



Fuji Electric
Innovating Energy Technology



Power Semiconductors **Selection Guide**

04|2021

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.

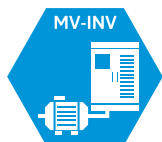


Fuji Electric provides Power Semiconductors well suited for various applications



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 3 kV/6 kV/6.6 kV 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.



Medical Technology

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.



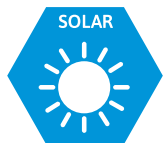
Wind Power Generation (WIND)

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.



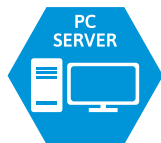
Welding Machines (WELDING)

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.



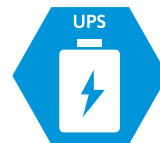
Solar (SOLAR)

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.



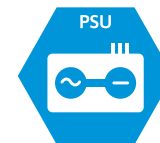
PC / Servers (PC+SERVER)

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

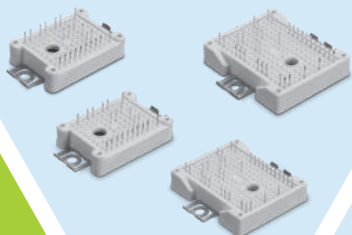


PUBLIC
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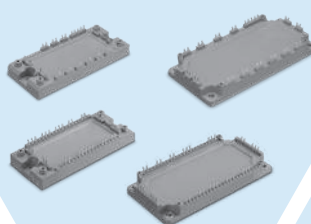
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Small PIM



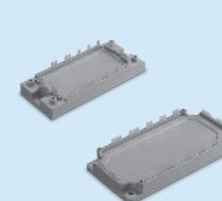
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PIM



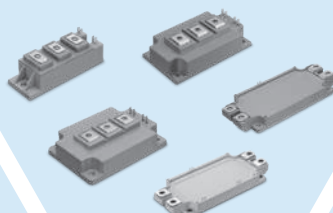
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6-Pack



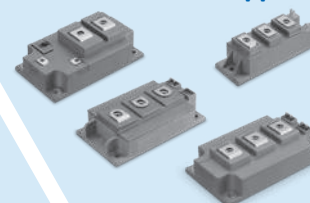
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Standard 2-Pack



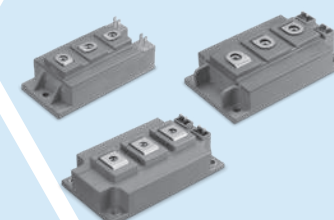
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Standard 1-Pack
Standard Chopper



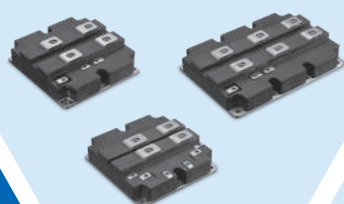
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High Speed Modules



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High Power Modules



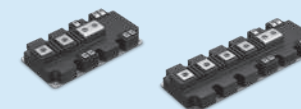
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High Power next Core (HPnC)



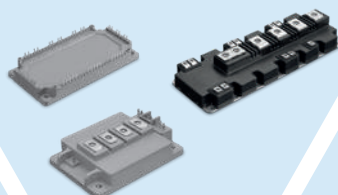
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PrimePACK™*



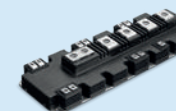
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Advanced T-type NPC 3-Level
Modules



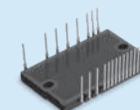
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I-type NPC 3-Level Modules



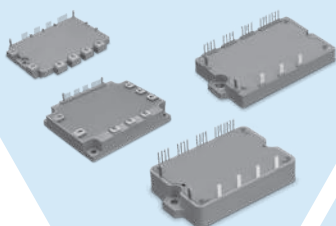
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Small IPM



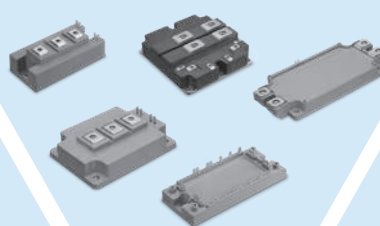
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IPM (Intelligent Power Modules)



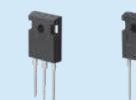
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Hybrid SiC Modules



Page 34

Discrete IGBT



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Rectifier Diode; SiC-SBD



Page 36 – 42

Package Outlines (in mm)

* 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.

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.



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

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

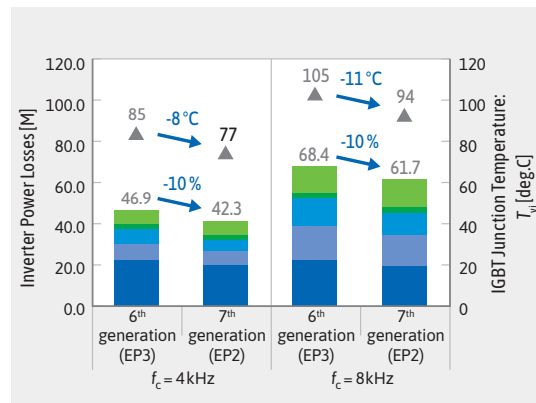


Features of IGBT module X series

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 $f_c = 8$ 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

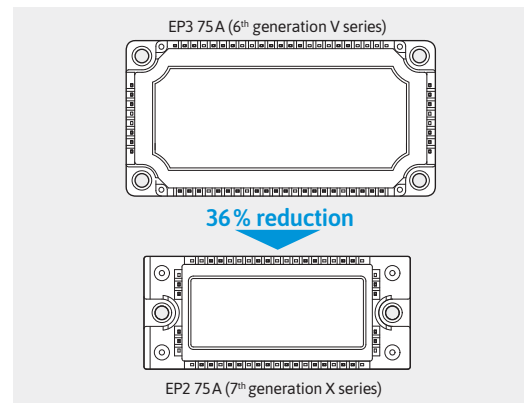
V_{DC} : 600V, I_G : 35 Arms, f_G : 50Hz,
Power factor = +0.9, modulation factor = 1.0,
Reverse recovery $dv/dt = 10$ kV/ μ s

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.

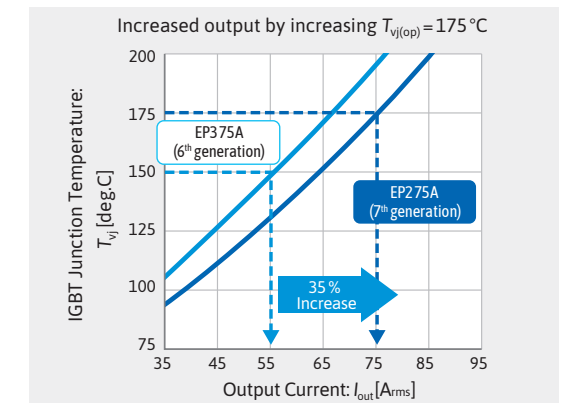
Application Example



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)



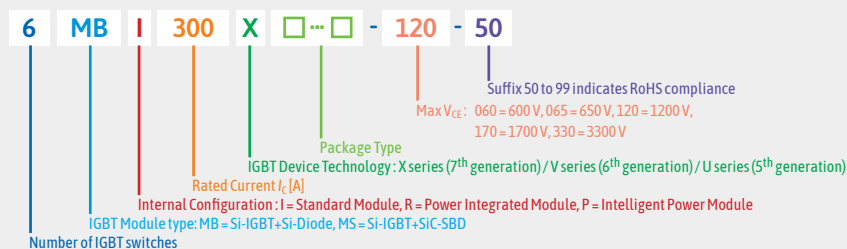
Product Portfolio

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	>1200 A	
		Standard Module	Power Integrated Module	Intelligent Power Module															
7	Small PIM EconoPIM™		•						•	•			•						15
			•							•	•		•	•					16
			•								•	•							17
6	6-Pack EconoPACK™	•						•		•	•		•	•	•	•			18
											•	•			•	•			18
2	Standard 2-Pack	•						•	•	•	•			•	•	•	•		20
											•	•			•	•	•		21
1	Standard 1-Pack Chopper	•								•	•					•	•		19
		•								•	•		•	•	•				19
1,2	High Speed Module	•								•	•			•	•	•			31
	High Power Module	•								•	•	•				•	•	•	24
	High Power next Core	•								•	•	•				•	•		23
	PrimePACK™	•								•	•	•				•	•	•	22/23
4,12	T/I-type NPC 3-Level	Reverse-Blocking IGBTs are integrated.						•		•	•		•	•	•	•	•		25/26
6,7	IPM					•			•	•	•		•	•					26
										•	•	•	•	•					27/28
										•	•	•	•	•	•				29/30
2,6,7	Hybrid SiC Module	•	•					•		•	•	•	•	•	•	•	•	•	32/33
1	Discrete IGBT				•			•	•	•	•		•	•					34
	Rectifier Diode							•	•	•	•		•	•					35
	SiC-SBD						•		•	•	•		•						35

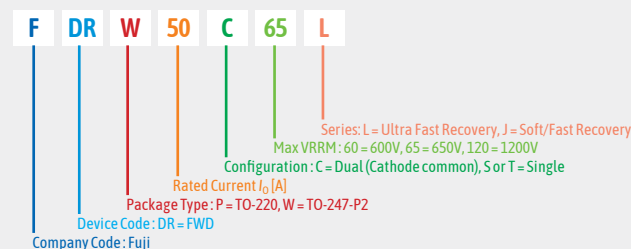
Note: PrimePACK™, EconoPIM™ and EconoPACK™ are registered trademarks of Infineon Technologies AG, Germany

