



FE Fuji Electric
Innovating Energy Technology

Power Semiconductors **Selection Guide**

05|2022

www.fujielectric.com
www.fujielectric-europe.com

About Us

Fuji Electric Co., Ltd. was established in 1923 in Japan as a capital and technology alliance between Furukawa Electric Co., Ltd. and Siemens AG. The company name was derived from these two companies, with „Fu“ and „Si“ and the highest mountain in Japan mount Fuji.

The Fuji Electric Europe GmbH was founded 1984 in Germany and is a 100% subsidiary of Fuji Electric Co., Ltd. based in Japan. For more than 30 years, Fuji Electric has successfully supplied the European market with power semiconductors for power conversion systems.

With a strong team of sales, application and development engineers, we always support our customers from all over Europe in commercial and technical matters. Furthermore, our international distribution network ensures a special service quality and proximity to customers.

Fuji Electric offers innovative energy technologies to make a sustainable contribution to social and industrial infrastructure worldwide. Population growth and rapid industrial advances are making energy management and environmental protection increasingly important. Therefore, Fuji Electric strives continuously the development and improvement of existing technologies. Our innovative products in energy and environmental technology achieve high added value, outstanding eco-friendliness and energy with maximum efficient use.

Our Services

Application Portfolio

For a long while, the main applications of our power semiconductors were the electric drive technology (frequency converters, servo drives) and the uninterruptible power supply (UPS). The foundation stone was placed based on these applications for outstanding quality, high reliability and implementation of the latest technologies.

The application portfolio is growing steadily and it includes new applications today such as: renewable energy (wind energy, photovoltaic), hybrid/electric mobility, energy supply and distribution (smart grid), traction, etc. Technology development always requires new technical and efficient solutions with long service life as well as highest quality.

Our state-of-the-art production sites in front-end, back-end and warehouse locations enable us to supply the world's growing number of customers with power semiconductors.

Our 7th IGBT generation (X series) is currently replacing older generations in the market. The new products can easily replace existing products due to their electrical and mechanical compatibility while they are continuing to reduce losses.

Logistic Services

Our logistic center in Frankfurt offers our customers high availability and enables short delivery times as well as extensive logistics services.

Technical Support

Our competent application engineering team offers application support from A to Z, as well as special technical solutions. Furthermore, our development engineers support professionally and reliably with on-site design-in solutions.

Service for thermal interface material (TIM)

Our automated printing process guarantees consistent printing and improved thermal conductivity through accurate printing equipment, optimized module-specific printing patterns and software monitoring.



Fuji Electric provides Power Semiconductors well suited for various applications



Inverters (LV-INV)

Semiconductor products best suited for general-purpose inverters that carry out variable-speed operation of motors in products such as belt conveyors, fans and pumps.



Medium – Voltage Inverters (MV-INV)

Semiconductor products suitable for medium-voltage inverters that drive 3-phase AC 3kV/6kV/6.6kV high-voltage motors used in iron and steel plants, textile plants and paper mills.



Railroads (TRAIN)

Semiconductor products suited for the power electronics of railroad cars such as the main motor drive and auxiliary power supply equipment of rolling stock.



NC / Servos (SERVO)

Semiconductor products best suited to NC and servos that carry out speed control and positioning of machine tools, as well as robots that have multi-spindle control features used in assembly, welding and conveyance.



Elevator/Escalator

Semiconductor products suited for the inverters to drive elevators or escalators. Parts can be used for integrated solutions or machine room installations.



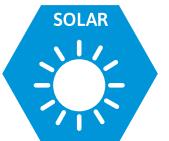
Wind Power Generation (WIND)

Semiconductor products suitable for AC/DC converters that convert the AC power output from wind turbine generators to DC power, as well as for inverters that convert DC power to AC power of commercial frequencies.



Welding Machines (WELDING)

Semiconductor products suitable for switching circuits that generate resistance heat in welding machines to melt and integrate by adding heat or pressure to two or more metallic members.



Solar (SOLAR)

Semiconductor products best suited for power conditioners that convert solar panel generated DC power into AC power to enable the residential consumption, as well as to facilitate the recovery of the power to the power systems of power companies.



PC / Servers (PC+SERVER)

Semiconductor products suitable for the power supplies of increasingly high-performance desktop PCs and servers, as well as of increasingly compact and lightweight notebook PCs.



UPS (UPS)

Semiconductor products ideal for the power conversion circuits of UPS (uninterruptible power supply) that prevent system shutdown during power outages and instantaneous power failures.



Switching Power Supplies (PSU)

Semiconductor products best suited for general-purpose switching power supplies used in a wide variety of applications such as equipment for general consumers and OA and communication devices.



White Goods

Semiconductor products which suits best to the needs of white goods, like low power (650V rating), compact size and integrated drive and protection functions.



Fuji Electric Power Semiconductors contributing energy management in various fields

Fuji Electric provides Power Semiconductors enabling high-efficiency energy usage in various fields such as industrial machinery, automobile, railroad, social infrastructure, renewable energy, consumer electronics and information equipment in order to achieve a low carbon society.



RENEWABLE
ENERGY



INDUSTRY

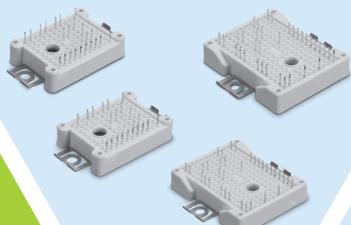


PUBLIC
TRANSPORTATION

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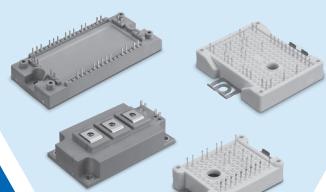
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Small PIM



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SiC Modules



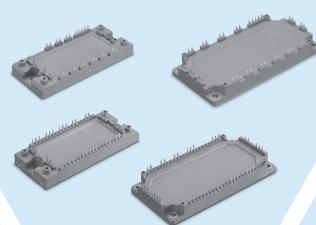
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Standard 1-Pack
Standard Chopper



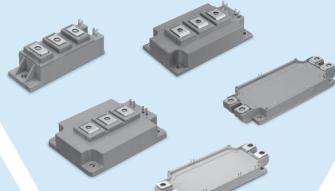
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PIM



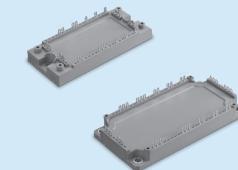
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Standard 2-Pack



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6-Pack



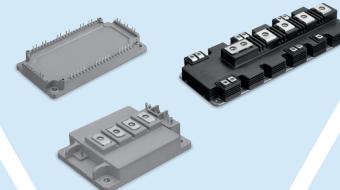
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PrimePACK™*
High Power next Core
(HPnC)



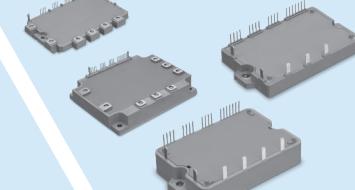
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Advanced T-type NPC 3-Level
Modules



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IPM (Intelligent
Power Modules)



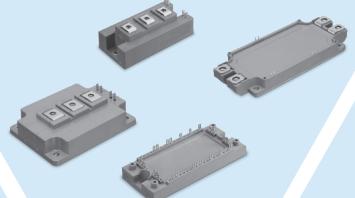
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I-type NPC 3-Level Modules



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Hybrid SiC Modules



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Small PIM



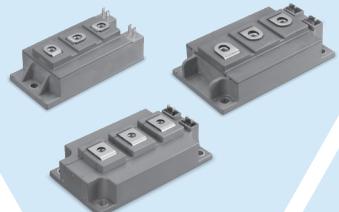
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Discrete IGBT



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High Speed Modules



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Rectifier Diode; SiC-SBD



* Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

Service for thermal interface material (TIM)

Fuji Electric's printing process of pre-applied TIM is automated and carried out by a computer controlled printing line under clean environment.

Precise printing equipment and optimized module specific printing patterns guarantee a uniform print and maximum thermal conductivity.



The range of modules with pre-applied TIM is being continually expanded.

For latest availability status please contact us:
info.semi@fujielectric-europe.com

3D-imaging tests ensure the compliance of our specified TIM thickness.

The whole process is controlled by our traceability system and qualified staff to ensure our high-quality standards.

Process - Benefits

- + Outsourcing of a dirty process
- + Stable quality level
- + Increased system reliability

Features

- + Optimized pattern for Fuji modules
- + Increase lifetime of IGBT
- + Advanced IGBT power density

Thermal - Benefits

- + Higher thermal conductivity
- + Uniform thermal resistance
- + Higher reliability and lifetime

New TIM

- + Capable for T_C up to 150 °C
- + Higher thermal conductivity
- + High reliability

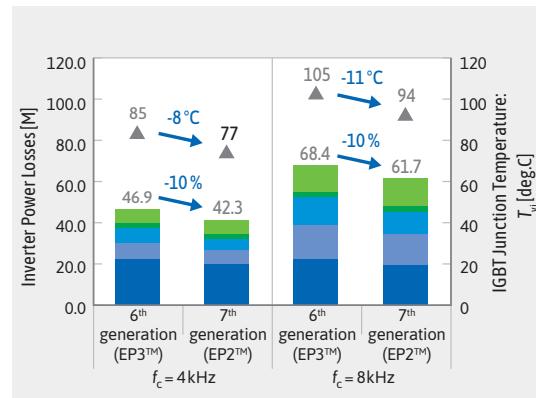


Features of IGBT module X series

1. Low loss

The module has been optimized by reducing the thickness and miniaturizing the structure of the IGBT chip and diode chip that make up the module. This reduces power losses during inverter operation compared to the previous 6th generation V series.

Reduced inverter loss by 10% and chip temperature by 10°C compared with the 6th generation V series EP3™ package (75A, at $f_c = 8\text{kHz}$).



- P_{rr} : Reverse recovery loss
- P_f : FWD conduction loss
- P_{on} : Turn-on loss
- P_{off} : Turn-off loss
- P_{sat} : IGBT conduction loss
- ▲ T_{vj} : Junction temperature

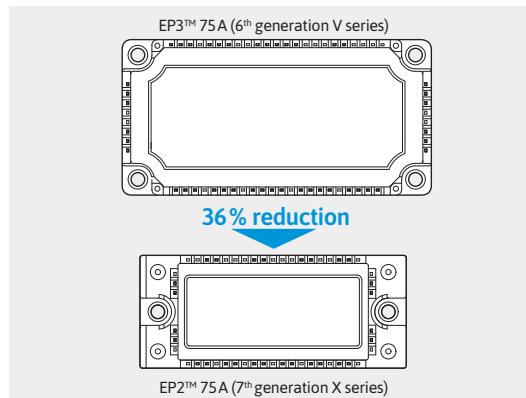
$V_{DC} = 600\text{V}$, $I_o = 35\text{ Arms}$, $f_o = 50\text{Hz}$,
Power factor = +0.9, modulation factor = 1.0,
Reverse recovery dv/dt = 10 kV/μs

2. Miniaturization

The application of the newly developed insulating board has improved the heat dissipation of the module.

A smaller footprint of about 36 % has been achieved by reducing power loss and suppressing heat generation compared with the previous product.

Application Example

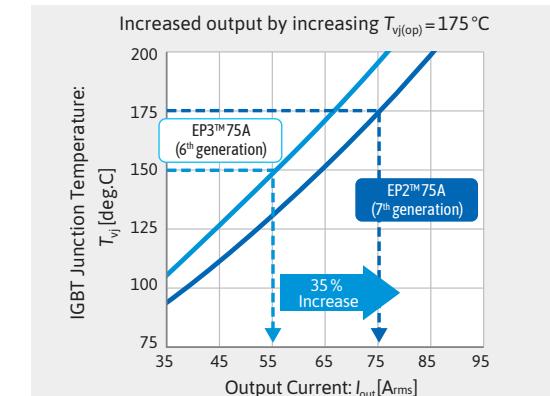


Note: PrimePACK™, EconoPIM™ and EconoPACK™ are registered trademarks of Infineon Technologies AG, Germany

3. High temperature operation

Achieves continuous operation at 175°C through chip optimization and improved package reliability and heat resistance.

