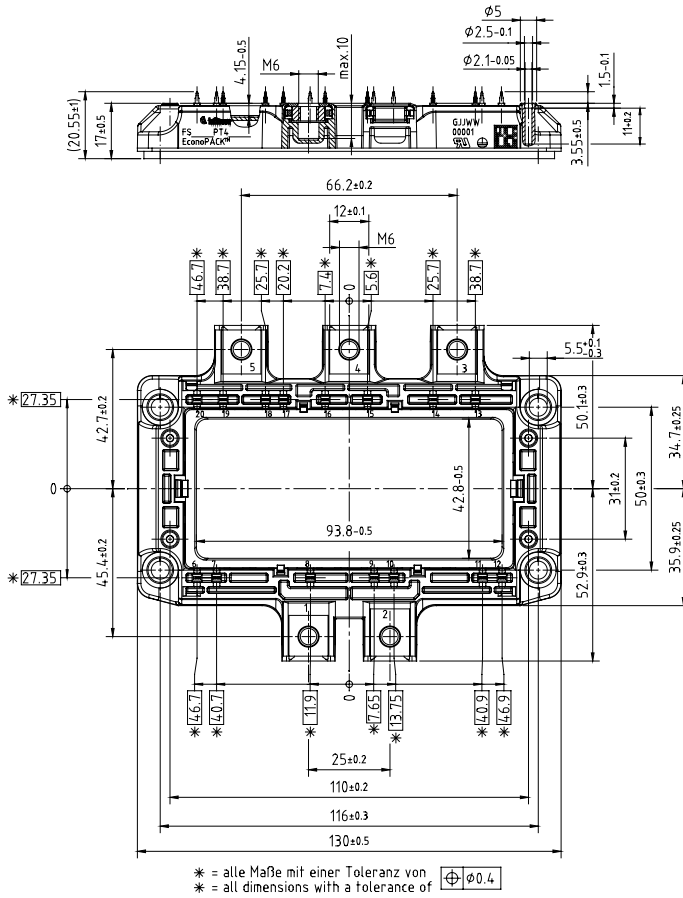
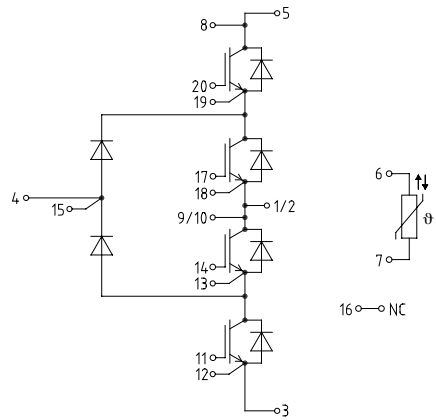


