	12,2	744	2,32/2,85	699	0,95	0,450	200	300	32,0	125	T58.26K0/7.8
T 740 N26 TOF	2600	11,5	660	2,53/2,85	745	1,00	0,500	150	300	28,0	125	T58.14K0/7.8
T 1040 N22 TOF VT	2200	18,5	1711	1,53/2,0	1039	0,90	0,300	200	300	23,1	125	T75.26K0/7.9
T 1220 N28 TOF VT	2800	22,5	2531	1,38/1,0	1220	1,00	0,275	150	350	18,4	125	T75.26K0/7.9
T 1330 N22 TOF VT	2200	23,0	2645	1,13/1,0	1329	0,90	0,234	200	300	18,4	125	T75.26K0/7.9
T 1590 N28 TOF VT	2800	28,0	3920	2,45/5,0	1590	1,10	0,237	150	400	12,5	125	T100.26K0/7.9
T 1960 N22 TOF VT	2200	35,0	6125	2,20/8,0	1960	0,90	0,150	200	300	12,5	125	T100.26K0/7.9
T 2160 N28 TOF VT	2800	40,0	8000	2,65/8,8	2400	1,05	0,154	150	400	8,5	125	T111.26K0/7.9
T 2480 N28 TOF VT	2800	43,5	9460	1,43/3,0	2480	0,95	0,154	200	400	8,5	125	T111.26K0/7.9
T 2810 N22 TOF VT	2200	50,0	12500	2,35/11,0	2810	0,90	0,112	200	300	8,5	125	T111.26K0/7.9
T 4301 N29 TOF VT	2900	91,0	41400	1,20/4,0	4300	0,77	0,107	300	250	5,4	125	T150.35K/7.10
T 4771 N29 TOF VT	2900	91,0	41400	1,20/4,0	4640	0,77	0,107	300	250	4,8	125	T150.26K/7.10



...VT → VT-class printed on housing

up to 4500 V												
Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 100 V$	I_{TSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj\ max}$	V_T/I_T [V/kA] $T_{vj\ max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj\ max}$	rT [mΩ] @ $T_{vj\ max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thjC} [K/kW] @180 ° el sin	$T_{vj\ max}$ [°C]	Outline / page
T 730 N42 TOF VT	4200	15,8	1250	3,40/3,5	730	1,20	0,570	80	400	21,5	120	T75.26K0/7.9
T 731 N44 TOH	4400	16,0	1280	1,86/1,2	910	1,08	0,650	300	500	18,5	125	T76.26K/7.19
T 860 N36 TOF VT	3600	17,0	1445	3,18/3,8	860	1,08	0,500	80	400	21	125	T75.26K0/7.9
T 901 N36 TOF	3600	17,0	1445	1,75/1,2	950	1,16	0,494	300	300	18,5	125	T76.26K/7.19
T 930 N36 TOF VT	3600	17,5	1530	2,70/3,6	930	1,00	0,430	80	500	21,5	125	T75.26K0/7.9
T 1401 N42 TOH	4200	36,0	6480	1,95/2,0	1600	1,29	0,330	300	350	9,7	125	T120.35K/7.10
T 1971 N44 TOH	4400	36,0	6480	1,95/2,0	1730	1,29	0,330	300	350	8,6	125	T120.26K/7.9
T 1601 N36 TOF	3600	41,0	8400	1,50/2,0	1920	1,00	0,250	300	300	9,7	125	T120.35K/7.10
T 1800 N42 TOF	4200	41,0	8405	1,65/2,0	1800	0,85	0,400	150	900	8,5	125	T111.26K0/7.9
T 1930 N38 TOF VT	3800	37,0	6850	2,90/8,0	2180	1,08	0,200	150	450	8,5	125	T111.26K0/7.9
T 2001 N36 TOF	3600	41,0	8400	1,50/2,0	2060	1,00	0,250	300	300	8,7	125	T120.26K/7.9
T 3101 N42 TOH	4200	83,0	34000	1,6/4,0	3160	0,90	0,175	300	400	5,4	125	T150.35K/7.10
T 3401 N36 TOH	3600	87,0	37850	1,40/4,0	3800	0,82	0,145	300	300	5,4	125	T150.35K/7.10
T 3801 N36 TOH	3600	87,0	37850	1,40/4,0	4100	0,82	0,145	300	300	4,8	125	T150.26K/7.10

...VT → VT-class printed on housing

Phase Control Thyristors



up to 5500 V

Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100 V$	I_{TSM} [kA] @10 ms, $T_{vj \max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj \max}$	V_T/I_T [V/kA] $T_{vj \max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj \max}$	rT [mΩ] @ $T_{vj \max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thJC} [K/kW] @180 ° el sin	$T_{vj \max}$ [°C]	Outline / page
T 1451 N52 TOH	5200	43,0	9250	1,70/2,0	1690	0,92	0,370	300	450	9,7	125	T120.35K/7.10
T 1551 N52 TOH	5200	43,0	9250	1,70/2,0	1830	0,92	0,370	300	450	8,6	125	T120.26K/7.9
T 2161 N52 TOH	5200	54,0	14600	1,85/3,0	2170	0,81	0,360	300	450	7,5	125	T120.35K/7.10
T 2351 N52 TOH	5200	54,0	14600	1,85/3,0	2360	0,81	0,360	300	450	6,5	125	T120.26K/7.9
T 2851 N52 TOH	5200	79,0	31000	1,70/4,0	3000	0,77	0,235	300	600	5,4	125	T150.35K/7.10
T 3441 N52 TOH	5200	79,0	31000	1,70/4,0	3200	0,77	0,235	300	600	4,8	125	T150.26K/7.10
T 4021 N53 TOH	5350	100,0	50000	1,80/6,0	3920	0,92	0,142	300	550	4,45	125	T172.26K/7.10

...VT → VT-class printed on housing



up to 10000 V

Type	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100 V$	I_{TSM} [kA] @10 ms, $T_{vj \max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj \max}$	V_T/I_T [V/kA] $T_{vj \max}$	I_{TAVM} [A] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj \max}$	rT [mΩ] @ $T_{vj \max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thJC} [K/kW] @180 ° el sin	$T_{vj \max}$ [°C]	Outline / page
T 281 N65 TOF	6500	4,8	115	2,75/0,5	280	1,35	2,800	150	1000	43,0	125	T58.26K0/7.8
T 571 N65 TOF	6500	9,4	442	2,75/1,0	540	1,35	1,400	150	1000	23,0	125	T75.26K0/7.9
T 1060 N65 TOF	6500	22,5	2530	3,5/3,0	1050	1,35	0,720	150	1000	11,8	125	T100.26K0/7.9
T 1620 N65 TOF	6500	32,0	5120	3,3/4,5	1610	1,35	0,430	150	1000	8,1	125	T111.26K0/7.9
T 1081 N70 TOH	7000	34,0	5780	2,7/2,0	1330	1,18	0,759	300	600	8,6	125	T120.26K/7.9
T 1201 N70 TOH	7000	34,0	5780	2,7/2,0	1230	1,18	0,759	300	600	9,7	125	T120.35K/7.10
T 1651 N70 TOH	7000	48,0	11500	2,65/3,0	1685	1,22	0,490	300	600	7,5	125	T120.35K/7.10
T 1851 N70 TOH	7000	48,0	11500	2,65/3,0	1850	1,22	0,490	300	600	6,5	125	T120.26K/7.9
T 1901 N80 TOH	8000	65,0	21100	3,0/4,0	2130	1,24	0,440	300	550	5,4	125	T150.35K/7.10
T 2251 N80 TOH	8000	65,0	21100	3,0/4,0	2280	1,24	0,440	300	550	4,8	125	T150.26K/7.10
T 2871 N80 TOH	8000	90,0	40500	2,95/5,0	2680	1,27	0,336	300	550	4,5	125	T172.26K/7.10
◆ T 3011 N80 TOH	8000	90,0	43250	2,95/5,0	2800	1,27	0,336	300	550	4,0	125	T172.26K/7.10
◆ T 600 N95 TOH	9500	12,8	820	2,8/1,0	570	1,18	1,620	100	900	20,5	125	T75.26K0/7.9

◆ New type

Light Triggered Thyristors

Type	V_{BO} [V]	V_{DRM}, V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} = V_{RRM} + 100 V$	I_{TSM} [kA] @10ms, $T_{vj \max}$	$\int i^2 dt$ [A ² s · 10 ³] @10 ms, $T_{vj \max}$	V_T/I_T [V/kA] @ $T_{vj \max}$	I_{TAVM} [A/°C] @180 ° el sin $T_c = 85 °C$	V(TO) [V] @ $T_{vj \max}$	rT [mΩ] @ $T_{vj \max}$	$(di/dt)_{cr}$ [A/μs] @DIN IEC 747-6	tq [μs] typ.	R_{thJC} [K/kW] @180 ° el sin	$T_{vj \max}$ [°C]	Outline / page
T 533 N80 TOH	6500	8000	11,2	672	2,80/1,0	535	1,31	1,500	300	800	20	120	T76.35L/7.10
T 1503 N80 TOH	7500	8000	55	15125	3,00/4,0	1770	1,24	0,440	300	550	6,3	120	T150.40L/7.11
T 2563 N80 TOH	7500	8000	90	40500	2,95/5,0	2520	1,28	0,278	300	550	4,8	120	T172.40L/7.11
T 4003 N52 TOH	5200	5200	100	50000	1,80/5,0	3480	0,92	0,142	300	500	4,8	120	T172.40L/7.11

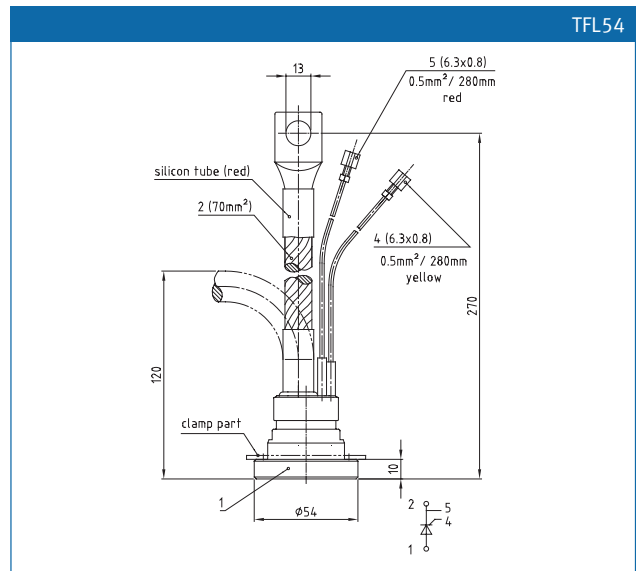
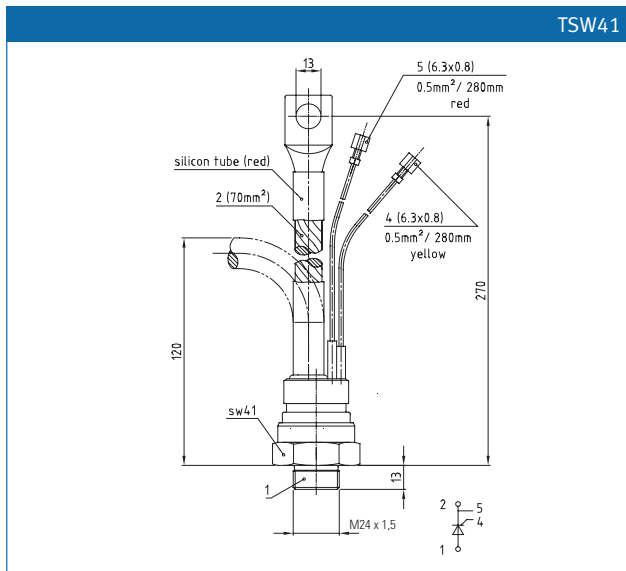
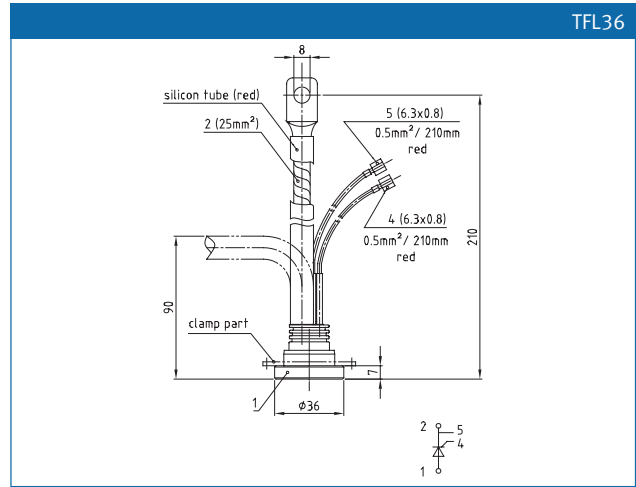
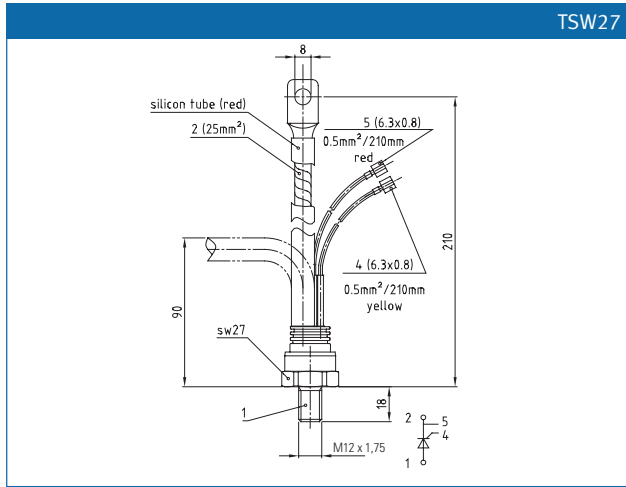
Presspacks

