



# Power Semiconductors **Selection Guide**

**05|2018**

[www.fujielectric-europe.com](http://www.fujielectric-europe.com)



# Index

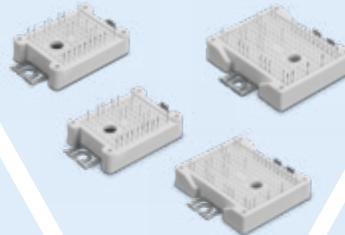
**Page 13**

All SiC 2in1 modules



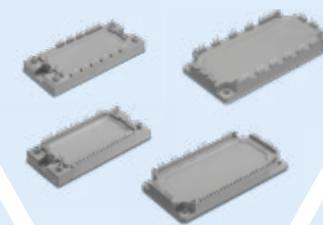
**Page 14**

Small PIM



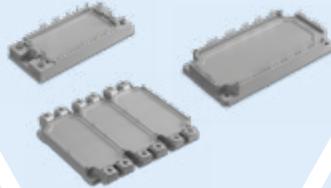
**Page 15 – 16**

PIM



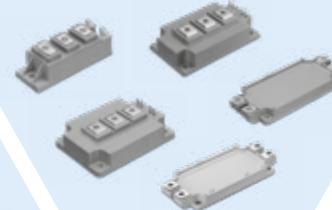
**Page 17-18**

6-Pack



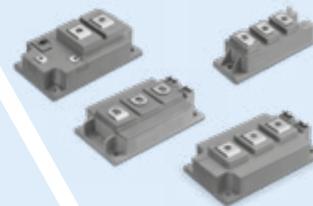
**Page 19-20**

Standard 2-Pack



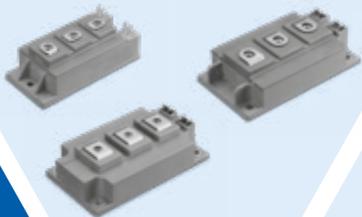
**Page 21**

Standard 1-Pack  
Standard Chopper



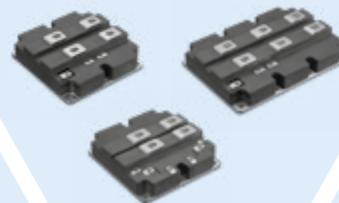
**Page 22**

High Speed Modules



**Page 23**

High Power Modules



**Page 24**

High Power next Core (HPnC)



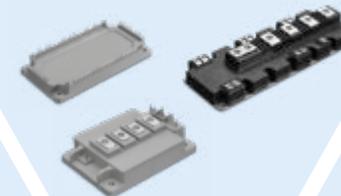
**Page 24 – 25**

PrimePACK™\*



**Page 26**

Advanced T-type NPC 3-level  
Modules



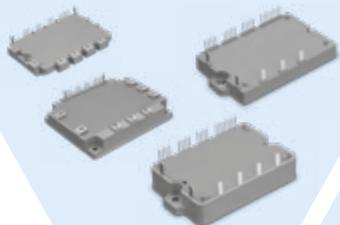
**Page 27**

Small IPM



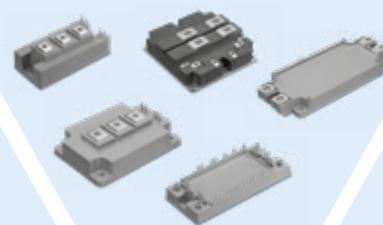
**Page 28 – 30**

IPM (Intelligent Power Modules)



**Page 31**

Hybrid SiC Modules



**Page 32**

Discrete IGBT



**Page 33**

Rectifier Diode; SiC-SBD



**Page 34-41**

Package Outlines (in mm)

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

## Industrialized process for pre-applied 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 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 life time

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

For latest availability status please contact us:  
[info.semi@fujielectric-europe.com](mailto:info.semi@fujielectric-europe.com)



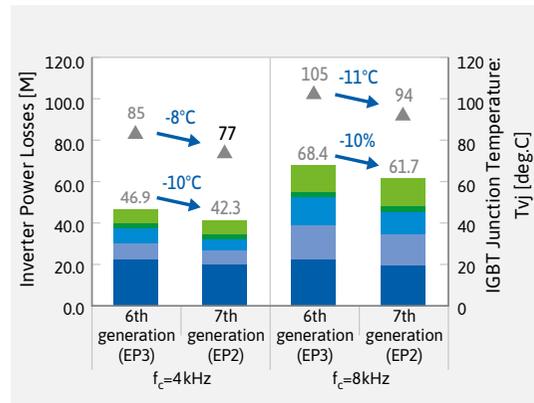
# Features of IGBT Module X series

## 1. Low loss

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



Reduces inverter loss by 10% and chip temperature by 11°C (Comparison 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

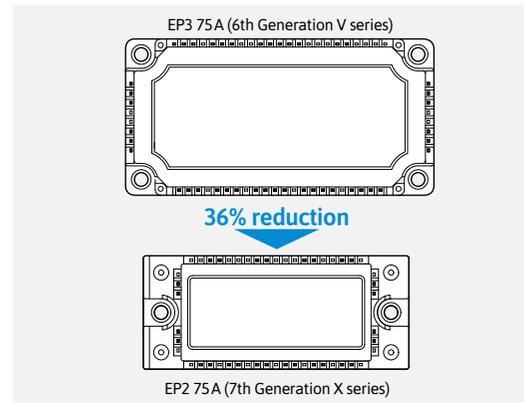
$V_{DC}$ : 600V,  $I_O$ : 35 Arms,  $f_O$ : 50 Hz,  
 Power factor=+0.9, modulation factor=1.0,  
 Reverse recovery  $dv/dt=10$  kV/us

## 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

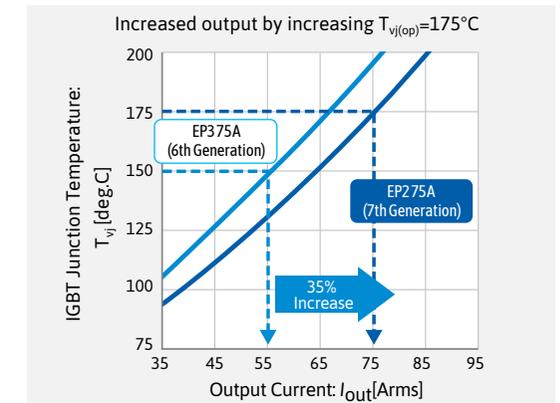


## 3. High temperature operation

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
- ▶  $\Delta T_{vj}$  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	600V	650V	1200V	1700V	3300V	≤50A	>50A ≤150A	>150A ≤300A	>300A ≤600A	>160A ≤1200A		>1200A
		Standard Module	Power Integrated Module	Intelligent Power Module															
	SiC-SBD						•												13
7	Small-PIM EconoPIM™		•																14
			•																15
			•																16
6	6-Pack EconoPACK™	•																	17
																			18
2	Standard 2-Pack	•																	19
																			20
1	Standard 1-Pack Chopper	•																	21
		•																	21
1,2	High Speed Module	•																	22
	High Power Module	•																•	23,24
	High Power Next Core	•																	24
	PrimePACK™	•																•	24,25
4,12	T/I-type NPC 3-level	Reverse-Blocking IGBTs are integrated.						•											26,27
6,7	IPM																		27
				•															28
																			29,30
2,6,7	Hybrid SiC Module	•	•																31
1	Discrete IGBT				•														32
	Rectifier Diode					•													33

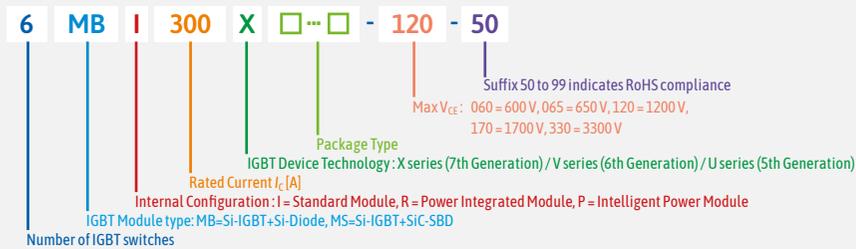
Note: PrimePACK™, EconoPIM™ and EconoPACK™ are registered trademarks of Infineon Technologies AG, Germany