- ▶ Up to 35 % more output than the previous generation
- ▶ ΔT_{vj} power cycle capability improvement (twice as high as before)



Product Portfolio

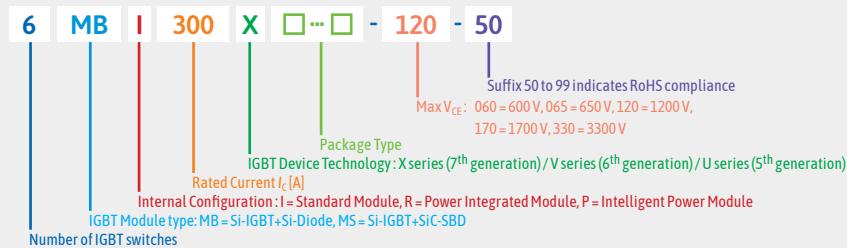
Number of IGBT Switches	Products Category	Internal Configuration						Max $V_{CE}(V_{RRM})$					Rated Current						Page			
		IGBT Module			Discrete IGBT	Rectifier Diode	Discrete SiC-SBD	600 V	650 V	1200 V	1700 V	3300 V	≤ 50 A	≥ 50 A	≤ 150 A	≥ 150 A	≤ 300 A	≥ 300 A	≤ 600 A	≥ 600 A	≤ 1200 A	
		Standard Module	Power Integrated Module	Intelligent Power Module				600 V	650 V	1200 V	1700 V	3300 V	≤ 50 A	≥ 50 A	≤ 150 A	≥ 150 A	≤ 300 A	≥ 300 A	≤ 600 A	≥ 600 A	≤ 1200 A	
7	Small PIM EconoPIM™	•						•	•	•	•	•	•	•	•	•	•	•	•	•	15	
		•						•	•	•	•	•	•	•	•	•	•	•	•	•	•	16/17
		•						•	•	•	•	•	•	•	•	•	•	•	•	•	•	16/17
6	6-Pack EconoPACK™	•						•	•	•	•	•	•	•	•	•	•	•	•	•	18	
2	Standard 2-Pack	•						•	•	•	•	•	•	•	•	•	•	•	•	•	20/21	
1	Standard 1-Pack Chopper	•						•	•	•	•	•	•	•	•	•	•	•	•	•	19	
		•						•	•	•	•	•	•	•	•	•	•	•	•	•	19	
1,2	High Speed Module	•						•	•	•	•	•	•	•	•	•	•	•	•	•	32	
	High Power next Core	•						•	•	•	•	•	•	•	•	•	•	•	•	•	25	
	PrimePACK™	•						•	•	•	•	•	•	•	•	•	•	•	•	•	22/23	
2,6	SiC Module	•						•	•	•	•	•	•	•	•	•	•	•	•	•	24/25	
4,12	T/I-type NPC 3-Level	Reverse-Blocking IGBTs are integrated.						•	•	•	•	•	•	•	•	•	•	•	•	•	26	
6,7	Small IPM / IPM	•	•					•	•	•	•	•	•	•	•	•	•	•	•	•	27-31	
2,6,7	Hybrid SiC Module	•	•					•	•	•	•	•	•	•	•	•	•	•	•	•	33	
1	Discrete IGBT			•				•	•	•	•	•	•	•	•	•	•	•	•	•	34	
	Rectifier Diode				•			•	•	•	•	•	•	•	•	•	•	•	•	•	35	
	SiC-SBD					•		•	•	•	•	•	•	•	•	•	•	•	•	•	35	

Note: PrimePACK™, EconoPIM™ and EconoPACK™ are registered trademarks of Infineon Technologies AG, Germany



Type Name Explanation

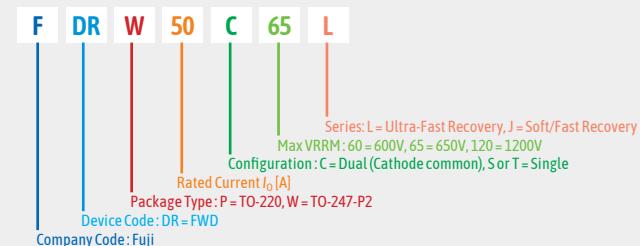
IGBT Module Production Number



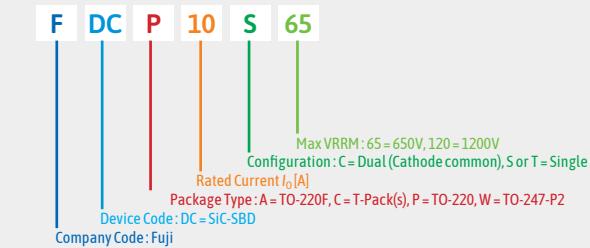
Discrete IGBT Production Number



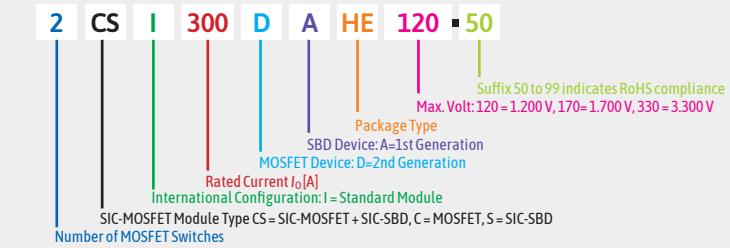
Rectifier Diode Production Number



SiC Schottky-Barrier Diode Production Number



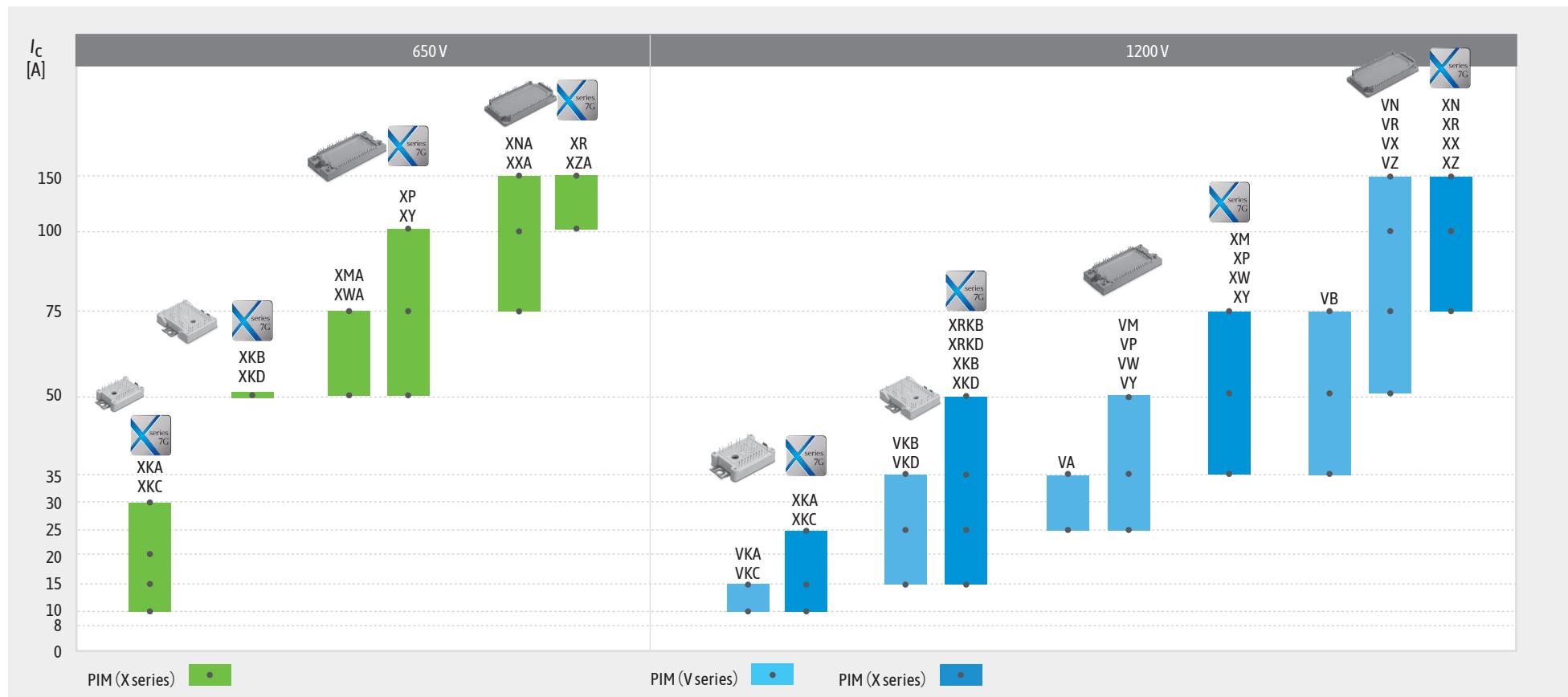
All-SiC Module Production Number



PIM (Power Integrated Modules) Product Map

7MBR	I_c	IGBT series & Package type				Size	Page		
		V series		X series					
	Solder pins	Press fit pins	Solder pins	Press fit pins					
	VKC	VKA	XKC	XKA	33.8 x 62.8 mm	EconoPIM™	15		
	VKD	VKB	XKD, XRKD	XKB, XRKB	56.7 x 62.8 mm		15		
	VA, VM, VP	VW, VY	XM, XP	XW, XY	45 x 107.5 mm	EconoPIM™	16/17		
	VB, VN, VR	VX, VZ	XN, XR	XX, XZ	62 x 122 mm		16/17		

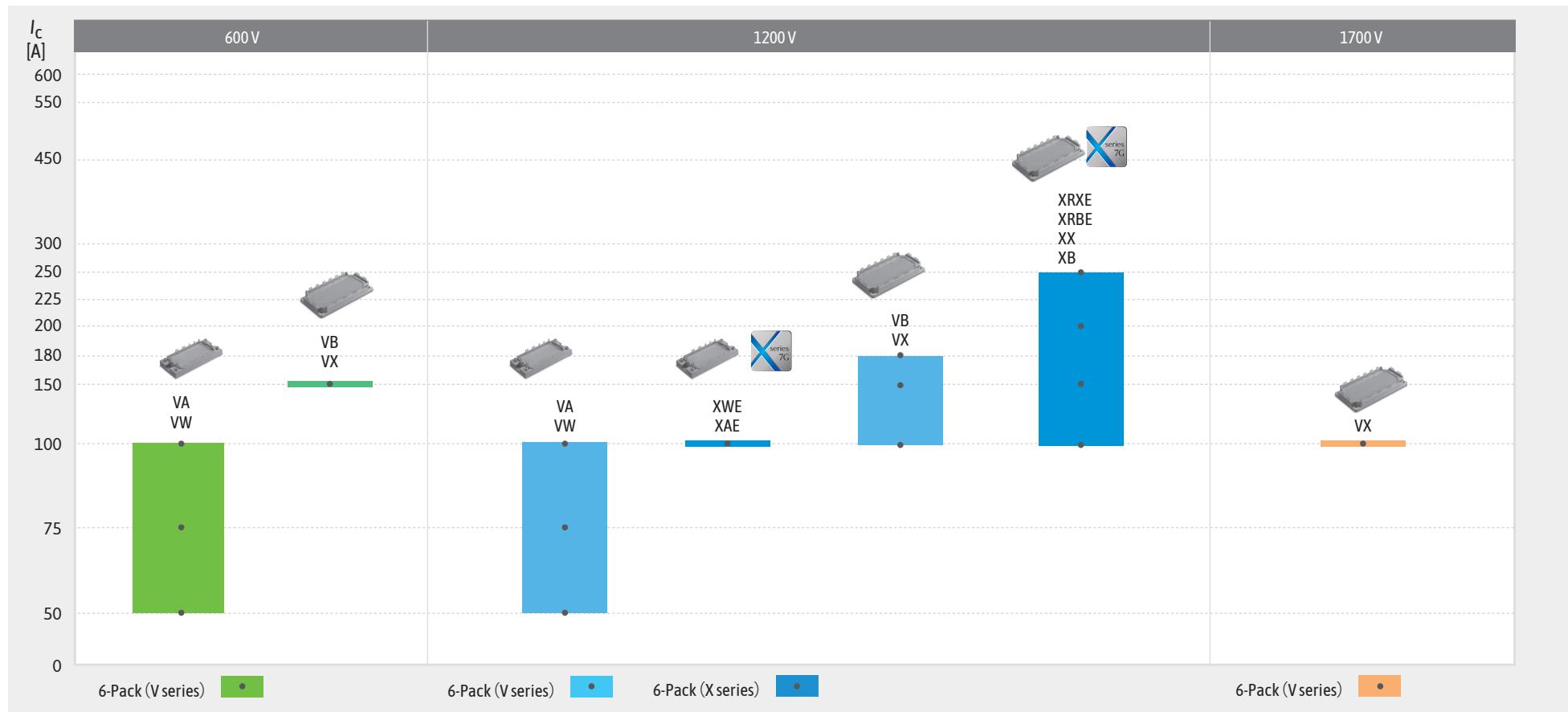
Note:
EconoPIM™ is registered trademark of
Infineon Technologies AG, Germany.