EconoPACK™ 4

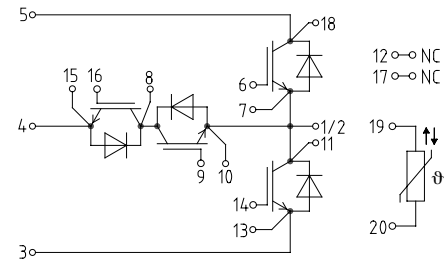
M_EP4a | M_EP4b



3-level one-phase NPC1 topology with NTC

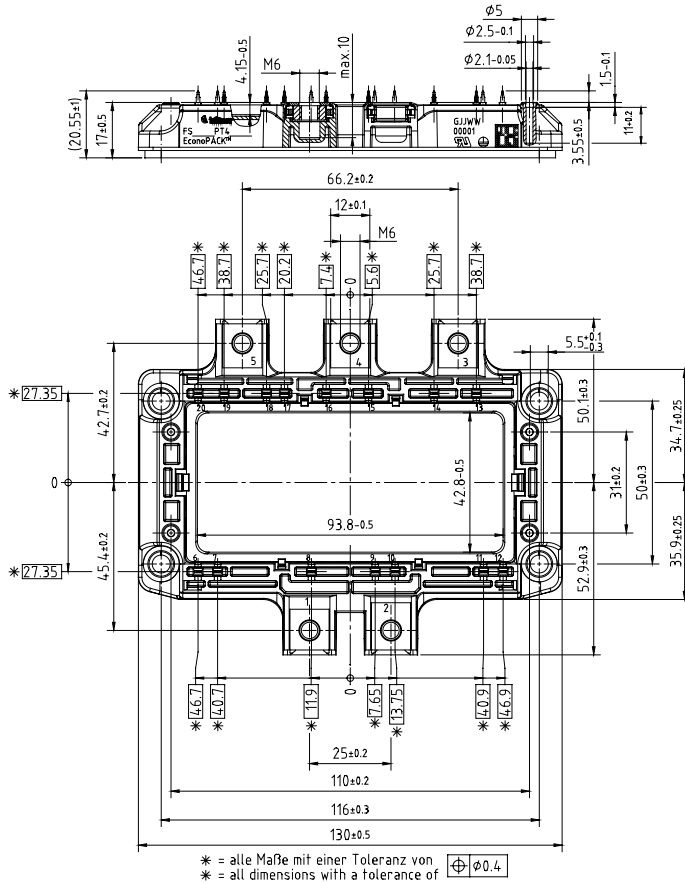


3-level one-phase NPC2 topology with NTC

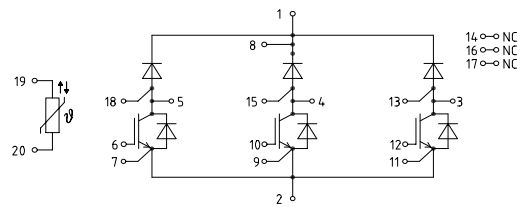


EconoPACK™ 4

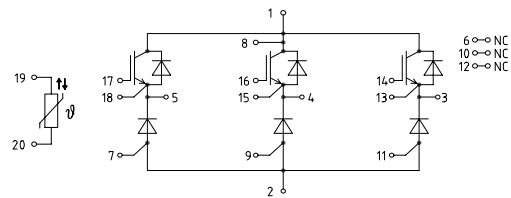
M_EP4c | M_EP4d