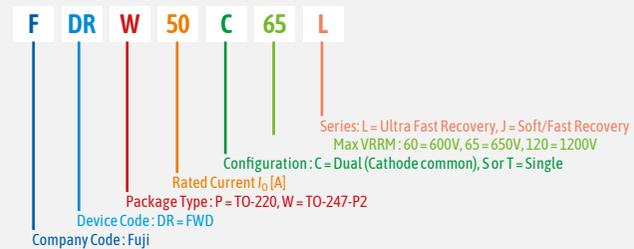
# About Type Name



## IGBT Module Production Number



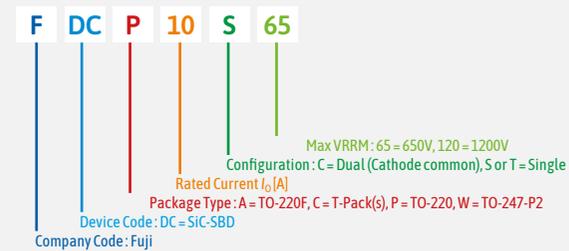
## Rectifier Diode Production Number



## Discrete IGBT Production Number



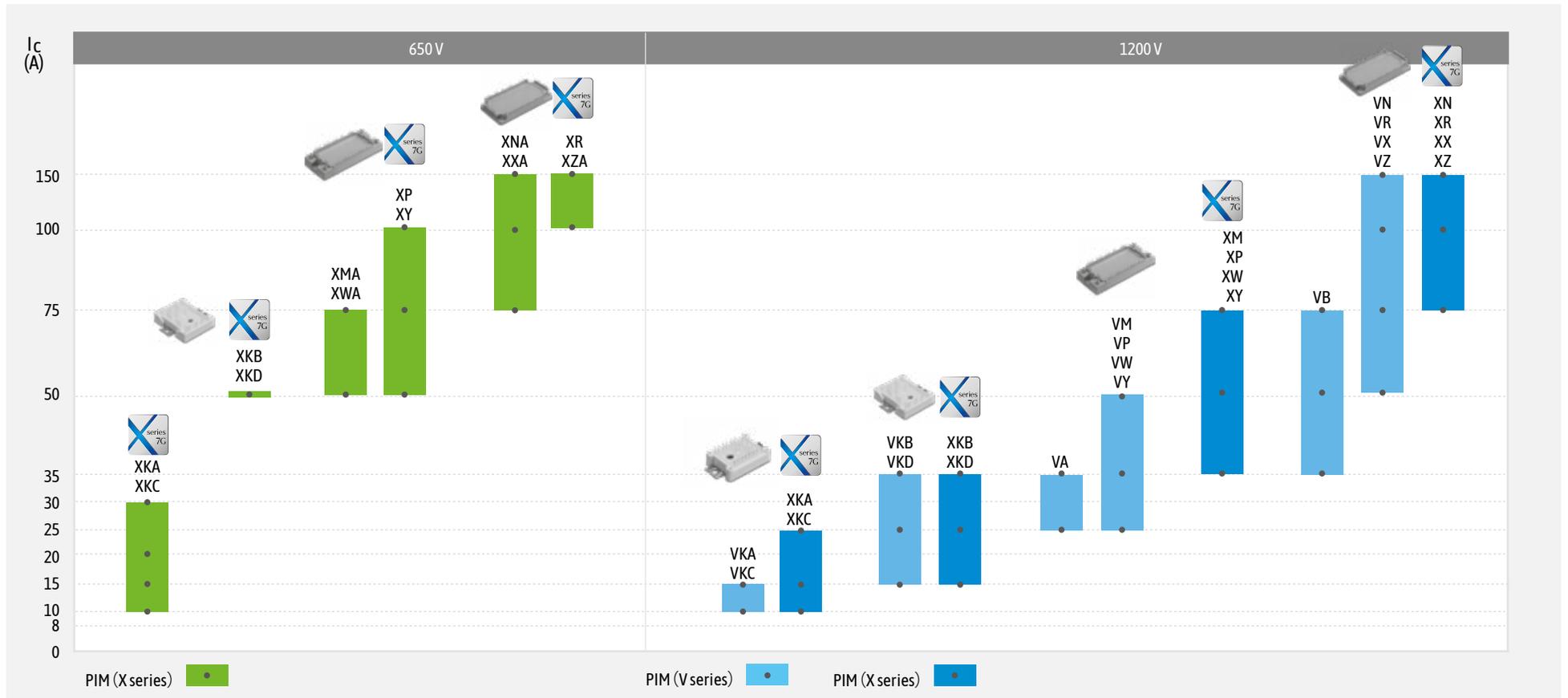
## SiC Schottky-Barrier Diode Production Number



# PIM (Power Integrated Modules) Products Map

7MBR	Ic	IGBT series & Package type				Size	EconoPIM™	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		14
		VKD	VKB	XKD	XKB	56.7 x 62.8 mm		14
		VA, VM, VP	VW, VY	XM, XP	XW, XY	45 x 107.5 mm	EconoPIM™	15,16
		VB, VN, VR	VX, VZ	XN, XR	XX, XZ	62 x 122mm		15,16

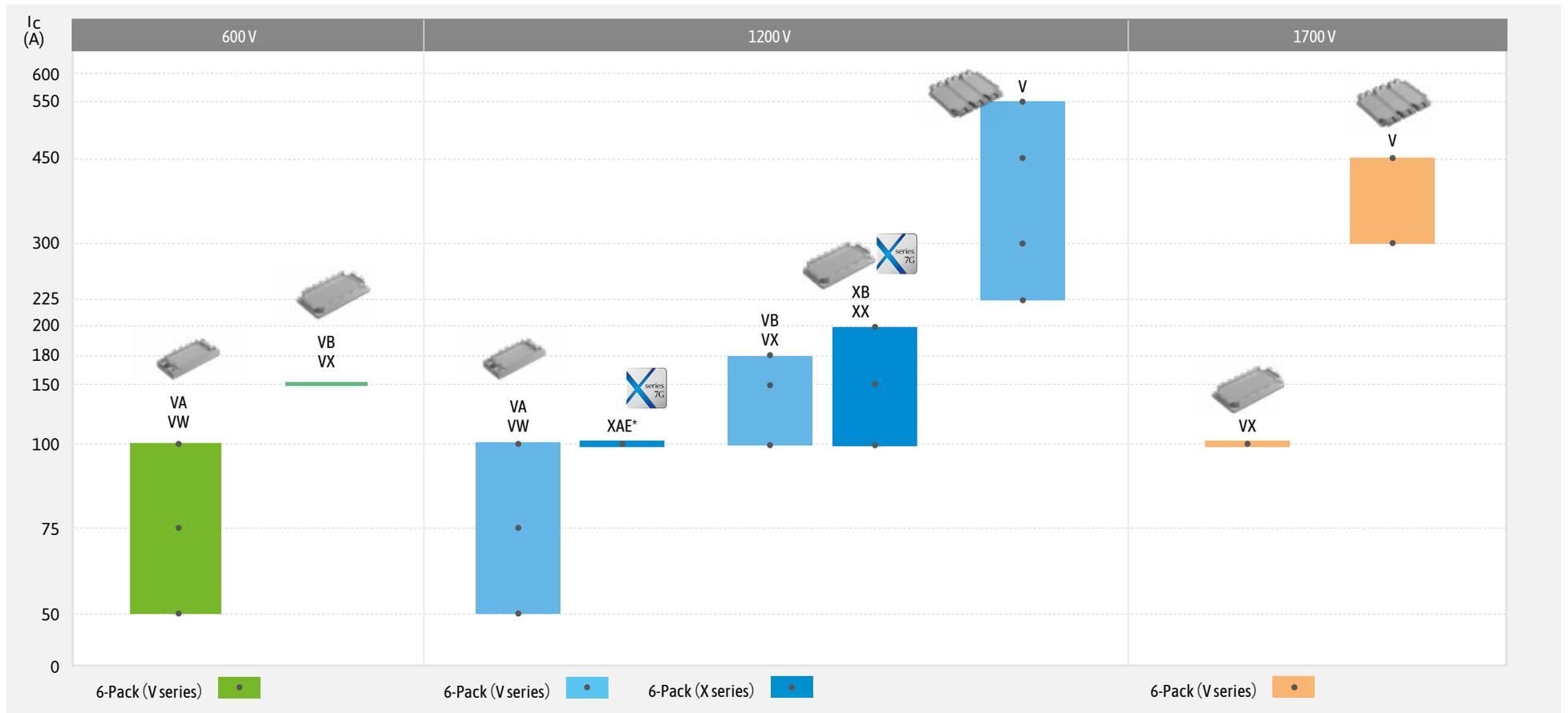
Note:  
EconoPIM™ is registered trademark of  
Infineon Technologies AG, Germany.



# 6-Pack Products Map

6MBI	Ic	IGBT series & Package type				Size		Page
		V series		X series				
		Solder pins	Press fit pins	Solder pins	Press fit pins			
		VA	VW	XAE*		45 x 107.5 mm	EconoPACK™	17
		VB	VX	XB	XX	62 x 122 mm		17
		V				150 x 162 mm	EconoPACK™+	18

Note:  
EconoPACK™ and EconoPACK™+ are registered trademarks of Infineon Technologies AG, Germany.



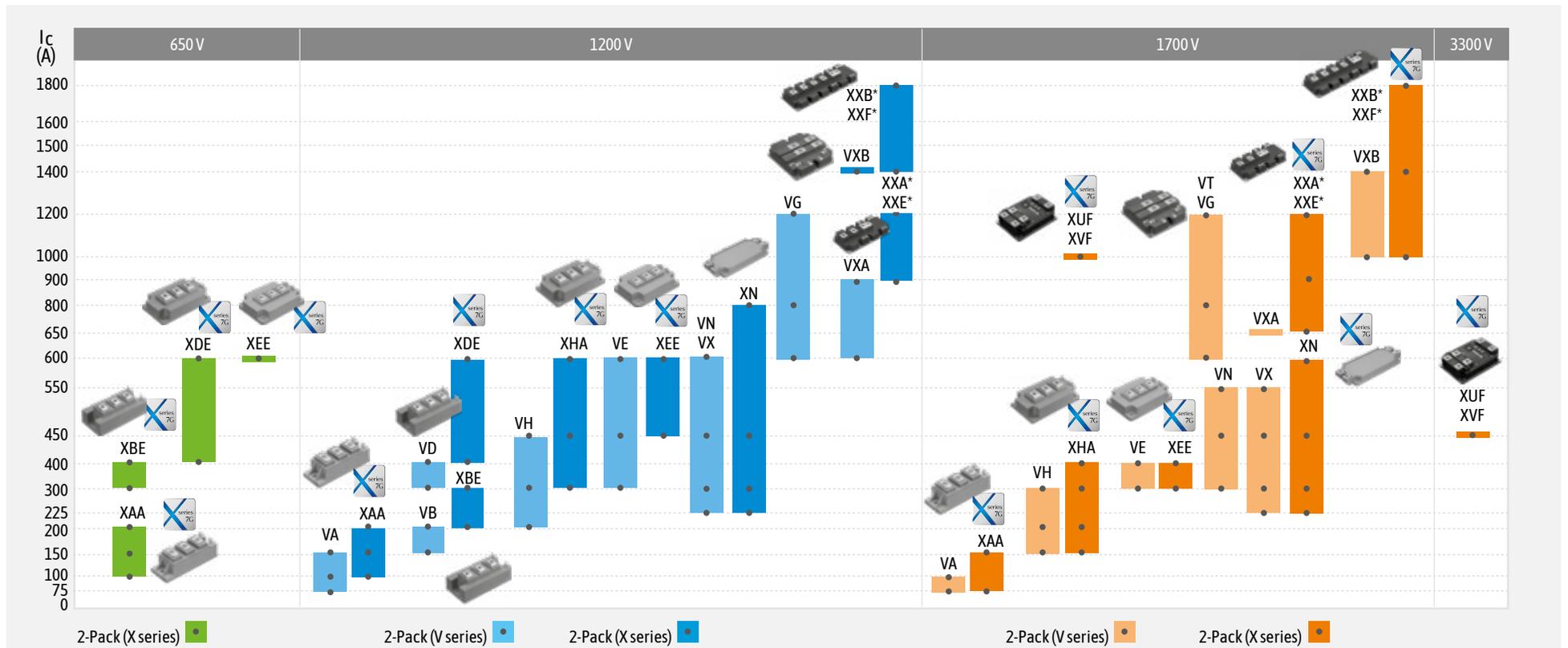
\*Under development



## 2-Pack Products Map

2MBI	Ic	IGBT series & Package type		Size		Page
		V series	X series			
	VA		XAA	34 x 94 mm	Standard Pack	19
	VB		XBE	45 x 92 mm		19
	VD		XDE	62 x 108 mm		19
	VE		XEE	80 x 110 mm		19
	VH		XHA	62 x 108 mm		19
	VN, VX		XN	62 x 150 mm		20
	VG, VT		-	140 x 130 mm		High Power Module
			XUF, XVF	100 x 140 mm		24
	VXA		XXA*, XXE*	100 x 144 mm	PrimePACK™	24
	VXB		XXB*, XXF*	89 x 172 mm		25
				89 x 250 mm		25