Type Name Explanation

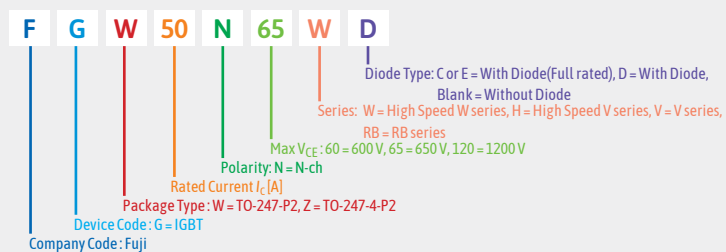
IGBT Module Production Number



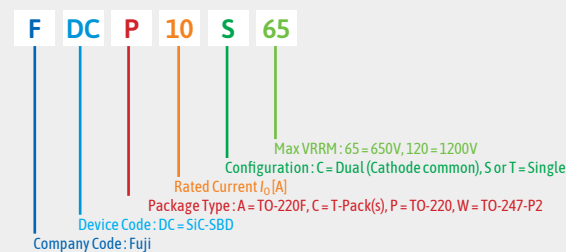
Rectifier Diode Production Number



Discrete IGBT Production Number



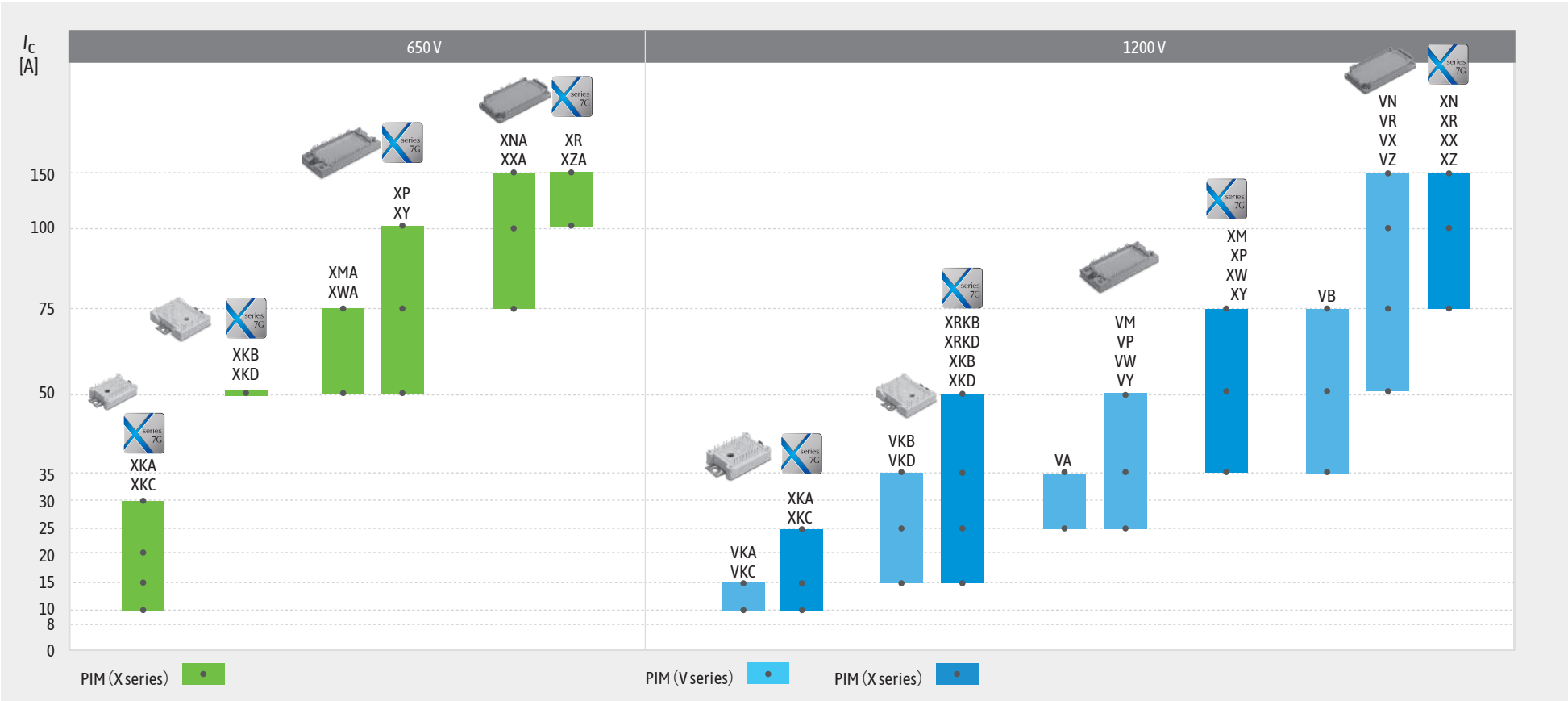
SiC Schottky-Barrier Diode Production Number



PIM (Power Integrated Modules) Product Map

7MBR	I _c	IGBT series & Package type						
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins	Size		Page
		VKC	VKA	XKC	XKA	33.8 x 62.8 mm		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

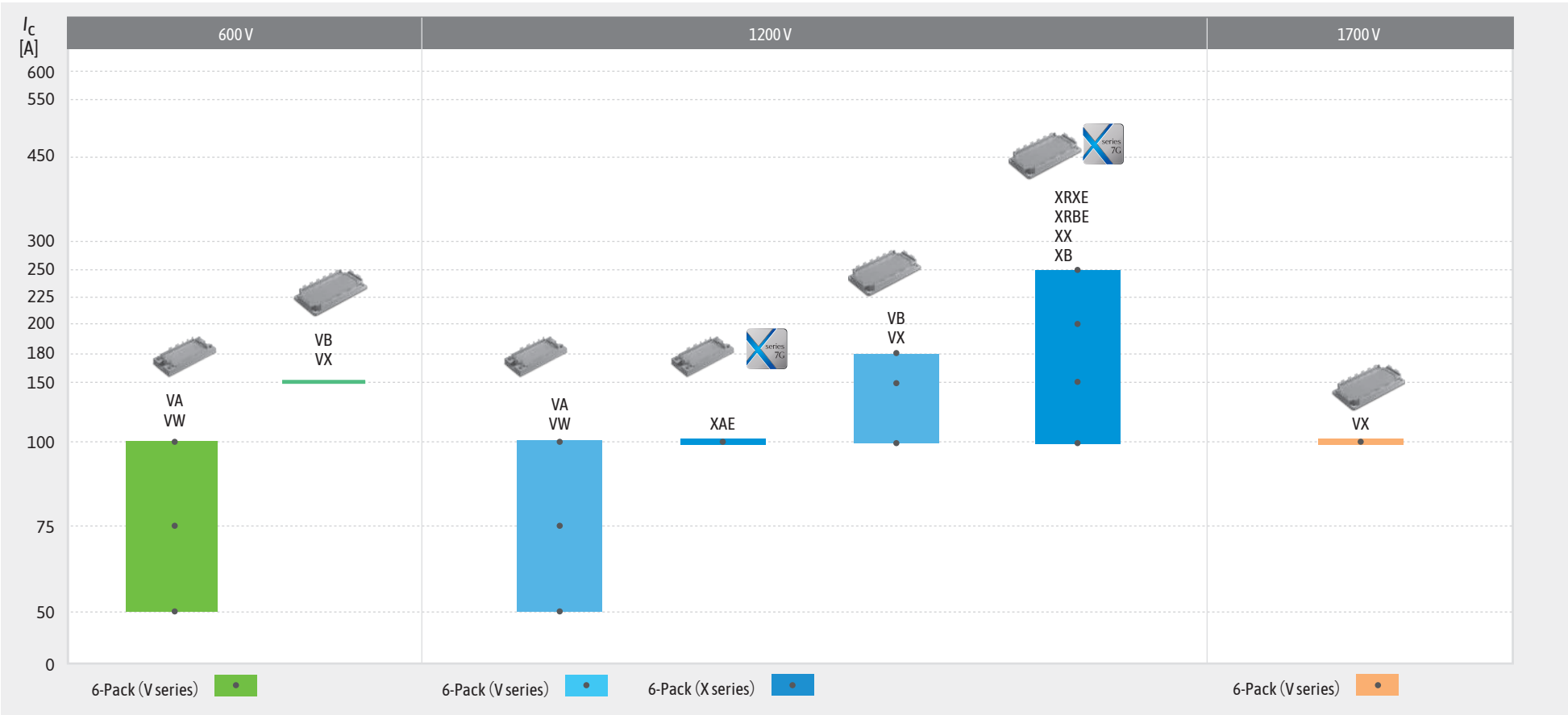
Note:
EconoPIM™ is registered trademark of
Infineon Technologies AG, Germany.



6-Pack Product Map

6MBI	I _C	IGBT series & Package type				Size		Page
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA	VW	XAE		45×107.5 mm	EconoPACK™	18
		VB	VX	XB, XRBE	XX, XRXE	62×122 mm		18

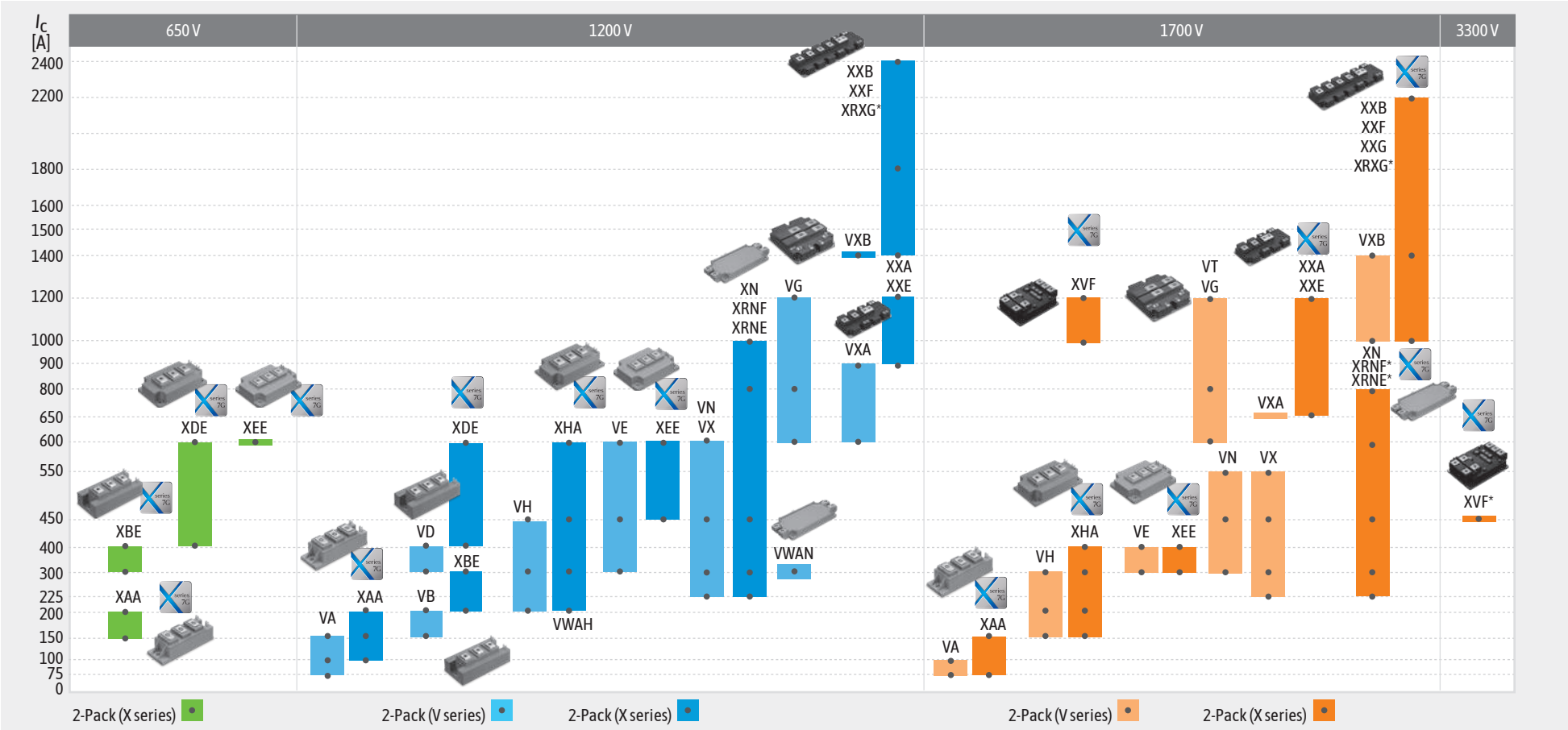
Note: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.



2-Pack Product Map

2MBI	I _C	IGBT series & Package type		Size		Page
		V series	X series			
		VA	XAA	34 × 94 mm	Standard Pack	20
		VB	XBE	45 × 92 mm		20
		VD	XDE	62 × 108 mm		20
		VE	XEE	80 × 110 mm		20
		VH, VWAH	XHA	62 × 108 mm		20
		VN, VX, VWAN	XN, XRNE, XRNF	62 × 150 mm	Dual XT	21
		VG, VT	–	140 × 130 mm	High Power Module	24
			XVF	100 × 144 mm	HPnC	23
		VXA	XXA, XXE	89 × 172 mm	PrimePACK™	22/23
		VXB	XXB, XXF, XXG, XRXG*	89 × 250 mm		22/23