Pulsed Power Applications

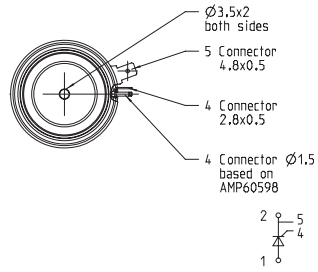
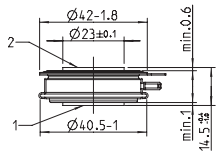


Type	V_{BO} [V]	V_{RRM} [V]	I_{TSM} [kA] @10ms T_{vjmax}	$V_{T(F)}/I_{T(F)}$ [V/kA] @ T_{vjmax}	$di/dt_{cr(on)}$ [A/ μ s] @single pulse	$di/dt_{cr(off)}$ [A/ μ s] @single pulse	R_{thJC} [K/kW] @ 180° el sin	$T_{vj max}$ [°C]	Outline / page
T 4003 NH52TOH	5200	5200	100	1,80/5,0	5000		4,5	120	T172.40L/7.11
T 1503 NH80TOH	7500	7500...8000	55	3,00/4,0	5000		6,0	120	T150.40L/7.11
T 2563 NH80TOH	7500	7500...8000	90	2,95/5,0	5000		4,5	120	T172.40L/7.11
D 2601 NH...TOH			22	5,5/4,0		7500	7,5	140	D120.26K/7.24

Outlines



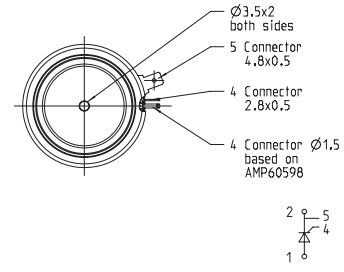
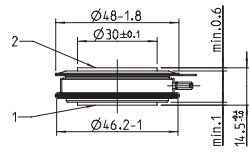
T42.14K0



strike distance: 5mm
creepage distance: 6mm

overall height based
on contact pressure

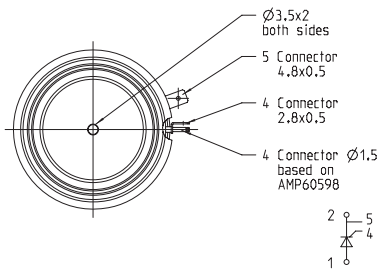
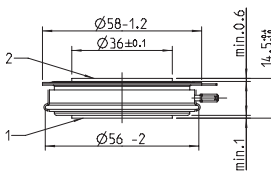
T48.14K0



strike distance: 5.0mm
creepage distance: 6.0mm

overall height based
on contact pressure

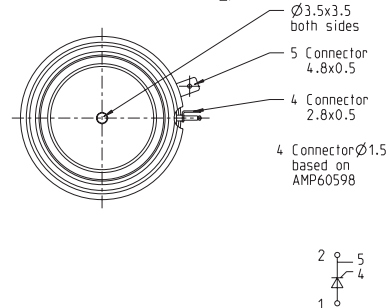
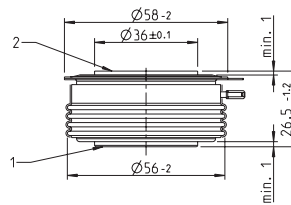
T58.14K0



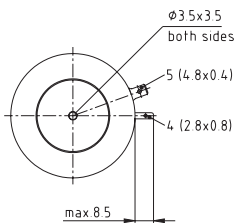
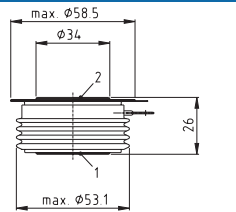
strike distance: 4mm
creepage distance: 5.0mm

overall height based
on contact pressure

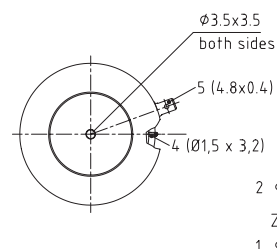
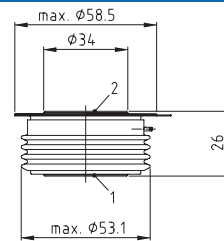
T58.26K0