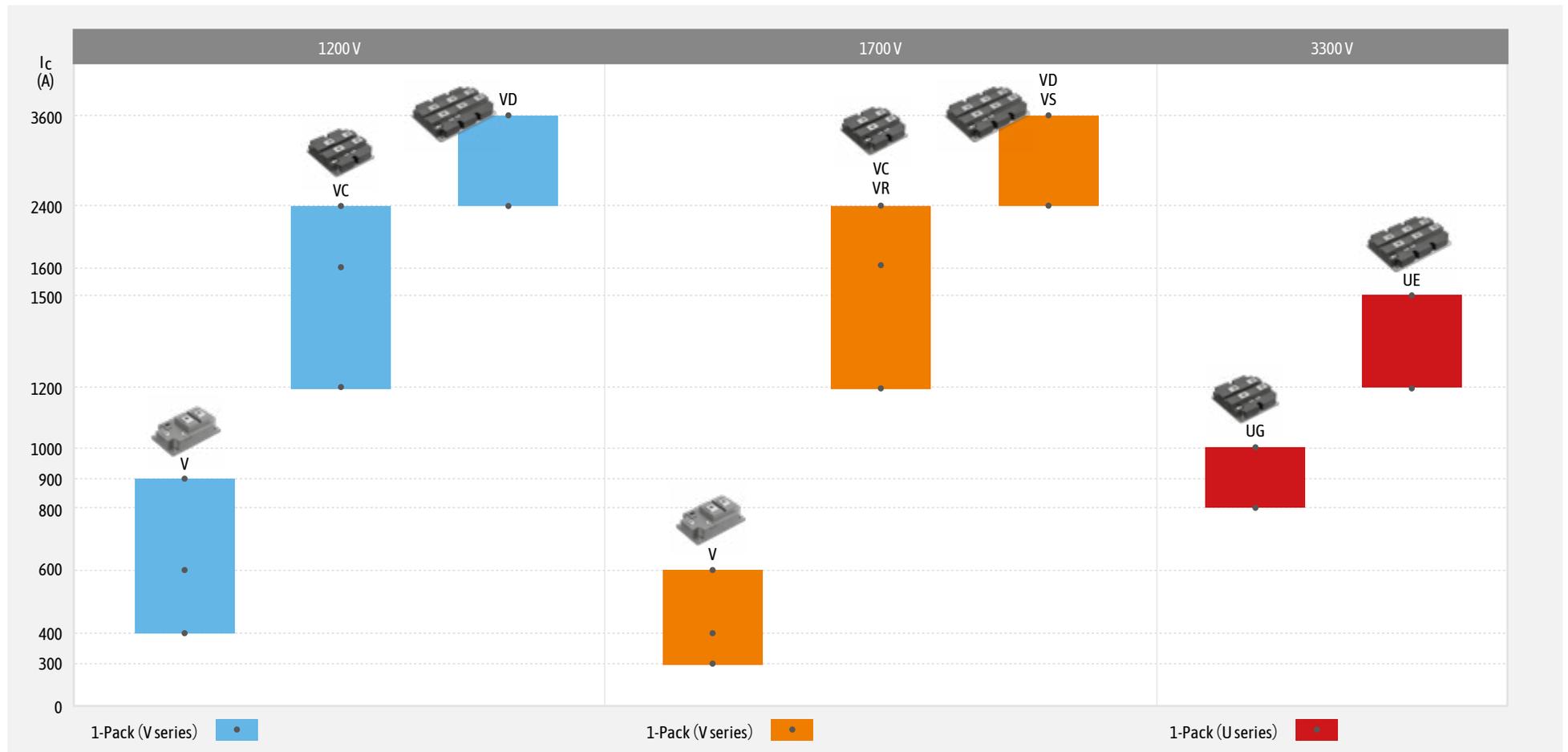
Note:  
PrimePACK™ is registered trademark  
of Infineon Technologies AG, Germany  
\*Under development



\*Under development

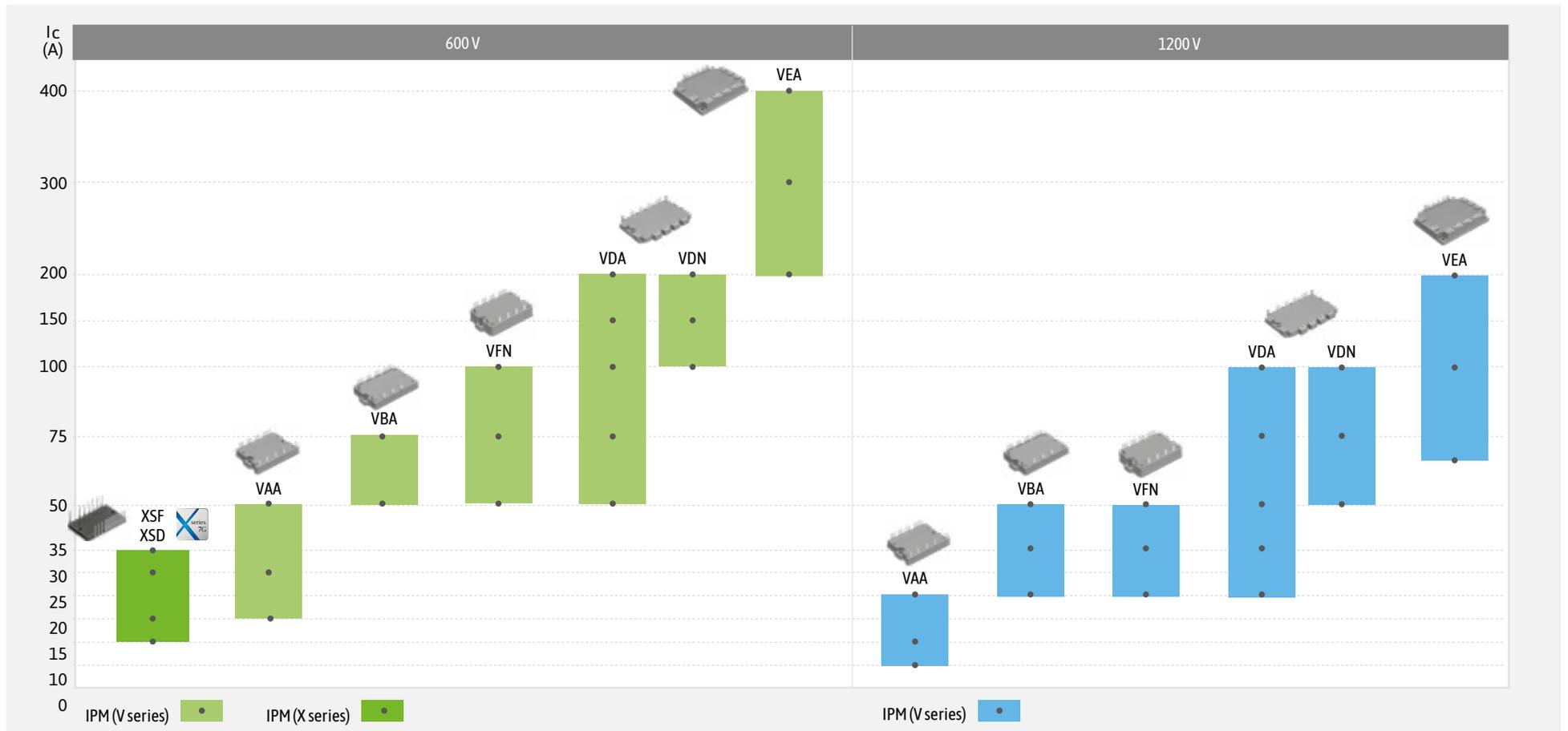
## 1-Pack Products Map

1MBI	Ic	IGBT series & Package type		Page	
		V/U series	Size		
		V	62 × 108 mm	Standard Pack	21
		VC, VR, UG	140 × 130 mm	High Powe Module	23
		VD, VS, UE	140 × 190 mm		23

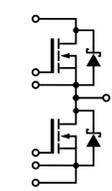
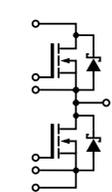
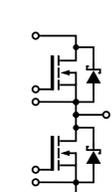


# IPM (Intelligent Power Modules) Products Map

6/7MBI	Ic	IGBT series & Package type			Size	Page
		Vseries		Xseries		
		7 in 1	6 in 1	6 in 1		
	XSD, XSF			•	26 × 43 mm	25
	VAA		•		49.5 × 70 mm	25
	VBA		•		50.2 × 87 mm	25
	VFN	•	•		55 × 90 mm	25
	VDA, VDN	•	•		84 × 128.5 mm	26
	VEA	•	•		110 × 142 mm	27



## All SiC 2in1 modules (SiC MOS-FET & SiC Schottky diode)

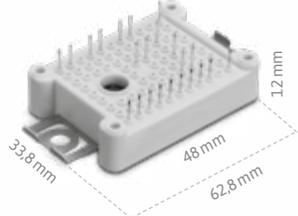
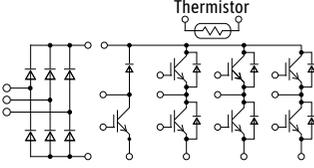
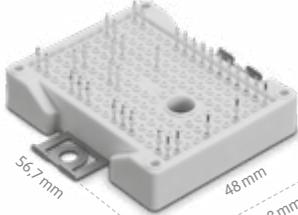
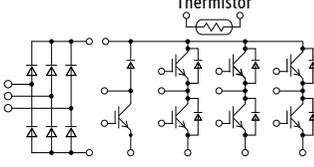
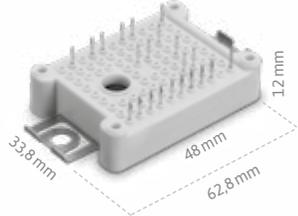
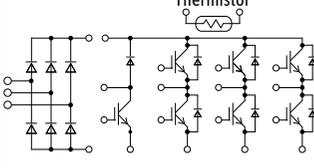
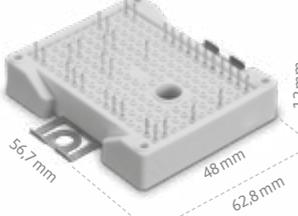
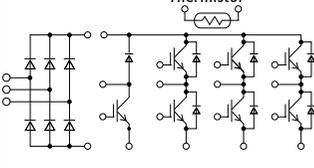
			1200 V	
			lc	1st gen. TrenchMOS 
2-Pack	 <p>20 mm 60 mm 12 mm</p> <p>C206</p>		25 A	2CSI25CAA120-50*
			50 A	2CSI50CAA120-50*
			75 A	2CSI75CAB120-50*
	 <p>26 mm 68 mm 13 mm</p> <p>C207</p>		100 A	2CSI100CAB120-50*
			200 A	2CSI200CAC120-50*
	 <p>45 mm 126 mm 13 mm</p> <p>C208</p>		300 A	2CSI300CAC120-50*
			400 A	2CSI400CAC120-50*