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



*Under development

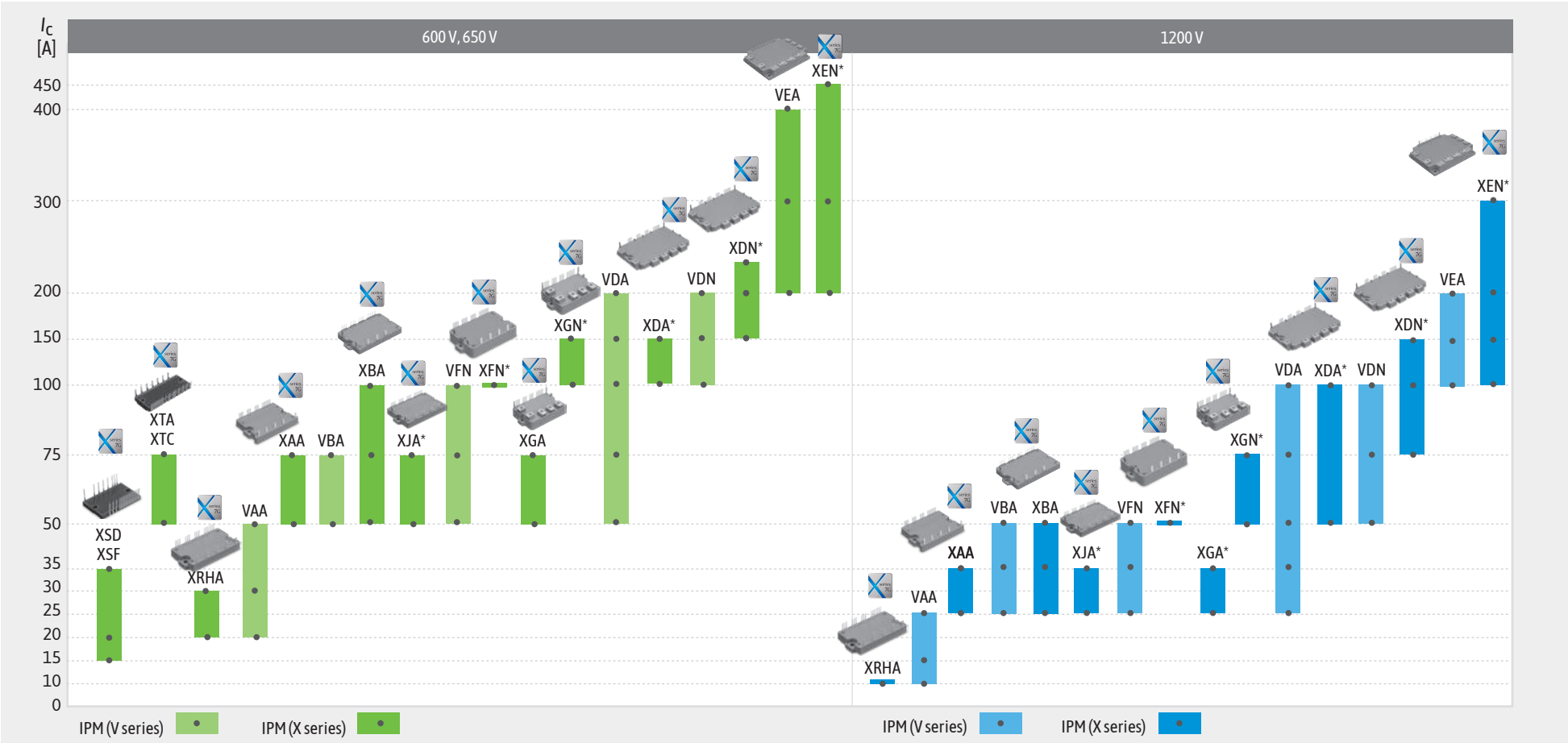
1-Pack Product Map

1MBI	I_c	IGBT series & Package type		Page
		V/U series	Size	
		V	62 × 108 mm	Standard Pack
		VC, VR, UG	140 × 130 mm	High Power Module
		VD, VS, UE	140 × 190 mm	

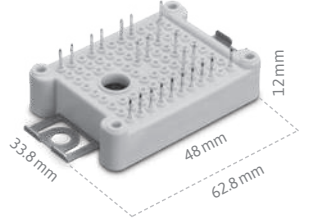
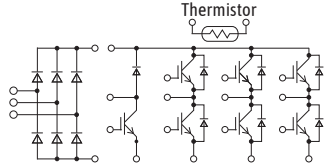
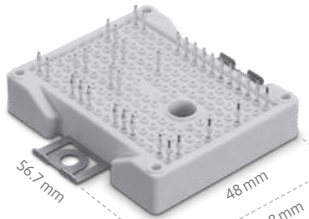
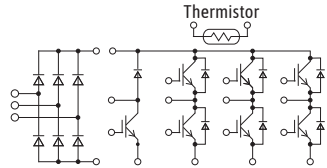
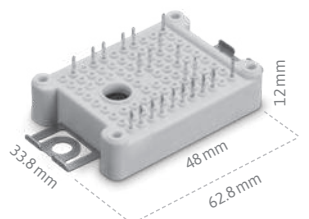
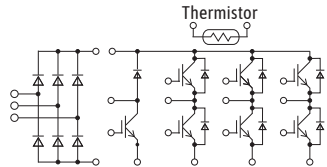
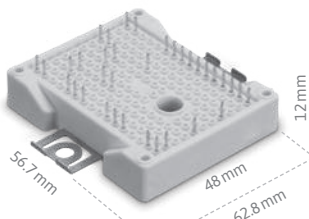
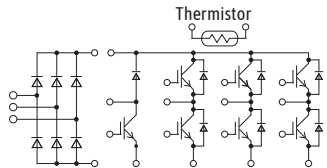


IPM (Intelligent Power Modules) Product Map

6/7MBI	I _c	IGBT series & Package type						Size	Page
		V series	X series	V series		X series			
				7 in 1	6 in 1	7 in 1	6 in 1		
			XSD, XSF				•	26 × 43 mm	26
			XTA, XTC				•	79 × 31 mm	26
			XRHA				•	36 × 70 mm	27
		VAA	XAA		•		•	49.5 × 70 mm	27
		VBA	XBA		•		•	50.2 × 87 mm	27
			XJA			•		50.2 × 87 mm	27
		VFN	XFN	•	•	•	•	55 × 90 mm	28
			XGA, XGN				•	55 × 90 mm	28
		VDA, VDN	XDA, XDN	•	•	•	•	84 × 128.5 mm	29
		VEA	XEN	•	•	•	•	110 × 142 mm	30



Small PIM (Power Integrated Modules)

			650 V 		1200 V 	
			X series		V/X series	
With NTC, press fit pins	 V: M726, X: M730		10 A	7MBR10XKA065-50	7MBR10VKA120-50	7MBR10XKA120-50
			15 A	7MBR15XKA065-50	7MBR15VKA120-50	7MBR15XKA120-50
			20 A	7MBR20XKA065-50		
			25 A			7MBR25XKA120-50
			30 A	7MBR30XKA065-50		
	 V: M727, X: M731		15 A		7MBR15VKB120-50	7MBR15XKB120-50
			25 A		7MBR25VKB120-50	7MBR25XKB120-50
			35 A		7MBR35VKB120-50	7MBR35XKB120-50
			50 A	7MBR50XKB065-50		7MBR50XRKB120-50*
With NTC, solder pins	 V: M728, X: M732		10 A	7MBR10XKC065-50	7MBR10VKC120-50	7MBR10XKC120-50
			15 A	7MBR15XKC065-50	7MBR15VKC120-50	7MBR15XKC120-50
			20 A	7MBR20XKC065-50		
			25 A			7MBR25XKC120-50
			30 A	7MBR30XKC065-50		
	 V: M729, X: M733		15 A		7MBR15VKD120-50	7MBR15XKD120-50
			25 A		7MBR25VKD120-50	7MBR25XKD120-50
			35 A		7MBR35VKD120-50	7MBR35XKD120-50
			50 A	7MBR50XKD065-50		7MBR50XRKD120-50*

*RC-IGBT

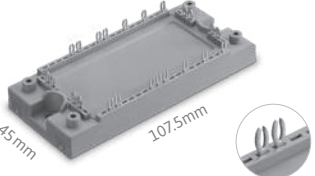
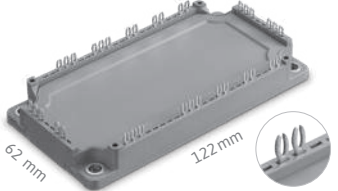
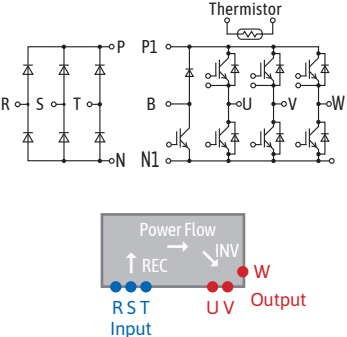
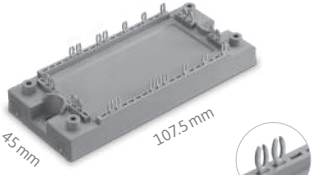
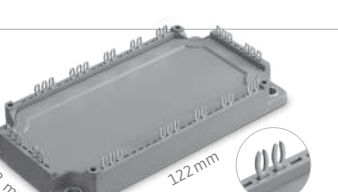
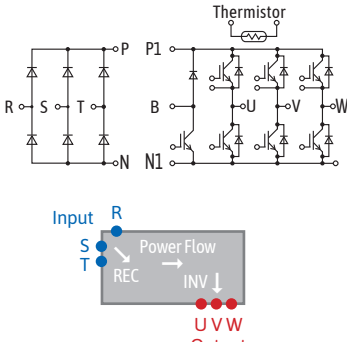
PIM (Power Integrated Modules) EconoPIM™

				650 V	1200 V
				X series	V/X series
With NTC, solder pins. PIM	M711 45 mm 107.5 mm		25 A		7MBR25VA120-50
			35 A		7MBR35VA120-50
	M712 62 mm 122 mm		35 A		7MBR35VB120-50
			50 A		7MBR50VB120-50
			75 A		7MBR75VB120-50
	M719 45 mm 107.5 mm		25 A		7MBR25VM120-50
			35 A		7MBR35VM120-50
			50 A	7MBR50XMA065-50	7MBR50XMA120-50
			75 A	7MBR75XMA065-50	7MBR75XME120-50
	M720 62 mm 122 mm		50 A		7MBR50VN120-50
			75 A	7MBR75XNA065-50	7MBR75XNA120-50
			100 A	7MBR100XNA065-50	7MBR100XNA120-50
			150 A	7MBR150XNA065-50	7MBR150XNE120-50
	M719 45 mm 107.5 mm		25 A		7MBR25VP120-50
			35 A		7MBR35VP120-50
			50 A	7MBR50XPA065-50	7MBR50XPA120-50
			75 A	7MBR75XPA065-50	7MBR75XPE120-50
	M720 62 mm 122 mm		100 A	7MBR100XPE065-50	7MBR100XPE120-50
			50 A		7MBR50VR120-50
			75 A		7MBR75VR120-50
			100 A	7MBR100XRA065-50	7MBR100XRA120-50
			150 A	7MBR150XRA065-50	7MBR150XRE120-50
				7MBR150XRE065-50	

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.

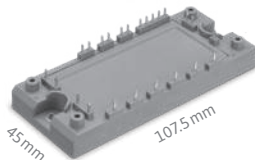
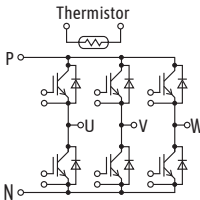
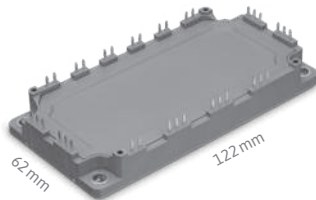
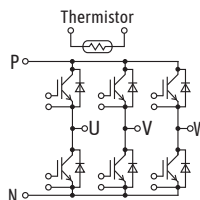
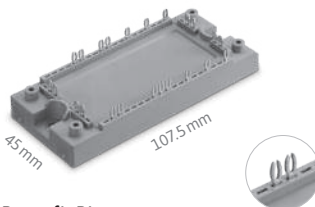
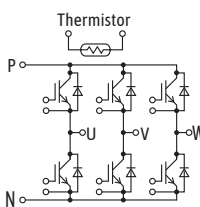
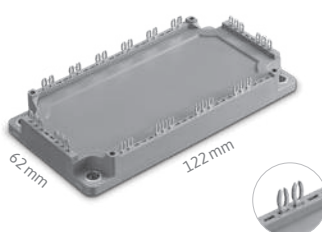
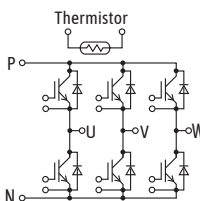
PIM (Power Integrated Modules) EconoPIM™

		650 V	1200 V	
		Xseries	V/Xseries	
With NTC, press fit pins	 45 mm 107.5 mm  62 mm 122 mm 	I _C		
		25 A	7MBR25VW120-50	
		35 A	7MBR35VW120-50	7MBR35XWA120-50
		50 A	7MBR50XWA065-50	7MBR50VW120-50
		75 A	7MBR75XWA065-50	7MBR75XWE120-50
		50 A	7MBR50VX120-50	
		75 A	7MBR75VX120-50	7MBR75XXA120-50
		100 A	7MBR100XXA065-50	7MBR100VX120-50
		150 A	7MBR150XXA065-50	7MBR150VX120-50
	 45 mm 107.5 mm  62 mm 122 mm 	25 A	7MBR25VY120-50	
		35 A	7MBR35VY120-50	7MBR35XYA120-50
		50 A	7MBR50XYA065-50	7MBR50VY120-50
		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
		150 A	7MBR150XZA065-50	7MBR150VZ120-50

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.