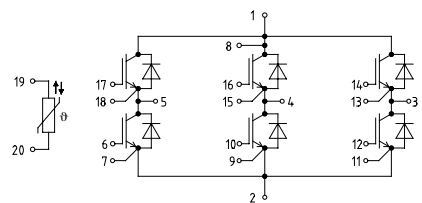
FD chopper with NTC



DF chopper with NTC

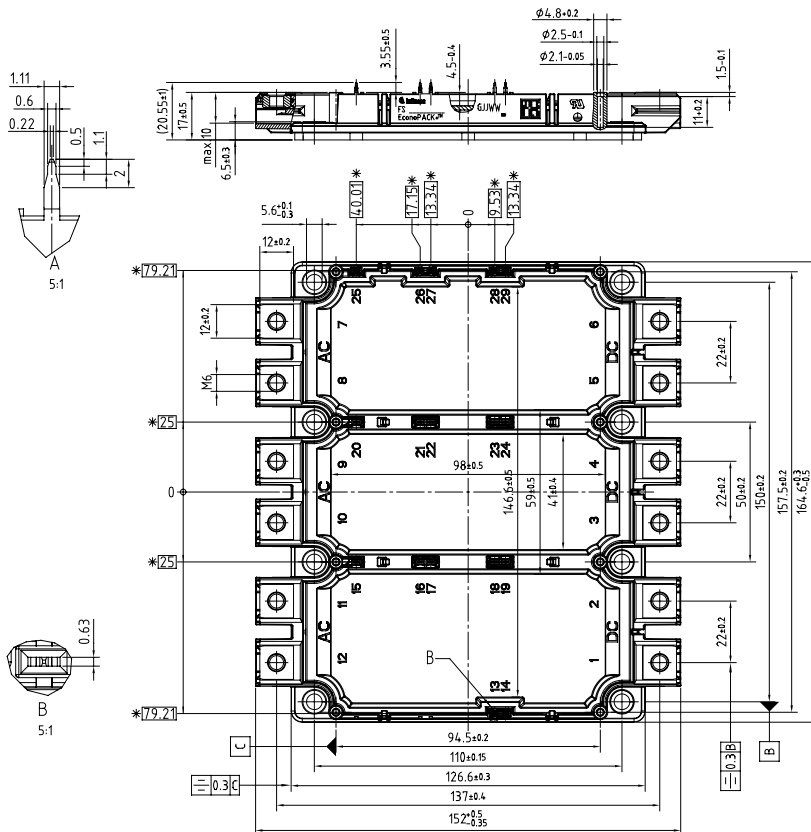


sixpack with NTC



EconoPACK™ + D-Series

M_E+d



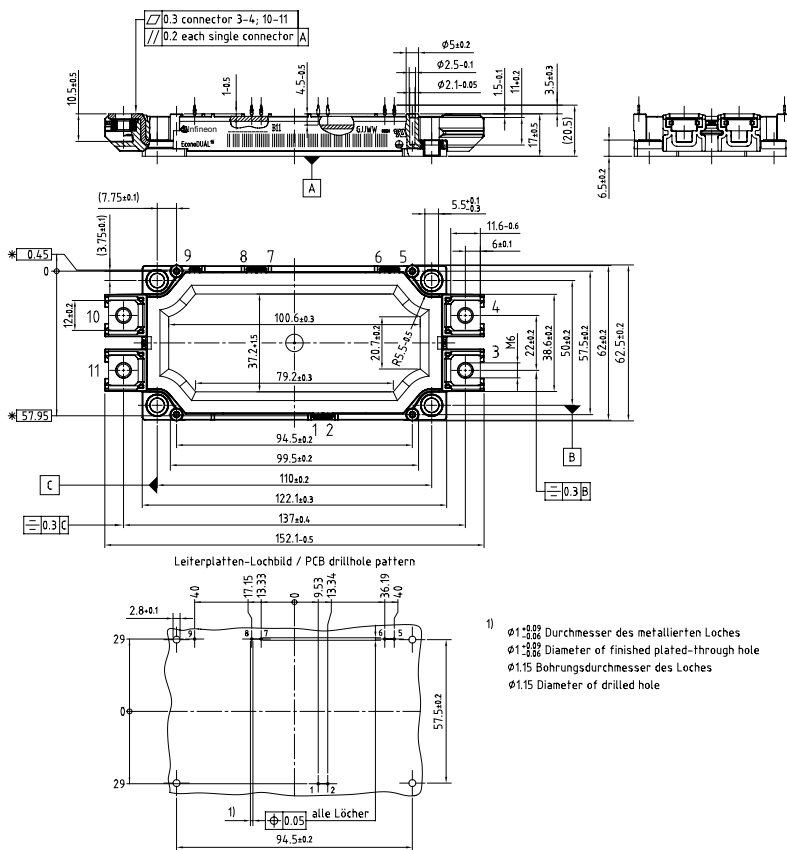
* = alle Maße mit einer Toleranz von ± 0.4
 * = all dimensions with a tolerance of ± 0.4