6-Pack Product Map

6MBI	I_c	IGBT series & Package type				Size	Page		
		Vseries		Xseries					
		Solder pins	Press fit pins	Solder pins	Press fit pins				
		VA	VW	XAE	XWE	45x107.5 mm	18		
		VB	VX	XB,XRBE	XX,XRXE	62x122 mm	18		

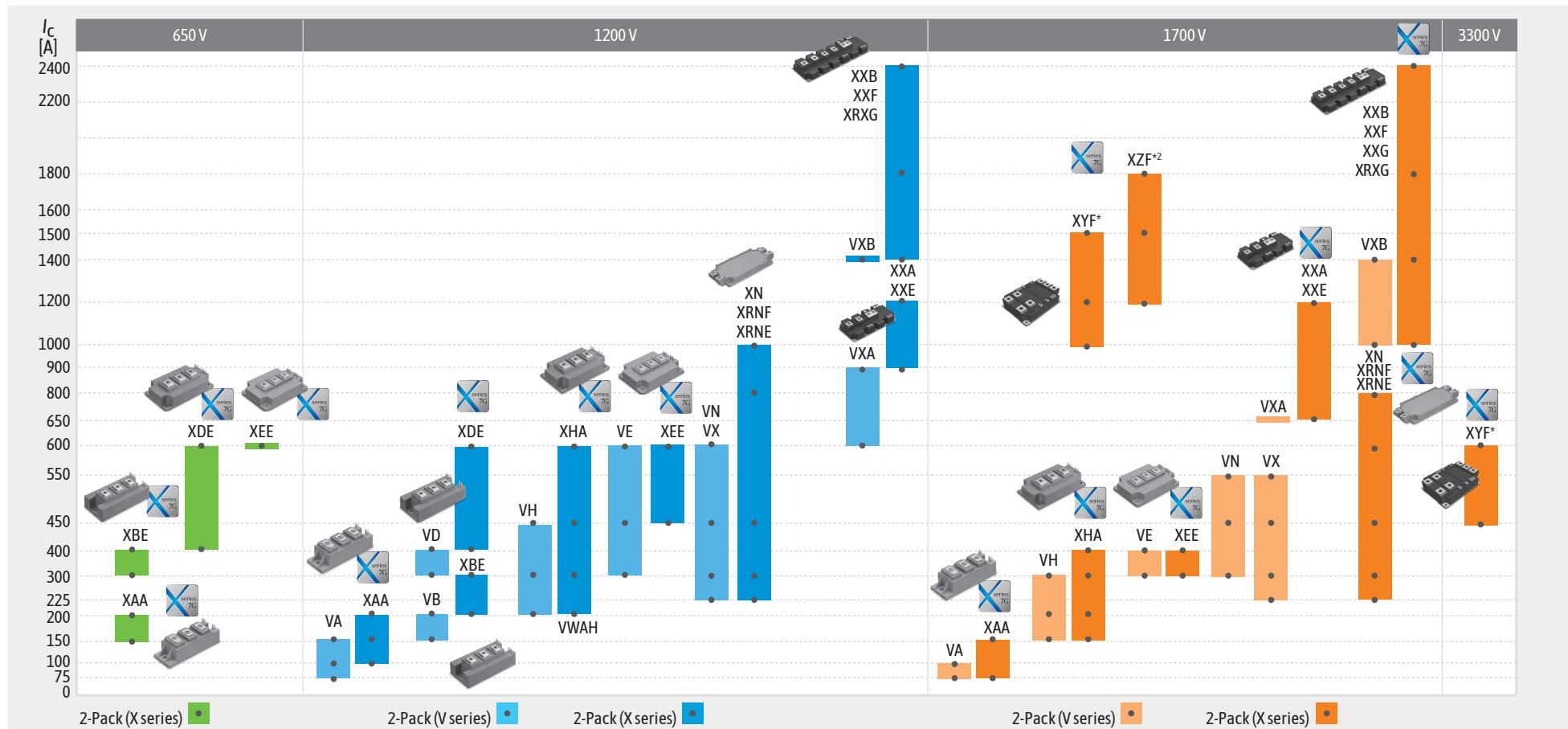
Note: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.



2-Pack Product Map

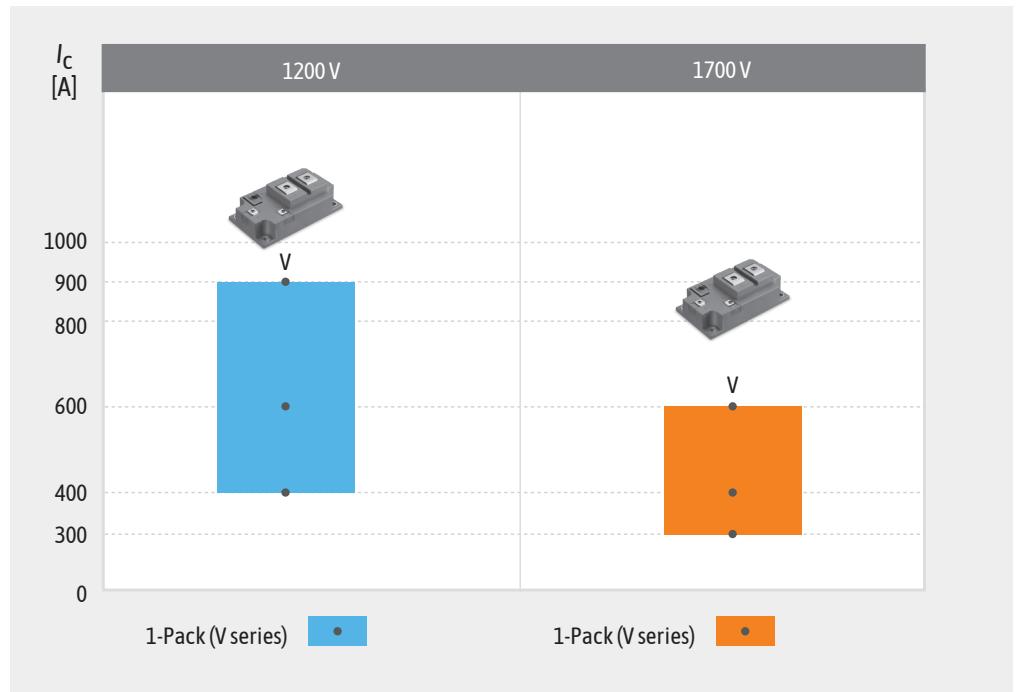
2MBI	I_c	IGBT series & Package type		Size		Page
		V series	X series			
	VA		XAA	34x94 mm	Standard Pack	20
	VB		XBE	45x92 mm		20
	VD		XDE	62x108 mm		20
	VE		XEE	80x110 mm		20
	VH, VWAH		XHA	62x108 mm	Dual XT	20
	VN, VX, VWAN	XN, XRNE, XRNF		62x150 mm		21
		XYF, XZF*		100x144 mm		23
	VXA	XXA, XXE		89x172 mm	HPnC	22/23
	VXB	XXB, XXF, XXG, XRXG		89x250 mm		22/23

Note:
PrimePACK™ is registered trademark
of Infineon Technologies AG, Germany
*Under development



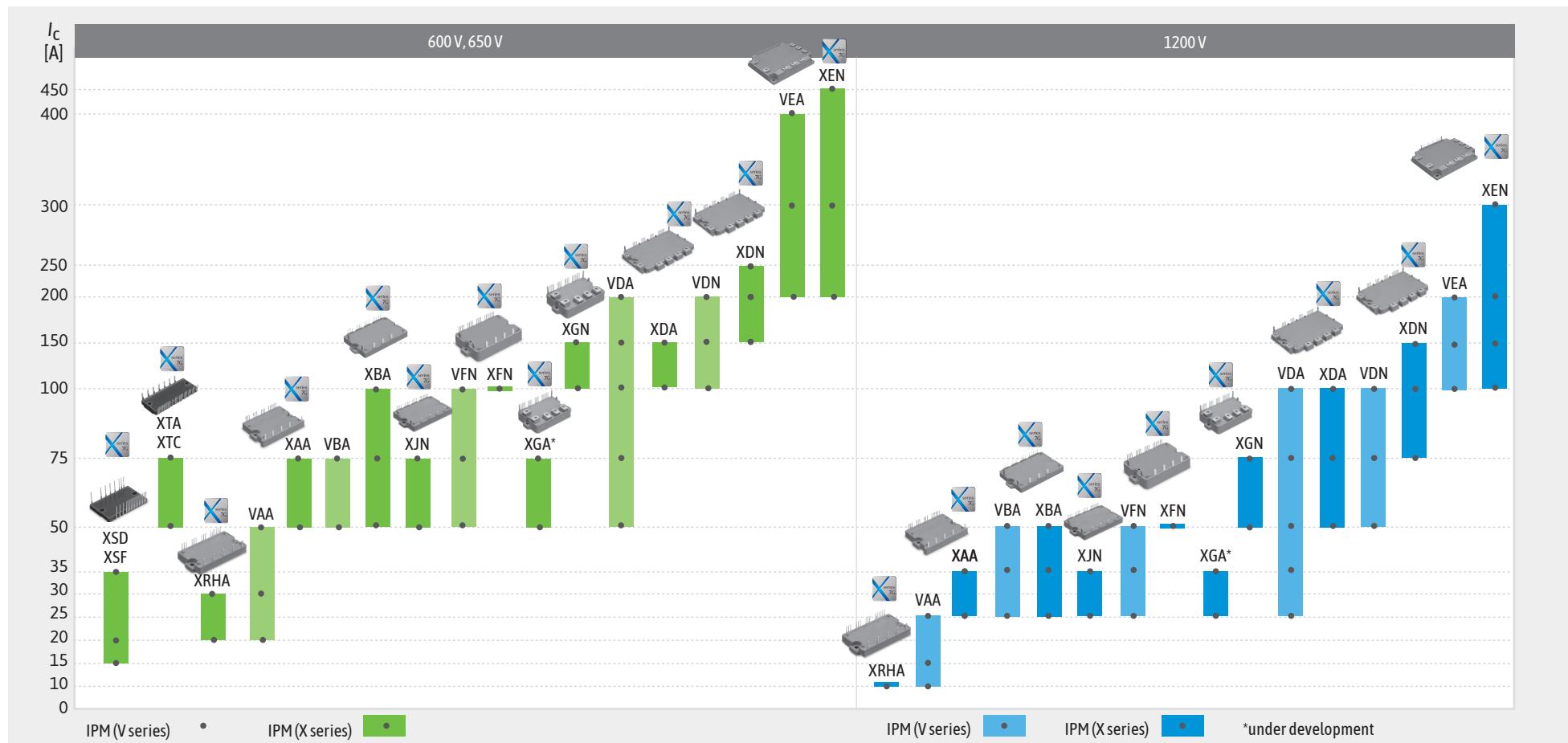
1-Pack Product Map

1MBI	I_C	IGBT series & Package type		Page
		V series	Size	
	V	62x108 mm	Standard Pack	19



IPM (Intelligent Power Modules) Product Map

6/7MBP	I_c [A]	IGBT series & Package type								Size	Page
		Vseries		Xseries		Vseries		Xseries			
						7 in 1	6 in 1	7 in 1	6 in 1		
				XSD, XSF					•	26 x 43 mm	27
				XTA, XTC					•	79 x 31 mm	27
				XRHA					•	36 x 70 mm	28
		VAA		XAA			•		•	49.5 x 70 mm	28
		VBA		XBA			•		•	50.2 x 87 mm	28
				XJN				•	•	50.2 x 87 mm	28
		VFN		XFN	•		•		•	55 x 90 mm	29
				XGA, XGN					•	55 x 90 mm	29
		VDA, VDN		XDA, XDN	•		•		•	84 x 128.5 mm	30
		VEA		XEN	•		•		•	110 x 142 mm	31



Small PIM (Power Integrated Modules)