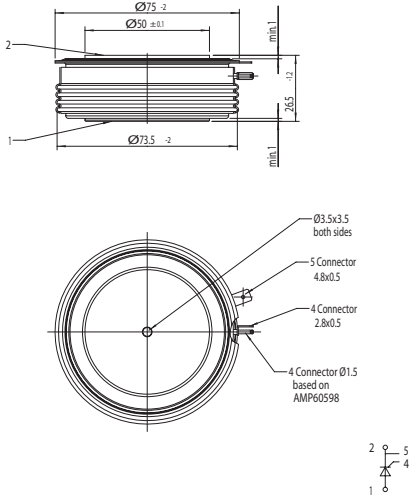
T58.26K



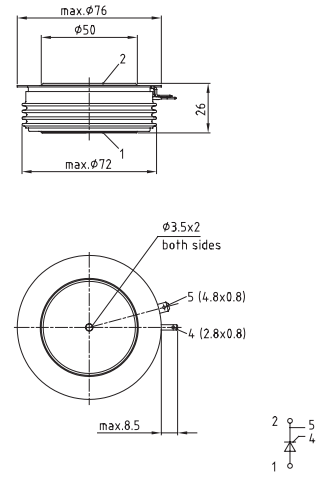
T58.26K1



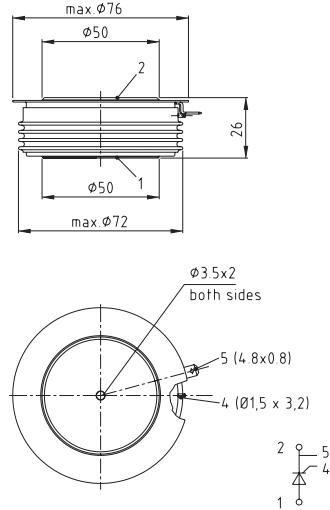
T75.26K0



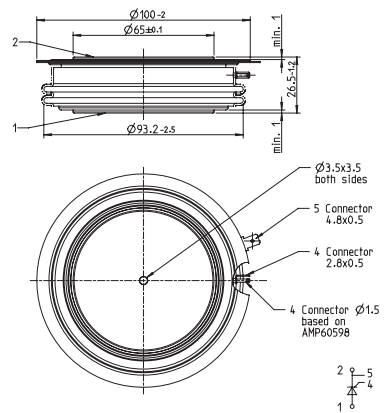
T76.26K



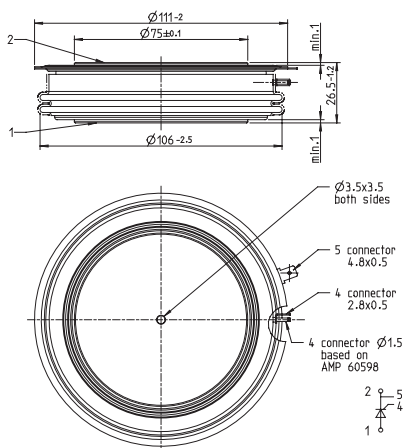
T75.26K1



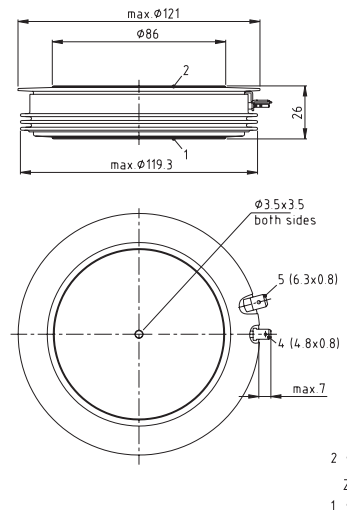
T100.26K0



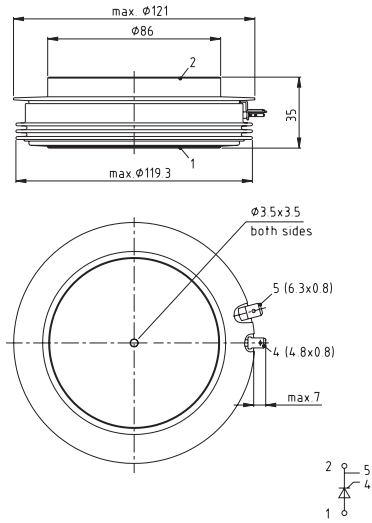
T111.26K0



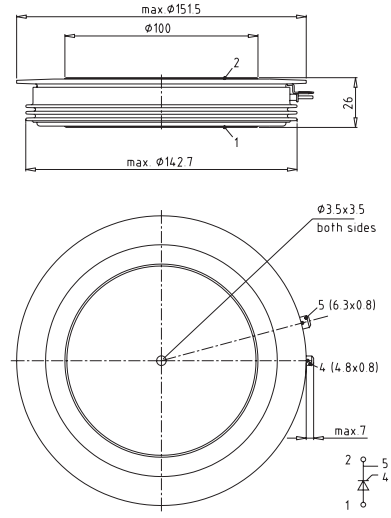
T120.26K



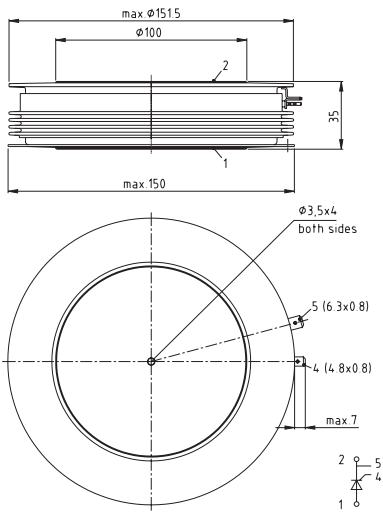
T120.35K



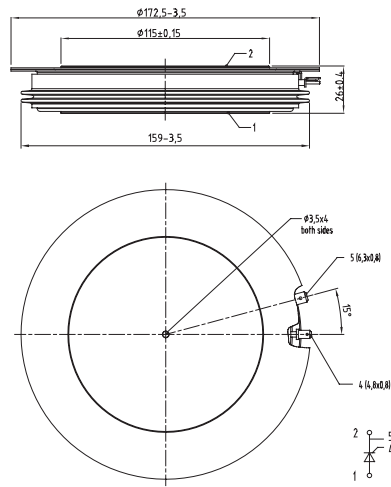
T150.26K



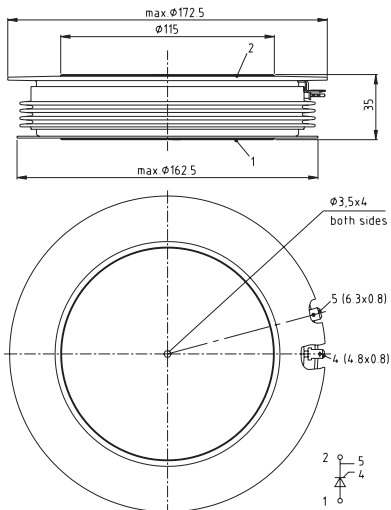
T150.35K



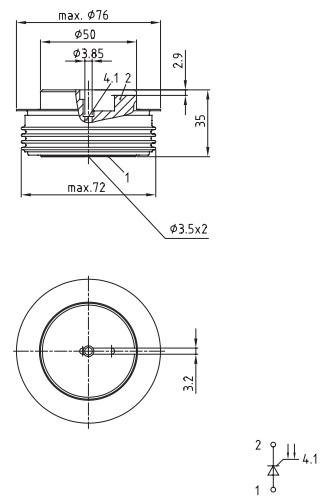
T172.26K



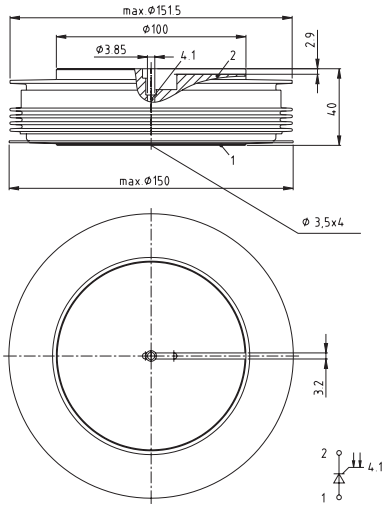
T172.35K



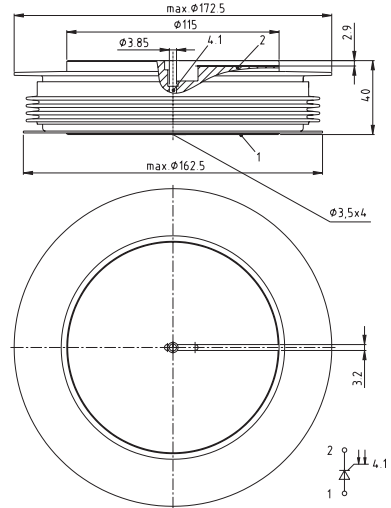
T76.35L



T150.40L



T172.40L



Clamping Forces for Thyristor Discs

Typ	Recommended Clamping force range [kN]	Outline
T 281 N65 TOF	7,0...12,0	T58.26K
T 300 N...TOF	2,5...5,0	T42.14K0
T 360 N...TOF	5,0...10,0	T48.14K0
T 390 N...TOF	3,0...6,0	T42.14K0
T 420 N...TOF	5,0...10,0	T48.14K0
T 430 N...TOF	4,0...8,0	T42.14K0
T 460 N...TOF	7,5...17,5	T58.26K0
T 470 N...TOF	4,0...8,0	T42.14K0
T 533 N...TOH	15,0...24,0	T76.35L
T 560 N...TOF	5,0...10,0	T48.14K0
T 571 N65 TOF	15,0...24,0	T75.26K
T 580 N...TOF	3,0...6,0	T42.14K0
T 590 N...TOF	6,0...12,0	T58.26K0
T 600 N...TOF	15,0...24,0	T75.26K0
T 640 N...TOF	6,0...12,0	T48.14K0
T 660 N...TOF	10,5...21,0	T58.26K0
T 680 N...TOF	6,0...12,0	T48.14K0
T 690 N...TOF	4,0...8,0	T42.14K0
T 700 N...TOF	10,5...21,0	T58.26K0
T 720 N...TOF	9,0...18,0	T58.26K0
T 730 N...TOF	18,0...43,0	T75.26K0
T 731 N...TOH	15,0...24,0	T76.26K
T 740 N...TOF	10,5...21,0	T58.14K0
T 830 N...TOF	9,0...18,0	T58.14K0
T 860 N...TOF	20,0...45,0	T75.26K0
T 880 N...TOF	10,5...21,0	T58.26K0
T 901 N...TOF	15,0...24,0	T76.26K
T 920 N...TOF	5,5...8,0	T48.14K0
T 930 N...TOF	20,0...45,0	T75.26K0
T 940 N...TOF	10,5...21,0	T58.14K0
T 1040 N...TOF	16,0...32,0	T75.26K0
T 1060 N...TOF	30,0...50,0	T100.26K0
T 1080 N...TOH	8,0...16,0	T48.14K0
T 1081 N...TOH	36...52,0	T120.26K
T 1190 N...TOF	16,0...32,0	T75.26K0
T 1201 N...TOH	36,0...52,0	T120.35K
T 1220 N...TOF	20,0...45,0	T75.26K0
T 1330 N...TOF	20,0...45,0	T75.26K0
T 1401 N...TOH	36,0...52,0	T120.35K
T 1410 N...TOF	12,0...24,0	T58.14K0
T 1451 N...TOH	36,0...52,0	T120.35K
T 1500 N...TOF	24,0...56,0	T75.26K0
T 1503 N...TOH	63,0...91,0	T150.40L
T 1503 NH...TOH	63,0...91,0	T150.40L
T 1551 N...TOH	36,0...52,0	T120.26K
T 1590 N...TOF	30,0...65,0	T100.26K0
T 1601 N...TOF	36,0...52,0	T120.35K
T 1620 N...TOF	42,0...65,0	T111.26K0
T 1651 N...TOH	45,0...65,0	T120.35K
T 1800 N...TOF	42,0...95,0	T111.26K0
T 1851 N...TOH	45,0...65,0	T120.26K
T 1901 N...TOH	63,0...91,0	T150.35K
T 1930 N...TOF	42,0...95,0	T111.26K0
T 1960 N...TOF	30,0...65,0	T100.26K0
T 1971 N...TOH	36,0...52,0	T120.26K
T 2001 N...TOF	36,0...52,0	T120.26K

Typ	Recommended Clamping force range [kN]	Outline
T 2160 N...TOF	42,0...95,0	T111.26K0
T 2161 N...TOH	45,0...65,0	T120.35K
T 2180 N...TOF	30,0...65,0	T100.26K0
T 2251 N...TOH	63,0...91,0	T150.26K
T 2351 N...TOH	45,0...65,0	T120.26K
T 2480 N...TOF	42,0...95,0	T111.26K0
T 2510 N...TOF	24,0...56,0	T75.26K0
T 2563 N...TOH	90,0...130,0	T172.40L
T 2563 NH...TOH	90,0...130,0	T172.40L
T 2810 N...TOF	42,0...95,0	T111.26K0
T 2851 N...TOH	63,0...91,0	T150.35K
T 2871 N...TOH	90,0...130,0	T172.35K
T 3101 N...TOH	63,0...91,0	T150.35K
T 3160 N...TOF	42,0...95,0	T111.26K0
T 3011 N...TOH	90,0...130,0	T172.26K
T 3401 N...TOH	63,0...91,0	T150.35K
T 3441 N...TOH	63,0...91,0	T150.26K
T 3710 N...TOF	30,0...65,0	T100.26K0
T 3801 N...TOH	63,0...91,0	T150.26K
T 4003 N...TOH	90,0...130,0	T172.40L
T 4003 NH...TOH	90,0...130,0	T172.40L
T 4021 N...TOH	90,0...130,0	T172.35K
T 4301 N...TOF	63,0...91,0	T150.35K
T 4771 N...TOF	63,0...91,0	T150.26K

Package Units Thyristor Discs

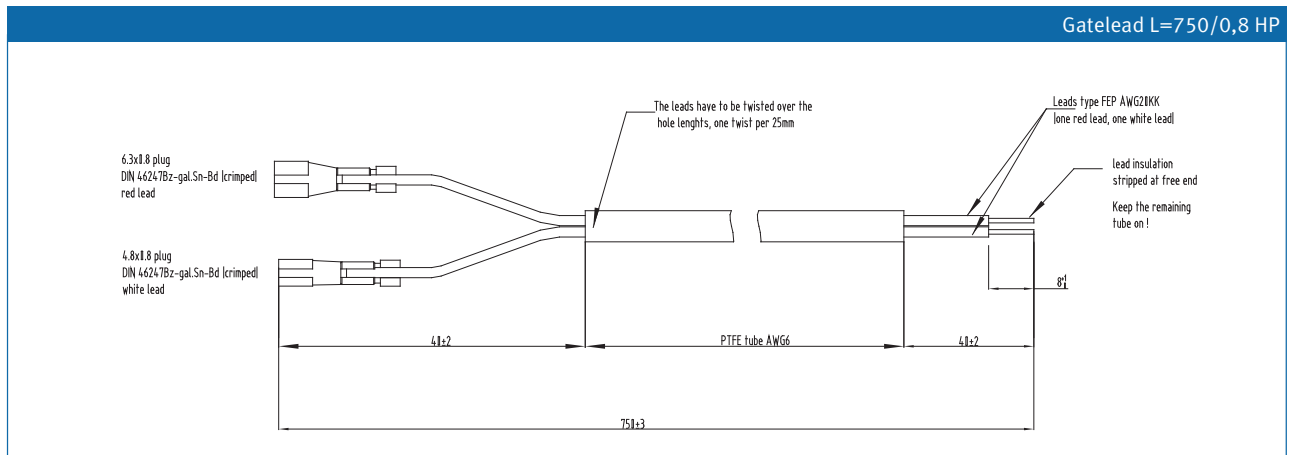
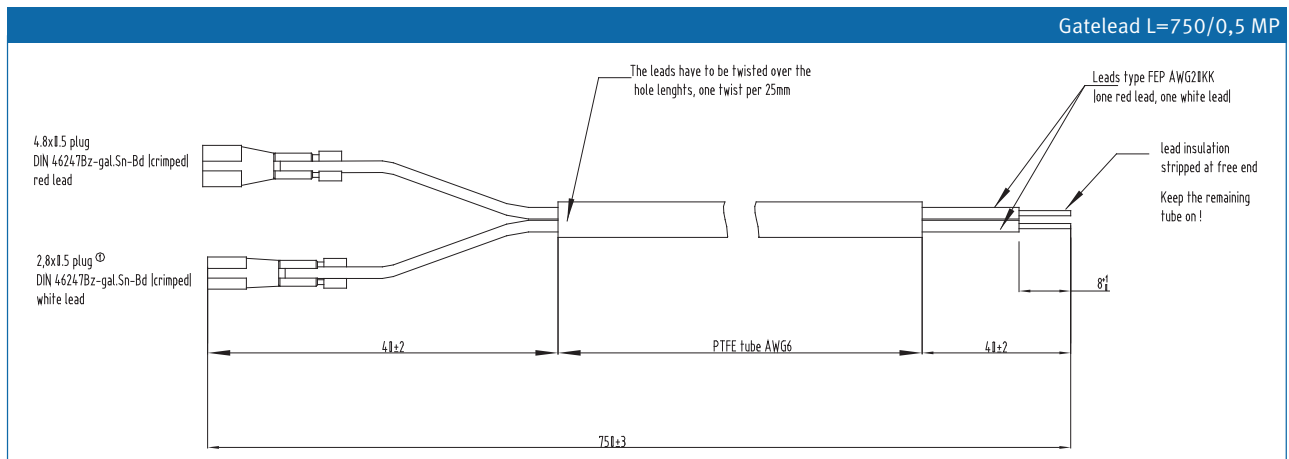
Type	Outline	Packing units
T 280 N...TOF	T58.26K0	3
T 300 N...TOF	T42.14K0	12
T 360 N...TOF	T48.14K0	10
T 390 N...TOF	T42.14K0	12
T 420 N...TOF	T48.14K0	10
T 430 N...TOF	T42.14K0	12
T 460 N...TOF	T58.26K0	3
T 470 N...TOF	T42.14K0	12
T 533 N...TOH	T76.35L	3
T 560 N...TOF	T48.14K0	10
T 570 N...TOF	T75.26K0	2
T 580 N...TOF	T42.14K0	12
T 590 N...TOF	T58.26K0	3
T 600 N...TOF	T75.26K0	2
T 640 N...TOF	T48.14K0	10
T 660 N...TOF	T58.26K0	3
T 680 N...TOF	T48.14K0	10
T 690 N...TOF	T42.14K0	12
T 700 N...TOF	T58.26K0	3
T 720 N...TOF	T58.26K0	3
T 730 N...TOF	T75.26K0	2
T 731 N...TOH	T76.26K	2
T 740 N...TOF	T58.14K0	6
T 830 N...TOF	T58.14K0	6
T 860 N...TOF	T75.26K0	2
T 880 N...TOF	T58.26K0	3
T 901 N...TOF	T76.26K	2
T 920 N...TOF	T48.14K0	10
T 930 N...TOF	T75.26K0	2
T 940 N...TOF	T58.14K0	6
T 1040 N...TOF	T75.26K0	2
T 1060 N...TOF	T100.26K0	3
T 1080 N...TOF	T48.14K0	10
T 1081 N...TOH	T120.26K	2
T 1190 N...TOF	T75.26K0	2
T 1201 N...TOH	T120.35K	1
T 1220 N...TOF	T75.26K0	2
T 1330 N...TOF	T75.26K0	2
T 1401 N...TOH	T120.35K	1
T 1410 N...TOF	T58.14K0	6
T 1451 N...TOH	T120.35K	1
T 1500 N...TOF	T75.26K0	2
T 1503 N...TOH	T150.40L	1
T 1503 NH...TOH	T150.40L	1
T 1551 N...TOH	T120.26K	2
T 1590 N...TOF	T100.26K0	3
T 1601 N...TOF	T120.35K	1
T 1620 N...TOF	T111.26K0	2
T 1651 N...TOH	T120.35K	1
T 1800 N...TOF	T111.26K0	2
T 1851 N...TOH	T120.26K	2
T 1901 N...TOH	T150.35K	1
T 1930 N...TOF	T111.26K0	2
T 1960 N...TOF	T100.26K0	3
T 1971 N...TOH	T120.26K	2
T 2001 N...TOF	T120.26K	2