sixpack with NTC

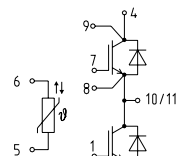


EconoDUAL™ 3 Pressfit

M_ED3_PF

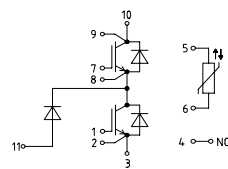


dual with NTC

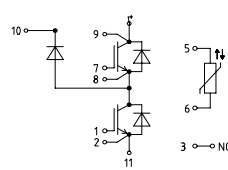


3-level one-phase NPC1 topology with NTC

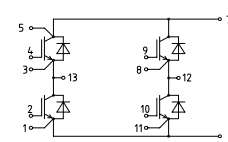
upper switch



lower switch

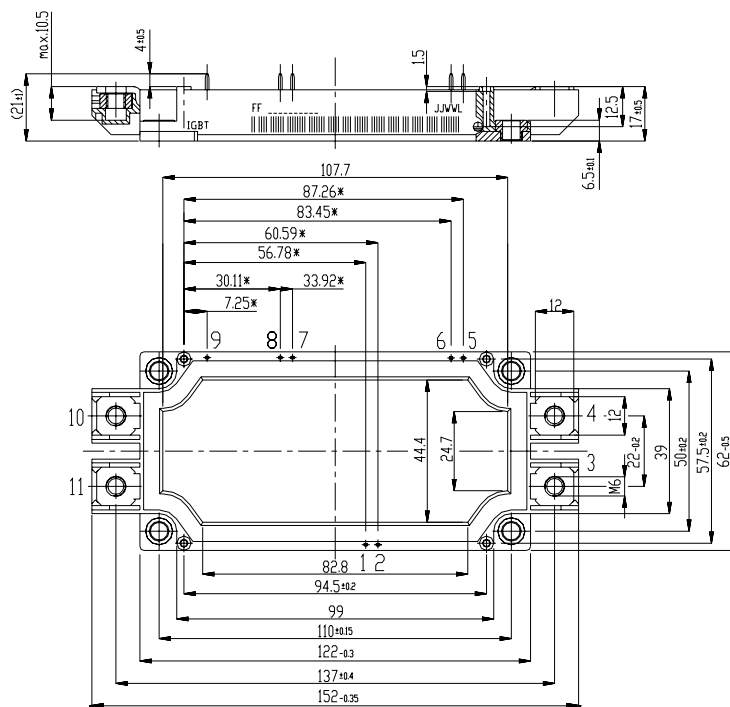


fourpack

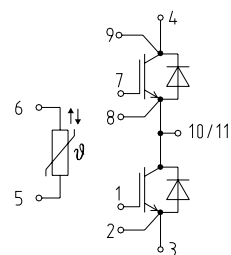


EconoDUAL™ 3

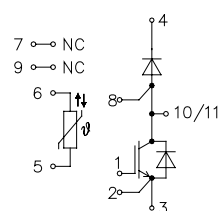
M_ED3



dual with NTC



chopper with NTC



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™ 3 PressFIT*	62.0 mm x 152.0 mm	6

* also available with pre-applied  Thermal Interface Material (TIM) for improved thermal performance

Links

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



High Power Modules

The High Power IGBT modules are offered in three different packages: IHM, IHV and PrimePACK™, which are available in various topologies: chopper, half-bridge, single- and dual switch. Furthermore Diode modules are offered in IHM and IHV packages.

The well-known IHM (IGBT High-Power Modules) (400 - 3600 A, 1200 V & 1700 V) work with supreme reliability at any temperature condition from -40 to +150°C and are robust also against harsh environments. Low leaking current and continuously improved thermal and electrical performance makes IHM the preferred choice for a powerful, compact and modular converter design. More than two Million IHM in different applications around the globe speaks for their acceptance in the market. The newly introduced IHM-B enhances the portfolio further with its lower switching losses and higher power cycling capability. Additionally its reduced stray inductance and optimized terminal connections makes the module easy to control and safe to use.

IHV modules (200 - 1500 A, 3.3 kV & 4.5 kV & 6.5 kV) are offered in two standardized well known packages according to different clearance and creepage requirements. The high reliability, long lifetime and high