I_C	650 V		1200 V	
	Xseries	Vseries	Xseries	Vseries
10 A	7MBR10XKA065-50	7MBR10VKA120-50	7MBR10XKA120-50	7MBR10XKA120-50
15 A	7MBR15XKA065-50	7MBR15VKA120-50	7MBR15XKA120-50	7MBR15XKA120-50
20 A	7MBR20XKA065-50			
25 A				7MBR25XKA120-50
30 A	7MBR30XKA065-50			
15 A		7MBR15VKB120-50	7MBR15XKB120-50	7MBR15XKB120-50
25 A		7MBR25VKB120-50	7MBR25XKB120-50	7MBR25XKB120-50
35 A		7MBR35VKB120-50	7MBR35XKB120-50	7MBR35XKB120-50
50 A	7MBR50XKB065-50			7MBR50XRKB120-50*
10 A	7MBR10XKC065-50	7MBR10VKC120-50	7MBR10XKC120-50	7MBR10XKC120-50
15 A	7MBR15XKC065-50	7MBR15VKC120-50	7MBR15XKC120-50	7MBR15XKC120-50
20 A	7MBR20XKC065-50			7MBR25XKC120-50
25 A				
30 A	7MBR30XKC065-50			
15 A		7MBR15VKD120-50	7MBR15XKD120-50	7MBR15XKD120-50
25 A		7MBR25VKD120-50	7MBR25XKD120-50	7MBR25XKD120-50
35 A		7MBR35VKD120-50	7MBR35XKD120-50	7MBR35XKD120-50
50 A	7MBR50XKD065-50			7MBR50XRKD120-50*

* RC-IGBT

PIM (Power Integrated Modules) EconoPIM™

With NTC, solder pins. PIM

I_C	650V		1200V	
	Xseries	Xseries	Vseries	Xseries
25 A			7MBR25VA120-50	
35 A			7MBR35VA120-50	
35 A			7MBR35VB120-50	
50 A			7MBR50VB120-50	
75 A			7MBR75VB120-50	
25 A			7MBR25VM120-50	
35 A			7MBR35VM120-50	7MBR35XMA120-50
50 A	7MBR50XMA065-50		7MBR50VM120-50	7MBR50XMA120-50
75 A	7MBR75XMA065-50			7MBR75XME120-50
50 A			7MBR50VN120-50	
75 A	7MBR75XNA065-50		7MBR75VN120-50	7MBR75XNA120-50
100 A	7MBR100XNA065-50		7MBR100VN120-50	7MBR100XNA120-50
150 A	7MBR150XNA065-50		7MBR150VN120-50	7MBR150XNE120-50
25 A			7MBR25VP120-50	
35 A			7MBR35VP120-50	7MBR35XPA120-50
50 A	7MBR50XPA065-50		7MBR50VP120-50	7MBR50XPA120-50
75 A	7MBR75XPA065-50			7MBR50XPE120-50
100 A	7MBR100XPE065-50			7MBR75XPE120-50
50 A			7MBR50VR120-50	
75 A			7MBR75VR120-50	7MBR75XRA120-50
				7MBR75XRE120-50
100 A	7MBR100XRA065-50		7MBR100VR120-50	7MBR100XRA120-50
				7MBR100XRE120-50
150 A	7MBR150XRA065-50		7MBR150VR120-50	7MBR150XRE120-50

Note 1: Pin assignment of output terminals changes within the range of colored position depending on output current.

Note 2: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

PIM (Power Integrated Modules) EconoPIM™

<i>I_C</i>	650 V	1200 V	
	Xseries 	Vseries	Xseries 
25 A		7MBR25VW120-50	
35 A		7MBR35VW120-50	7MBR35XWA120-50
50 A	7MBR50XWA065-50	7MBR50VW120-50	7MBR50XWA120-50
75 A	7MBR75XWA065-50		7MBR75XWE120-50
50 A		7MBR50VX120-50	
75 A	7MBR75XXA065-50	7MBR75VX120-50	7MBR75XXA120-50
100 A	7MBR100XXA065-50	7MBR100VX120-50	7MBR100XXA120-50
150 A	7MBR150XXA065-50	7MBR150VX120-50	7MBR150XXE120-50
25 A		7MBR25VY120-50	
35 A		7MBR35VY120-50	7MBR35XYA120-50
50 A	7MBR50XYA065-50	7MBR50VY120-50	7MBR50XYA120-50
75 A	7MBR75XYA065-50		7MBR75XYE120-50
100 A	7MBR100XYE065-50		
50 A		7MBR50VZ120-50	
75 A		77MBR75VZ120-50	7MBR75XZA120-50
100 A	7MBR100XZA065-50	7MBR100VZ120-50	7MBR100XZA120-50
150 A	7MBR150XZA065-50	7MBR150VZ120-50	7MBR150XZE120-50

Note 1: Pin assignment of output terminals changes within the range of colored position depending on output current.

Note2: EconoPIM™ is registered trademark of Infineon Technologies AG, Germany.

6-Pack EconoPACK™

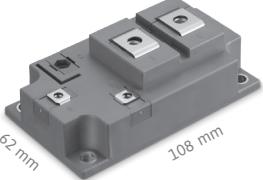
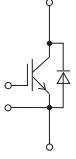
	I_C	600 V Vseries	1200 V Vseries	1200 V Xseries	X series 7G	1700 V Vseries
With NTC, solder pins	50 A	6MBI50VA-060-50	6MBI50VA-120-50			
	75 A	6MBI75VA-060-50	6MBI75VA-120-50			
V: M636, X: M669 Solder Pins	100 A	6MBI100VA-060-50	6MBI100VA-120-50	6MBI100XAE120-50		
	100 A					
	150 A		6MBI100VB-120-50	6MBI100XBA120-50		
	180 A		6MBI150VB-060-50	6MBI150VB-120-50	6MBI150XBA120-50	
V: M633, X: M668 Solder Pins	200 A		6MBI180VB-120-50	6MBI180VB-120-55* ¹		
	250 A				6MBI200XBA120-50	
					6MBI200XBE120-50	
					6MBI250XRBE120-50* ²	
With NTC, press fit pins	50 A	6MBI50VW-060-50	6MBI50VW-120-50			
M647 Press fit Pins	75 A	6MBI75VW-060-50	6MBI75VW-120-50			
	100 A	6MBI100VW-060-50	6MBI100VW-120-50	6MBI100XWE120-50		
	100 A					
	150 A		6MBI100VX-120-50	6MBI100XXA120-50	6MBI100VX-170-50	
M648 Press fit Pins	150 A	6MBI150VX-060-50	6MBI150VX-120-50	6MBI150XXA120-50		
	180 A		6MBI180VX-120-50	6MBI180VX-120-55		
	200 A			6MBI200XXA120-50		
	250 A			6MBI200XXE120-50		
				6MBI250XRXE120-50* ²		

Note: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

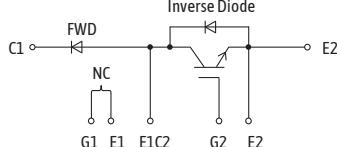
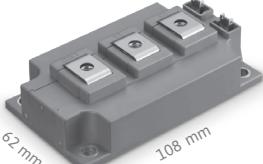
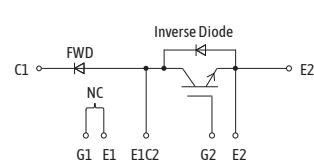
*¹) 6MBI180VB-120-55, 6MBI180VX-120-55; 6MBI200XBE120-50; 6MBI200XXE120-50 ; Premium type (Low Thermal Impedance Version)

*²) RC-IGBT

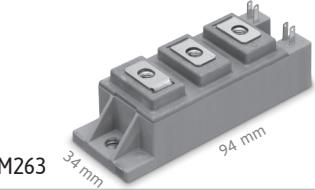
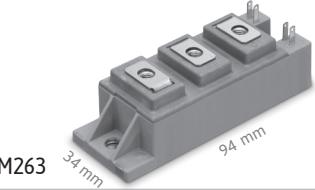
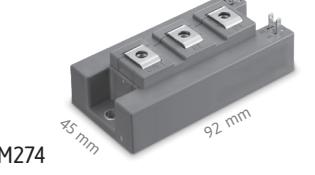
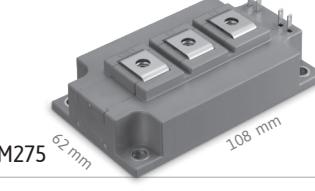
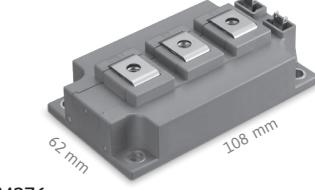
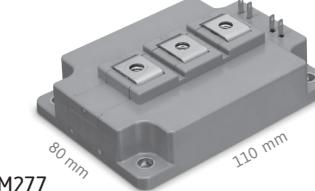
Standard 1-Pack

1-Pack	M153	 	1200 V			1700 V
			V series		V series	
			I_C	Aluminium oxide DCB	Aluminium nitride DCB	Aluminium oxide DCB
			300 A			1MBI300V-170-50
			400 A	1MBI400V-120-50	1MBI400VF-120-50	1MBI400V-170-50
			600 A	1MBI600V-120-50	1MBI600VF-120-50	1MBI600V-170-50
			900 A	1MBI900V-120-50		

Standard Chopper

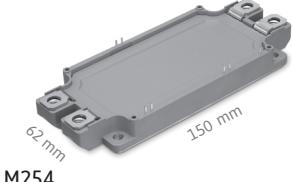
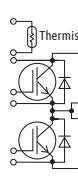
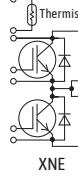
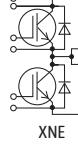
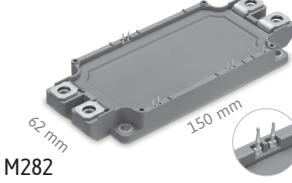
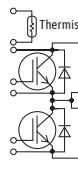
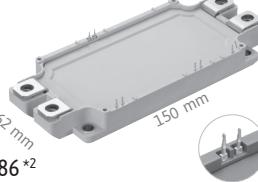
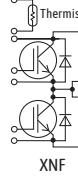
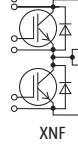
Chopper	M262	 	600 V		1200 V
			I_C	V series	V series
			50 A		
			75 A		
			100 A		
			150 A		1MBI150VA-120L-50
			200 A		1MBI200VA-120L-50
Chopper	M283	 	400 A	1MBI400VH-060L-50	

Standard 2-Pack

2-Pack		I _C	650 V	Xseries	1200 V	Vseries	Xseries	1700 V	Xseries
			Xseries		Vseries		Vseries		
M263	 34 mm 94 mm	75 A			2MBI75VA-120-50			2MBI75VA-170-50	2MBI75XAA170-50
		100 A			2MBI100VA-120-50	2MBI100XAA120-50		2MBI100VA-170-50	2MBI100XAA170-50
		150 A	2MBI150XAA065-50		2MBI150VA-120-50	2MBI150XAA120-50			2MBI150XAA170-50
		200 A	2MBI200XAA065-50				2MBI200XAA120-50		
	 45 mm 92 mm	150 A			2MBI150VB-120-50				
		200 A			2MBI200VB-120-50	2MBI200XBE120-50			
		300 A	2MBI300XBE065-50				2MBI300XBE120-50		
		400 A	2MBI400XBE065-50						
	 62 mm 108 mm	300 A			2MBI300VD-120-50				
		400 A	2MBI400XDE065-50		2MBI400VD-120-50	2MBI400XDE120-50			
		600 A	2MBI600XDE065-50				2MBI600XDE120-50		
M276	 62 mm 108 mm	150 A						2MBI150VH-170-50	2MBI150XHA170-50
		200 A			2MBI200VH-120-50			2MBI200VH-170-50	2MBI200XHA170-50
		300 A			2MBI300VH-120-50	2MBI300XHA120-50		2MBI300VH-170-50	2MBI300XHA170-50
		400 A							2MBI400XHA170-50
		450 A			2MBI450VH-120-50	2MBI450XHA120-50			
		600 A					2MBI600XHA120-50		
	 80 mm 110 mm	300 A			2MBI300VE-120-50			2MBI300VE-170-50	2MBI300XEE170-50
		400 A						2MBI400VE-170-50	2MBI400XEE170-50
		450 A			2MBI450VE-120-50	2MBI450XEE120-50			
		600 A	2MBI600XEE065-50		2MBI600VE-120-50	2MBI600XEE120-50			