\*Under development

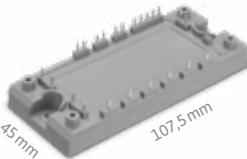
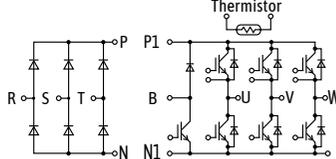
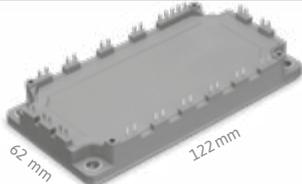
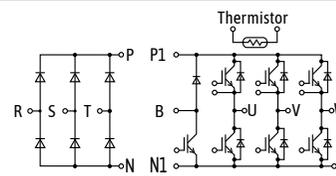
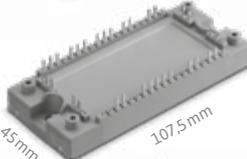
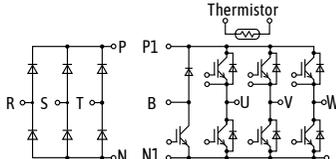
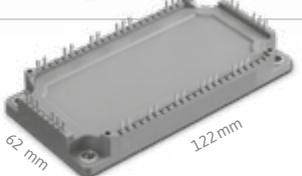
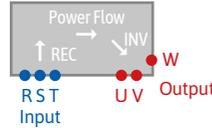
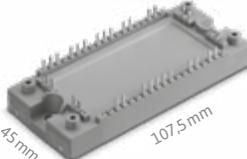
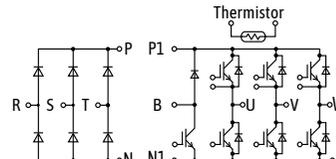
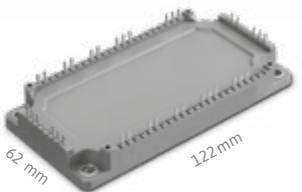
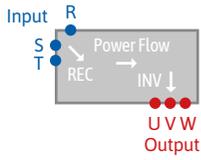


# Small PIM (Power Integrated Modules)



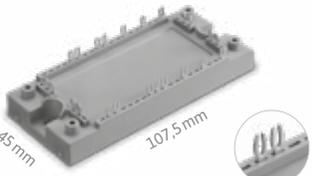
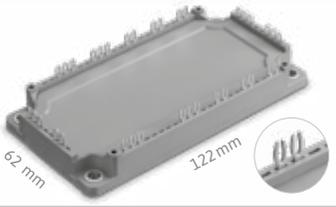
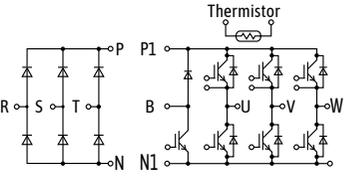
		650 V 		1200 V 	
		Ic	X series	V/X series	
<b>With NTC, press fit pins</b>	 V: M726, X: M730		10 A 7MBR10XKA065-50 15 A 7MBR15XKA065-50 20 A 7MBR20XKA065-50 25 A 30 A 7MBR30XKA065-50	7MBR10VKA120-50 7MBR15VKA120-50 7MBR25XKA120-50	7MBR10XKA120-50 7MBR15XKA120-50 7MBR25XKA120-50
	 V: M727, X: M731		15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

# PIM (Power Integrated Modules) EconoPIM™

		650 V 		1200 V 		
		X series		V/X series		
With NTC, solder pins. PIM	M711 		25 A		7MBR25VA120-50	
			35 A		7MBR35VA120-50	
	M712 		35 A		7MBR35VB120-50	
			50 A		7MBR50VB120-50	
			75 A		7MBR75VB120-50	
	M719 		25 A		7MBR25VM120-50	
			35 A		7MBR35VM120-50	7MBR35XMA120-50
			50 A	7MBR50XMA065-50	7MBR50VM120-50	7MBR50XMA120-50
			75 A	7MBR75XMA065-50		7MBR75XME120-50
	M720 		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	
M719 		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	
M720 		50 A		7MBR50VR120-50		
		75 A		7MBR75VR120-50	7MBR75XRA120-50	
		100 A	7MBR100XRA065-50	7MBR100VR120-50	7MBR75XRE120-50	
		150 A	7MBR150XRA065-50	7MBR150VR120-50	7MBR100XRE120-50	
			7MBR150XRE065-50		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™

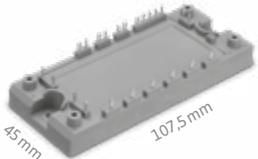
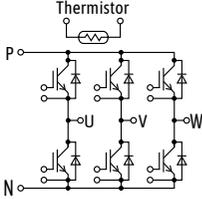
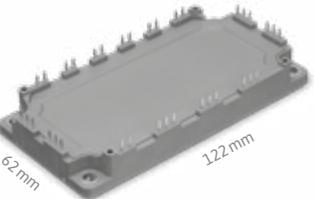
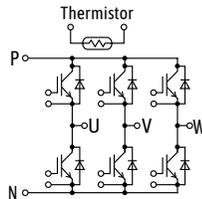
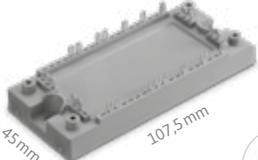
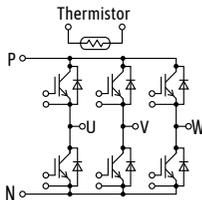
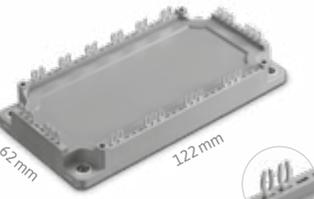
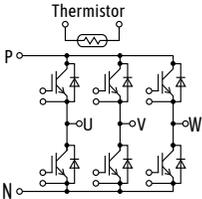
		650 V 		1200 V 		
		X series		V/X series		
		Ic				
With NTC, press fit pins	 		25 A		7MBR25VW120-50, (-80°)	
			35 A		7MBR35VW120-50, (-80°)	7MBR35XWA120-50
	M721	50 A	7MBR50XWA065-50	7MBR50VW120-50, (-80°)	7MBR50XWA120-50	
		75 A	7MBR75XWA065-50			7MBR75XWE120-50
		50 A		7MBR50VX120-50, (-80°)		
		75 A	7MBR75XXA065-50	7MBR75VX120-50, (-80°)	7MBR75XXA120-50	
		100 A	7MBR100XXA065-50	7MBR100VX120-50, (-80°)	7MBR100XXA120-50	
		150 A	7MBR150XXA065-50	7MBR150VX120-50, (-80°)	7MBR150XXE120-50	
		25 A		7MBR25VY120-50, (-80°)		
		35 A		7MBR35VY120-50, (-80°)	7MBR35XYA120-50	
	M721	50 A	7MBR50XYA065-50	7MBR50VY120-50, (-80°)	7MBR50XYA120-50	
		75 A	7MBR75XYA065-50			7MBR75XYE120-50
		100 A	7MBR100XYE065-50			
		50 A		7MBR50VZ120-50, (-80°)		
		75 A		77MBR75VZ120-50, (-80°)	7MBR75XZA120-50	
		100 A	7MBR100XZA065-50	7MBR100VZ120-50, (-80°)	7MBR100XZA120-50	
M722	150 A	7MBR150XZA065-50	7MBR150VZ120-50, (-80°)	7MBR150XZE120-50		

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.

Note 3: "-80°": Pre-Applied Thermal-Interface-Material for "-50°"

# 6-Pack EconoPACK™

		600 V	1200 V		1700 V	
		Ic	Vseries	V/Xseries	Vseries	
With NTC, solder pins	 <p>45 mm 107.5 mm</p> <p>V: M636, X: M669 Solder Pins</p> 	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*	
	 <p>62 mm 122 mm</p> <p>V: M633, X: M668 Solder Pins</p> 	100 A		6MBI100VB-120-50	6MBI100XBA120-50	
		150 A	6MBI150VB-060-50	6MBI150VB-120-50	6MBI150XBA120-50	
		180 A		6MBI180VB-120-50		
200 A			6MBI180VB-120-55			
With NTC, press fit pins	 <p>45 mm 107.5 mm</p> <p>M647 Press fit Pins</p> 	50 A	6MBI50VW-060-50	6MBI50VW-120-50		
		75 A	6MBI75VW-060-50	6MBI75VW-120-50		
		100 A	6MBI100VW-060-50	6MBI100VW-120-50		
	 <p>62 mm 122 mm</p> <p>M648 Press fit Pins</p> 	100 A		6MBI100VX-120-50, (-80°)	6MBI100XXA120-50	6MBI100VX-170-50, (-80°)
		150 A	6MBI150VX-060-50, (-80°)	6MBI150VX-120-50, (-80°)	6MBI150XXA120-50	
		180 A		6MBI180VX-120-50, (-80°)		
200 A			6MBI180VX-120-55, (-80°)			

Note 1: 6MBI180VB-120-55, 6MBI180VX-120-55; Premium type (Low Thermal Impedance Version)

Note 2: Pin assignment of output terminals changes within the range of colored position depending on output current.

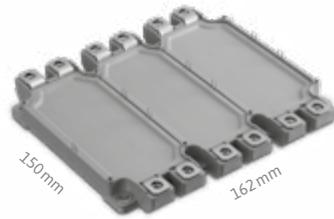
Note 3: EconoPACK™ is registered trademark of Infineon Technologies AG, Germany.