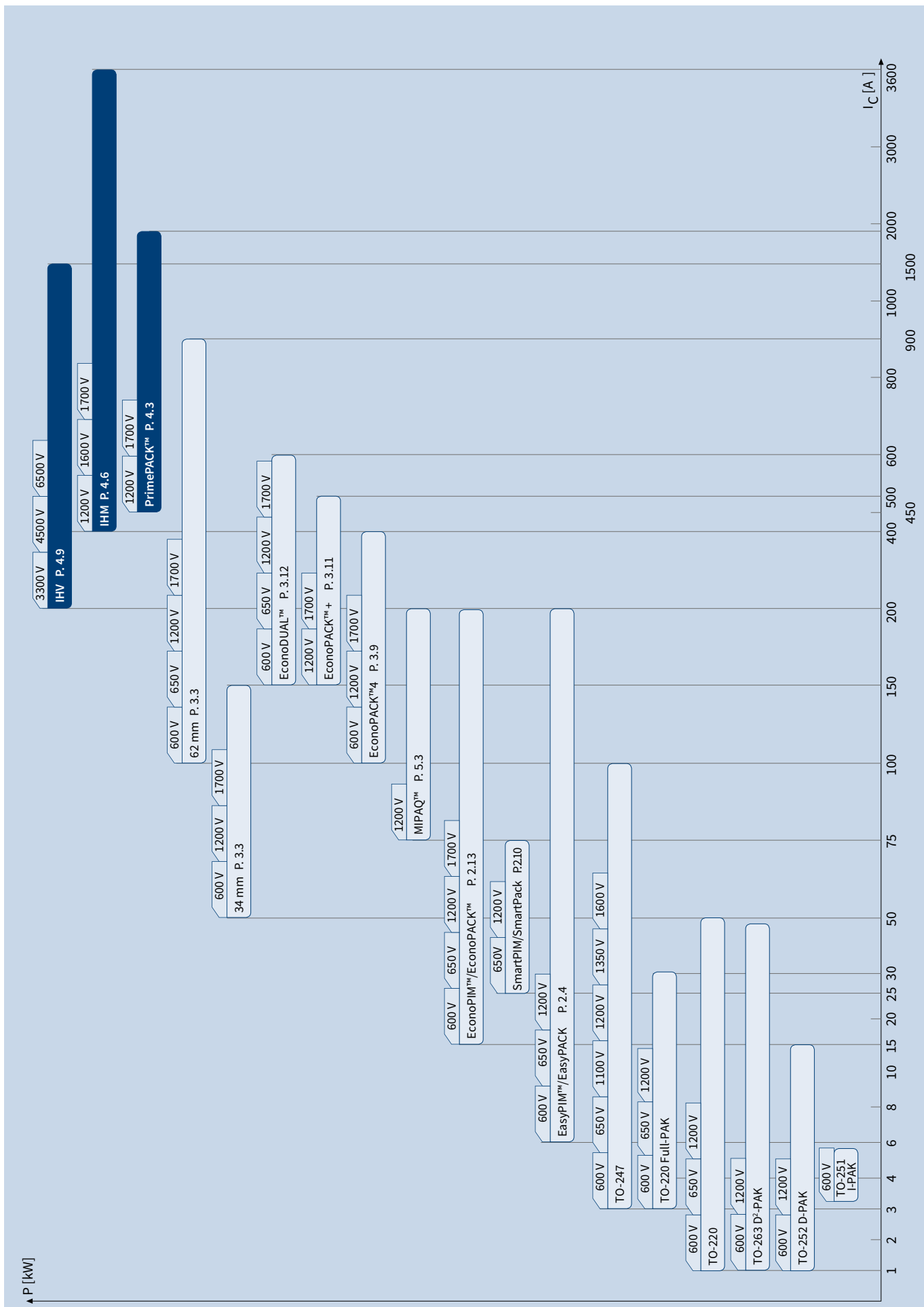
cosmic radiation robustness of these modules is well appreciated by the customers in different applications even with harsh environmental conditions.

The PrimePACK™ IGBT modules (450 - 1800 A, 1700 V) with internal NTC offer a specially optimized concept for integration in modern converters. The most important benefits are improved thermal- and electrical properties, low stray inductance and high robustness. The excellently placed DC terminal screw connections on PrimePACK™ offers high flexibility for a parallel design to realize a broad power range of inverters and contribute further to low inductive inverter design.