AC-Switch^{*1}

Standard 2-Pack

I _C	1200 V			1700 V					
	Vseries	Vseries with SiN-substrate ^{*1}	Xseries 	Vseries	Vseries with SiN-substrate ^{*1}	Xseries 			
With NTC, solder pins	M254	 62 mm 150 mm	 Thermistor	225 A 2MBI225VN-120-50	2MBI225VN-120S-50	2MBI225XNA120-50			2MBI225XNA170-50
				300 A 2MBI300VN-120-50	2MBI300VN-120S-50	2MBI300XNA120-50	2MBI300VN-170-50		2MBI300XNA170-50
				450 A 2MBI450VN-120-50	2MBI450VN-120S-50	2MBI450XNA120-50	2MBI450VN-170-50		2MBI450XNA170-50
				550 A				2MBI550VN-170-50 ^{*1}	
				600 A	2MBI600VN-120-50	2MBI600XNG120-50 ^{*1}			2MBI600XNG170-50 ^{*1}
	M285 ^{*2}	 62 mm 150 mm	 Thermistor	600 A		2MBI600XNE120-50 ^{*2}			2MBI600XNE170-50 ^{*2}
			 Thermistor	800 A		2MBI800XNE120-50 ^{*2}			2MBI800XRNE170-50 ^{*2,3}
				1000 A		2MBI1000XRNE120-50 ^{*2,3}			
	M282	 62 mm 150 mm	 Thermistor	225 A 2MBI225VX-120-50		2MBI225XNB120-50	2MBI225VX-170-50		2MBI225XNB170-50
				300 A 2MBI300VX-120-50		2MBI300XNB120-50	2MBI300VX-170-50		2MBI300XNB170-50
With NTC, press fit pins	M286 ^{*2}	 62 mm 150 mm	 Thermistor	450 A 2MBI450VX-120-50		2MBI450XNB120-50	2MBI450VX-170-50		2MBI450XNB170-50
			 Thermistor	550 A			2MBI550VX-170-50		
				600 A	2MBI600VX-120-50	2MBI600XNH120-50 ^{*1}			2MBI600XNH170-50 ^{*1}
				600 A		2MBI600XNF120-50 ^{*2}			2MBI600XNF170-50 ^{*2}
				800 A		2MBI800XNF120-50 ^{*2}			2MBI800XRNF170-50 ^{*2,3}
				1000 A		2MBI1000XRNF120-50 ^{*2,3}			

^{*1) Low thermal impedance version}

^{*2) Low thermal impedance and high tracking capability type}

^{*3) RC-IGBT}

I _C	1200 V				1700 V			
	Vseries		Xseries	Vseries	Xseries		Xseries	
	Low switching loss	Soft turn off		Low switching loss	Soft turn off			
M271	600 A	2MBI600VXA-120E-50 2MBI600VXA-120E-54						
	650 A				2MBI650VXA-170E-50 2MBI650VXA-170E-54 2MBI650VXA-170EA-50 2MBI650VXA-170EA-54		2MBI650XXA170-50	
	900 A	2MBI900VXA-120E-50 2MBI900VXA-120E-54	2MBI900VXA-120P-50 2MBI900VXA-120P-54	2MBI900XXA120P-50				
	1200 A			2MBI1200XXE120P-50			2MBI1200XXE170-50	
2-Pack	1000 A				2MBI1000VXB-170E-50 2MBI1000VXB-170E-54 2MBI1000VXB-170EA-50 2MBI1000VXB-170EA-54		2MBI1000XXB170-50	
M272	1400 A	2MBI1400VXB-120E-50 2MBI1400VXB-120E-54	2MBI1400VXB-120P-50 2MBI1400VXB-120P-54	2MBI1400XXB120P-50	2MBI1400VXB-170E-50 2MBI1400VXB-170E-54	2MBI1400VXB-170P-50 2MBI1400VXB-170P-54	2MBI1400XXB170-50	
	1800 A			2MBI1800XXF120P-50			2MBI1800XXF170-50	
M291	1800 A						2MBI1800XXG170-50	
	2400 A			2MBI2400XRXG120-50 ^{*1,2}			2MBI2400XRXG170-50 ^{*1,2}	

Note 1: The products with 'EA' on this page have large FWD.

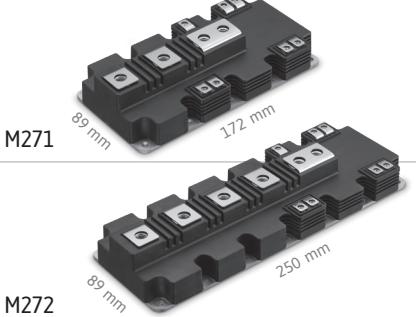
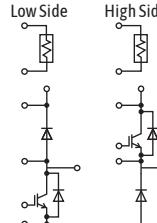
Note 2: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

Note 3: The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_f.

^{*1)} Under development

^{*2)} RC-IGBT

PrimePACK™

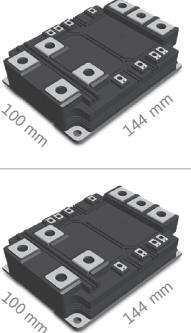
Chopper		 M271 89 mm 172 mm M272 89 mm 250 mm	 Low Side High Side		1200 V		1700 V	
					V series		V series	
					Low side configuration	High side configuration	Low side configuration	High side configuration
					650 A		1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
					900 A	1MBI900VXA-120PD-50* ¹	1MBI900VXA-120PC-50* ¹	1MBI900VXA-120EL-54* ²
						1MBI900VXA-120PD-54* ²	1MBI900VXA-120PC-54* ²	1MBI900VXA-170EH-54* ²
					1000 A		1MBI1000VXB-170EL-50	1MBI1000VXB-170EH-50
					1400 A	1MBI1400VXB-120PL-54* ²	1MBI1400VXB-120PH-54* ²	1MBI1400VXB-170PL-50
							1MBI1400VXB-170PL-54* ²	1MBI1400VXB-170PH-50
								1MBI1400VXB-170PH-54* ²

Note: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.

*¹) Antiparallel diode current rating is 120 A. Application circuit is Boost/Buck chopper only.

*²) The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_f .

High Power next Core (HPnC)

2-Pack		 M297*^{1,2} 100 mm 144 mm M298*^{1,3} 100 mm 144 mm	 Low Side High Side		1700 V		3300 V	X series 7th generation
					X series			
					7th generation			
					450 A		2MBI450XYF330-50* ¹	
					600 A		2MBI600XYF330-50* ¹	
					1000 A	2MBI1000XYF170-50* ¹		
					1200 A	2MBI1200XYF170-50* ¹		
					1500 A	2MBI1500XYF170-50* ¹		
					1200 A	2MBI1200XZF170-50* ¹		
					1500 A	2MBI1500XZF170-50* ¹		
					1800 A	2MBI1800XZF170-50* ¹		

*¹) Under development

*²) Traction variant with MgSiC baseplate

*³) Industrial variant with Cu baseplate

Silicon Carbide (SiC) Modules

		I_C	1200V		1700V
			SiCMOSFET		
with solder pins	M293	50 A 75 A 100 A 150 A	2CSI50DAKC120-50* 2CSI75DAKC120-50* 2CSI100DAKC120-50*		
	M697	50 A 75 A 100 A 150 A		6CSI50DAKC20-50*	
with solder pins	M294	50 A 75 A 100 A 150 A 200 A		2CSI100DAKD120-50* 2CSI150DAKD120-50* 2CSI200DAKD120-50*	
	M680	50 A 75 A 100 A 150 A 200 A		6CSI50DAKD120-50* 6CSI75DAKD120-50* 6CSI100DAKD120-50*	
EconoPack™ 6 in 1	M669	50 A 75 A 100 A 150 A 200 A 100 A 150 A 200 A 300 A 400 A 450 A 600 A 750 A		6CSI50DAAA120-50* 6CSI75DAAA120-50* 6CSI100DAAA120-50* 6CSI150DAAA120-50*	
62mm STD 2 in 1	M295			2CSI200DAHE170-50* 2CSI300DAHE170-50* 2CSI400DAHE170-50*	

* Under development

Silicon Carbide (SiC) Modules



I _C	1700 V	3300 V
	SiCMOSFET	SiCMOSFET
750 A		2CI750DYF330-50 ^{*1}
1500 A	2CI1500DYF170-50 ^{*1}	
1000 A	2CI1000DZF170-50 ^{*1}	
1500 A	2CI1500DZF170-50 ^{*1}	
1800 A	2CI1800DZF170-50 ^{*1}	

2-Pack

M297^{*2}: Dimensions 100 mm x 144 mm. Schematic diagram shows a half-bridge circuit with two SiCMOSFETs and anti-parallel diodes.

M298^{*3}: Dimensions 100 mm x 144 mm. Schematic diagram shows a half-bridge circuit with two SiCMOSFETs and anti-parallel diodes.

^{*1)} Under development

^{*2)} Traction variant with MgSiC baseplate

^{*3)} Industrial variant with Cu baseplate

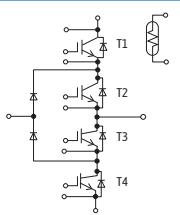
Advanced T-type NPC 3-Level Modules

		I_C	1200 V		1700 V		
			V series	RB-IGBT	V series	RB-IGBT	
3 Phase With NTC, solder pins	M1203	50 A 75 A 100 A	12MBI50VN-120-50 12MBI75VN-120-50 12MBI100VN-120-50	600 V 600 V 600 V			
	M1202	50 A 75 A 100 A	12MBI50VX-120-50 12MBI75VX-120-50 12MBI100VX-120-50	600 V 600 V 600 V			
	M403	220 A 300 A 340 A 400 A	T3 T4 RB-IGBT T1 T2		4MBI220VG-170R2-50 4MBI300VG-120R-50 4MBI300VG-120R1-50 4MBI340VF-120R-50 4MBI400VF-120R-50 ^{*1} 4MBI400VG-060R-50	1200 V	
1 Phase	M404	450 A 600 A 650 A 900 A	T2 T3 RB-IGBT T1 T4	4MBI450VB-120R1-50 4MBI450VB-120R1-60 ^{*4} 4MBI600VB-170R2-50 4MBI600VB-170R2-60 ^{*4} 4MBI650VB-120R1-50 4MBI650VB-120R1-60 ^{*4} 4MBI900VB-120R1-50 4MBI900VB-120R1-60 ^{*4} 4MBI900VB-120RA-50 4MBI900VB-120RA-60 ^{*4}	900 V 900 V 900 V 900 V 900 V 900 V 900 V 900 V	4MBI450VB-170R2-50 4MBI450VB-170R2-60 ^{*4} 4MBI600VB-170R2-50 4MBI600VB-170R2-60 ^{*4} 4MBI650VB-120R1-50 4MBI650VB-120R1-60 ^{*4} 4MBI900VB-120R1-50 4MBI900VB-120R1-60 ^{*4} 4MBI900VB-120RA-50 4MBI900VB-120RA-60 ^{*4}	1200 V 1200 V 1200 V 1200 V

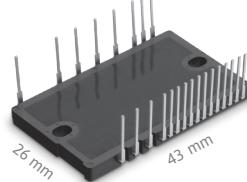
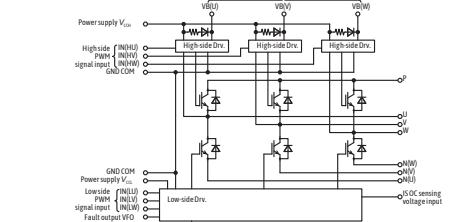
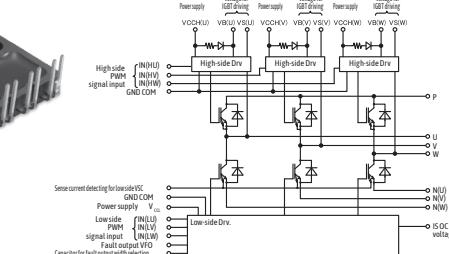
Note: AT-NPC (Advanced T-type Neutral-Point-Clamped) 3-level Module integrates RB-IGBT (Reverse Blocking-IGBT) in addition to ordinary IGBT and FWD in single package.

^{*1)} Particular for Inverter of UPS or PCS ^{*2)} Particular for Converter of UPS ^{*3)} Under development ^{*4)} The products with suffix '-60' on this page are labeled to specify the rank of V_{sat} and V_F .