Type	Outline	Packing units
T 2160 N...TOF	T111.26K0	2
T 2161 N...TOH	T120.35K	1
T 2180 N...TOF	T100.26K0	3
T 2251 N...TOH	T150.26K	1
T 2351 N...TOH	T120.26K	2
T 2480 N...TOF	T111.26K0	2
T 2510 N...TOF	T75.26K0	2
T 2563 N...TOH	T172.40L	1
T 2563 NH...TOH	T172.40L	1
T 2810 N...TOF	T111.26K0	2
T 2851 N...TOH	T150.35K	1
T 2871 N...TOH	T172.35K	1
T 3101 N...TOH	T150.35K	1
T 3160 N...TOF	T111.26K0	2
T 3011 N...TOH	T172.26K	1
T 3401 N...TOF	T150.35K	1
T 3441 N...TOH	T150.26K	1
T 3710 N...TOF	T100.26K0	3
T 3801 N...TOF	T150.26K	1
T 4003 N...TOH	T172.40L	1
T 4003 NH...TOH	T172.40L	1
T 4021 N...TOH	T172.35K	1
T 4301 N...TOH	T150.35K	1
T 4771 N...TOF	T150.26K	1

Standard Gate Leads for Disc Type Devices

Leads and gate leads must be ordered separately

Disc outline/page	Type	Color	Connector [mm]	Length [mm]	Ordering Code
T42.14K0/7.8	GATELEAD L=750/0,5 MP	red/white	4,8x0,5/2,8x0,5	750	SP000983448
T48.14K0/7.8					
T58.14K0/7.8					
T58.26K0/7.8					
T75.26K0/7.9					
T100.26K0/7.9					
T111.26K0/7.9	GATELEAD L=750/0,8 HP	red/white	6,3x0,8/4,8x0,8	750	SP000983442
T120.26K/7.9					
T120.35K/7.10					
T150.26K/7.10					
T150.35K/7.10					
T172.26K/7.10					





Laser Diode and Light Fiber for light triggered Thyristors (LTT)


laser diodes and light fibers must be ordered separately

for type	device		laser diode		light fiber	
	Outline/page	Salesname	Ordering Code	Salesname	length [mm]	Ordering Code
T533N	T76.35L/7.10	LASERDI SPL-PL90 A	SP000091118	LWL R10LR50L3000 A	3000	SP000091119
T1503N(H)	T150.40L/7.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117
T2563N(H)	T172.40L/7.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117
T4003N(H)	T172.40L/7.11	LASERDI SPL-PL90 A	SP000091118	LWL R10 LR87-L3000	3000	SP000091117

Rectifier Diodes

up to 800 V									
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50 V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
									
D 255 N 08 B	800	4,6	106	255/110	0,65	0,85	230,0	180	DSW27/7.22
D 255 K 08 B	800	4,0	80	255/75	0,65	0,85	345,0	180	DSW27/7.22
D 650 N 08 T	800	5,1	130	651/100	0,70	0,51	81,0	180	D42.14K0/7.23
D 970 N 08 T	800	8,8	387	972/100	0,70	0,31	57,0	180	D42.14K0/7.23
D 2450 N 06 T	600	28,5	4061	2452/100	0,70	0,10	25,3	180	D58.14K0/7.23
D 5810 N 06 T VF	600	70,0	24500	5800/58	0,70	0,04	17,0	180	D75.26K0/7.24
D 8320 N 06 T VF	600	95,0	45000	8320/56	0,70	0,02	12,5	180	D100.26K0/7.24



up to 1800 V									
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50 V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
									
D 452 N 18 E VF	1800	10,8	583	450/130	0,77	0,48	85,5	180	DFL54/7.22
D 452 K 18 E	1800	10,8	583	450/130	0,77	0,48	85,5	180	DFL54/7.22
D 1230 N 18 T	1800	11,8	696	1234/100	0,81	0,28	39,0	180	D48.14K0/7.23
D 1050 N 18 T	1800	18,5	1710	1050/130	0,81	0,17	38,0	180	D58.26K0/7.23

up to 3000 V									
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50 V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thJC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
									
D 121 N 20 B	2000	2,6	33,8	120/130	0,72	1,90	324,0	180	DSW27/7.22
D 121 K 20 B	2000	2,4	28,8	120/113	0,72	1,90	434,0	180	DSW27/7.22
D 251 N 20 B	2000	5,3	140,5	250/130	0,80	0,85	151,0	180	DSW27/7.22
D 251 N 20 E	2000	5,3	140,5	250/130	0,80	0,85	151,0	180	DFL36/7.22
D 251 K 20 B	2000	4,7	110,5	250/102	0,80	0,85	236,0	180	DSW27/7.22
D 251 K 20 E	2000	4,7	110,5	250/102	0,80	0,85	236,0	180	DFL36/7.22
D 400 N 20 B	2000	9,8	480,2	400/130	0,70	0,62	95,0	180	DSW41/7.22
D 400 K 16 B	1600	9,8	480,2	400/130	0,70	0,62	95,0	180	DSW41/7.22
D 770 N 20 T	2000	6,0	180,0	767/100	0,81	0,54	57,0	180	D42.14K0/7.23
D 820 N 28 T	2800	9,0	405,0	818/100	0,83	0,52	39,0	160	D42.14K0/7.23
D 950 N 22 T	2200	10,3	525,0	950/100	0,70	0,50	45,0	180	D42.14K0/7.23
D 1030 N 26 T	2600	14,5	1051,0	1030/100	0,82	0,28	38,0	160	D48.14K0/7.23
D 2200 N 24 T VF	2400	35,0	6125,0	2200/100	0,83	0,15	17,0	160	D75.26K0/7.24
D 2520 N 22 T VF	2200	35,0	6125,0	2520/100	0,73	0,10	22,0	175	D75.26K0/7.24
D 2650 N 24 T	2400	33,5	5611,0	2650/100	0,82	0,15	16,9	180	D75.26K0/7.24
D 4201 N 22 T	2200	73,5	27000,0	4830/100	0,67	0,08	9,2	160	D120.26K/7.24
D 4810 N 28 T VF	2800	60,0	18000,0	4710/100	0,83	0,06	8,0	160	D111.26K0/7.24



...VF -> VF-class printed on housing

Presspacks

Rectifier Diodes


up to 5000 V  

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thjC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
D 270 N 36 T	3600	4,0	80	270/100	0,86	1,54	98,0	150	D58.26K0/7.23
D 475 N 36 B	3600	10,9	594	475/100	0,77	0,61	85,0	160	DSW41.1/7.22
D 740 N 48 T	4800	11,0	605	750/100	0,85	0,65	39,0	160	D58.26K0/7.23
D 850 N 40 T	4000	12,8	819	850/100	0,84	0,49	38,0	160	D58.26K0/7.23
D 1800 N 48 T	4800	27,5	3781	1800/100	0,85	0,25	16,9	160	D75.26K0/7.24
D 3501 N 42 T	4200	56,0	15700	3690/100	0,73	0,13	9,2	160	D120.35K/7.24
D 5201 N 50 T	5000	110,0	60500	5170/100	0,63	0,09	5,8	160	D150.35K/7.25
D 6001 N 50 T	5000	110,0	60500	6070/100	0,80	0,09	4,6	160	D150.26K/7.25