By integrating IGBT5 and .XT into PrimePACK™, Infineon provides a new degree of freedom to system designers. Using the new PrimePACK™ with IGBT5 and .XT, the output power in the application can either increase by 25% or a 10 times longer lifetime for the same output current can be achieved. Various combinations in between are feasible.



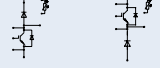
Infineon Technologies years of experience and continuous innovations together with the most recent optimized chip generations for high power density and in combination with the worldwide available design support offers optimal solutions for converters in various applications.


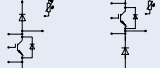
IGBT
High Power



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.	Outline/ page	
 halfbridge with NTC	IGBT4					
	FF450R12IE4	1200	450	1.75	59/52	H_PP2/4.12
	FF600R12IE4	1200	600	1.75	61/73	H_PP2/4.12
	FF600R12IP4	1200	600	1.70	77/105	H_PP2/4.12
	FF600R12IS4F 	1200	600	3.20	20/40	H_PP2/4.12
	FF900R12IE4	1200	900	1.75	70/120	H_PP2/4.12
	FF900R12IP4	1200	900	1.70	100/160	H_PP2/4.12
	FF900R12IP4D	1200	900	1.70	100/160	H_PP2/4.12
	FF1400R12IP4	1200	1400	1.75	80/280	H_PP3/4.12
	IGBT5					
FF1200R12IE5	1200	1200	on request		H_PP2/4.12	
 DF FD chopper with NTC	IGBT4					
	■ DF600R12IP4D	1200	600	1.70	77/105	H_PP2/4.12
	FD900R12IP4D	1200	900	1.70	100/160	H_PP2/4.12
	DF900R12IP4D	1200	900	1.70	100/160	H_PP2/4.12
	FD1400R12IP4D	1200	1400	1.75	80/280	H_PP3/4.12
	DF1400R12IP4D	1200	1400	1.75	80/280	H_PP3/4.12

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.	Outline/ page	
 halfbridge with NTC	IGBT4					
	FF450R17IE4	1700	450	2.00	200/140	H_PP2/4.12
	FF650R17IE4	1700	650	2.00	300/205	H_PP2/4.12
	FF650R17IE4D_B2	1700	650	2.00	260/205	H_PP2/4.12
	FF1000R17IE4	1700	1000	2.00	390/295	H_PP3/4.12
	FF1000R17IE4D_B2	1700	1000	2.00	365/315	H_PP3/4.12
	FF1400R17IP4	1700	1400	1.75	500/625	H_PP3/4.12
	IGBT5					
FF1800R17IP5	1700	1800	on request		H_PP3+/4.12	
 DF FD chopper with NTC	IGBT4					
	■ FD650R17IE4	1700	650	2.00	300/205	H_PP2/4.12
	■ DF650R17IE4	1700	650	2.00	300/205	H_PP2/4.12
	FD1000R17IE4	1700	1000	2.00	390/295	H_PP3/4.12
	DF1000R17IE4	1700	1000	2.00	390/295	H_PP3/4.12
	■ FD1000 R17IE4D_B2	1700	1000	2.00	365/315	H_PP3/4.12
	DF1000 R17IE4D_B2	1700	1000	2.00	365/315	H_PP3/4.12

¹⁾ PrimePACK™: T_{vj,op} = 150°C

■ Not recommended for new design

All modules are UL recognized

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

... B2: Traction

...D: Bigger Diode


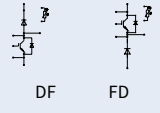
...F: SiC Diodes

IGBT High Power Modules

PrimePACK™ for CAV




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.	Outline/ page	
 halfbridge with NTC	IGBT4					
	FF600R12IE4V	1200	600	1.75	61/73	H_PP2/4.12
	FF600R12IP4V	1200	600	1.70	77/105	H_PP2/4.12
	FF900R12IE4V	1200	900	1.75	70/120	H_PP2/4.12
	FF900R12IP4V	1200	900	1.70	70/160	H_PP2/4.12
	FF900R12IP4DV	1200	900	1.70	70/160	H_PP2/4.12
 DF FD chopper with NTC	IGBT4					
	DF900R12IP4DV	1200	900	1.70	100/160	H_PP2/4.12
	FD900R12IP4DV	1200	900	1.70	100/160	H_PP2/4.12