I-type NPC 3-Level Module

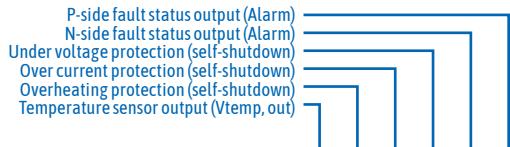
1 Phase	M404	89 mm 250 mm		I_C	1200 V	1700 V
					Vseries	Vseries
				600 A	4MBI600VC-120-50	

Small IPM (Intelligent Power Modules)

Small IPM with High Voltage Driver- I_C without Brake-Chopper	P633A	 			I_C	600 V	Xseries
						7G	
	P633A				15 A	6MBP15XSD060-50	
	P633A				20 A	6MBP20XSD060-50	
	P633A				30 A	6MBP30XSD060-50	
	P633A				35 A	6MBP35XSD060-50	
	P633A				15 A	6MBP15XSF060-50	
	P633A				20 A	6MBP20XSF060-50	
	P633A				30 A	6MBP30XSF060-50	
	P633A				35 A	6MBP35XSF060-50	
	P633A				50 A	6MBP50XTA065-50	
	P633A				75 A	6MBP75XTA065-50	
	P642				50 A	6MBP50XTC065-50	
	P642				75 A	6MBP75XTC065-50	

IPM (Intelligent Power Modules)

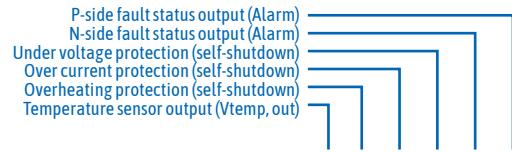
Built-in protection functions



	I _C	600 V	650 V Xseries 7G	1200 V	
		V series	Xseries	V series	Xseries
Without Brake-Chopper	10 A				6MBP10XRHA120-50
	20 A			6MBP20XRHA065-50	
	30 A			6MBP30XRHA065-50	
	10 A				6MBP10VAA120-50
	15 A				6MBP15VAA120-50
	20 A	6MBP20VAA060-50			6MBP25VAA120-50
	25 A				6MBP35XAA120-50
	30 A	6MBP30VAA060-50			
	35 A				
	50 A	6MBP50VAA060-50	6MBP50XAA065-50		
With Brake-Chopper	75 A		6MBP75XAA065-50		
	25 A			6MBP25VBA120-50	6MBP25XBA120-50
	35 A			6MBP35VBA120-50	6MBP35XBA120-50
	50 A	6MBP50VBA060-50	6MBP50XBA065-50	6MBP50VBA120-50	6MBP50XBA120-50
	75 A	6MBP75VBA060-50	6MBP75XBA065-50		
	100 A			6MBP100XBA065-50	
	25 A				7MBP25XJN120-50
	35 A				7MBP35XJN120-50
	50 A		7MBP50XJN065-50		
	75 A		7MBP75XJN065-50		

IPM (Intelligent Power Modules)

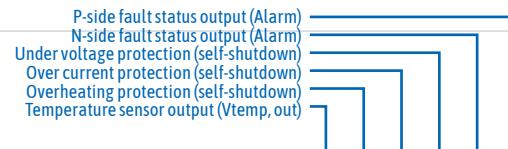
Built-in protection functions



			600V Ic Vseries	650V Xseries Xseries 7G	1200V Vseries Xseries Xseries 7G	
Without Brake -Chopper	6MBP□XFN□-50	Supply voltage V_{CC}				
		Signal input V_{INU}				
		GND U				
		Supply voltage V_{CC}				
		Signal input V_{INZ}				
	6MBP□VFN□-50	Supply voltage V_{CC}				
		Signal input V_{INU}				
		GND U				
		Supply voltage V_{CC}				
		Signal input V_{INZ}				
With Brake- Chopper	7MBP□XFN□-50	Supply voltage V_{CC}				
		Signal input V_{INU}				
		GND U				
		Supply voltage V_{CC}				
		Signal input V_{INB}				
	7MBP□VFN□-50	Supply voltage V_{CC}				
		Signal input V_{INP}				
		GND U				
		Supply voltage V_{CC}				
		Signal input V_{INB}				
P636		55 mm	90 mm			
Without Brake -Chopper	P636	Supply voltage V_{CC}				
		Signal input V_{INU}				
		GND U				
		Supply voltage V_{CC}				
		Signal input V_{INZ}				
		Supply voltage V_{CC}				
		Signal input V_{INB}				
		GND U				
P638						
55 mm						
90 mm						

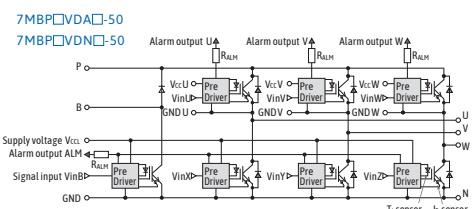
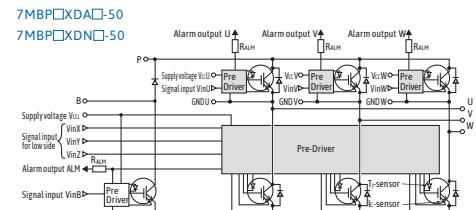
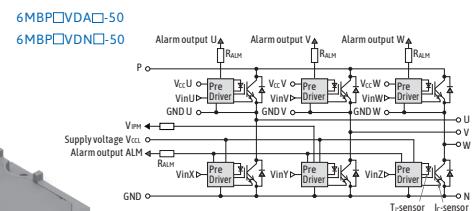
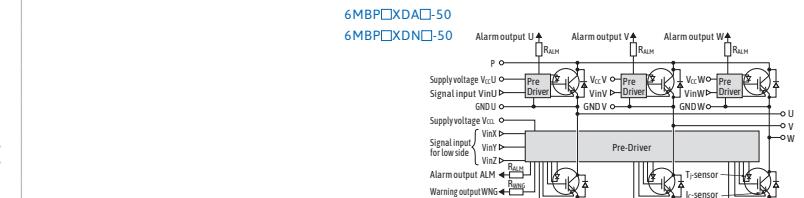
IPM (Intelligent Power Modules)

Built-in protection functions

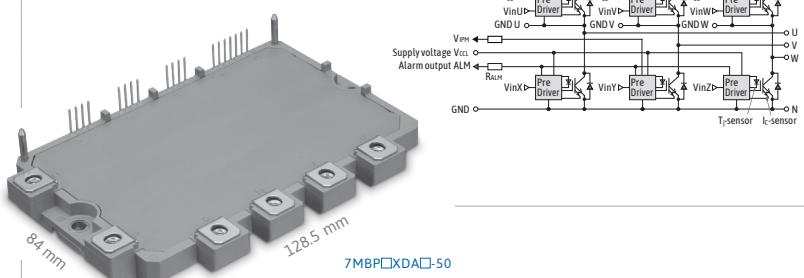


I _C	600 V	650 V Xseries ^{7G}	1200 V	
	Vseries	Xseries	Vseries	Xseries
25 A			6MBP25VDA120-50	
35 A			6MBP35VDA120-50	
50 A	6MBP50VDA060-50		6MBP50VDA120-50	6MBP50XDA120-50
			6MBP50VDN120-50	
75 A	6MBP75VDA060-50		6MBP75VDA120-50	6MBP75XDA120-50
			6MBP75VDN120-50	6MBP75XDN120-50
100 A	6MBP100VDA060-50	6MBP100XDA065-50	6MBP100VDA120-50	6MBP100XDA120-50
	6MBP100VDN060-50		6MBP100VDN120-50	6MBP100XDN120-50
150 A	6MBP150VDA060-50	6MBP150XDA065-50		
	6MBP150VDN060-50	6MBP150XDN065-50		6MBP150XDN120-50
200 A	6MBP200VDA060-50			
	6MBP200VDN060-50	6MBP200XDN065-50		
250 A			6MBP250XDN065-50	
			7MBP25VDA120-50	
25 A			7MBP35VDA120-50	
35 A			7MBP50VDA120-50	7MBP50XDA120-50
			7MBP50VDN120-50	
75 A	7MBP75VDA060-50		7MBP75VDA120-50	7MBP75XDA120-50
			7MBP75VDN120-50	7MBP75XDN120-50
100 A	7MBP100VDA060-50	7MBP100XDA065-50	7MBP100VDA120-50	7MBP100XDA120-50
	7MBP100VDN060-50		7MBP100VDN120-50	7MBP100XDN120-50
150 A	7MBP150VDA060-50	7MBP150XDA065-50		
	7MBP150VDN060-50	7MBP150XDN065-50		7MBP150XDN120-50
200 A	7MBP200VDA060-50			
	7MBP200VDN060-50	7MBP200XDN065-50		
250 A			7MBP250XDN065-50	

Without Brake-Chopper



With Brake-Chopper



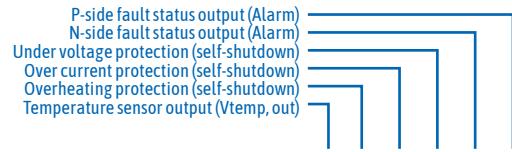
P630

Note 1: The products with 'VDN'/'XDN' on this page have high heat dissipation characteristics.

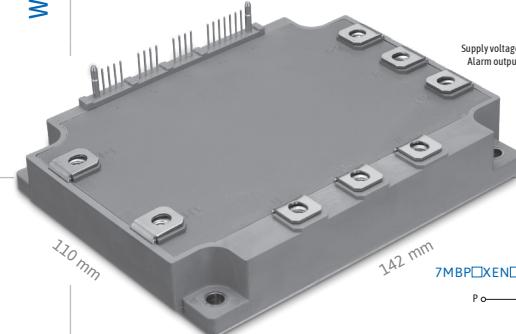
Note 1: The products with 'VDN' on this page have high heat dissipation characteristics.

IPM (Intelligent Power Modules)

Built-in protection functions



	I _C	600 V	650 V Xseries 7G	1200 V Xseries 7G	
		Vseries	Xseries	Vseries	Xseries
Without Brake-Chopper	100A			6MBP100VEA120-50	6MBP100XEN120-50
	150A			6MBP150VEA120-50	6MBP150XEN120-50
	200A	6MBP200VEA060-50	6MBP200XEN065-50*	6MBP200VEA120-50	6MBP200XEN120-50
	300A	6MBP300VEA060-50	6MBP300XEN065-50*		6MBP300XEN120-50
	400A	6MBP400VEA060-50	6MBP450XEN065-50*		
	450A				
With Brake-Chopper	100A			7MBP100VEA120-50	7MBP100XEN120-50
	150A			7MBP150VEA120-50	7MBP150XEN120-50
	200A	7MBP200VEA060-50	7MBP200XEN065-50	7MBP200VEA120-50	7MBP200XEN120-50
	300A	7MBP300VEA060-50	7MBP300XEN065-50		7MBP300XEN120-50
	400A	7MBP400VEA060-50			
	450A		7MBP450XEN065-50		



6MBP□XEN□-50

6MBP□VEA□-50

7MBP□XEN□-50

7MBP□VEA□-50

7MBP□XEN□-50

P631

High Speed Modules

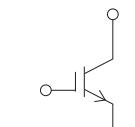
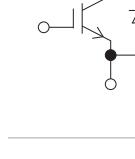
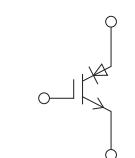
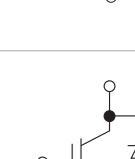
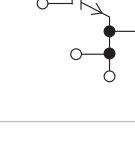


		Chopper	1200 V	
			I_C	High Speed IGBT
M249	62 mm	108 mm	Thermistor	200 A 1MBI200HH-120L-50
M233	45 mm	92 mm		300 A 1MBI300HH-120L-50
M249	62 mm	108 mm		400 A 1MBI400HH-120L-50
M276	62 mm	108 mm		100 A 2MBI100HB-120-50
				150 A 2MBI150HH-120-50
				200 A 2MBI200HH-120-50
				100 A 2MBI100HJ-120-50
				150 A 2MBI150HJ-120-50
				200 A 2MBI200HJ-120-50
				300 A 2MBI300HJ-120-50

Hybrid SiC Modules

	I_C	1200 V		1700 V	
		Vseries	VWseries	Vseries	Vseries
2-Pack	200 A				
	200 A				
	300 A	2MSI200VAH-120C-53	2MSI300VAH-120C-53		
	400 A			2MSI400VAE-170-53	
M274	200 A				
	300 A	2MSI300VAH-120C-53	2MSI300VAH-120C-53		
	400 A				
	600 A				
M276	200 A				
	300 A	2MSI300VAH-120C-53	2MSI300VAH-120C-53		
	400 A				
	600 A				
M277	200 A				
	300 A	2MSI300VAN-120-53			
	400 A	2MSI450VAN-120-53			
	600 A	2MSI600VAN-120-53			
M254	200 A				
	300 A				
	400 A				
	600 A				