Note 4: "-80", "-85": Pre-Applied Thermal-Interface-Material for "-50", "-55"

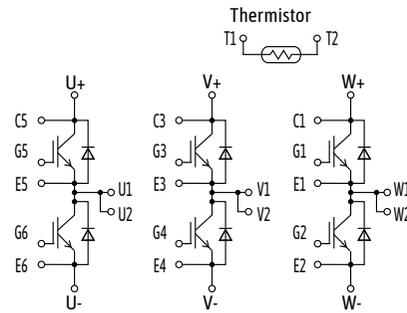
\*Under development

# 6-Pack EconoPACK™+

With NTC, High power 6-Pack



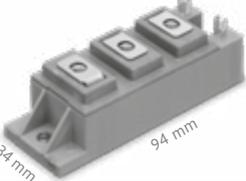
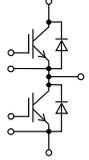
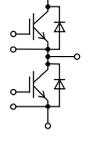
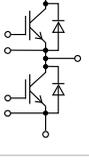
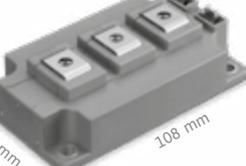
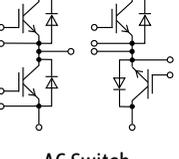
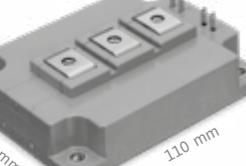
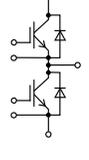
M629



	1200 V	1700 V
Ic	V series	V series
225 A	6MBI225V-120-50	
300 A	6MBI300V-120-50	6MBI300V-170-50
450 A	6MBI450V-120-50	6MBI450V-170-50, (-80°)
550 A	6MBI550V-120-50	

Note1: EconoPACK™+ is registered trademark of Infineon Technologies AG, Germany.  
 Note 2: "-80°": Pre-Applied Thermal-Interface-Material for "-50°"

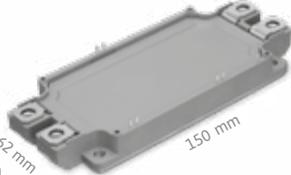
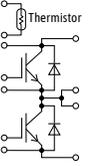
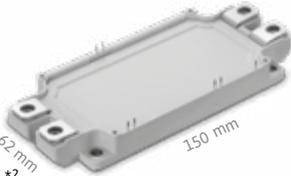
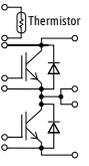
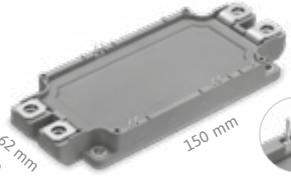
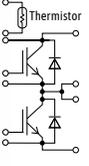
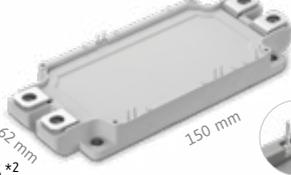
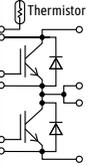
## Standard 2-Pack

	Ic	650 V	1200 V		1700 V	
		X series	V/X series		V series	X series
<b>M263</b>  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		
<b>M274</b>  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				
<b>M275</b>  62 mm 108 mm 	300 A		2MBI300VD-120-50			
	400 A	2MBI400XDE065-50	2MBI400VD-120-50	2MBI400XDE120-50		
	600 A	2MBI600XDE065-50		2MBI600XDE120-50		
<b>M276</b>  62 mm 108 mm  AC-Switch	150 A				2MBI150VH-170-50, (-80°)	2MBI150XHA170-50
	200 A		2MBI200VH-120-50, (-80°)		2MBI200VH-170-50, (-80°)	2MBI200XHA170-50
	300 A		2MBI300VH-120-50, (-80°)	2MBI300XHA120-50	2MBI300VH-170-50, (-80°)	2MBI300XHA170-50
	400 A					2MBI400XHA170-50
	450 A		2MBI450VH-120-50, (-80°)	2MBI450XHA120-50		
	600 A		2MBI450VH-120F-5, (-80°) <sup>1</sup>			
<b>M277</b>  80 mm 110 mm 	300 A		2MBI300VE-120-50, (-80°)		2MBI300VE-170-50, (-80°)	2MBI300XEE170-50
	400 A				2MBI400VE-170-50, (-80°)	2MBI400XEE170-50
	450 A		2MBI450VE-120-50, (-80°)	2MBI450XEE120-50		
	600 A	2MBI600XEE065-50	2MBI600VE-120-50, (-80°)	2MBI600XEE120-50		

Note 1: AC-Switch

Note 2: "-80°": Pre-Applied Thermal-Interface-Material for "-50°"

## Standard 2-Pack

			1200 V			1700 V			
			Ic	Vseries	Vseries with SIN-substrate <sup>*1</sup>	Xseries 	Vseries	Vseries with SIN-substrate <sup>*1</sup>	Xseries 
With NTC, solder pins	 M254 62 mm 150 mm		225 A	2MBI225VN-120-50, (-80 <sup>*</sup> )	2MBI225VN-120S-50	2MBI225XNA120-50			2MBI225XNA170-50
			300 A	2MBI300VN-120-50, (-80 <sup>*</sup> )	2MBI300VN-120S-50, (-80 <sup>*</sup> )	2MBI300XNA120-50	2MBI300VN-170-50, (-80 <sup>*</sup> )		2MBI300XNA170-50
			450 A	2MBI450VN-120-50, (-80 <sup>*</sup> )	2MBI450VN-120S-50, (-80 <sup>*</sup> )	2MBI450XNA120-50	2MBI450VN-170-50, (-80 <sup>*</sup> )		2MBI450XNA170-50
			550 A					2MBI550VN-170-50, (-80 <sup>*</sup> )	
			600 A			2MBI600XNG120-50		2MBI600XNG170-50	
	 M285 <sup>*2</sup> 62 mm 150 mm		600 A		2MBI600VN-120-50, (-80 <sup>*</sup> )	2MBI600XNE120-50			2MBI600XNE170-50
			800 A			2MBI800XNE120-50			
With NTC, press fit pins	 M282 62 mm 150 mm		225 A	2MBI225VX-120-50, (-80 <sup>*</sup> )		2MBI225XNB120-50	2MBI225VX-170-50, (-80 <sup>*</sup> )		2MBI225XNB170-50
			300 A	2MBI300VX-120-50, (-80 <sup>*</sup> )		2MBI300XNB120-50	2MBI300VX-170-50, (-80 <sup>*</sup> )		2MBI300XNB170-50
			450 A	2MBI450VX-120-50, (-80 <sup>*</sup> )		2MBI450XNB120-50	2MBI450VX-170-50, (-80 <sup>*</sup> )		2MBI450XNB170-50
			550 A					2MBI550VX-170-50, (-80 <sup>*</sup> )	
			600 A		2MBI600VX-120-50, (-80 <sup>*</sup> )	2MBI600XNH120-50		2MBI600XNH170-50	
	 M286 <sup>*2</sup> 62 mm 150 mm		600 A			2MBI600XNF120-50			2MBI600XNF170-50
			800 A			2MBI800XNF120-50			

Note 1: <sup>\*1</sup> Low Thermal Impedance Version

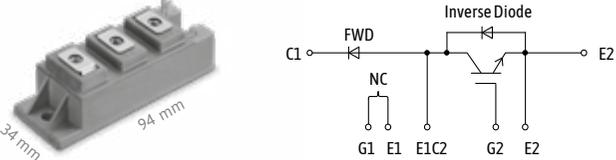
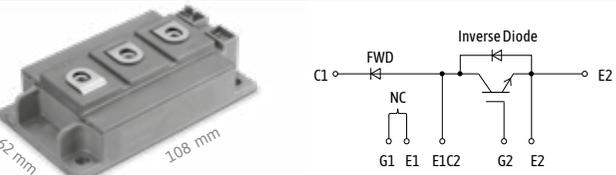
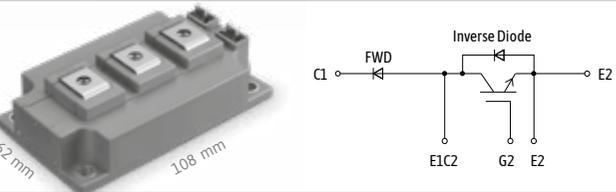
Note 2: <sup>\*2</sup> Low thermal impedance and high tracking capability type

Note 3: <sup>\*3</sup> "-80°": Pre-Applied Thermal-Interface-Material for "-50°"

## Standard 1-Pack

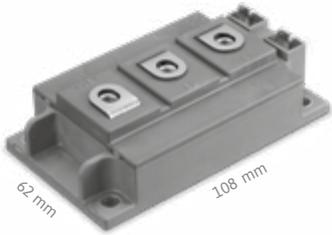
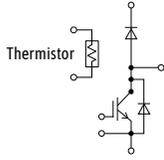
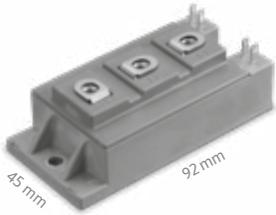
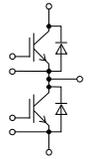
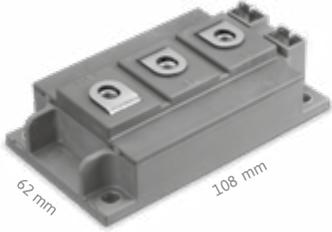
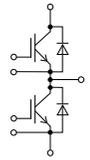
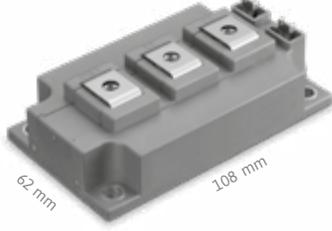
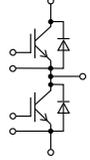
		1200 V		1700 V	
		V series		V series	
		Aluminium oxide DCB	Aluminium nitride DCB	Aluminium oxide DCB	
1-Pack		Ic			
		300 A		1MBI300V-170-50	
		400 A	1MBI400V-120-50	1MBI400VF-120-50	1MBI400V-170-50
		600 A	1MBI600V-120-50	1MBI600VF-120-50	1MBI600V-170-50
		900 A	1MBI900V-120-50		

## Standard Chopper

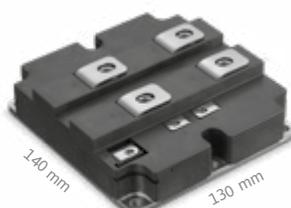
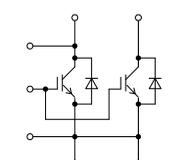
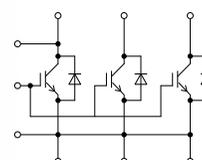
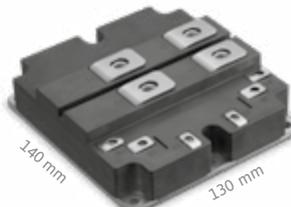
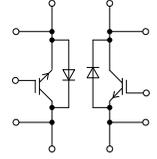
		600 V		1200 V		
		U/V series		U/V series		
Chopper		Ic				
		50 A			1MBI50U4F-120L-50	
		75 A			1MBI75U4F-120L-50	
		100 A			1MBI100U4F-120L-50	
		150 A				1MBI150VA-120L-50
	200 A				1MBI200VA-120L-50	
		200 A			1MBI200U4H-120L-50	
		300 A	1MBI300U2H-060L-50			
	400 A		1MBI400VH-060L-50			