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.	Outline/ page	
 halfbridge with NTC	FF650R17IE4V	1700	650	2.00	300/205	H_PP2/4.12




¹⁾ PrimePACK™: T_{vj,op} = 150°C




...D: Bigger Diode






...V: CAV qualified (Commercial & Agricultural Vehicle)







IGBT High Power Modules

PrimePACK™ with TIM

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.	Outline/ page
 halfbridge with NTC	IGBT4					
	FF900R12IP4P 	1200	900	1.70	100/160	H_PP2/4.12
	FF1400R12IP4P 	1200	1400	1.75	80/280	H_PP3/4.12


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.	Outline/ page
 halfbridge with NTC	IGBT4					
	FF650R17IE4P 	1700	650	2.00	300/205	H_PP2/4.12
	FF650R17IE4DP_B2 	1700	650	2.00	260/205	H_PP2/4.12
	FF1000R17IE4P 	1700	1000	2.00	390/295	H_PP3/4.12
	FF1000R17IE4DP_B2 	1700	1000	2.00	365/315	H_PP3/4.12
	FF1400R17IP4P 	1700	1400	1.75	500/625	H_PP3/4.12

¹⁾ PrimePACK™: T_{vj,op} = 150°C

...B2: Traction

...D: Bigger Diode



...P: Pre-applied TIM

 with pre-applied Thermal Interface Material (TIM) for improved thermal performance

IGBT High Power Modules

IHM Cu 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.	Outline/ page
 dual	IGBT3						
	FF600R12KE3	1200	600	1.70	120/95	H_IH2/4.12	
	FF800R12KE3	1200	800	1.70	160/125	H_IH2/4.12	
	FF1200R12KE3	1200	1200	1.70	245/190	H_IH2/4.12	
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R12HP4	1200	1200	1.70	155/265	H_IH4B/4.12	
	FZ1600R12HP4	1200	1600	1.70	250/370	H_IH4B/4.12	
	FZ1800R12HP4_B9	1200	1800	1.70	330/405	H_IH7B/4.13	
	FZ2400R12HP4	1200	2400	1.70	460/560	H_IH4B/4.12	
	FZ2400R12HP4_B9	1200	2400	1.70	460/560	H_IH7B/4.13	
	FZ3600R12HP4	1200	3600	1.70	595/895	H_IH7B/4.13	
	IGBT4 Fast (IHM B) ¹⁾						
	FZ1200R12HE4	1200	1200	1.75	115/145	H_IH4B/4.12	
	FZ1800R12HE4_B9	1200	1800	1.75	245/245	H_IH7B/4.13	
FZ2400R12HE4_B9	1200	2400	1.95	510/630	H_IH7B/4.13		

¹⁾ T_{vj,op} = 150°C





..._B9: 140 x 190mm baseplate

Please find all High Power Diode modules on page 4.11

All modules are UL recognised

IGBT High Power Modules

IHM Cu 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.	Outline/ page
 dual	IGBT3						
	FF600R17KE3	1700	600	2.00	185/210	H_IH2/4.12	
	FF800R17KE3	1700	800	2.00	240/280	H_IH2/4.12	
	FF1200R17KE3	1700	1200	2.00	350/445	H_IH2/4.12	
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R17HP4	1700	1200	1.90	365/415	H_IH4B/4.12	
	FZ1600R17HP4	1700	1600	1.90	500/570	H_IH4B/4.12	
	FZ1800R17HP4_B9	1700	1800	1.90	510/620	H_IH7B/4.13	
	FZ2400R17HP4	1700	2400	1.90	570/830	H_IH4B/4.12	
	FZ2400R17HP4_B9	1700	2400	1.90	620/870	H_IH7B/4.13	
	FZ3600R17HP4	1700	3600	1.90	800/1450	H_IH7B/4.13	
	IGBT4 Fast (IHM B) ¹⁾						
	FZ1200R17HE4	1700	1200	1.95	225/315	H_IH4B/4.12	
	FZ1800R17HE4_B9	1700	1800	1.95	390/410	H_IH7B/4.13	
	FZ2400R17HE4_B9	1700	2400	1.95	510/630	H_IH7B/4.13	
	FZ3600R17HE4	1700	3600	1.95	650/1100	H_IH7B/4.13	
	 FD...  FD...-K chopper	IGBT3					
		■ FD600R17KE3-K_B5	1700	600	2.00	185/220	H_IH11/4.14
■ FD1200R17KE3-K		1700	1200	2.00	350/445	H_IH4/4.12	