up to 10000 V  

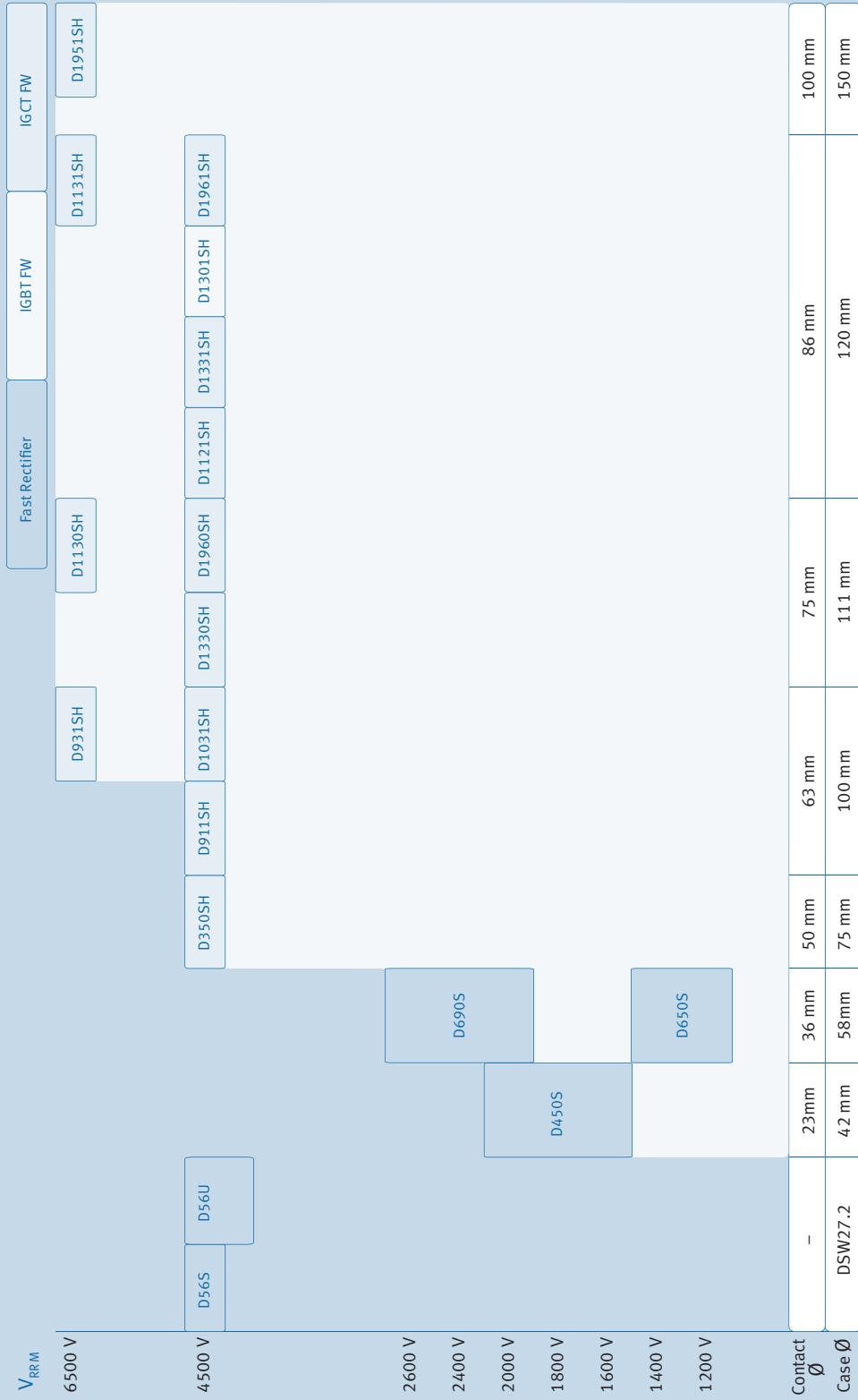
Type	v [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thjC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
D 711 N 68 T	6800	10,5	550	790/100	0,84	0,87	31,5	160	D58.26K/7.23
D 1481 N 68 T	6800	24,5	3000	1650/100	0,75	0,42	15,8	160	D76.26K/7.24
D 3001 N 68 T	6800	53,0	14040	2900/100	0,84	0,22	9,2	160	D120.35K/7.24
D 3040 N 68 T	6800	53,0	14040	3040/100	0,84	0,22	7,3	160	D111.26K0/7.24
D 3041 N 68 T	6800	53,0	14040	3040/100	0,84	0,22	8,55	160	D120.26K/7.24
D 471 N 90 T	9000	10,0	500	565/100	1,04	1,78	31,5	160	D58.26K/7.23
D 2601 N 90 T	9000	50,0	12500	2240/100	0,94	0,41	8,55	160	D120.26K/7.24

Welding Diodes

up to 600 V 

Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	$V_{(TO)}$ [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	R_{thjC} [K/kW] @ 180° el sin	$T_{vj\ max}$ [°C]	Outline / page
25 DN 06	600	12,8	813	1145/155	0,70	0,19	17,40	180	25DN06/7.25
38 DN 06	600	32,3	5200	3885/120	0,66	0,06	12,40	180	38DN06/7.25
46 DN 06	600	52,0	13500	5100/118	0,70	0,05	9,35	180	46DN06/7.25
56 DN 06	600	70,0	24500	6400/116	0,70	0,04	6,20	180	56DN06/7.25
56 DN 06 B01	600	70,0	24500	8400/110	0,66	0,04	5,8	180	56DN06B01/7.25
65 DN 06	600	95,0	45000	8470/98	0,70	0,03	4,70	180	65DN06/7.25

Overview IGBT/IGBT-Freewheeling Diodes & Fast Rectifier Diodes



Presspacks

IGCT – Freewheeling Diodes

Type	V _{RRM} [V]	V _{R(D)} [kV]* T _c = 25	I _(FSM) [kA] sin, 10 ms T _{vj max}	∫i ² dt [A ² s · 10 ³] sin, 10 ms T _{vj max}	V _F [V] @I _F =2,5 kA T _{vj max}	I _{RM} [A]** @di/dt = 1000 A/μs, I _{FM} = 2,5 kA, T _{vj max}	Q _{rr} [mAs]** @di/dt = 1000 A/μs, I _{FM} = 2,5 kA, T _{vj max}	R _{thjC} [K/kW] @DC	T _{vj max} [°C]	Outline / page
◆ D 350 SH45 T	4500	2,8	13	845	4,5	tdb	tdb	41,3	140	D75.26K/7.23
D 911 SH45 T	4500	2,8	17	1445	6,0	1200	2,8	10,0	140	D100.26K/7.24
D 1031 SH45 T	4500	2,8	23	2645	4,2	1500	3,5	10,0	140	D100.26K/7.24
D 1121 SH45 T	4500	2,8	17,5	1530	5,6	1200	3,5	7,5	140	D120.26K/7.24
D 1330 SH45 T	4500	2,8	28	3920	4,2	1500	3,5	7,3	140	D111.26K0/7.24
D 1331 SH45 T	4500	2,8	28	3920	4,2	1500	3,5	7,5	140	D120.26K/7.24
D 1960 SH45 T	4500	2,8	40	8000	2,5	2250	12,0	7,3	140	D111.26K0/7.24
D 1961 SH45 T	4500	2,8	40	8000	2,5	2250	12,0	7,5	140	D120.26K/7.24
D 931 SH45 T	6500	3,2	16	1280	5,6	1300	3,5	10,0	140	D100.26K/7.24
D 1130 SH65 T	6500	3,2	22	2400	5,6	1300	3,5	7,3	140	D111.26K0/7.24
D 1131 SH65 T	6500	3,2	22	2400	5,6	1300	3,5	7,5	140	D120.26K/7.24
D 1951 SH65 T	6500	3,2	44	9680	4,0	1800	5,0	4,5	140	D150.26K/7.25

*) Estimated failure rate l ~ 100 fit **) Clamp circuit L = 0,25 μH

◆ New type


IGBT – Freewheeling Diodes


Type	V _{RRM} [V]	V _{R(D)} [kV]* T _c = 25	I _(FSM) [kA] sin, 10 ms T _{vj max}	∫i ² dt [A ² s · 10 ³] sin, 10 ms T _{vj max}	V _F [V] @I _F =2,5 kA T _{vj max}	I _{RM} [A]** @di/dt = 5000 A/μs, I _{FM} = 2,5 kA, T _{vj max}	Q _{rr} [mAs]** @di/dt = 5000 A/μs, I _{FM} = 2,5 kA, T _{vj max}	R _{thjC} [K/kW] @DC	T _{vj max} [°C]	Outline / page
◆ D 1301 SH45T	4500	2,8	28	3920	4,0	3600	6,0	7,5	140	D120.26K/7.24


*) Estimated failure rate l ~ 100 fit **) Clamp circuit L = 0,25 μH

◆ New type

Fast Rectifier Diodes

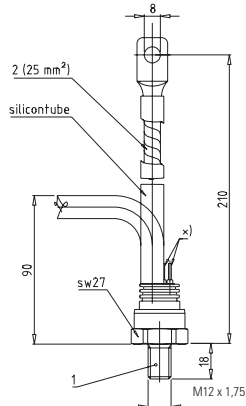
up to 1800 V 										
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	I_{RM} [A] @ $i_F = I_{FAVM}$, di/dt = 50 A/μs	R_{thjC} [K/kW] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
D 650 S14T	1400	10,1	510	650/96	1,0	0,45	122	48	150	D58.26K0/7.23

up to 2600 V 										
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	I_{RM} [A] @ $i_F = I_{FAVM}$, di/dt = 50 A/μs	R_{thjC} [K/kW] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
D 450 S20T	2000	4,6	106	443/100	1,0	0,9	160	57	150	D42.14K0/7.23
D 690 S26T	2600	11,5	661	690/100	1,0	0,5	230	39	150	D58.26K0/7.23

up to 6000 V 										
Type	V_{RRM} [V] $V_{DSM} = V_{DRM}$ $V_{RSM} =$ $V_{RRM} + 50V$	I_{FSM} [kA] @10 ms, $T_{vj\ max}$	$\int i^2 dt$ [A ² s · 10 ³] @ 10 ms $T_{vj\ max}$	I_{FAVM}/T_c [A/°C] @ 180° el sin	V_{TO} [V] @ $T_{vj\ max}$	r_T [mΩ] @ $T_{vj\ max}$	I_{RM} [A] @ $i_F = 150A$, di/dt = 200 A/μs	R_{thjC} [K/kW] @180° el sin	$T_{vj\ max}$ [°C]	Outline / page
D 56 S45C	4500	1,35	9,1	56/85	1,64	8	230	260	125	DSW27.2/7.22
D 56 U45C	4500	1,2	7,2	56/73	1,64	8	230	340	125	DSW27.2/7.22

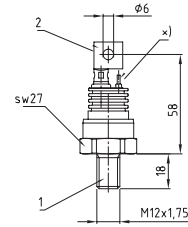
Outlines

DSW27



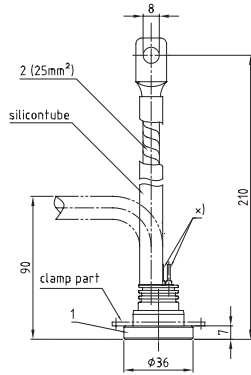
type	symbol	cathode	anode	prof. flex. tubing
N, S	⌘	rope (2)	case (1)	red
K, U	⌘	case (1)	rope (2)	blue

DSW27.2



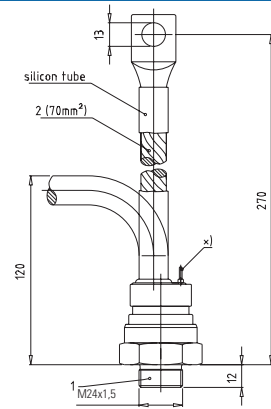
type	symbol	cathode	anode
N, S, A	⌘	connection pin (2)	case (1)
K, U, B	⌘	case (1)	connection pin (2)

DFL36



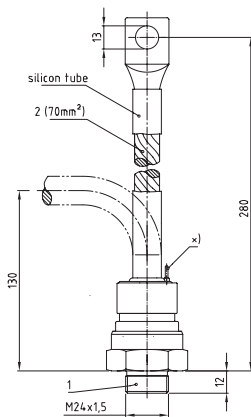
type	symbol	cathode	anode	prof. flex. tubing
N, S	⌘	rope (2)	case (1)	red
K, U	⌘	case (1)	rope (2)	blue

DSW41



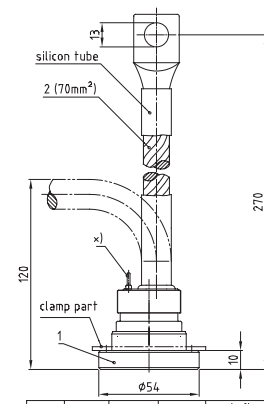
type	symbol	cathode	anode	prof. flex. tubing
N, S	⌘	rope (2)	case (1)	red
K, U	⌘	case (1)	rope (2)	blue

DSW41.1



type	symbol	cathode	anode	prof. flex. tubing
N, S	⌘	rope (2)	case (1)	red
K, U	⌘	case (1)	rope (2)	blue