6-Pack EconoPACK™

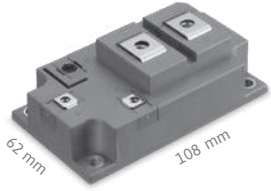
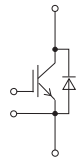
		600 V	1200 V		1700 V	
		V series	V/X series		V series	
With NTC, solder pins	 45 mm 107.5 mm V: M636, X: M669 Solder Pins 	50 A	6MBI50VA-060-50	6MBI50VA-120-50		
		75 A	6MBI75VA-060-50	6MBI75VA-120-50		
		100 A	6MBI100VA-060-50	6MBI100VA-120-50	6MBI100XAE120-50	
With NTC, solder pins	 62 mm 122 mm V: M633, X: M668 Solder Pins 	100 A		6MBI100VB-120-50	6MBI100XBA120-50	
		150 A	6MBI150VB-060-50	6MBI150VB-120-50	6MBI150XBA120-50	
		180 A		6MBI180VB-120-50		
				6MBI180VB-120-55 *1		
		200 A			6MBI200XBA120-50	
					6MBI200XBE120-50	
		250 A			6MBI250XRBE120-50*2	
With NTC, press fit pins	 45 mm 107.5 mm M647 Press fit Pins 	50 A	6MBI50VW-060-50	6MBI50VW-120-50		
		75 A	6MBI75VW-060-50	6MBI75VW-120-50		
		100 A	6MBI100VW-060-50	6MBI100VW-120-50		
With NTC, press fit pins	 62 mm 122 mm M648 Press fit Pins 	100 A		6MBI100VX-120-50	6MBI100XXA120-50	6MBI100VX-170-50
		150 A	6MBI150VX-060-50	6MBI150VX-120-50	6MBI150XXA120-50	
		180 A		6MBI180VX-120-50		
				6MBI180VX-120-55		
		200 A			6MBI200XXA120-50	
					6MBI200XXE120-50	
		250 A			6MBI250XRXE120-50*2	

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

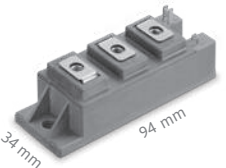
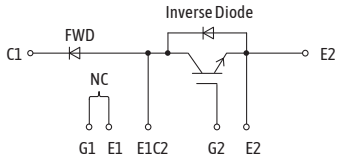
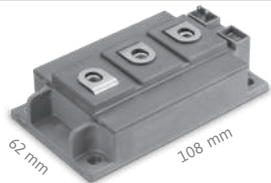
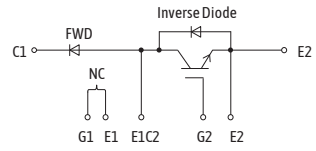
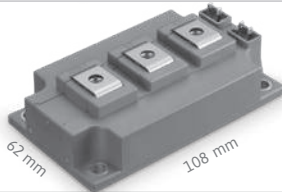
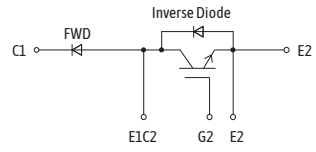
*1) 6MBI180VB-120-55, 6MBI180VX-120-55; 6MBI200XBE120-50; 6MBI200XXE120-50; Premium type (Low Thermal Impedance Version)

*2) RC-IGBT

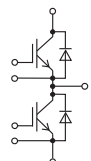
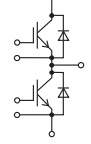
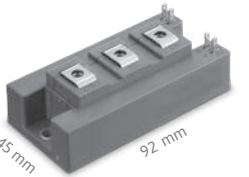
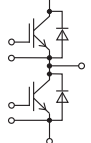
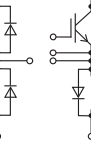
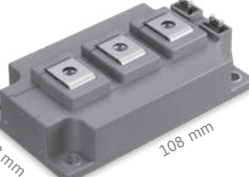
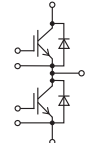
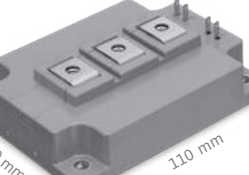
Standard 1-Pack

			1200 V		1700 V
			V series		V series
			Aluminium oxide DCB	Aluminium nitride DCB	Aluminium oxide DCB
1-Pack	 62 mm 108 mm		I_C		
			300 A		1MBI300V-170-50
			400 A	1MBI400V-120-50	1MBI400VF-120-50
			600 A	1MBI600V-120-50	1MBI600VF-120-50
			900 A	1MBI900V-120-50	

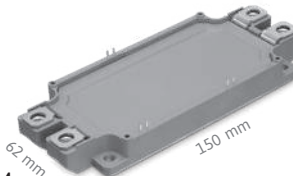
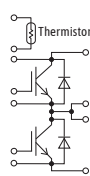
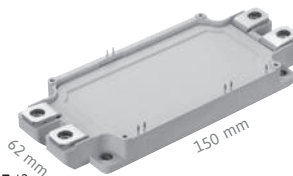
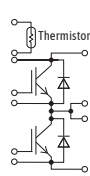
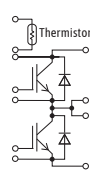
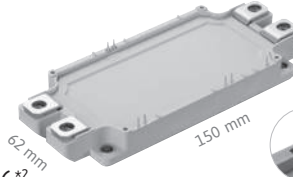
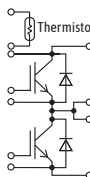
Standard Chopper

			I_C	600 V	1200 V
				U/V series	U/V series
Chopper	 34 mm 94 mm		50 A		1MBI50U4F-120L-50
			75 A		1MBI75U4F-120L-50
			100 A		1MBI100U4F-120L-50
			150 A		1MBI150VA-120L-50
			200 A		1MBI200VA-120L-50
	 62 mm 108 mm		200 A		1MBI200U4H-120L-50
			300 A	1MBI300U2H-060L-50	
	 62 mm 108 mm		400 A	1MBI400VH-060L-50	

Standard 2-Pack

			650 V	1200 V		1700 V	
			Xseries	V/Xseries		Vseries	Xseries
2-Pack		I_C	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		
		150 A	2MBI150VB-120-50				
		200 A	2MBI200VB-120-50	2MBI200XBE120-50			
		300 A	2MBI300XBE065-50	2MBI300XBE120-50			
		400 A	2MBI400XBE065-50				
		300 A	2MBI300VD-120-50				
		400 A	2MBI400XDE065-50	2MBI400VD-120-50	2MBI400XDE120-50		
		600 A	2MBI600XDE065-50		2MBI600XDE120-50		
		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			
			2MBI450VH-120F-50*				
		600 A		2MBI600XHA120-50			
		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		

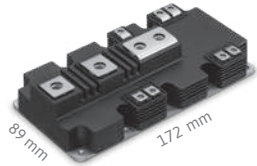
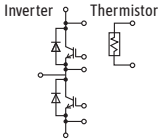
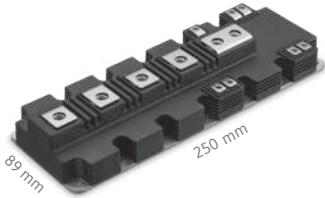
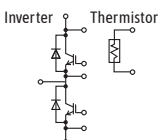
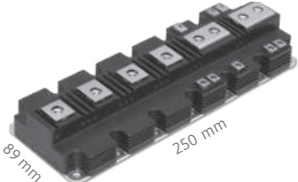
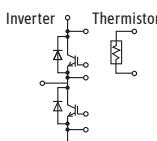
Standard 2-Pack

				1200 V			1700 V		
			I_C	V series	V series with SIN-substrate*1	X series	V series	V series with SIN-substrate*1	X series
With NTC, solder pins	M254  	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*3		
		600 A			2MBI600XNG120-50*1			2MBI600XNG170-50*1	
	M285 *2  	600 A		2MBI600VN-120-50	2MBI600XNE120-50*2			2MBI600XNE170-50*2	
		800 A			2MBI800XNE120-50*2			2MBI800XRNE170-50*2,3	
		1000 A			2MBI1000XRNE120-50*2,3				
With NTC, press fit pins	M282  	225 A	2MBI225VX-120-50		2MBI225XNB120-50	2MBI225VX-170-50		2MBI225XNB170-50	
		300 A	2MBI300VX-120-50		2MBI300XNB120-50	2MBI300VX-170-50		2MBI300XNB170-50	
		450 A	2MBI450VX-120-50		2MBI450XNB120-50	2MBI450VX-170-50		2MBI450XNB170-50	
		550 A					2MBI550VX-170-50		
		600 A		2MBI600VX-120-50	2MBI600XNH120-50*1			2MBI600XNH170-50*1	
	M286 *2  	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

			1200 V			1700 V		
			Vseries		Xseries	Vseries		Xseries
			Low switching loss	Soft turn off		Low switching loss	Soft turn off	
			I_C					
2-Pack	 89 mm 172 mm  Inverter Thermistor	600 A	2MBI600VXA-120E-50					
			2MBI600VXA-120E-54					
		650 A				2MBI650VXA-170E-50		2MBI650XXA170-50*1
						2MBI650VXA-170E-54		
						2MBI650VXA-170EA-50		
						2MBI650VXA-170EA-54		
		900 A	2MBI900VXA-120E-50	2MBI900VXA-120P-50	2MBI900XXA120P-50*1			
			2MBI900VXA-120E-54	2MBI900VXA-120P-54				
		1200 A			2MBI1200XXE120P-50*1			2MBI1200XXE170-50
	 89 mm 250 mm  Inverter Thermistor	1000 A				2MBI1000VXB-170E-50		2MBI1000XXB170-50*1
						2MBI1000VXB-170E-54		
						2MBI1000VXB-170EA-50		
						2MBI1000VXB-170EA-54		
		1400 A	2MBI1400VXB-120E-50	2MBI1400VXB-120P-50	2MBI1400XXB120P-50	2MBI1400VXB-170E-50	2MBI1400VXB-170P-50	2MBI1400XXB170-50
			2MBI1400VXB-120E-54	2MBI1400VXB-120P-54		2MBI1400VXB-170E-54	2MBI1400VXB-170P-54	
		1800 A			2MBI1800XXF120P-50			2MBI1800XXF170-50
	 89 mm 250 mm  Inverter Thermistor	1800 A						2MBI1800XXG170-50
		2200 A						2MBI2200XRXF170-50*1,2
		2400 A			2MBI2400XRXF120-50*1,2			

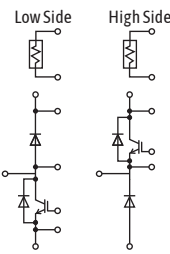
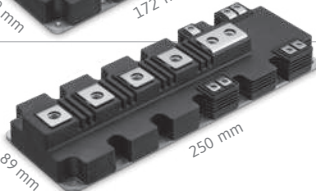
Note 1: The products with 'EA' on this page have large FWD.

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

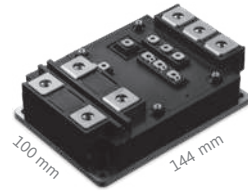
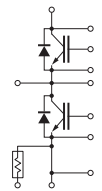
			1200 V		1700 V		
			V series		V series		
			I_c	Low side configuration	High side configuration	Low side configuration	High side configuration
Chopper	M271  89 mm172 mm	Low Side High Side 	650 A			1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
						1MBI650VXA-170EL-54*2	1MBI650VXA-170EH-54*2
			900 A	1MBI900VXA-120PD-50*1 1MBI900VXA-120PD-54*2	1MBI900VXA-120PC-50*1 1MBI900VXA-120PC-54*2		
	M272  89 mm250 mm		1000 A			1MBI1000VXB-170EL-50 1MBI1000VXB-170EL-54*2	1MBI1000VXB-170EH-50 1MBI1000VXB-170EH-54*2
			1400 A			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.

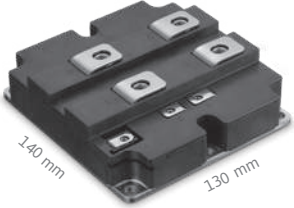
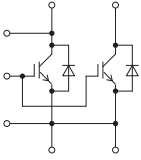
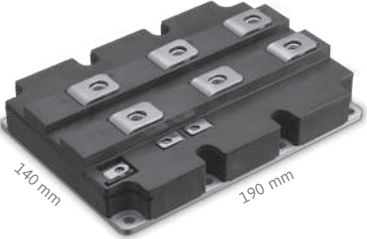
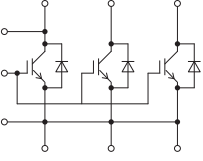
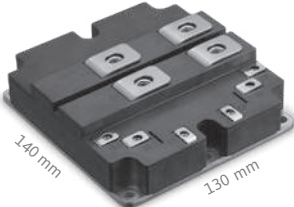
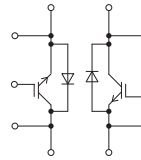
^{*2}) The products with suffix '-54' on this page are labeled to specify the rank of V_{sat} and V_f .