Discrete IGBT

	I _C	600 V			650 V		1200 V			
		V series	High speed V series	RB series	High speed W series	XS series	V series	High speed V series	High speed W series	XS series
  	15 A							FGW15N120H		
	25 A								FGW25N120W	
	30 A				FGW30N65W	FGW30XS65		FGW30N120H		
	35 A	FGW35N60H			FGW40N65W	FGW40XS65		FGW40N120H	FGW40N120W	FGW40XS120
	40 A				FGW50N60H	FGW50N65W	FGW50XS65			
	50 A					FGW60N65W				
	60 A									
	75 A	FGW75N60H			FGW75N65W	FGW75XS65				FGW75XS120
	15 A						FGW15N120VD	FGW15N120HD		
	25 A						FGW25N120VD		FGW25N120WD/WE	
	30 A	FGW30N60VD				FGW30XS65		FGW30N120HD		
	35 A		FGW35N60HD/HC							
	40 A				FGW40N65WD/WE	FGW40XS65C	FGW40N120VD	FGW40N120HD	FGW40N120WD/WE	FGW40XS120C
	50 A	FGW50N60VD	FGW50N60HD/HC		FGW50N65WD/WE	FGW50XS65C/D				
	60 A				FGW60N65WD/WE					
	75 A		FGW75N60HD/HC		FGW75N65WE	FGW75XS65C/D				FGW75XS120C
	85 A			FGW85N60RB						
	40 A								FGZ40N120WE	
	50 A				FGZ50N65WD/WE					
	75 A				FGZ75N65WE	FGZ75XS65C				FGZ75XS120C

Recommended operating frequency

-10 kHz	-20 kHz	-40 kHz	-100 kHz
V/RB			
High speed V			
XS series		High speed W	

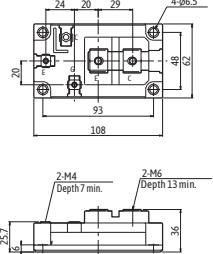
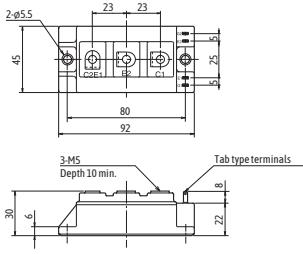
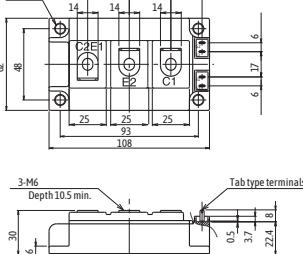
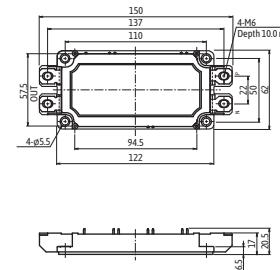
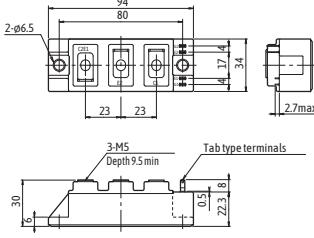
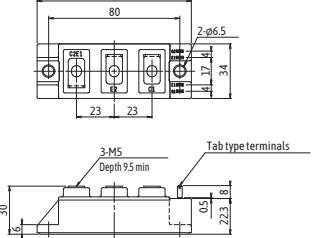
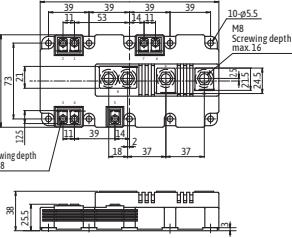
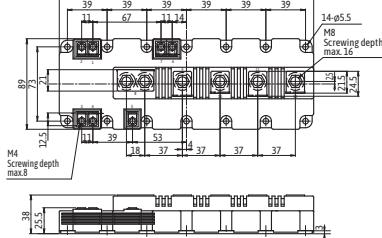
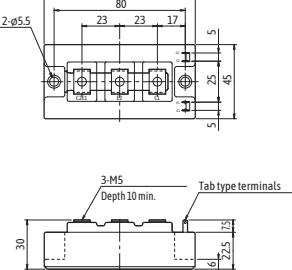
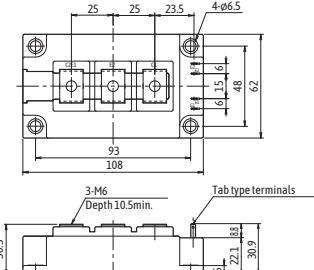
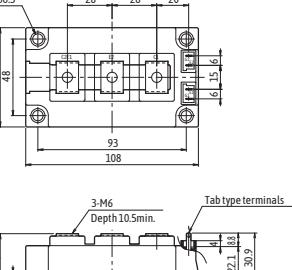
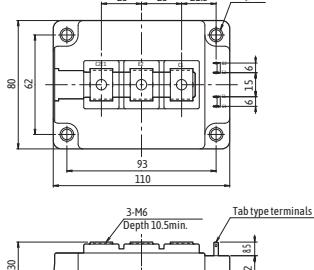
Rectifier Diode

I _C	Ultra-Fast Recovery Diodes			Soft Recovery - Fast Recovery Diodes	
	600 V		650 V	1200 V	
	15 A	FDRP15S60L			
TO-220	25 A	FDRP25S60L			
	30 A				
	75 A				
TO-247-P2	12 A				FDRW12S120J
	15 A	FDRW15S60L			
	20 A				FDRW20S120J
	25 A	FDRW25S60L			
	30 A				FDRW30S120J
	35 A	FDRW35S60L			
	40 A				FDRW40C120J
	50 A		FDRW50C60L		
	60 A				
TO-247-2-P2	70 A	FDRW70C60L			
	60 A	FDRW60T60L			
75 A					FDRW75T65L

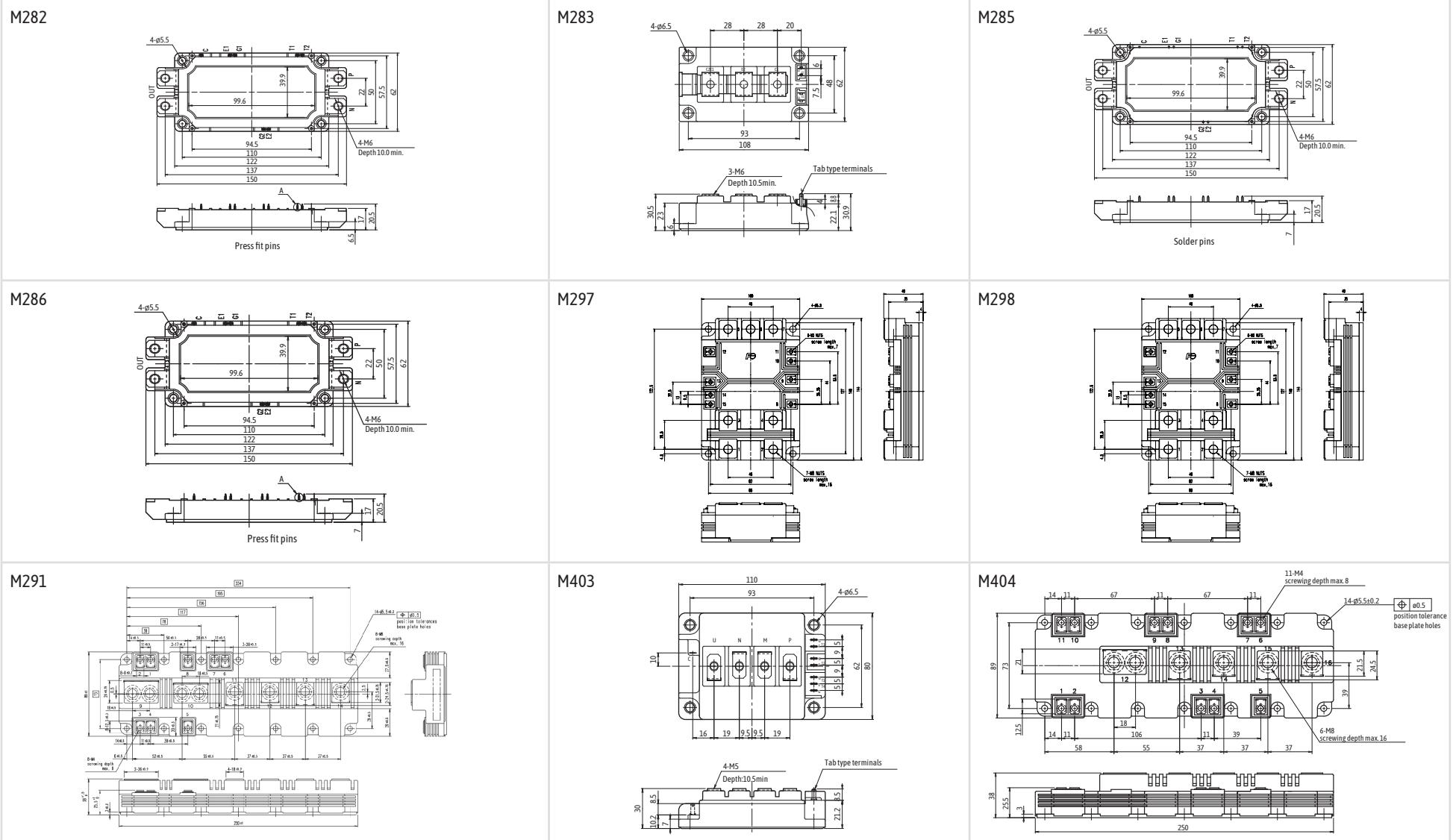
SiC-SBD

I _C	Ultra-Fast Recovery Diodes			Soft Recovery - Fast Recovery Diodes	
	650 V		1200 V		
10 A	FDCC10S65				
20 A		FDCC20C65			
25 A	FDCC25S65				
T-Pack(s)					
TO-220-2	10 A	FDCP10S65			
	25 A	FDCP25S65			
TO-220	20 A		FDCP20C65		
TO-220F	20 A		FDCA20C65		
TO-220F-2	10 A	FDCA10S65			
	18 A			FDCA18S120	
	25 A	FDCA25S65			
TO-247	10 A	FDCY10S65			
	18 A			FDCY18S120	
TO-247	20 A		FDCY20C65		
	25 A	FDCY25S65			
	36 A				FDCY36C120
	50 A			FDCY50C65	
TO-247-2-P2	18 A			FDCW18T120	

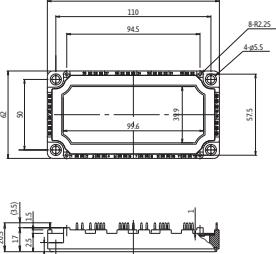
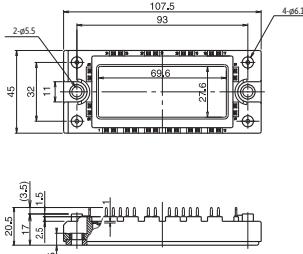
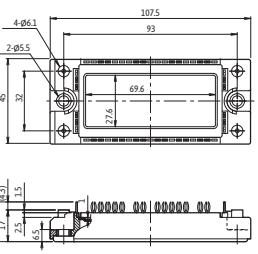
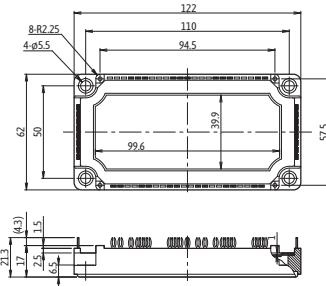
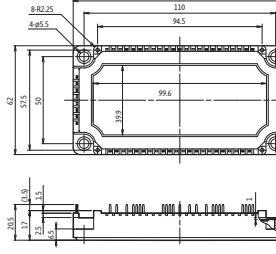
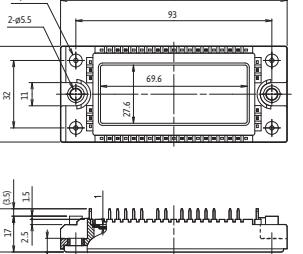
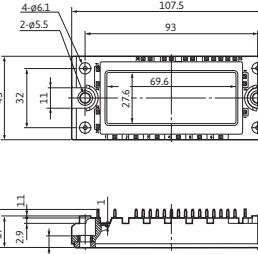
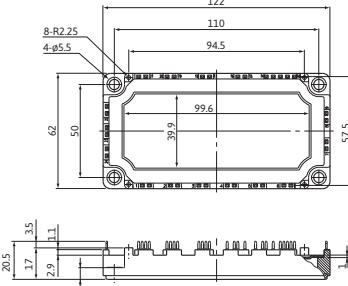
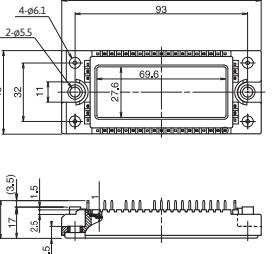
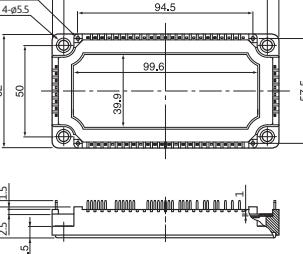
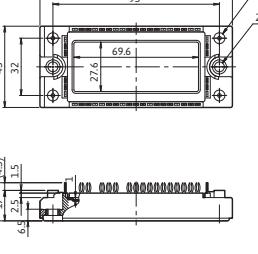
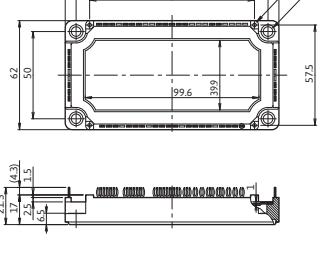
Package Outlines (in mm)