¹⁾ T_{vj,op} = 150°C

■ Not recommended for new design

All modules are UL recognised

Please find all High Power Diode modules on page 4.11

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

..._B9: 140 x 190mm baseplate

...-K: Diode is used in reverse polarity



IGBT High Power Modules

IHM ALSiC 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.	Outline/ page
 dual	IGBT2 Low Loss						
	■ FF401R17KF6C_B2	1700	400	2.60	190/150	H_IH9/4.13	
	IGBT3						
	FF600R17KE3_B2	1700	600	2.00	185/220	H_IH2(S)/4.12	
	IGBT4 Standard ¹⁾						
	FF800R17HP4_B2	1700	800	1.90	215/275	H_IH2(S)/4.12	
	FF1200R17KP4_B2	1700	1200	1.90	370/340	H_IH2(S)/4.12	
 single switches	IGBT4 Standard (IHM B) ¹⁾						
	FZ1200R17HP4_B2	1700	1200	1.90	245/415	H_IH4B/4.12	
	FZ1600R17HP4_B2	1700	1600	1.90	330/570	H_IH4B/4.12	
	FZ1600R17HP4_B21	1700	1600	1.90	415/570	H_IH4B/4.12	
	FZ1800R17HP4_B29	1700	1800	1.90	380/620	H_IH7B/4.13	
	FZ2400R17HP4_B2	1700	2400	1.90	680/830	H_IH4B/4.12	
	FZ2400R17HP4_B28	1700	2400	1.90	680/870	H_IH7B/4.13	
	FZ2400R17HP4_B29	1700	2400	1.90	450/870	H_IH7B/4.13	
	FZ3600R17HP4_B2	1700	3600	1.90	980/1450	H_IH7B/4.13	
 FD... FD...-K chopper	IGBT2 Low Loss						
	■ FD401R17KF6C_B2	1700	400	2.60	190/150	H_IH9/4.13	
	IGBT3						
	FD600R17KE3_B2	1700	600	2.00	185/220	H_IH2(S)/4.12	
	FD800R17KE3_B2	1700	800	2.00	240/295	H_IH2(S)/4.12	
	■ FD1200R17KE3-K_B2	1700	1200	2.00	350/445	H_IH4/4.12	
	IGBT4 Standard (IHM B) ¹⁾						
	FD800R17HP4-K_B2	1700	800	1.90	250/385	H_IH4B/4.12	
	FD1200R17HP4-K_B2	1700	1200	1.90	350/440	H_IH4B/4.12	
	FD1600/1200R17HP4_B2	1700	1600	1.90	460/570	H_IH7B/4.13	
◆ FD1600/1200R17HP4-K_B2	1700	1600	1.90	460/570	H_IH7B/4.13		

¹⁾ T_{vj,op} = 150°C

■ Not recommended for new design

◆ New type

All modules are UL recognised

Please find all High Power Diode modules on page 4.11

..._B2: 140x130mm ALSiC base plate and bigger diode

..._B21: 140x130mm ALSiC base plate and standard diode

..._B28: 140x190mm ALSiC base plate and standard diode

..._B29: 140x190mm ALSiC base plate and bigger diode

...-K: Diode is used in reverse polarity