High Power next Core (HPnC)

			1700 V	3300 V
			X series	
			7th generation	
 100 mm 144 mm		I_C		
		450 A		2MBI450XVF330-50*
		1000 A	2MBI1000XVF170-50	
		1200 A	2MBI1200XVF170-50*	

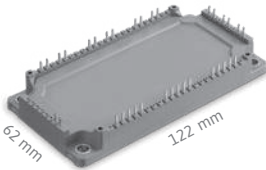
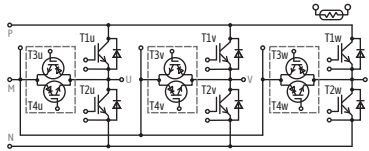
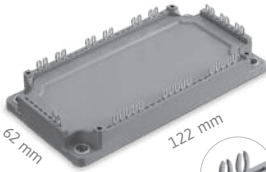
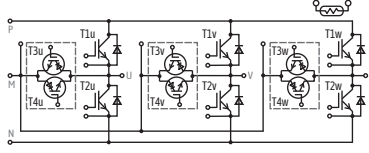
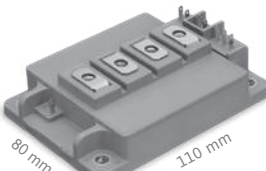
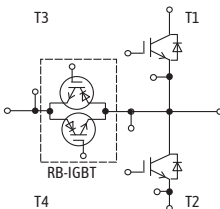
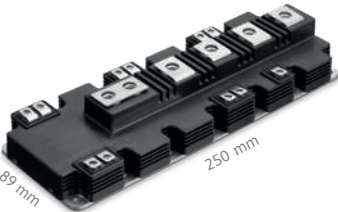
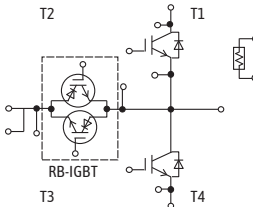
*Under development

High Power Modules

			1200 V	1700 V		3300 V	
			V series Trench-FS	V series Trench-FS		U series Trench-FS	
			Cu-baseplate	Cu-baseplate	AlSiC-baseplate	AlSiC-baseplate	AlSiC-baseplate Low switching loss
1-Pack	M151, M155	 140 mm 130 mm 	I_C				
			800 A			1MBI800UG-330	
			1000 A			1MBI1000UG-330	1MBI1000UG-330B
			1200 A	1MBI1200VC-120P	1MBI1200VC-170E	1MBI1200VR-170E	
			1600 A	1MBI1600VC-120P	1MBI1600VC-170E	1MBI1600VR-170E	
			2400 A	1MBI2400VC-120P	1MBI2400VC-170E	1MBI2400VR-170E	
	M152, M156	 140 mm 190 mm 					
			1200 A			1MBI1200UE-330	
			1500 A			1MBI1500UE-330	1MBI1500UE-330B
			2400 A	1MBI2400VD-120P	1MBI2400VD-170E	1MBI2400VS-170E	
			3600 A	1MBI3600VD-120P	1MBI3600VD-170E	1MBI3600VS-170E	
2-Pack	M256, M278	 140 mm 130 mm 	600 A	2MBI600VG-120P	2MBI600VG-170E	2MBI600VT-170E	
			800 A	2MBI800VG-120P	2MBI800VG-170E	2MBI800VT-170E	
			1200 A	2MBI1200VG-120P	2MBI1200VG-170E	2MBI1200VT-170E	

Note:
M151, M152, M256: Cu-baseplate
M155, M156, M278: AlSiC-baseplate

Advanced T-type NPC 3-Level Modules

				600 V		1200 V		1700 V		
				I_c	V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT
3 Phase With NTC, solder pins	 62 mm 122 mm M1203			50 A			12MBI50VN-120-50	600 V		
				75 A			12MBI75VN-120-50	600 V		
				100 A			12MBI100VN-120-50	600 V		
3 Phase With NTC, press fit pins	 62 mm 122 mm M1202			50 A			12MBI50VX-120-50	600 V		
				75 A			12MBI75VX-120-50	600 V		
				100 A			12MBI100VX-120-50	600 V		
1 Phase	 80 mm 110 mm M403			220 A					4MBI220VG-170R2-50	1200V
				300 A			4MBI300VG-120R-50	600 V		
							4MBI300VG-120R1-50	900 V		
				340 A			4MBI340VF-120R-50	600 V		
				400 A	4MBI400VG-060R-50	600V	4MBI400VF-120R-50*1	600 V		
1 Phase	 89 mm 250 mm M404			450 A			4MBI450VB-120R1-50	900 V	4MBI450VB-170R2-50	1200V
							4MBI450VB-120R1-60*4	900 V	4MBI450VB-170R2-60*4	1200V
				600 A					4MBI600VB-170R2-50	1200V
									4MBI600VB-170R2-60*4	1200V
				650 A			4MBI650VB-120R1-50	900 V		
							4MBI650VB-120R1-60*4	900 V		
				900 A			4MBI900VB-120R1-50	900 V		
							4MBI900VB-120R1-60*4	900 V		
							4MBI900VB-120RA-50	900 V		
							4MBI900VB-120RA-60*4	900 V		

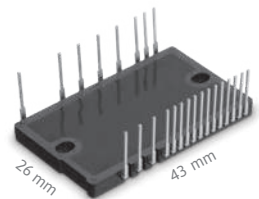
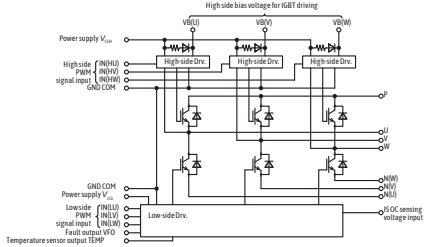
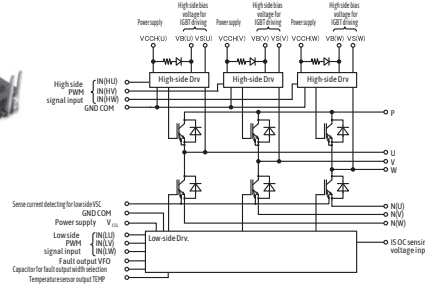
I-type NPC 3-Level Module

			600 V	1200 V	1700 V
			Vseries	Vseries	Vseries
1 Phase		I_C	600 A	4MBI600VC-120-50	

Small IPM (Intelligent Power Modules)

Built-in protection functions

- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)

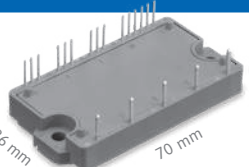
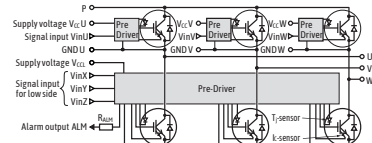
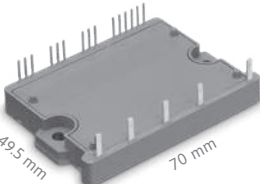
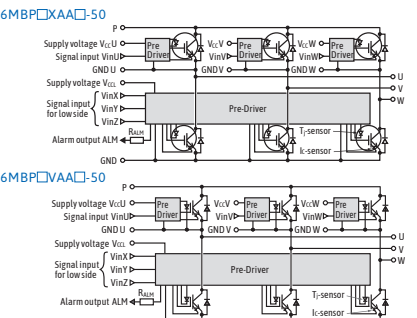
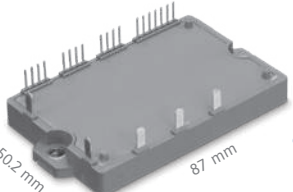
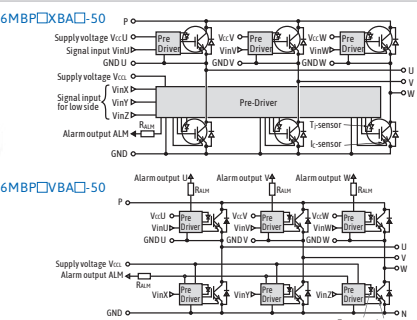
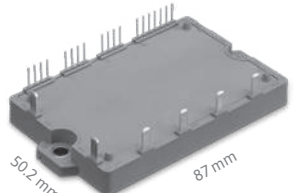
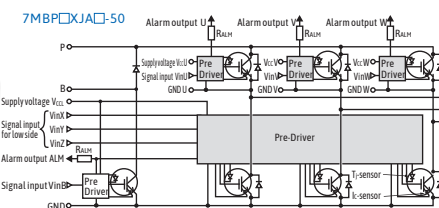
			600 V								
			I_C								
Small IPM with High Voltage Driver-Ic without Brake-Chopper	 P633A							15 A	6MBP15XSD060-50		
									20 A	6MBP20XSD060-50	
									30 A	6MBP30XSD060-50	
									35 A	6MBP35XSD060-50	
									15 A	6MBP15XSF060-50	
	 P642								20 A	6MBP20XSF060-50	
										30 A	6MBP30XSF060-50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

IPM (Intelligent Power Modules)

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)
Temperature sensor output (Vtemp, out)



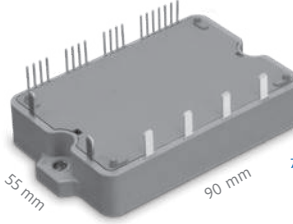
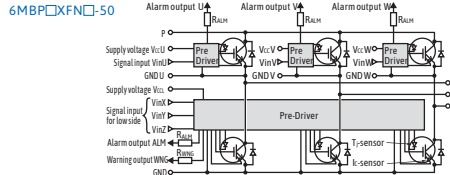
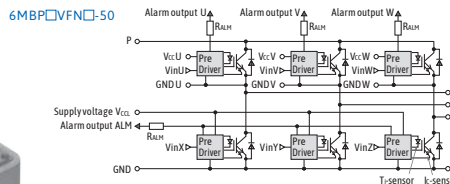
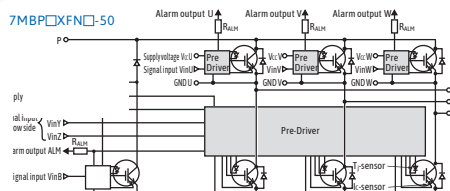
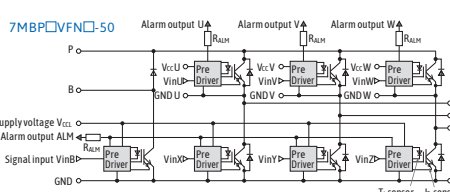
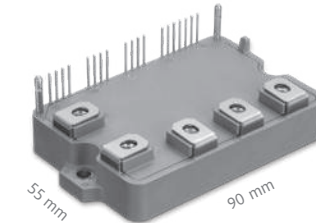
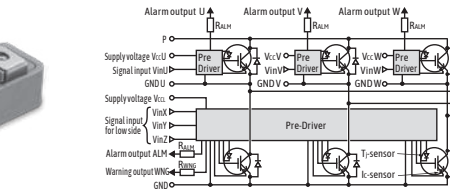
						600 V		650 V	1200 V	
						V series		X series	V series	X series
Without Brake-Chopper	P639									6MBP10XRHA120-50*
Without Brake-Chopper	P629									
Without Brake-Chopper	P626									
With Brake-Chopper	P644									

* Under development

IPM (Intelligent Power Modules)

Built-in protection functions

P-side fault status output (Alarm)
N-side fault status output (Alarm)
Under voltage protection (self shutdown)
Over current protection (self shutdown)
Overheating protection (self shutdown)
Temperature sensor output (Vtemp, out)

						600V	650V	1200V		
						Ic	Vseries	Xseries	Vseries	Xseries
Without Brake -Chopper						25A			6MBP25VFN120-50	
						35A			6MBP35VFN120-50	
						50A	6MBP50VFN060-50		6MBP50VFN120-50	6MBP50XFN120-50*
						75A	6MBP75VFN060-50			
						100A	6MBP100VFN060-50	6MBP100XFN065-50*		
With Brake- Chopper						25A			7MBP25VFN120-50	
						35A			7MBP35VFN120-50	
						50A	7MBP50VFN060-50		7MBP50VFN120-50	7MBP50XFN120-50*
						75A	7MBP75VFN060-50			
						100A	7MBP100VFN060-50	7MBP100XFN065-50*		
Without Brake -Chopper						25A				6MBP25XGA120-50*
						35A				6MBP35XGA120-50*
						50A		6MBP50XGA065-50*		6MBP50XGN120-50*
						75A		6MBP75XGA065-50*		6MBP75XGN120-50*
						100A		6MBP100XGN065-50*		
						150A		6MBP150XGN065-50*		