# High Speed Modules



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

# High Power Modules

		1200V		1700V		3300V	
		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
		Ic					
1-Pack	 	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		
1-Pack	 	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	 	600 A	2MBI600VG-120P	2MBI600VG-170E	2MBI600VT-170E		
		800 A	2MBI800VG-120P	2MBI800VG-170E	2MBI800VT-170E		
		1200 A	2MBI1200VG-120P	2MBI1200VG-170E	2MBI1200VT-170E		

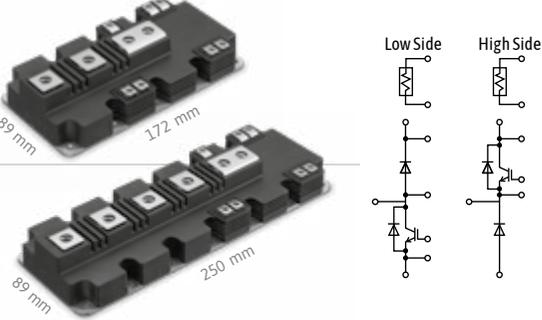
Note: M151, M152, M256: Cu-baseplate M155, M156, M278: AlSiC-baseplate

## High Power next Core (HPnC)

		1700 V	3300 V
		X series	
		7th Generation	
		Ic	
M288, Type A		450 A	2MBI450XUF330-50*
		1000 A	2MBI1000XUF170-50*
M292, Type C		450 A	2MBI450XVF330-50*
		1000 A	2MBI1000XVF170-50*

\*Under development

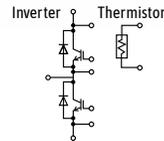
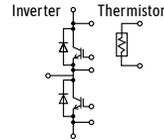
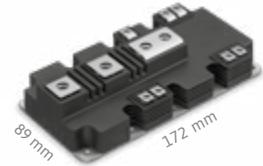
## PrimePACK™

		1200 V		1700 V		
		V series		V series		
		Ic	Low side configuration	High side configuration	Low side configuration	High side configuration
Chopper		650 A			1MBI650VXA-170EL-50	1MBI650VXA-170EH-50
						1MBI650VXA-170EL-54, (-80°)
		900 A	1MBI900VXA-120PD-50 <sup>+1</sup>	1MBI900VXA-120PC-50 <sup>+1</sup>		
			1MBI900VXA-120PD-54 <sup>+1</sup> , (-80°)	1MBI900VXA-120PC-54 <sup>+1</sup> , (-80°)		
		1000 A			1MBI1000VXB-170EL-50	1MBI1000VXB-170EH-50
					1MBI1000VXB-170EL-54, (-80°)	1MBI1000VXB-170EH-54, (-80°)
1400 A			1MBI1400VXB-170PL-50	1MBI1400VXB-170PH-50		
	1MBI1400VXB-120PL-54, (-80°)	1MBI1400VXB-120PH-54, (-80°)	1MBI1400VXB-170PL-54, (-80°)	1MBI1400VXB-170PH-54, (-80°)		

Note 1: The products with suffix '-54' on this page are labeled to specify the rank of Vsat and VF.  
 Note 2: "-80°": Pre-Applied Thermal-Interface-Material for "-54"

Note 3: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.  
 Note 4: \*: Antiparallel diode current rating is 120A. Application circuit is Boost/Buck chopper only.

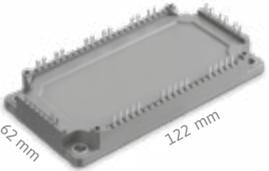
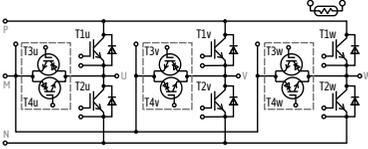
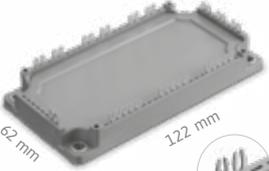
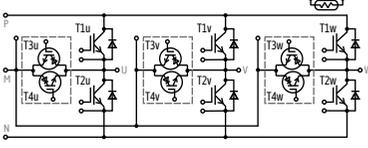
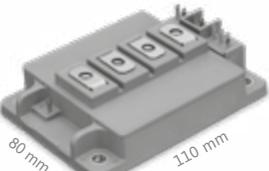
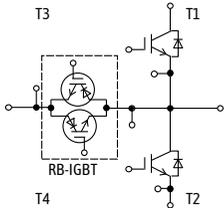
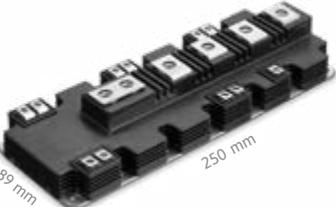
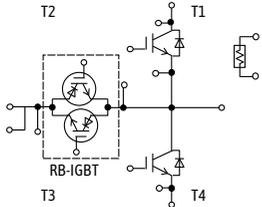
		1200 V				1700 V			
		V series		X series		V series		X series	
		Low switching loss	Soft turn off	Low switching loss	Soft turn off	Low switching loss	Soft turn off		
2-Pack	M271	600 A	2MBI600VXA-120E-50						
			2MBI600VXA-120E-54, (-80°)						
		650 A					2MBI650VXA-170E-50		2MBI650XXA170-50*
							2MBI650VXA-170E-54, (-80°)		
							2MBI650VXA-170EA-50		
	900 A					2MBI650VXA-170EA-54, (-80°)			
	1200 A								
	M272	1000 A					2MBI1000VXB-170E-50		2MBI1000XXB170-50*
						2MBI1000VXB-170E-54, (-80°)			
						2MBI1000XB-170EA-50			
						2MBI1000XB-170EA-54, (-80°)			
1400 A						2MBI1400VXB-170E-50	2MBI1400VXB-170P-50	2MBI1400XXB170-50*	
						2MBI1400VXB-170E-54, (-80°)	2MBI1400VXB-170P-54, (-80°)		
1800 A									
					2MBI1800XXF120P-50*		2MBI1800XXF170-50*		



Note 1: The products with suffix '-54' on this page are labeled to specify the rank of Vsat and VF.  
 Note 2: The products with 'EA' on this page have large FWD.  
 Note 3: PrimePACK™ is registered trademark of Infineon Technologies AG, Germany.  
 Note 4: "-80°": Pre-Applied Thermal-Interface-Material for "-54"

\*Under development

## Advanced T-type NPC 3-level Modules

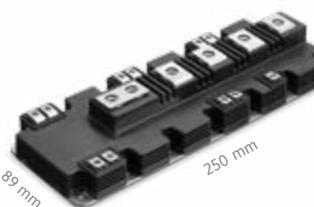
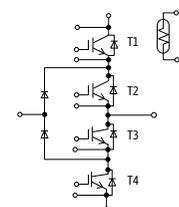
		600V		1200V		1700V		
		Ic	V series	RB-IGBT	V series	RB-IGBT	V series	RB-IGBT
3 Phase With NTC, solder pins	 62 mm x 122 mm  M1203	50 A			12MBI50VN-120-50	600V		
		75 A			12MBI75VN-120-50	600V		
		100 A			12MBI100VN-120-50	600V		
3 Phase With NTC, press fit pins	 62 mm x 122 mm  M1202	50 A			12MBI50VX-120-50	600V		
		75 A			12MBI75VX-120-50	600V		
		100 A			12MBI100VX-120-50	600V		
1 Phase	 80 mm x 110 mm  M403	220 A					4MBI220VG-170R2-50	1200V
		300 A			4MBI300VG-120R-50	600V		
					4MBI300VG-120R1-50	900V		
		340 A			4MBI340VF-120R-50	600V		
		400 A	4MBI400VG-060R-50	600V	4MBI400VF-120R-50*1	600V		
		450 A			4MBI450VF-120RD-50*2*3	600V		
1 Phase	 89 mm x 250 mm  M404	450 A			4MBI450VB-120R1-50	900V	4MBI450VB-170R2-50	1200V
					4MBI450VB-120R1-60*4	900V	4MBI450VB-170R2-60*4	1200V
		600 A					4MBI600VB-170R2-50	1200V
							4MBI600VB-170R2-60*4	1200V
		650 A			4MBI650VB-120R1-50	900V		
					4MBI650VB-120R1-60*4	900V		
		900 A			4MBI900VB-120R1-50	900V		
					4MBI900VB-120R1-60*4	900V		
			4MBI900VB-120RA-50	900V				
			4MBI900VB-120RA-60*4	900V				

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: -60 is module with characteristics indication

## I-type NPC 3-level Module

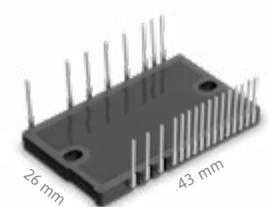
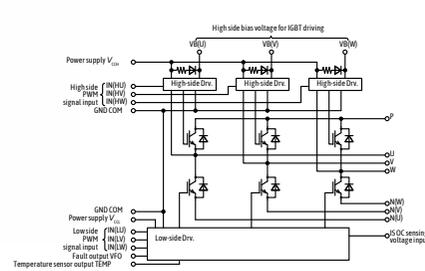
		600V	1200V	1700V
		Vseries	Vseries	Vseries
1 Phase	 	Ic 600 A	4MBI600VC-120-50	

## 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)



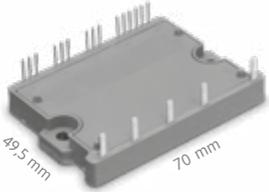
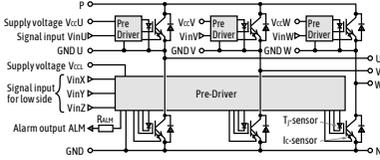
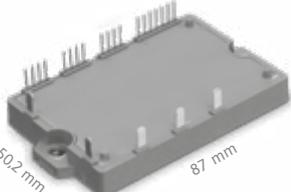
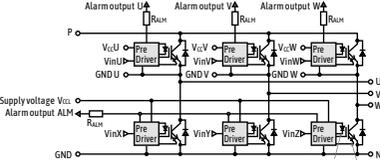
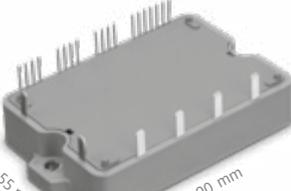
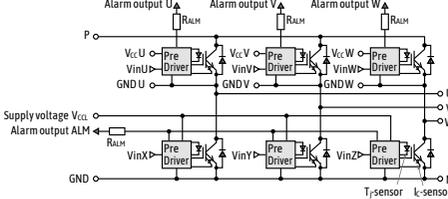
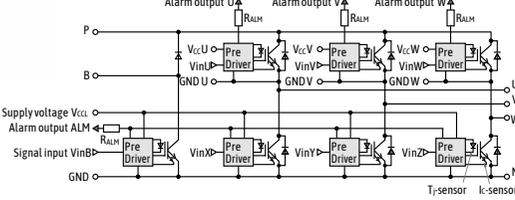
		600V	
		X series	
Small IPM with High Voltage Driver-Ic without Brake-Chopper	 	Ic	
		15 A	6MBP15XSD060-50
		20 A	6MBP20XSD060-50
		30 A	6MBP30XSD060-50
		35 A	6MBP35XSD060-50
		15 A	6MBP15XSF060-50
		20 A	6MBP20XSF060-50
		30 A	6MBP30XSF060-50
35 A	6MBP35XSF060-50		