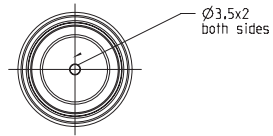
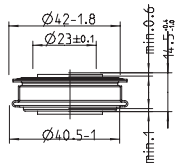
DFL54



type	symbol	cathode	anode	prof. flex. tubing
N, S	⌘	rope (2)	case (1)	red
K, U	⌘	case (1)	rope (2)	blue

x) = evacuation pipe

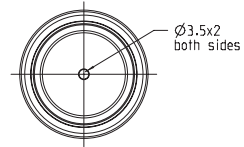
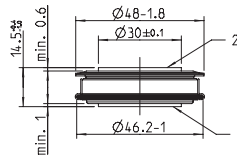
D42.14K0



strike distance: 9mm
creepage distance: 10mm

overall height based
on contact pressure

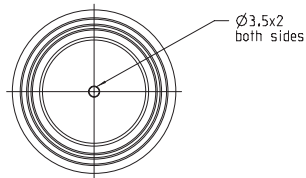
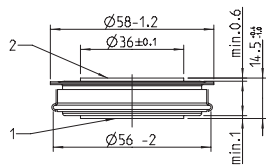
D48.14K0



strike distance: 9mm
creepage distance: 10mm

overall height based
on contact pressure

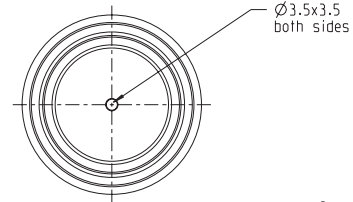
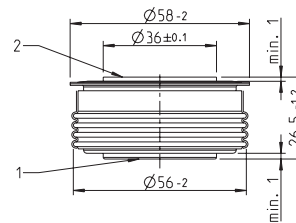
D58.14K0



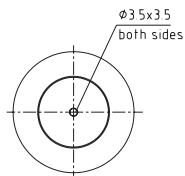
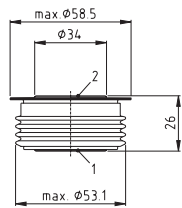
strike distance: 8.0mm
creepage distance: 9.0mm

overall height based
on contact pressure

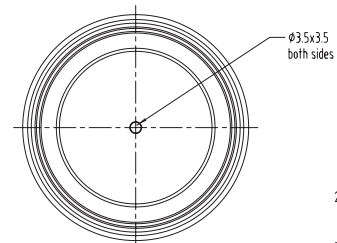
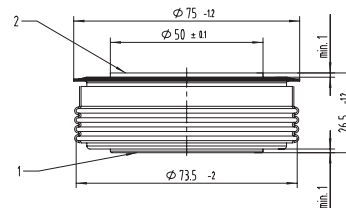
D58.26K0



D58.26K

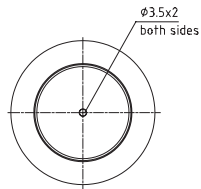
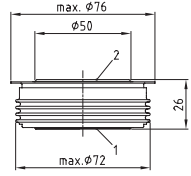


D75.26K0

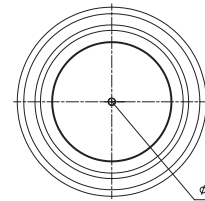
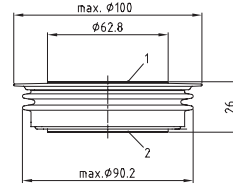


x) = evacuation pipe

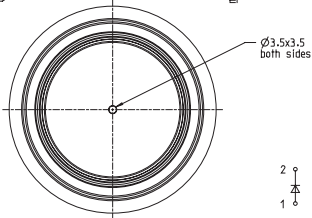
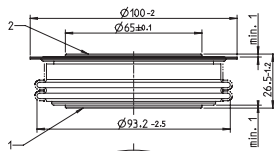
D76.26K



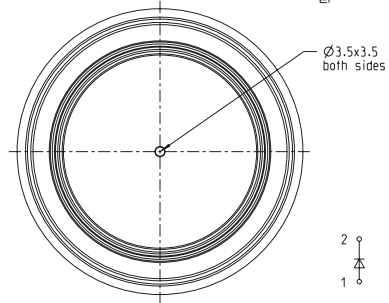
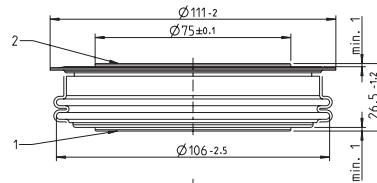
D100.26K



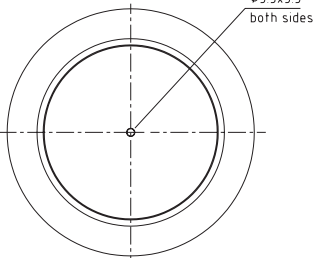
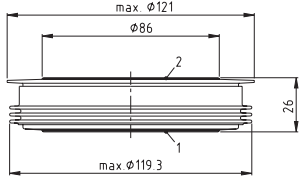
D100.26K0



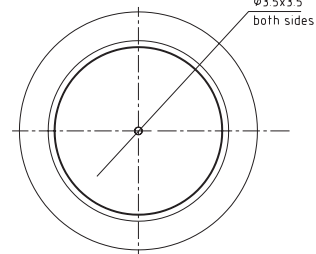
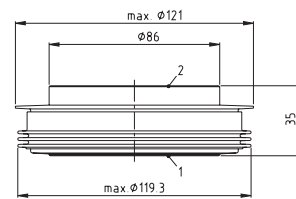
D111.26K0



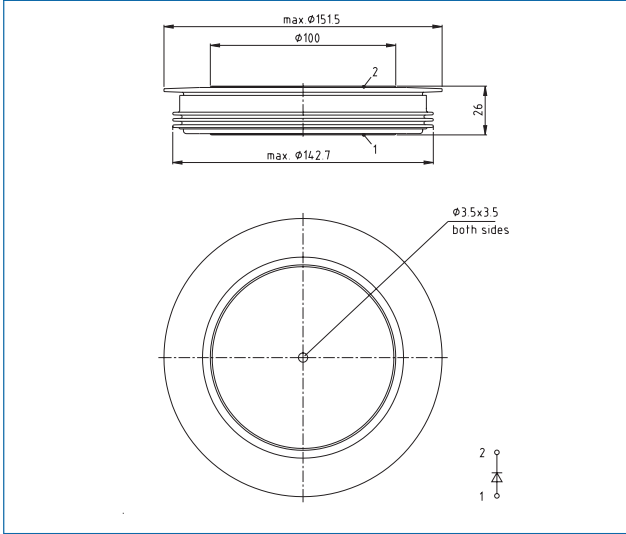
D120.26K



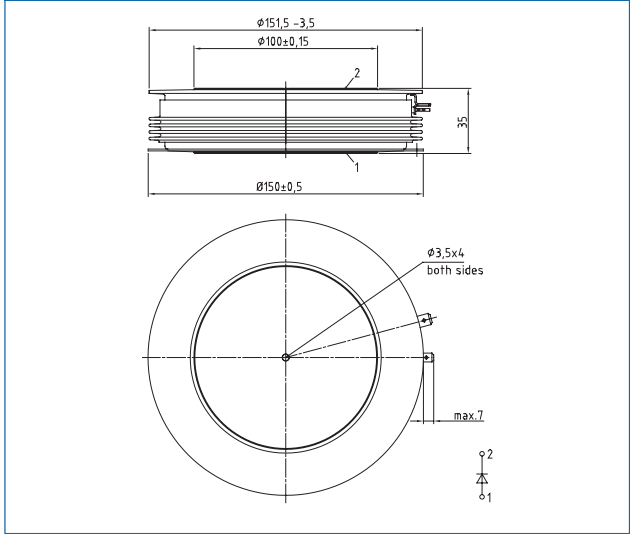
D120.35K



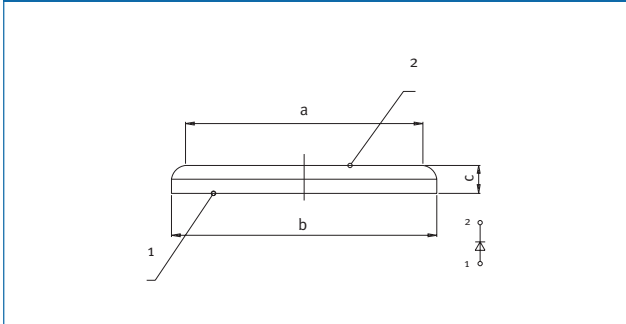
D150.26K



D150.35K



welding diodes



Designation	a [mm]	b [mm]	c [mm]
25DN06	Ø 22	Ø 25	3,6
38DN06	Ø 34	Ø 38	4,0
46DN06	Ø 43	Ø 46	4,0
56DN06	Ø 50	Ø 56	5,0
56DN06B01	Ø 50	Ø 56	5,0
65DN06	Ø 58	Ø 65	5,0

Clamping Forces for Diode Discs

Rectifier Diodes

Typ	Recommended Clamping force range [kN]	Disc diameter [mm]	Outline
D 270 N...T	3,2...7,6	58	D58.26K0
D 471 N...T	10,0...16,0	58	D58.26K
D 711 N...T	10,0...16,0	58	D58.26K
D 740 N...T	10,0...24,0	58	D58.26K0
D 770 N...T	3,2...7,6	42	D42.14K0
D 820 N...T	6,0...15,0	48	D48.14K0
D 850 N...T	10,0...24,0	58	D58.26K0
D 950 N...T	6,0...12,0	42	D42.14K0
D 970 N...T	3,8...7,6	42	D42.14K0
D 1030 N...T	10,0...24,0	58	D58.26K0
D 1050 N...T	10,0...24,0	58	D58.26K0
D 1230 N...T	6,0...15,0	48	D48.14K0
D 1481 N...T	15,0...36,0	75	D76.26K
D 1800 N...T	24,0...60,0	75	D75.26K0
D 2200 N...T	24,0...60,0	75	D75.26K0
D 2450 N...T	12,0...24,0	58	D58.14K0
D 2520 N...T	15,0...24,0	75	D75.26K0
D 2601 N...T	36,0...52,0	120	D120.26K
D 2601 NH...T	36,0...52,0	120	D120.26K
D 2650 N...T	24,0...60,0	75	D75.26K0
D 3001 N...T	36,0...52,0	120	D120.35K
D 3040 N...T	42,0...95,0	111	D111.26K0
D 3041 N...T	36,0...52,0	120	D120.26K
D 3501 N...T	36,0...52,0	120	D120.35K
D 4201 N...T	36,0...52,0	120	D120.35K
D 4810 N...T	42,0...95,0	111	D111.26K0
D 5201 N...T	63,0...91,0	150	D150.35K
D 5810 N...T	30,0...60,0	75	T75.26K0
D 6001 N...T	63,0...91,0	150	D150.26K
D 8320 N...T	40,0...80,0	100	D100.26K0

Clamping Forces for Diode Discs

Welding Diodes

Typ	Recommended Clamping force range [kN]	Disc diameter [mm]
25 DN 06	4,0...8,0	25
38 DN 06	20,0...30,0	38
46 DN 06	30,0...45,0	46
56 DN 06	40,0...60,0	56
56 DN 06 B01	40,0...60,0	56
65 DN 06	55,0...80,0	65

IGCT-Freewheeling Diodes

Typ	Recommended Clamping force range [kN]	Disc diameter [mm]	Outline
D 350 SH	15,0...24,0	75	D75.26K0
D 911 SH	27,0...45,0	100	D100.26K
D 931 SH	27,0...45,0	100	D100.26K
D 1031 SH	27,0...45,0	100	D100.26K
D 1121 SH	36,0...52,0	120	D120.26K
D 1130 SH	42,0...95,0	111	D111.26K0
D1131 SH	36,0...52,0	120	D120.26K
D 1330 SH	42,0...95,0	111	D111.26K0
D 1331 SH	36,0...52,0	120	D120.26K
D 1951 SH	55,0...91,0	150	D150.26K
D 1960 SH	42,0...95,0	111	D111.26K0
D 1961 SH	36,0...52,0	120	D120.26K

IGBT-Freewheeling Diodes

Typ	Recommended Clamping force range [kN]	Disc diameter [mm]	Outline
D 1301 SH	36,0...52,0	120	D120.26K

Fast Rectifier Diodes

Typ	Recommended Clamping force range [kN]	Disc diameter [mm]	Outline
D 450 S	3,2...7,6	42	D42.14K0
D 650 S	6,0...14,5	58	D58.26K0
D 690 S	10,0...24,0	58	D58.26K0