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

* Under development

IPM (Intelligent Power Modules)

Built-in protection functions

- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)

		600 V		650 V	1200 V	
		V series		X series	V series	X series
Without Brake-Chopper	6MBP□XDA□-50 6MBP□XDN□-50				6MBP25VDA120-50	
					6MBP35VDA120-50	
		6MBP50VDA060-50			6MBP50VDA120-50	6MBP50XDA120-50*
					6MBP50VDN120-50	
		6MBP75VDA060-50			6MBP75VDA120-50	6MBP75XDA120-50*
					6MBP75VDN120-50	6MBP75XDN120-50*
		6MBP100VDA060-50		6MBP100XDA065-50*	6MBP100VDA120-50	6MBP100XDA120-50*
		6MBP100VDN060-50			6MBP100VDN120-50	6MBP100XDN120-50*
		6MBP150VDA060-50		6MBP150XDA065-50*		
		6MBP150VDN060-50		6MBP150XDN065-50*		6MBP150XDN120-50*
With Brake-Chopper	7MBP□XDA□-50 7MBP□XDN□-50				7MBP25VDA120-50	
					7MBP35VDA120-50	
		7MBP50VDA060-50			7MBP50VDA120-50	7MBP50XDA120-50*
					7MBP50VDN120-50	
		7MBP75VDA060-50			7MBP75VDA120-50	7MBP75XDA120-50*
					7MBP75VDN120-50	7MBP75XDN120-50*
		7MBP100VDA060-50		7MBP100XDA065-50*	7MBP100VDA120-50	7MBP100XDA120-50*
		7MBP100VDN060-50			7MBP100VDN120-50	7MBP100XDN120-50*
		7MBP150VDA060-50		7MBP150XDA065-50*		
		7MBP150VDN060-50		7MBP150XDN065-50*		7MBP150XDN120-50*
P630						

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

* Under development

IPM (Intelligent Power Modules)

Built-in protection functions

- P-side fault status output (Alarm)
- N-side fault status output (Alarm)
- Under voltage protection (self shutdown)
- Over current protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor output (Vtemp, out)

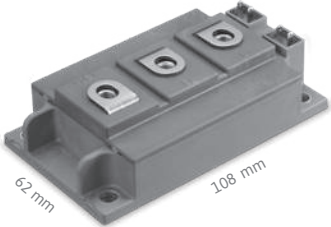
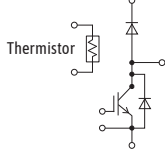
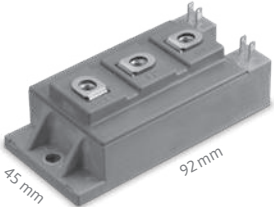
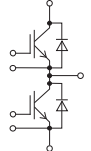
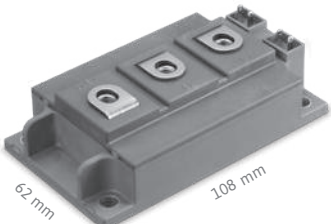
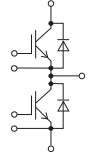
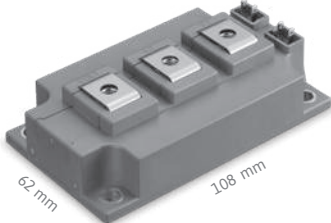
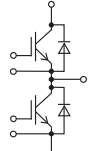


		600 V	650 V	1200 V	
		V series	X series	V series	X series
Without Brake-Chopper	6MBP□XEN□-50			6MBP100VEA120-50	6MBP100XEN120-50*
				6MBP150VEA120-50	6MBP150XEN120-50*
		6MBP200VEA060-50	6MBP200XEN065-50*	6MBP200VEA120-50	6MBP200XEN120-50*
		6MBP300VEA060-50	6MBP300XEN065-50*		6MBP300XEN120-50*
		6MBP400VEA060-50	6MBP450XEN065-50*		
		450A			
With Brake-Chopper	7MBP□XEN□-50			7MBP100VEA120-50	7MBP100XEN120-50*
				7MBP150VEA120-50	7MBP150XEN120-50*
		7MBP200VEA060-50	7MBP200XEN065-50*	7MBP200VEA120-50	7MBP200XEN120-50*
		7MBP300VEA060-50	7MBP300XEN065-50*		7MBP300XEN120-50*
		7MBP400VEA060-50			
		450A	7MBP450XEN065-50*		

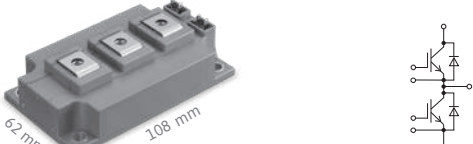
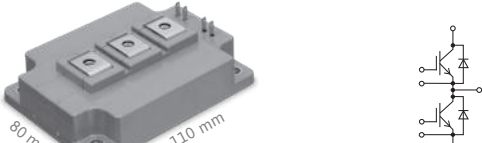
* Under development

High Speed Modules



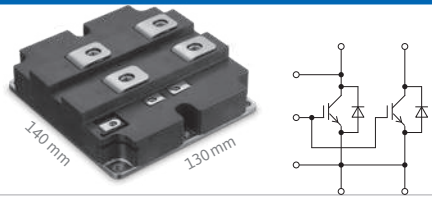
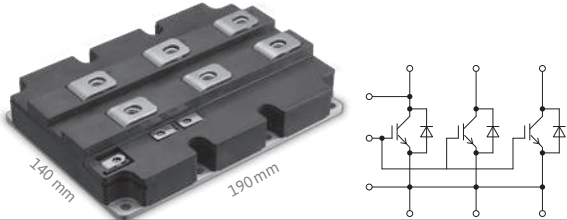
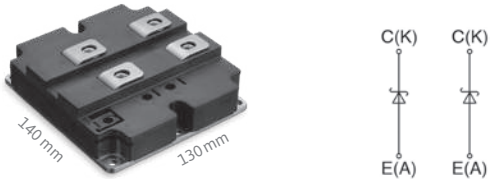
			1200 V
			High Speed IGBT
Chopper	 62 mm 108 mm M249  Thermistor	200 A	1MBI200HH-120L-50
		300 A	1MBI300HH-120L-50
		400 A	1MBI400HH-120L-50
2-Pack	 45 mm 92 mm M233 	100 A	2MBI100HB-120-50
	 62 mm 108 mm M249 	150 A	2MBI150HH-120-50
		200 A	2MBI200HH-120-50
	 62 mm 108 mm M276 	100 A	2MBI100HJ-120-50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

Hybrid SiC Modules

			600 V	1200 V	1700 V
			V series	V series	V series
2-Pack	M274		200 A	2MSI200VAB-120-53	
	M276		300 A	2MSI300VAH-120C-53	2MSI200VVAH-120-53* ² 2MSI300VVAH-120-53* ²
	M277		400 A		2MSI400VAE-170-53
	M254		300 A	2MSI300VAN-120-53	2MSI300VWAN-120-53* ²
			450 A	2MSI450VAN-120-53	
			550 A		2MSI550VAN-170-53
			600 A	2MSI600VAN-120-53	
	M278		1200 A		2MSI1200VAT-170EC* ¹

*¹) Low switching losses *²) Under development

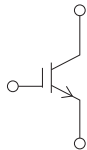
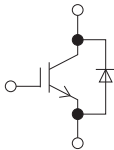
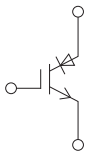
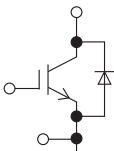
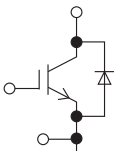
Hybrid SiC Modules

			3300 V	
			IGBT Hybrid Modules with SiC-SBD X series	SiC-SBD series
1-Pack	 M155	1200 A	1MSI1200XAGF330-03*	
	 M156	1800 A	1MSI1800XAEF330-03*	
Diode	 M289	900 A		2SI900AGF330-03*

* Under development



Discrete IGBT

		600 V				650 V		1200 V			
		I _C	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							
		40 A				FGW40N65W	FGW40XS65		FGW40N120H	FGW40N120W	FGW40XS120
		50 A		FGW50N60H		FGW50N65W	FGW50XS65				
		60 A				FGW60N65W					
		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							
TO-247-P2											
		40 A				FGZ50N65WD/WE				FGZ40N120WE	
		50 A				FGZ75N65WE	FGZ75XS65C				FGZ75XS120C
		75 A									

Recommended operating frequency

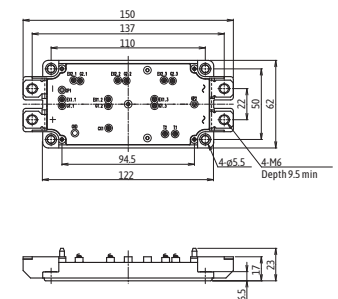
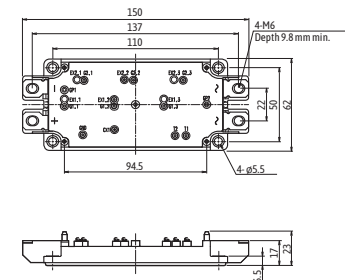
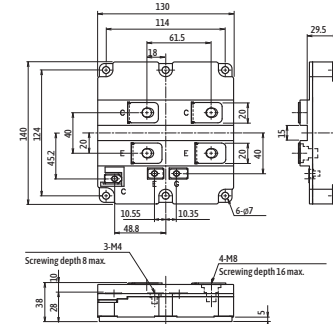
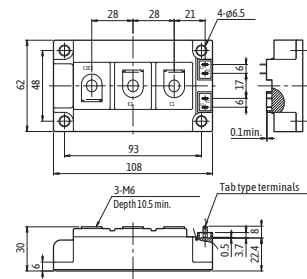
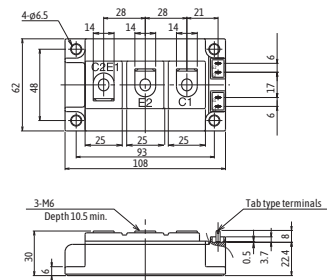
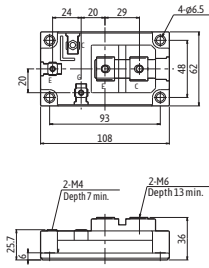
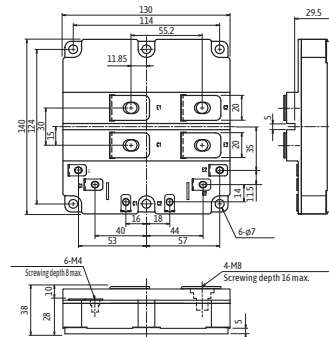
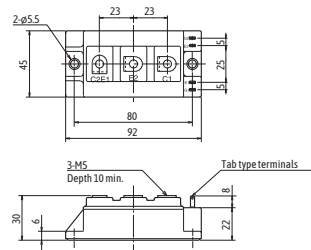
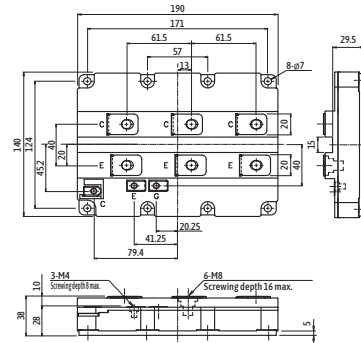
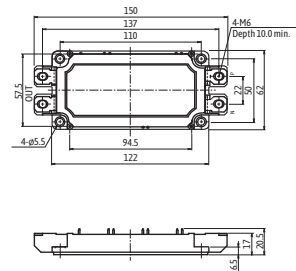
-10 kHz	-20 kHz	-40 kHz	-100 kHz
V/RB			
High speed V			
			High speed W
XS series			

Rectifier Diode

	I_C	Ultra Fast Recovery Diodes		Soft Recovery - Fast Recovery Diodes	
		600 V		1200 V	
 TO-220	15 A	FDRP15S60L			
	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				FDRW60C120J
 TO-247-2-P2	70 A		FDRW70C60L		
	60 A	FDRW60T60L			
	75 A			FDRW75T65L	