# 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)



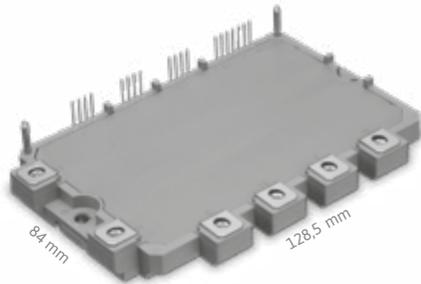
		600V	1200V
		V series	V series
Without Brake-Chopper	 <p>P629</p> 	10A	6MBP10VAA120-50
		15A	6MBP15VAA120-50
		20A	6MBP20VAA060-50
		25A	6MBP25VAA120-50
		30A	6MBP30VAA060-50
		50A	6MBP50VAA060-50
Without Brake-Chopper	 <p>P626</p> 	25A	6MBP25VBA120-50
		35A	6MBP35VBA120-50
		50A	6MBP50VBA060-50
		75A	6MBP75VBA060-50
Without Brake-Chopper	 <p>P636</p> 	25A	6MBP25VFN120-50
		35A	6MBP35VFN120-50
		50A	6MBP50VFN060-50
		75A	6MBP75VFN060-50
		100A	6MBP100VFN060-50
With Brake-Chopper	 <p>P636</p> 	25A	7MBP25VFN120-50
		35A	7MBP35VFN120-50
		50A	7MBP50VFN060-50
		75A	7MBP75VFN060-50
		100A	7MBP100VFN060-50

## 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)

## IPM (Intelligent Power Modules)

		600V	1200V
		Vseries	Vseries
Without Brake-Chopper		Ic	
		25 A	6MBP25VDA120-50
		35 A	6MBP35VDA120-50
		50 A	6MBP50VDA060-50
			6MBP50VDN120-50
		75 A	6MBP75VDA060-50
			6MBP75VDN120-50
		100 A	6MBP100VDA060-50
			6MBP100VDN060-50
		150 A	6MBP150VDA060-50
	6MBP150VDN060-50		
200 A	6MBP200VDA060-50		
	6MBP200VDN060-50		
With Brake-Chopper		25 A	7MBP25VDA120-50
		35 A	7MBP35VDA120-50
		50 A	7MBP50VDA060-50
			7MBP50VDN120-50
		75 A	7MBP75VDA060-50
			7MBP75VDN120-50
		100 A	7MBP100VDA060-50
			7MBP100VDN060-50
		150 A	7MBP150VDA060-50
			7MBP150VDN060-50
200 A	7MBP200VDA060-50		
	7MBP200VDN060-50		



P630

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

# IPM (Intelligent Power Modules)

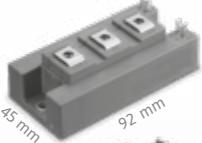
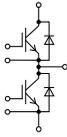
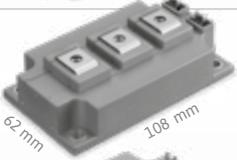
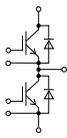
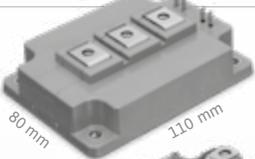
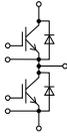
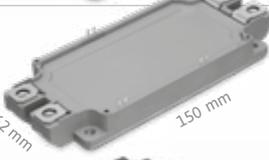
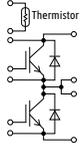
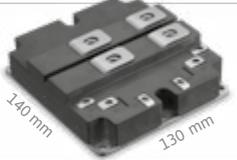
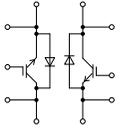
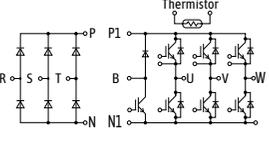
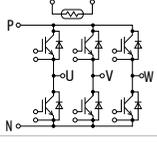
## Built-in protection functions

- 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	1200V	
						V series	V series	
						Ic		
Without Brake-Chopper						100 A	6MBP100VEA120-50	
						150 A	6MBP150VEA120-50	
						200 A	6MBP200VEA060-50	6MBP200VEA120-50
						300 A	6MBP300VEA060-50	
						400 A	6MBP400VEA060-50	
With Brake-Chopper						100 A	7MBP100VEA120-50	
						150 A	7MBP150VEA120-50	
						200 A	7MBP200VEA060-50	7MBP200VEA120-50
						300 A	7MBP300VEA060-50	
						400 A	7MBP400VEA060-50	

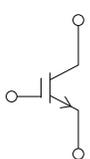
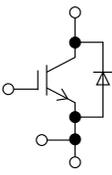
P631

# Hybrid SiC Modules

			600V	1200V	1700V		
			V series	V series	V series		
			Ic				
2-Pack	M274	 45 mm x 92 mm			2MSI200VAB-120-53		
	M276	 62 mm x 108 mm			2MSI300VAH-120C-53		
	M277	 80 mm x 110 mm				2MSI400VAE-170-53	
	M254	 62 mm x 150 mm		300 A	2MSI300VAN-120-53	2MSI550VAN-170-53	
				450 A	2MSI450VAN-120-53		
				550 A	2MSI600VAN-120-53		
M278	 140 mm x 130 mm		1200 A		2MSI1200VAT-170PC *1 2MSI1200VAT-170EC *2		
PIM	M712	 62 mm x 122 mm		35 A	7MSR35VAB120-50		
				50 A	7MSR50VAB060-50		7MSR50VAB120-50
				75 A	7MSR75VAB060-50		
				100 A	7MSR100VAB060-50		
6-Pack	M633	 62 mm x 122 mm		100 A	6MSI100VAB-120-50		

\*1: Low VCE(sat) type \*2: Low switching losses

## Discrete IGBT

		600 V			650 V	1200 V			
		V series	High speed V series	RB series	High speed W series	V series	High speed V series	High speed W series	
  TO-247-P2	I <sub>c</sub>								
	15 A						FGW15N120H		
	25 A							FGW25N120W	
	30 A						FGW30N120H		
	35 A		FGW35N60H						
	40 A					FGW40N65W		FGW40N120H	FGW40N120W
	50 A		FGW50N60H			FGW50N65W			
	60 A					FGW60N65W			
	75 A		FGW75N60H			FGW75N65W			
	15 A						FGW15N120VD	FGW15N120HD	
	25 A						FGW25N120VD		FGW25N120WD/WE
	30 A	FGW30N60VD						FGW30N120HD	
	35 A		FGW35N60HD/HC						
	40 A					FGW40N65WD/WE	FGW40N120VD	FGW40N120HD	FGW40N120WD/WE
	50 A	FGW50N60VD	FGW50N60HD/HC			FGW50N65WD/WE			
60 A					FGW60N65WD/WE				
75 A		FGW75N60HD/HC			FGW75N65WE				
85 A				FGW85N60RB					
  TO-247-4-P2									
	40 A							FGZ40N120WE	
	50 A					FGZ50N65WD/WE			
	75 A					FGZ75N65WE			

### Recommended operating frequency

	-10kHz	-20kHz	-100kHz
V/RB			
High speed V			
			High speed W

## Rectifier Diode

	Ic	Ultra Fast Recovery Diodes		Soft Recovery - Fast Recovery Diodes	
		600 V	650 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	
70 A		FDRW70C60L			
 TO-247-2-P2	60 A	FDRW60T60L			
	75 A		FDRW75T65L		

## SiC-SBD

	Ic	Ultra Fast Recovery Diodes		Soft Recovery - Fast Recovery Diodes	
		600 V	1200 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	FDCY10S65			
	25 A	FDCY25S65			
 TO-247	10 A	FDCY10S65			FDCY18S120
	18 A				
	20 A		FDCY20C65		
	25 A	FDCY25S65			
	36 A				FDCY36C120
 TO-247-2-P2	50 A		FDCY50C65		
	18 A				FDCW18T120