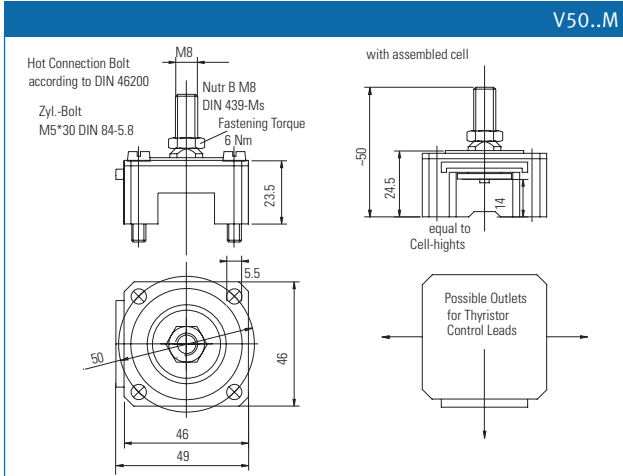
Package Units for Diode Discs

Type	Outline	Packing units
D 270 N	D58.26K0	3
D 471 N	D58.26K	3
D 711 N	D58.26K	3
D 740 N	D58.26K0	3
D 770 N	D42.14K0	12
D 820 N	D48.14K0	10
D 850 N	D58.26K0	3
D 950 N	D42.14K0	12
D 970 N	D42.14K0	12
D 1030 N	D58.26K0	3
D 1050 N	D58.26K0	3
D 1230 N	D48.14K0	10
D 1481 N	D76.26K	2
D 1800 N	D75.26K0	2
D 2200 N	D75.26K0	2
D 2450 N	D58.14K0	6
D 2520 N	D75.26K0	2
D 2601 N	D120.26K	2
D 2601 NH	D120.26K	2
D 2650 N	D75.26K0	2
D 3001 N	D120.35K	1
D 3040 N	D111.26K0	2
D 3041 N	D120.26K	2
D 3501 N	D120.35K	1
D 4201 N	D120.35K	1
D 4810 N	D111.26K0	2
D 5201 N	D150.35K	1
D 5810 N	D75.26K0	2
D 6001 N	D150.26K	1
D 8320 N	D100.26K0	3
D 350 SH	D75.26K0	2
D 911 SH	D100.26K	3
D 931 SH	D100.26K	3
D 1031 SH	D100.26K	3
D 1121 SH	D120.26K	2
D 1130 SH	D111.26K0	2
D1131 SH	D120.26K	2
D 1330 SH	D111.26K0	2
D 1331 SH	D120.26K	2
D 1951 SH	D150.26K	1
D 1960 SH	D111.26K0	2
D 1961 SH	D120.26K	2
D 1301 SH	D120.26K	2
D 450 S	D42.14K0	12
D 650 S	D58.26K0	3
D 690 S	D58.26K0	3

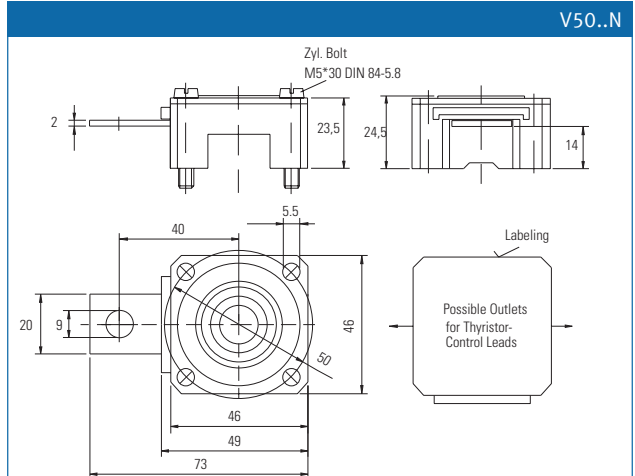
Clamping Units for Disc Type Devices

Salesname	Packing Units	Clamping force [kN]	Disc diameter [mm]	height [mm]	min. creeping distance [mm]	Ordering Code	Outline/page
V50-14.45M	21	4,5	42	14	11	SP000096563	V50...M/7.30
V50-14.45N	14	4,5	42	14	11	SP000090625	V50...N/7.30
V50-14.60M	21	6,0	42	14	11	SP000096564	V50...M/7.30
V50-14.60N	14	6,0	42	14	11	SP000090626	V50...N/7.30
V61-14.80M	12	8,0	48	14	11	SP000096565	V61...M/7.30
V61-14.80N	12	8,0	48	14	11	SP000090627	V61...N/7.30
V72-14.150M	10	15,0	58	14	11	SP000096566	V72...M/7.31
V72-26.80M	10	8,0	58	26	23	SP000096569	V72...M/7.31
V72-26.120M	10	12,0	58	26	23	SP000096567	V72...M/7.31
V72-26.150M	10	15,0	58	26	23	SP000096568	V72...M/7.31
V89-26.170N	4	17,0	75	26	26	SP000358597	V89...N/7.31
V89-26.300N	4	30,0	75	26	26	SP000090624	V89...N/7.31
V89-26.400N	4	40,0	75	26	26	SP000090662	V89...N/7.31
V100-35.200N	3	20,0	75	26	26	SP000090635	V100...N/7.31

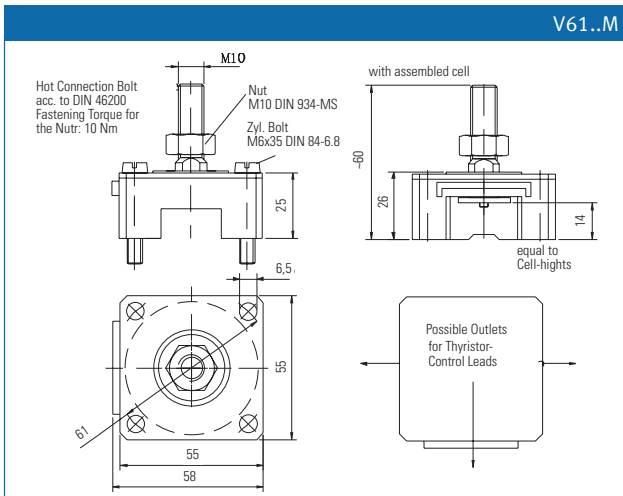
Outlines



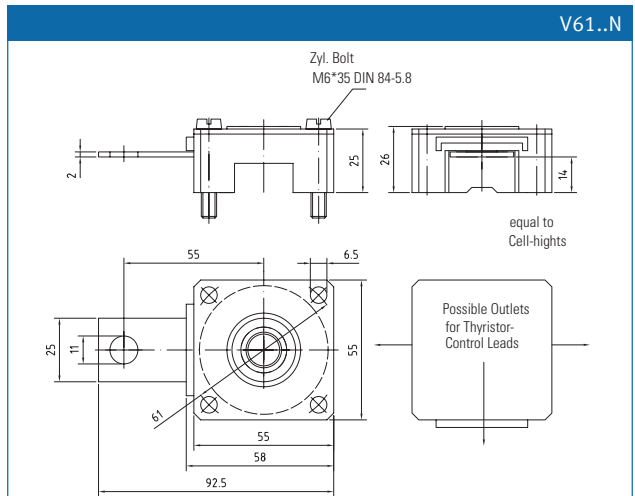
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V50-14.45M	SP000096563	4.5	42	14	11
V50-14.60M	SP000096564	6.0	42	14	11



type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V50-14.45N	SP000090625	4.5	42	14	11
V50-14.60N	SP000090626	6.0	42	14	11

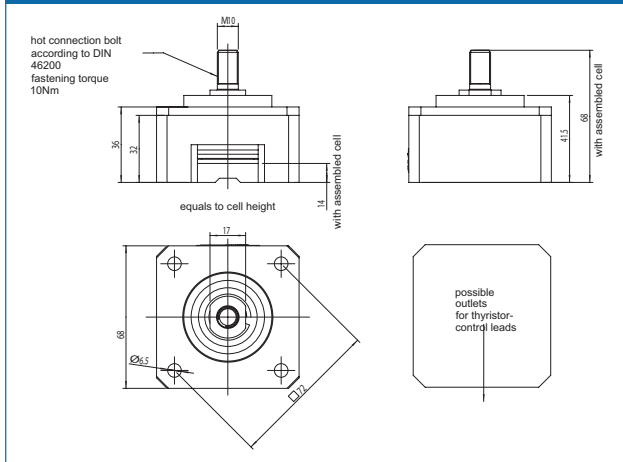


type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V61-14.80M	SP000096565	8.0	48	14	11



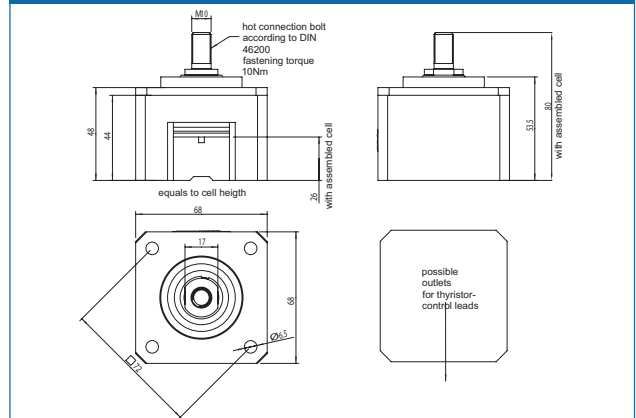
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V61-14.80N	SP000090627	8.0	48	14	11

V72-14..M



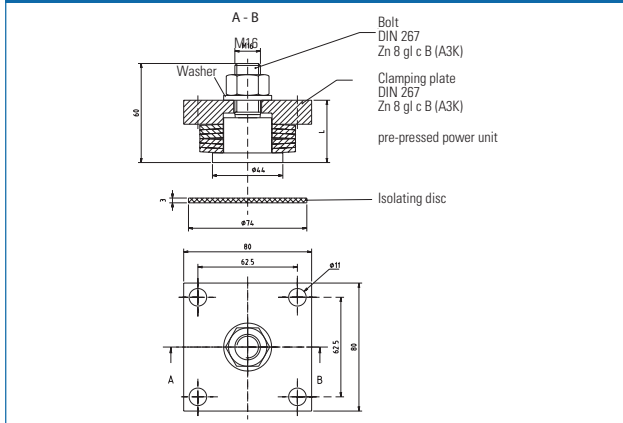
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V72-14.150M	SP000096566	15.0	58	14	11

V72-26..M



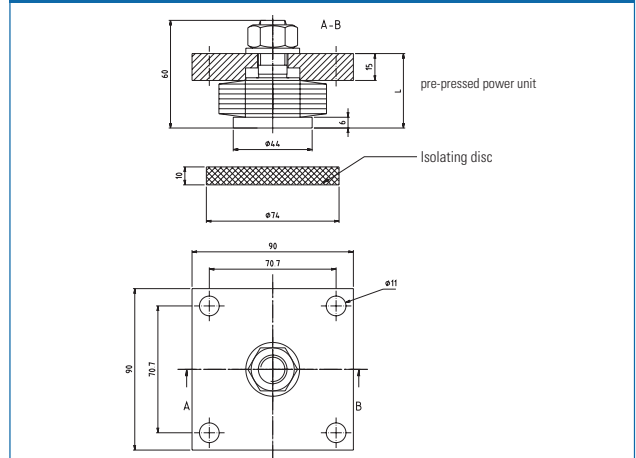
type designation	ordering code	clamping force [kN]	suitable for Ø [mm] housings	height [mm]	minimum creepage [mm] distance
V72-26.80M	SP000096569	8.0	58	26	23
V72-26.120M	SP000096567	12.0	58	26	23
V72-26.150M	SP000096568	15.0	58	26	23

V 89



type designation	ordering code	clamping force [kN]	suitable for housings Ø [mm]	height [mm]
V89-26.170N	SP000358597	17	75	26
V89-26.300N	SP000090624	30	75	26
V89-26.400N	SP000090662	40	75	26

V 100



type designation	ordering code	clamping force [kN]	suitable for housings Ø [mm]	height [mm]
V100-35.200N	SP000090635	20	75	26

Links

Application Notes, Product Briefs, Flyers and Brochures	Type	Redirects
Technical Information for Bipolar Semiconductors (english)	Application Note	http://www.infineon.com/technical-information-appnote
Technical Information for Bipolar Semiconductors (german)	Application Note	http://www.infineon.com/technical-information-appnote-german
IFBIP Company Brochure	Brochure	http://www.infineon.com/ifbip-company-brochure
ifbip shop	Webpage	http://www.ifbip-shop.com
Thyristor and Diode Modules	Product Brief	http://www.infineon.com/thyristor-and-diodes-product-brief
4.5kV/6.5kV Soft recovery FWDs for IGBTs and PP IGBTs	Product Brief	http://www.infineon.com/www.infineon.com/sr-fwd-product-brief
6.5 kV SCR series for Medium Voltage Soft starters	Product Brief	http://www.infineon.com/6500v-scr-product-brief
540A/8 kV 2" Light triggered Thyristor	Product Brief	http://www.infineon.com/8000v-ltt-scr-product-brief
9.5 kV SCR for Medium Voltage Soft starters	Product Brief	http://www.infineon.com/9500v-scr-product-brief
Clamping Forces for disc type devices	Product Information	http://www.infineon.com/clamping-forces-product-information
Standard gate leads for disc type devices	Product Information	http://www.infineon.com/gate-leads-for-discs-product-information

Business Excellence due to Quality Management

In quality and reliability of our innovative products and services for power electronics we are a worldwide leading company.