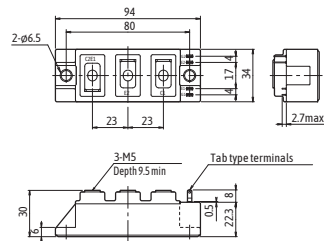
SiC-SBD

	I_C	Ultra Fast Recovery Diodes		Soft Recovery - Fast Recovery Diodes	
		650 V		1200 V	
 T-Pack(s)	10 A	FDCC10S65			
	20 A		FDCC20C65		
	25 A	FDCC25S65			
 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	
	20 A		FDCY20C65		
	25 A	FDCY25S65			
	36 A				FDCY36C120
	50 A		FDCY50C65		
 TO-247-2-P2	18 A			FDCW18T120	

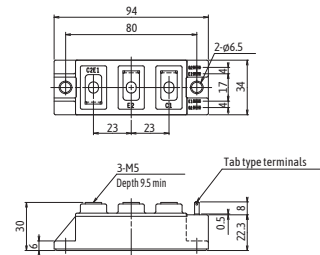


Package Outlines (in mm)

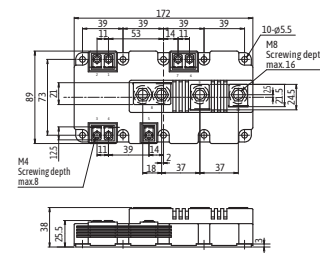
M262



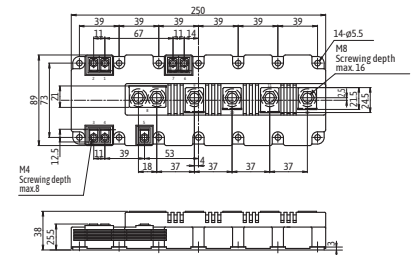
M263



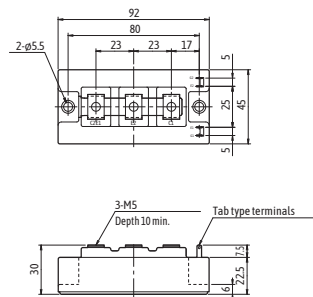
M271



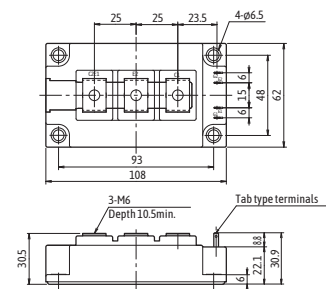
M272



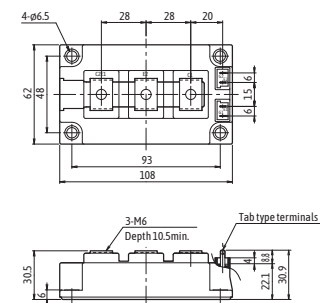
M274



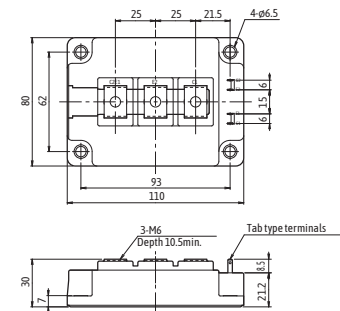
M275



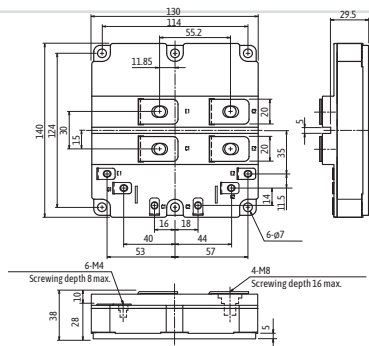
M276



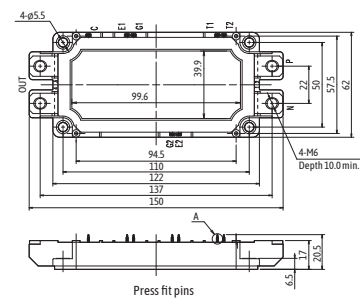
M277



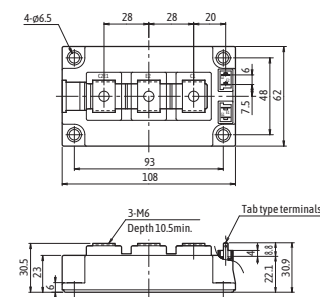
M278



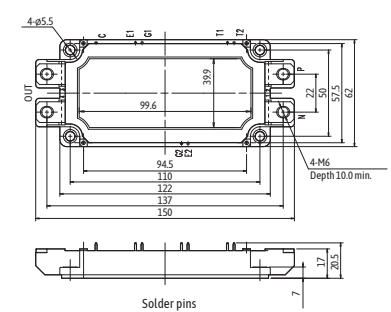
M282



M283



M285



[illegible]

Technical drawing of the M403 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 110
- Overall height: 80
- Distance between mounting holes: 93
- Mounting hole diameter: 4-ø6.5
- Internal features labeled: U, N, M, P
- Internal dimensions: 16, 19, 9.5, 9.5, 19
- Distance from left edge to first internal feature: 10
- Distance from right edge to mounting hole: 62
- Internal feature widths: 5, 5, 5, 5, 5

Side View Dimensions:

- Overall height: 30
- Mounting hole diameter: 4-M5
- Depth: 10.5min
- Tab type terminals
- Terminal width: 1.5
- Terminal spacing: 27.2
- Internal dimensions: 10.2, 8.5, 7, 2.8

M404

Technical drawing of the M404 base plate, showing top and side views with dimensions and callouts.

Top View Dimensions:

- Overall width: 271.5
- Overall height: 89
- Top flange width: 71
- Bottom flange width: 12.5
- Top flange hole spacing: 14, 11, 67, 11, 67, 11
- Bottom flange hole spacing: 14, 11, 58, 11, 55, 37, 37, 37
- Central section width: 106
- Central section hole spacing: 12, 13, 14, 15
- Side flange hole spacing: 12, 11, 18, 31, 39

Side View Dimensions:

- Overall height: 38
- Base plate thickness: 25.5
- Flange thickness: 3
- Overall length: 250

Callouts and Notes:

- 11 M4 screwing depth max. 8
- 14-ø5.5±0.2
- position tolerance base plate holes
- 6-M8 screwing depth max. 16

[illegible]

Technical drawing of the M292 Type C terminal block. The drawing shows a side view of the component with various dimensions and pin configurations. The overall width is 140 mm, and the height is 100 mm. The drawing includes dimensions for the mounting holes (4.5 mm, 29.5 mm, 13 mm, 53.5 mm) and the pin pitch (2.5 mm). The pin configurations are labeled as 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

[illegible]

Technical drawing of the M636 component, showing top and side views with dimensions.

Top View Dimensions:

- Overall width: 107.5
- Inner width: 93
- Overall height: 45
- Inner height: 32
- Distance from top edge to mounting hole center: 2.ø5.5
- Distance from side edge to mounting hole center: 11
- Distance between mounting holes: 69.6
- Distance from mounting hole center to inner edge: 27.66
- Mounting hole diameter: 4-ø6.1

Side View Dimensions:

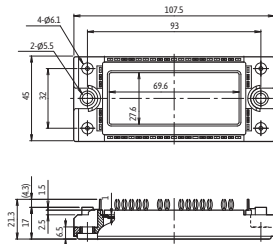
- Overall height: 20.5
- Distance from top edge to mounting hole center: 17
- Distance from mounting hole center to bottom edge: 2.5
- Distance from bottom edge to mounting hole center: 6.5
- Distance from mounting hole center to inner edge: 11.5
- Distance from inner edge to mounting hole center: 1

Labels:

- M636
- Solder pins

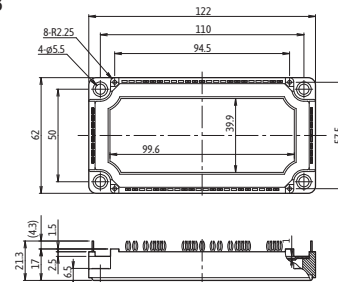
Package Outlines (in mm)

M647



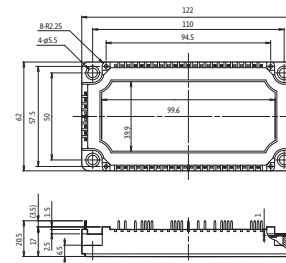
Press fit pins

M648



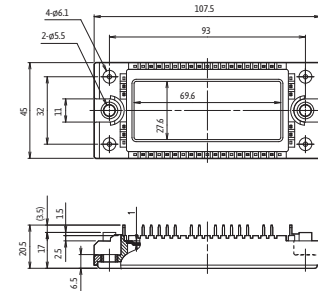
Press fit pins

M668



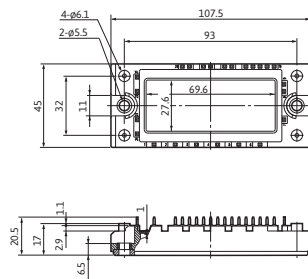
Solder pins

M669



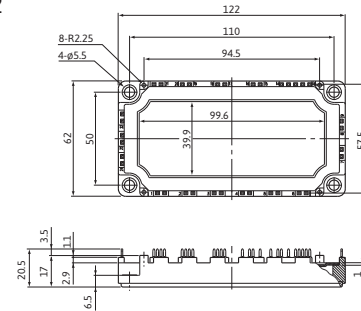
Solder pins

M711



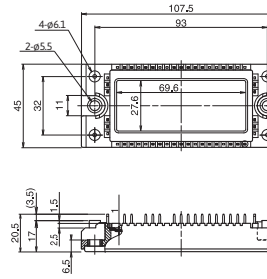
Solder pins

M712



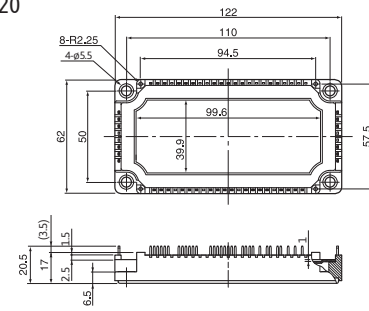
Solder pins

M719



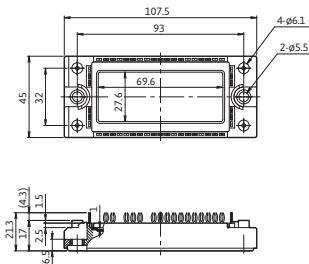
Solder pins

M720



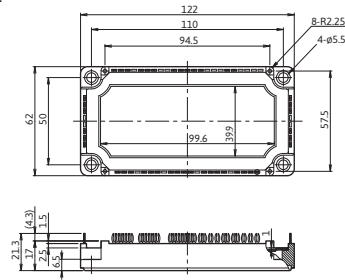
Solder pins

M721



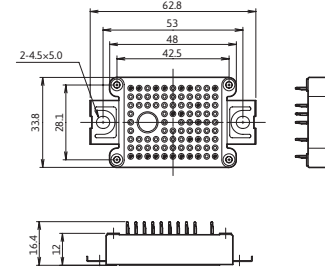
Press fit pins

M722



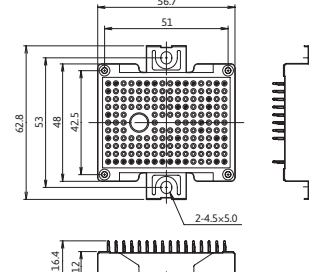
Press fit pins

M726



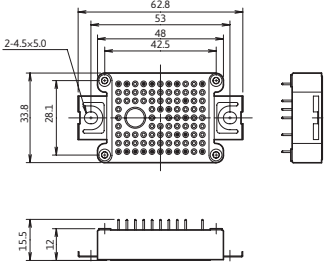
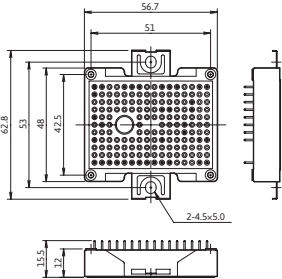
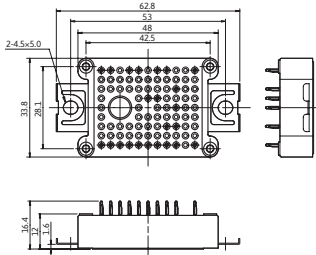
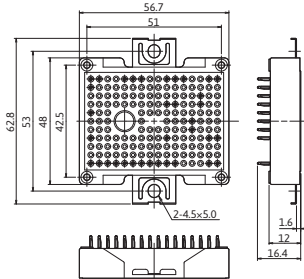
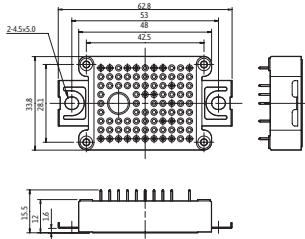
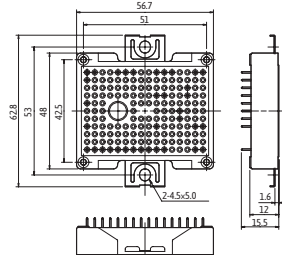
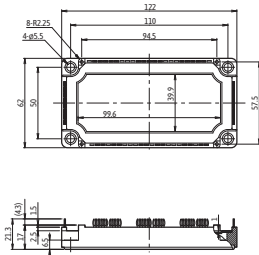
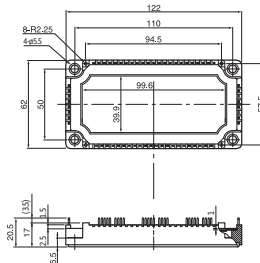
Press fit pins