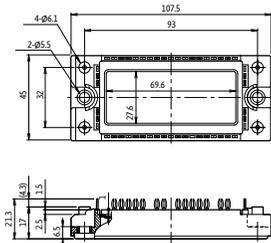




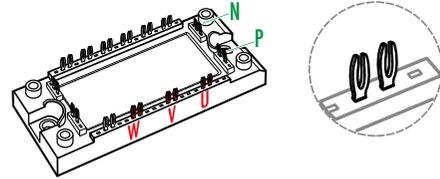


# Package Outlines (in mm)

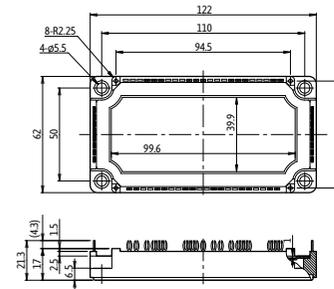
M647



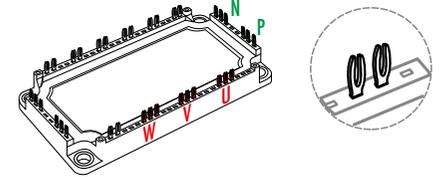
Press fit pins



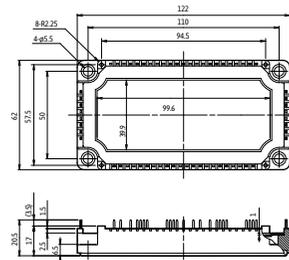
M648



Press fit pins

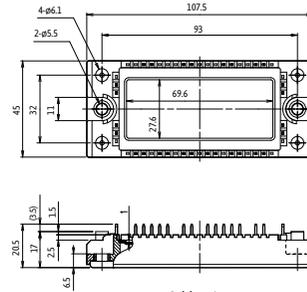


M668



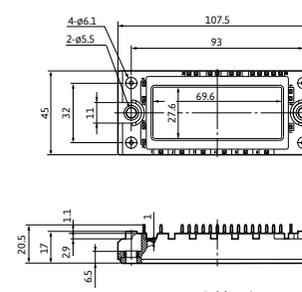
Solder pins

M669

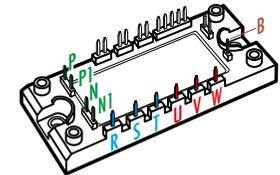


Solder pins

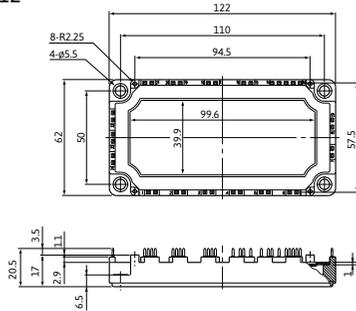
M711



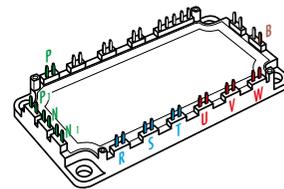
Solder pins



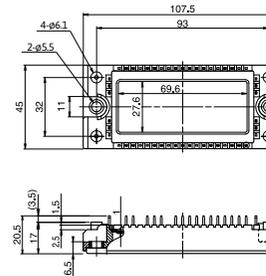
M712



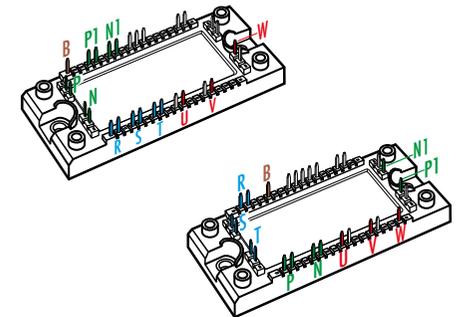
Solder pins



M719

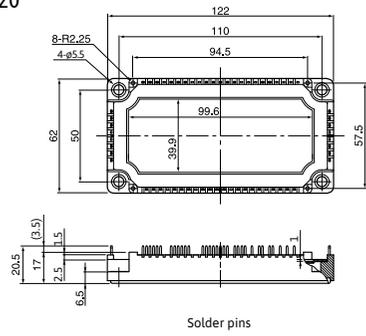


Solder pins

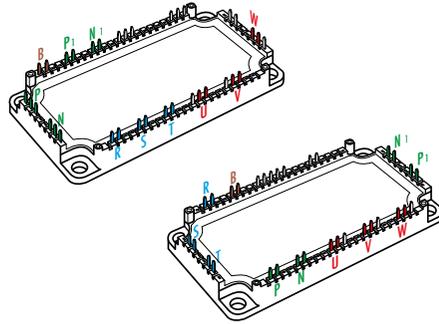


# Package Outlines (in mm)

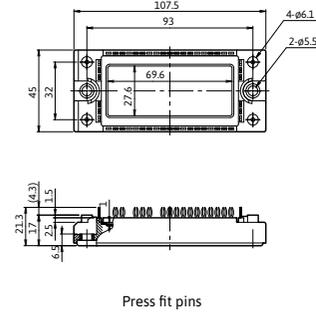
M720



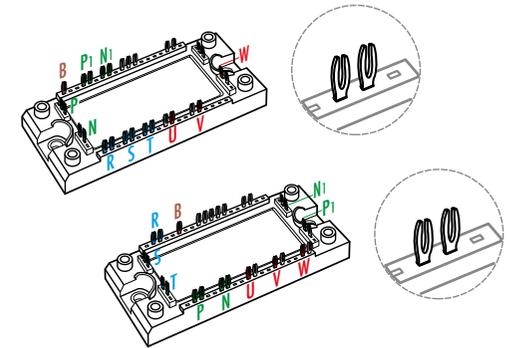
Solder pins



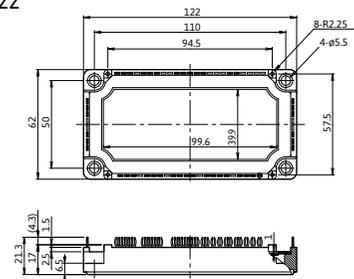
M721



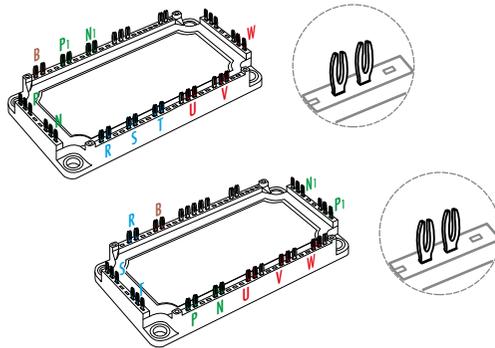
Press fit pins



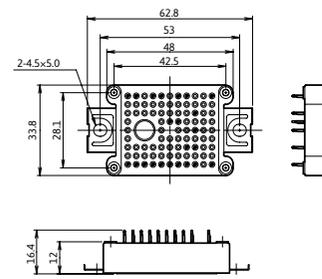
M722



Press fit pins

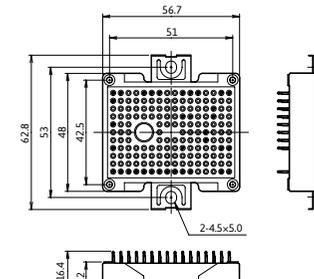


M726



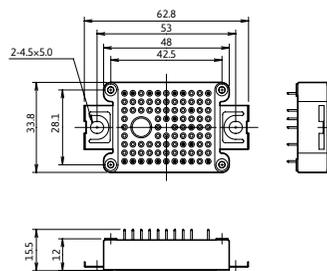
Press fit pins

M727



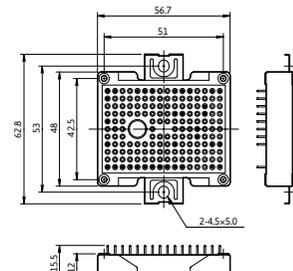
Press fit pins

M728



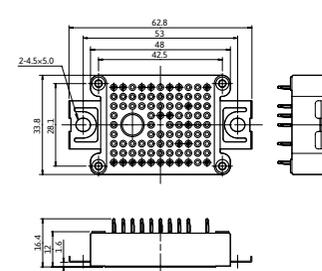
Solder pins

M729



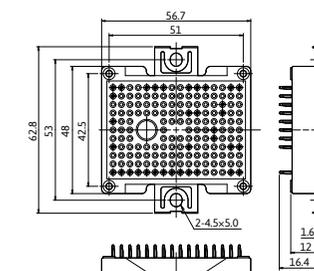
Solder pins

M730



Press fit pins

M731



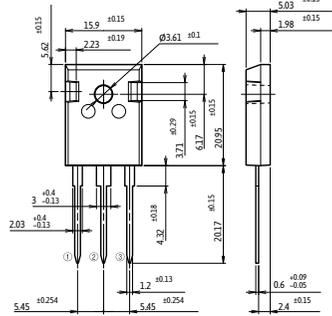
Press fit pins



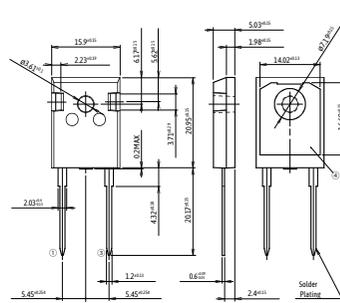


# Package Outlines (in mm)

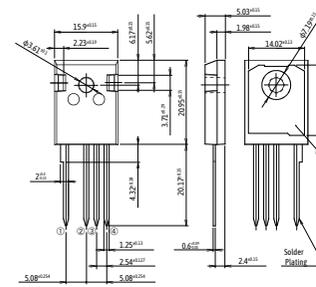
TO-247-P2



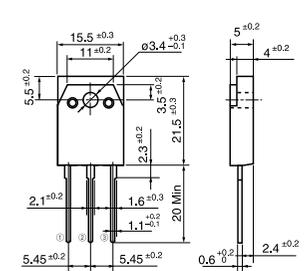
TO-247-2-P2



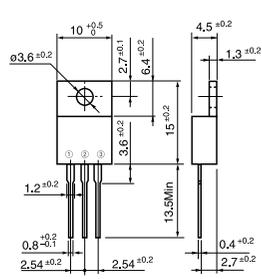
TO-247-4-P2



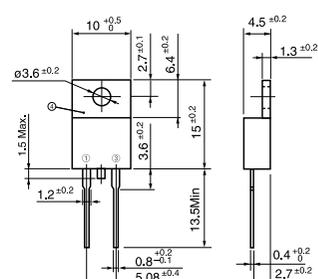
TO-247



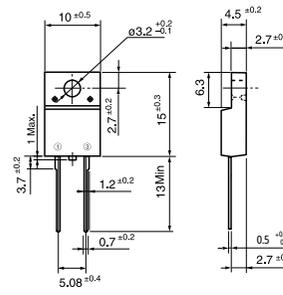
TO-220



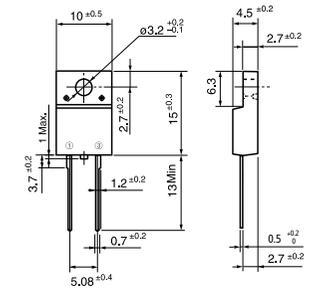
TO-220-2



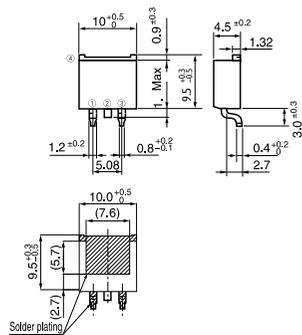
TO-220F



TO-220F-2



T-Packs(s)



## Notes

---

## Notes

---



**FE** Fuji Electric  
*Innovating Energy Technology*

**Fuji Electric Europe GmbH**

Goethering 58  
63067 Offenbach/Main  
Germany

Phone +49(0)69-66 90 29 0  
info.semi@fujielectric-europe.com  
[www.fujielectric-europe.com](http://www.fujielectric-europe.com)



Distributor pro Českou a Slovenskou republiku:



**Amtek, spol. s r.o.**  
Videňská 125, 619 00 Brno, CZ  
Tel. +420 547 125 555  
[fuji@amtek.cz](mailto:fuji@amtek.cz)  
[www.fujielectric.cz/polovodice](http://www.fujielectric.cz/polovodice)