We have developed and introduced a quality management which continuously supervises the stability and the performance of our production and business progresses. The qualification of our innovative products and services with the most progressive quality tools contributes effectively and efficiently to a positive business development.

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Our environmental management is certified as per DIN EN ISO 1400, our safety management as per OSHAS 18001.

Type designation

IGBT Modules					
FF	400	R33	K F	x	example for an IGBT module
FZ					single switch with one IGBT and FWD
FF					half bridge (two IGBTs an FWDs)
FP					Power Integrated Module
FM					Matrix Module
FD/DF					chopper module
FB					Integrated modules in B2 configuration with IGBT & NTC
DD					dual diode module
FR					Switched Reluctance Modul
F3L					3-level configuration
FS3L					3-level 3 phase bridge
FT					tripack
F4					fourpack
F5					fivepack
FS					sixpack
	400				max. DC-collector current (A)
		R			reverse conducting
		S			fast Diode
		33			collector-emitter-voltage in 100 V
			K/H/I/M/N/O/P		mechanical construction:
			W/V/X/Y		module
			F		fast switching type
			H		high speed IGBT
			J		SiC JFET
			L		type with low V_{CEsat}
			M		MOSFET Chip
			S		fast short tail IGBT Chip
			E		low sat and fast trench IGBT
			T		fast trench IGBT
			P		soft switching trench IGBT
			1 ... n		internal reference numbers
			C		Emitter Controlled
			D		higher Diode current
			F		very fast Diode
			G		module in big housing
			I		integrated cooling
			P		with pre applied TIM
			R		reduced number of pins
			T		low temperature type
			-K		design with common cathode
			B1 ... n		Construction variation
			S1 ... n		Electrical selection

MIPAQ					
IFF	150B	12	N3	T	4
I					
FF					
FZ					
FT					
FS					
FP					
	150				
		B			
		S			
		V			
			12		
				N1..3	
				P	
				U1..3	
					S
					E
					T
					P
				1..n	
					B1..n construction variation
					S1..n electrical selection

Type designation

IGBT Modules					
BSM	100	GB	120	DL x	example for a IGBT module with an old designation
BSM					switch with IGBT and FWD
BYM					diode module
	100				max. DC-collector current (A)
		GA			single switch with one IGBT and FWD
		GB			half bridge (two IGBTs and FWDs)
		GD			3 phase full bridge (6-pack)
		GT			3 single switches with FWDs (tripack)
		GP			Power Intergrated Module
		GAL			B6/Break/Inverter chopper module (diode on collector side)
		GAR			chopper module (diode on emitter side)
		A			single diode
			120		collector-emitter-voltage in 10 V
				DL	Typ with low V_{CEsat}
				DN2	fast switching type
				DLC	low loss type with Emitter Controlled Diode
				S	with collector sense
				G	Design Variation
				Exxx	special type

Bridge Rectifiers and AC-Switches									
TD	B6	H	K	135	N	16	L	OF	
DD									diode module
TT									thyristor module
TD									thyristor/diode
	B6								three phase bridge
	W3								three phase AC-switch
		C							fully controlled
		H							half controlled
		U							uncontrolled
			K						common cathode of thyristors
				135					output current (A) (W3C: RMS-current)
					N				phase control thyristor/diode
						16			repetitive peak off-state voltage in 100 V
							L		eupec™ IsoPACK™
								R	EconoBRIDGE™ without integr.
								RR	brake chopper IGBT
									EconoBRIDGE™ with integr.
									brake chopper IGBT
								O	no guaranteed turn-off time
								F	critical rate of rise of off-state voltage

Type designation

Presspacks						
T640	N	18	T	O	F	
T						thyristor
D						diode
930						average on state current (A)
0						standard ceramic disc
1						high power ceramic disc
3						light triggered thyristor, ceramic disc
	N					phase control device
	K					phase control diode with cathode on case (only flatbase or stud)
	S					fast diode
	U					fast diode with cathode on case (only flatbase or metric)
	A					avalanche diode with anode on case
	B					avalanche diode with cathode on case (only flatbase or metric)
	NH					Diode: soft recovery for high current pulses Thyristor: high turn-on di/dt capability
	SH					softrecovery diode
		18				repetitive peak off-state and reverse voltage in 100 V
			B			metric thread with cable
			C			metric thread with solder pin
			E			flat base
			T			disc
				O		no guaranteed turn off time
						critical rate of off-state voltage
					C	500 V/ μ s
					F	1000 V/ μ s
					G	1500 V/ μ s
					H	2000 V/ μ s
						B01...n construction variation
						S01...n electrical selection

PowerBLOCK Modules						
TT162	N	16	K	O	F -K	
TT						with 2 thyristors
DD						with 2 diodes
ND, DZ, TZ						with 1 thyristor or 1 diode
TD, DT						with 1 thyristor and 1 diode
		162				average on state current (A)
	N					phase control device
	S					fast diode
		16				repetitive peak off-state and reverse voltage in 100 V
			K			mechanical construction: module
			A			mechanical construction: module
				O		no guaranteed turn off time
				F		critical rate of rise of off-state voltage (see disc devices)
					-K	design with common cathode
					-A	design with common anode
						B01...n construction variation
						S01...n electrical selection

Letter Symbols

B	DC current gain	R_{thJC}	thermal resistance, junction to case
FBSOA	forward biased safe operating area	RBSOA	reverse biased safe operating area
f	frequency	t	time
f_o	repetition frequency	T	period
F	clamping force	T_A	coolant temperature
G	weight	T_C	case temperature
I_C	maximum permissible DC collector current	T_{op}	operating temperature
I_{CAVM}	maximum perm. average collector current	t_g	trigger pulse duration
I_{CES}	collector-emitter cut-off current	t_{gd}	gate controlled delay time
I_{GES}	gate-leakage current	T_h	heatsink temperature
I_{CRM}	permissible repetitive peak collector current	t_p	current pulse duration (sinusoidal)
i_D	forward off-state current	t_q	circuit commutated turn-off time
i_G	gate current	t_{rr}	reverse recovery time
I_{GD}	gate non trigger current	T_{vj}	junction temperature
i_{GM}	peak gate current	T_{vjmax}	maximum permissible junction temperature
I_{GT}	gate trigger current	t_w	current pulse duration (trapezoidal)
I_H	holding current	t_f	fall time
I_L	latching current	t_{off}	turn-off time
i_R	reverse current	t_{on}	turn-on time
I_{RMS}	RMS current	t_s	storage time
I_{RM}	peak reverse recovery current	T_{vjop}	junction operating temperature
i_T/i_F	on-state current	T_{stg}	storage temperature
I_{TAV}/I_{FAV}	on-state current (average value)	V_D	forward off-state voltage
I_{TAVM}/I_{FAVM}	maximum average on-state current	V_{DM}	forward off-state voltage (peak value)
I_{TINT}/I_{FEINT}	on-state current at intermittent duty	V_{DRM}	repetitive peak forward off-state voltage
I_{TM}/I_{FM}	on-state current (peak value)	V_{DSM}	non-repetitive peak forward off-state voltage
$I_{T(OV)M}/I_{F(OV)}$	on-state current at shorttime duty	V_G	gate voltage
$I_{T(OV)M}/I_{F(OV)M}$	maximum overload on-state current	V_{GD}	gate non trigger voltage
$I_{T(RC)M}$	repetitive turn-on current (from snubber)	$V_{GE(th)}$	gate threshold voltage
I_{TRMSM}/I_{FRMSM}	maximum RMS on-state current	V_{GT}	gate trigger voltage
I_{TSM}/I_{FSM}	surge non repetitive on-state current	V_{ISOL}	insulation test voltage
I_F	DC forward current	V_L	no-load voltage of trigger pulse generator
I_{FRM}	repetitive peak forward current	V_R	reverse voltage
$\int i^2 dt$	I^2t value	V_R	direct reverse voltage
di_G/dt	rate of rise of gate current	$V_{R(D)}$	continuous diode reverse voltage
$di_T/dt/di_F/dt$	rate of rise of on-state current	V_{RG}	reverse gate voltage
$(di/dt)_{cr}$	critical rate of rise of on-state current	V_{RGM}	peak reverse gatevoltage
L	inductance	V_{RM}	reverse voltage (peak value)
M	mounting torque	$V_{RMS} V_{DC}$	RMS or DC voltage value
P_{ON}	turn-on dissipation	V_{RRM}	repetitive reverse voltage
P_{OFF}	turn-off dissipation	$V_{RRM(C)}$	repetitive peak reverse voltage after commutation
P	power dissipation	V_{RSM}	non-repetitive peak reverse voltage
P_D	forward off-state dissipation	V_T/V_F	on-state voltage
P_G	gate dissipation	$V_{(TO)}$	threshold voltage
P_R	reverse power dissipation	V_M	repetitive peak voltage
P_{RQ}	turn-off dissipation	V_{CEsat}	collector-emitter saturation voltage
$P_{TT} + P_{RQ}$	switching dissipation	V_{CES}, V_{CE}	maximum permissible collector-emitter voltage
P_T/P_F	on-state power dissipation	dv_D/dt	rate of rise of forward off-state voltage
P_{TAV}/P_{FAV}	on-state power dissipation (average value)	dv_R/dt	rate of rise of reverse voltage
P_{TT}	turn-on dissipation	$(dv/dt)_{cr}$	critical rate of rise of off-state voltage
P_{tot}	total power dissipation	V_L	air quantity
Q_r	recovered charge	V_W	water quantity
Q_s	lag charge	W	energy
R	resistance	W_{tot}	total energy
r_T	slope resistance	Z_{thCA}	transient thermal impedance, case to coolant
R_{thCA}	thermal resistance, case to coolant	Z_{thJA}	transient thermal impedance, junction to coolant
R_{thCK}	thermal resistance, case to heatsink	Z_{thJC}	transient thermal impedance, junction to case
R_{thJA}	thermal resistance, junction to coolant	Q	current conduct. angle



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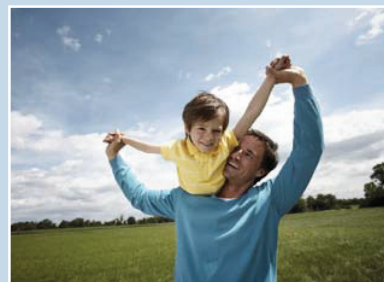
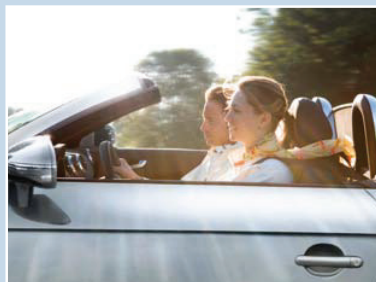
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Date: 04 / 2013

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