M727



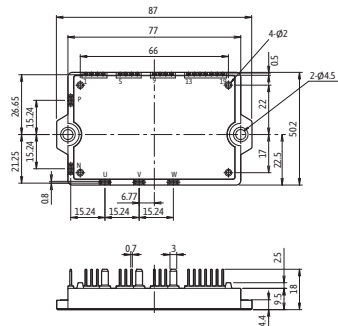
Press fit pins

Package Outlines (in mm)

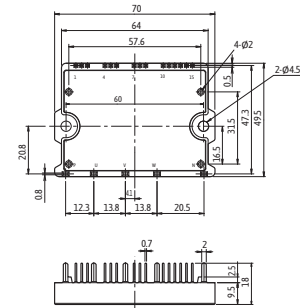
M728  Solder pins	M729  Solder pins	M730  Press fit pins	M731  Press fit pins
M732  Solder pins	M733  Solder pins	M1202  Press fit pins	M1203  Press fit pins

Package Outlines (in mm)

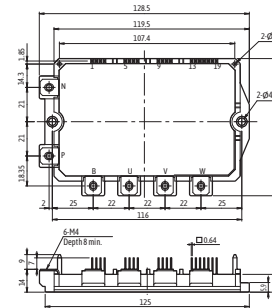
P626



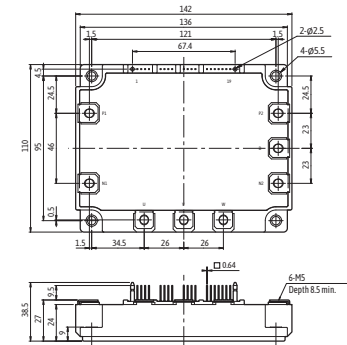
P629



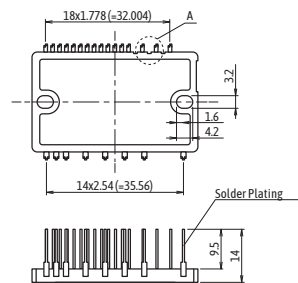
P630



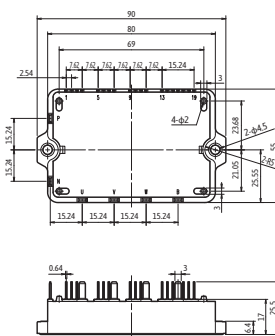
P631



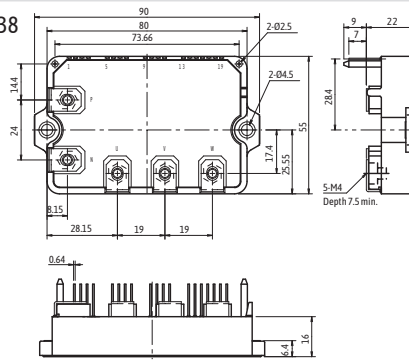
P633A



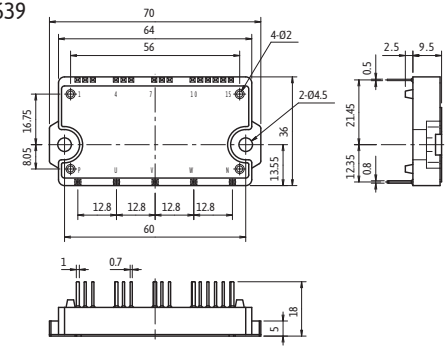
P636



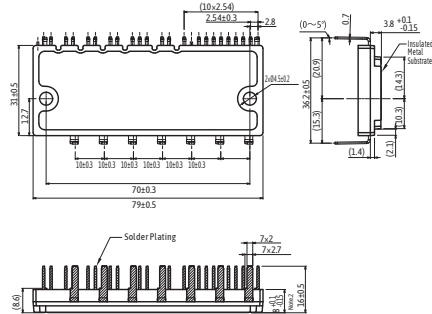
P638



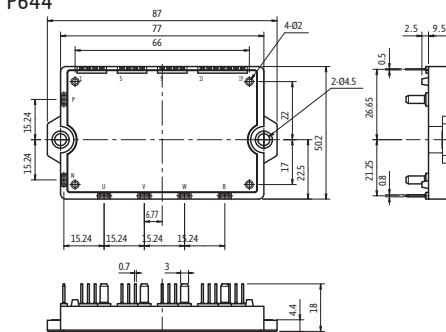
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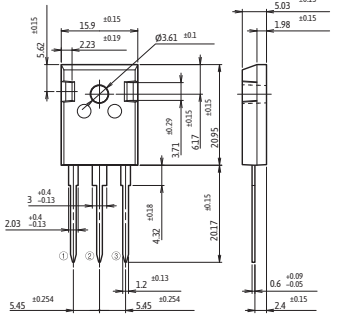
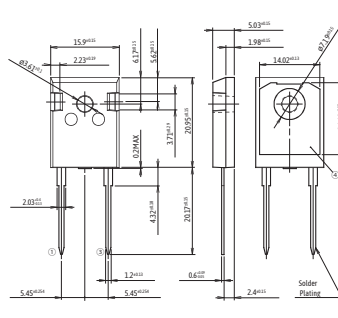
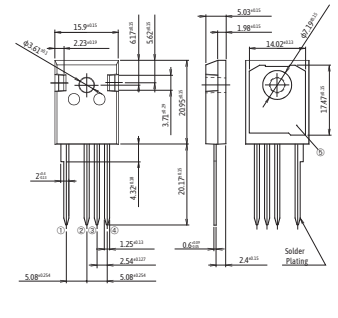
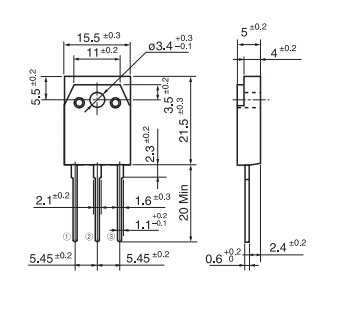
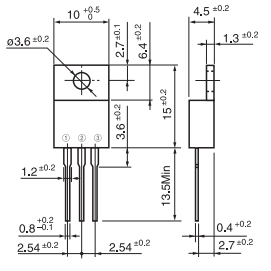
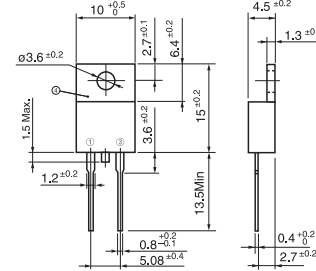
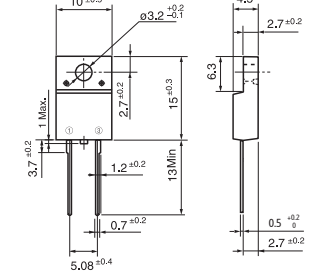
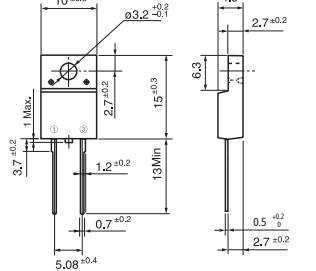
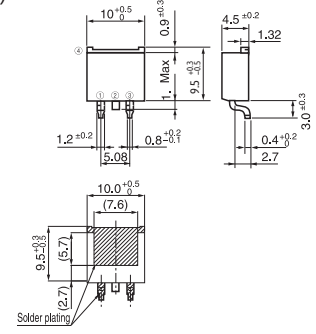
P642



P644



Package Outlines (in mm)

TO-247-P2  Technical drawing of TO-247-P2 package showing top, side, and detail views with dimensions in mm.	TO-247-2-P2  Technical drawing of TO-247-2-P2 package showing top, side, and detail views with dimensions in mm.	TO-247-4-P2  Technical drawing of TO-247-4-P2 package showing top, side, and detail views with dimensions in mm.	TO-247  Technical drawing of TO-247 package showing top, side, and detail views with dimensions in mm.
TO-220  Technical drawing of TO-220 package showing top, side, and detail views with dimensions in mm.	TO-220-2  Technical drawing of TO-220-2 package showing top, side, and detail views with dimensions in mm.	TO-220F  Technical drawing of TO-220F package showing top, side, and detail views with dimensions in mm.	TO-220F-2  Technical drawing of TO-220F-2 package showing top, side, and detail views with dimensions in mm.
T-Packs(s)  Technical drawing of T-Packs(s) package showing top, side, and detail views with dimensions in mm.			

Corporate Social Responsibility

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

Contribution to the Realization of a Sustainable Society

Guided by its corporate philosophy and its management policies, Fuji Electric has continued to contribute to the resolution of social and environmental issues by pursuing innovation in energy and environment technology and creating high-value, eco-friendly products.

We have established the Fuji Electric Code of Conduct as a policy by which the company and all employees come together as one under shared common values.



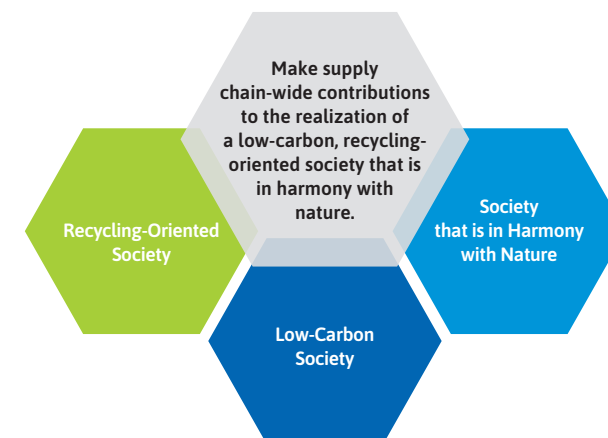
Acting in accordance with this code, Fuji Electric is contributing to the accomplishment of the United Nations Sustainable Development Goals through its business activities.

Environmental Initiatives

Fuji Electric positions the protection of the Earth's environment as a material management issue, and is proactively working to resolve environmental problems such as global warming. We formulated our Environmental Vision 2050, which aims to "realize a low-carbon society," "realize a recycling-oriented society," and "realize a society in harmony with nature" based on the Paris Agreement and the Plan for Global Warming Countermeasures of the Japanese government (Cabinet Decision). We are taking steps to reduce greenhouse gases, promote the 3Rs of "reduce, reuse and recycle," and reduce the impact on the ecosystem throughout the entire supply chain. We have been selected by CDP* as one of the highest rated Climate Change A List Companies 2019, which recognizes companies for their initiatives in addressing climate change and information disclosure policies. In addition, in June 2020, Fuji Electric expressed its support for the Task Force Climate-related Financial Disclosures (TCFD), an international framework for disclosing the financial impacts of climate change. Through the initiatives in our Environmental Vision 2050, we will analyze the financial impact of climate change, reflect it in our management strategies, and actively disclose the information.

* CDP is a non-governmental organization that researches, evaluates, and discloses environmental initiatives worldwide. CDP's primary activity is to call on companies and local governments to disclose information on environmental issues, such as climate change countermeasures, water resource protection, and forest conservation. This activity is based on the requests of global institutional investors and major purchasing companies with a strong interest in environmental issues, and through this activity, CDP encourages the implementation of such countermeasures.

Environmental Vision by 2050



Brand Statement

Innovating Energy Technology

Brand Promise

Through our pursuit of innovation in electric and thermal energy technology, we develop products that maximize energy efficiency and lead to a responsible and sustainable society.

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