M153  <p>24 20 29 93 108 2-M4 Depth 7 min. 2-M6 Depth 13 min. 25.7 36 6 2.5</p>	M233  <p>2-ø5.5 23 23 45 80 92 5 3-M5 Depth 10 min. Tab type terminals 30 6 22 8</p>	M249  <p>4-ø6.5 28 28 21 14 14 14 25 25 25 93 108 6 17 6 ø48 C1 C2 C3 C4 3-M6 Depth 10.5 min. Tab type terminals 30 6 0.5 22.4 8 3.7</p>	M254  <p>150 137 110 110 94.5 122 4-ø5.5 52.5 50 4-M6 Depth 10.0 min. 1.7 2.5 3.5 3.5 1.7 20.5</p>
M262  <p>2-ø6.5 94 80 23 23 4-17 34 2.7 max 30 3-M5 Depth 9.5 min Tab type terminals 0.5 22.3 8</p>	M263  <p>94 80 23 23 2-ø6.5 34 3-M5 Depth 9.5 min Tab type terminals 30 6 22.3 8</p>	M271  <p>172 39 39 39 39 39 53 14 14 39 10-ø5.5 10-ø5.5 M4 Screwing depth max.8 M4 Screwing depth max.8 89 73 39 39 39 39 38 25.5 39 39 39 39 12.5 39 39 39 39 39 25.5 39 39 39 39 39 14-ø5.5 14-ø5.5 M8 Screwing depth max.8 M4 Screwing depth max.8</p>	M272  <p>250 39 39 39 39 39 39 39 67 11 14 39 39 39 12.5 39 39 39 39 39 39 25.5 39 39 39 39 39 39 14-ø5.5 14-ø5.5 M8 Screwing depth max.8 M4 Screwing depth max.8 38 25.5 39 39 39 39 39 12.5 39 39 39 39 39 39</p>
M274  <p>92 80 23 23 17 5 45 30 3-M5 Depth 10 min Tab type terminals 22.5 6</p>	M275  <p>25 25 23.5 4-ø6.5 93 108 6 15 48 30.5 3-M6 Depth 10.5 min Tab type terminals 22.1 30.9 6</p>	M276  <p>4-ø6.5 28 28 20 62 93 108 6 15 6 30.5 3-M6 Depth 10.5 min Tab type terminals 22.1 30.9 6</p>	M277  <p>25 25 21.5 4-ø6.5 80 62 93 110 6 15 6 30 3-M6 Depth 10.5 min Tab type terminals 22.2 30.5 7</p>

Package Outlines (in mm)



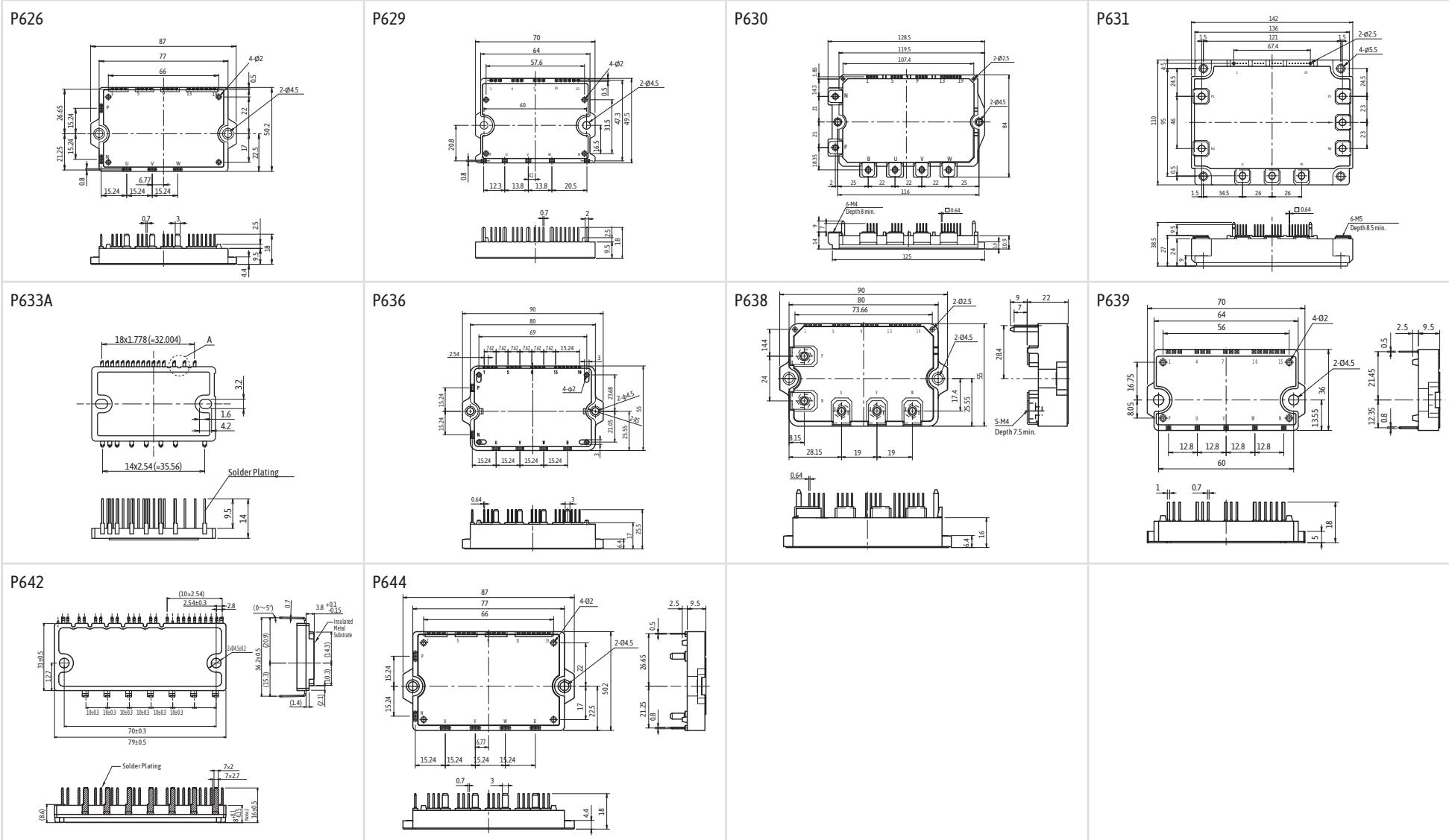
Package Outlines (in mm)

<p>M633</p>  <p>Solder pins</p>	<p>M636</p>  <p>Solder pins</p>	<p>M647</p>  <p>Press fit pins</p>	<p>M648</p>  <p>Press fit pins</p>
<p>M668</p>  <p>Solder pins</p>	<p>M669</p>  <p>Solder pins</p>	<p>M711</p>  <p>Solder pins</p>	<p>M712</p>  <p>Solder pins</p>
<p>M719</p>  <p>Solder pins</p>	<p>M720</p>  <p>Solder pins</p>	<p>M721</p>  <p>Press fit pins</p>	<p>M722</p>  <p>Press fit pins</p>

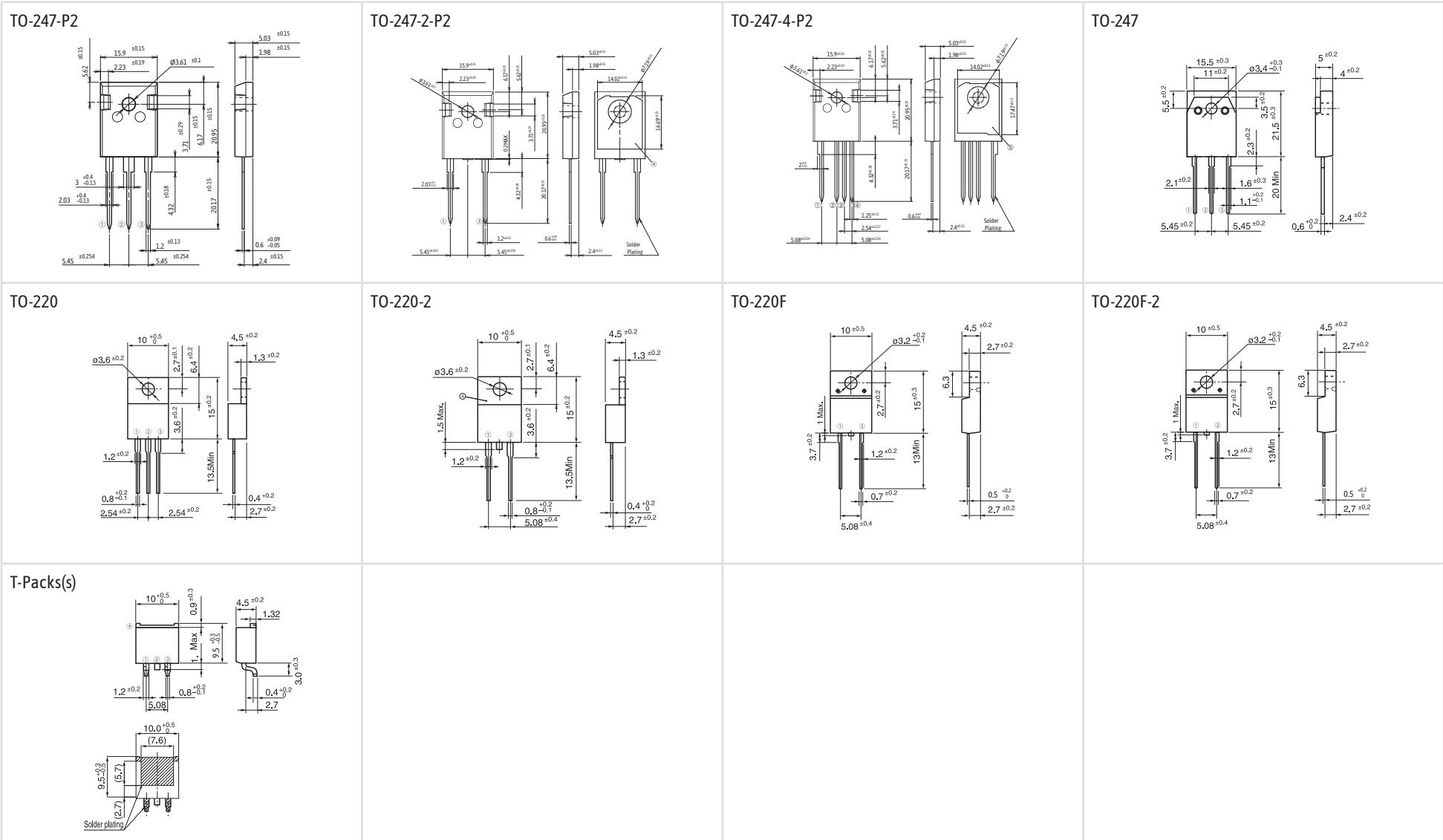
Package Outlines (in mm)

<p>M726</p> <p>Press fit pins</p>	<p>M727</p> <p>Press fit pins</p>	<p>M728</p> <p>Solder pins</p>	<p>M729</p> <p>Solder pins</p>
<p>M730</p> <p>Press fit pins</p>	<p>M731</p> <p>Press fit pins</p>	<p>M732</p> <p>Solder pins</p>	<p>M733</p> <p>Solder pins</p>
<p>M1202</p> <p>Press fit pins</p>	<p>M1203</p> <p>Press fit pins</p>		

Package Outlines (in mm)



Package Outlines (in mm)



Contributing to the creation of a sustainable society

Fuji Electric contributes to the resolution of social and environmental issues through its business activities.

Fuji Electric Corporate Activities and SDGs



Fuji Electric's corporate policy is to contribute to the realization of a safe, secure, and sustainable society through its energy and environmental businesses, based on its management philosophy of "contribute to prosperity," "encouraging creativity," and "seek harmony with the environment." Acting in accordance with this code, Fuji Electric is contributing to the accomplishment of the United Nations Sustainable Development Goals through its business activities.



We have formulated nine SDG targets for all of our corporate activities. To help achieve these targets, we have established an SDG Promotion Committee and are carrying out initiatives that are in line with the international community's goal of achieving the SDGs.

Environmental Vision by 2050



Notes

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