

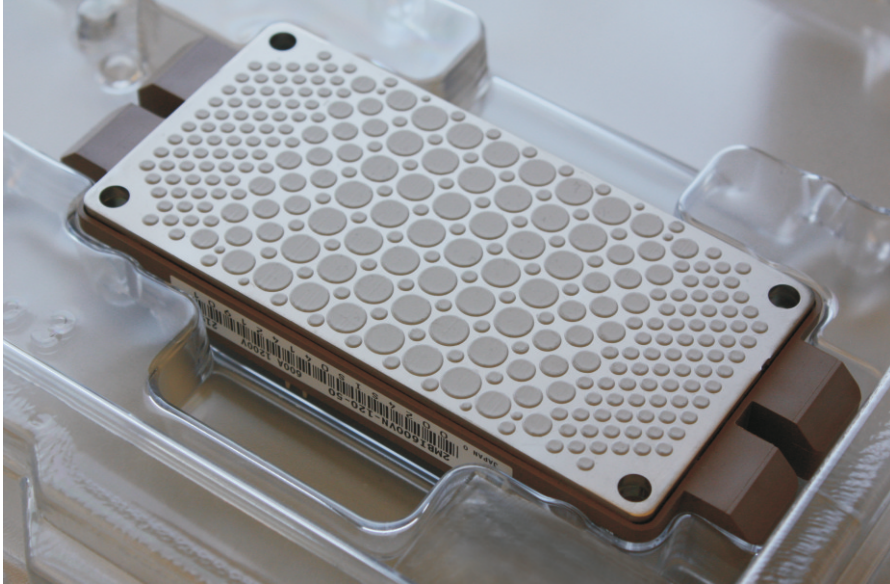


Power Semiconductors

IGBTs . MOSFETs . SiC Schottky Diodes . IGBT-Drivers

<p>Pre-applied Thermal Interface Material (TIM) 3</p> 	<p>IGBT-Modules for 3-Level inverters 6-7</p> 	<p>Hybrid IGBT-Modules with SiC Schottky Barrier Diodes 8-9</p> 	<p>PIM Power Integrated Modules Solder pins & PressFit contacts 10-13</p> 	<p>6-Pack IGBT-Modules, Solder pins & PressFit contacts 14</p> 	<p>2-Pack IGBT-Modules, Spring-, Pin- & PressFit contacts 15</p> 
<p>Standard 1- & 2-Pack IGBT-Modules 16</p> 	<p>High Power Modules 1200V, 1700V & 3300V 17</p> 	<p>High Power Modules 2-Pack & Chopper 18</p> 	<p>IPM Intelligent Power Modules 19-21</p> 	<p>Chopper Modules & High Speed IGBTs 22</p> 	
<p>Discrete IGBTs, standard and Reverse Blocking IGBT 23</p> 	<p>Super Junction- MOSFETs with & without FRED 24</p> 	<p>SiC Schottky Barrier Diodes 25</p> 	<p>IGBT-Drivers 26</p> 	<p>Fuji Electric Europe GmbH Goethering 58 D-63067 Offenbach am Main GERMANY Tel.: +49(0) 69-66 90 29 0 Fax: +49(0) 69-66 90 29 56 info.semi@fujielectric-europe.com www.fujielectric-europe.com</p>	

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 guaranty 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.

Features

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

Process - Benefits

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

Thermal - Benefits

- + Higher thermal conductivity
- + Uniform thermal resistance
- + Higher reliability and life time.

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

For latest availability status please contact us

► info.semi@fujielectric-europe.com

About Type Name

The Type Name is not exactly the item code for the ordering process

1. Modules with Standard IGBT-Chips

2 MBi 450 V H - 120 - 50

Suffix -50 = RoHS compliant

Voltage class: $060 = 600V$ · $065 = 650V$ · $120 = 1200V$ · $170 = 1700V$ · $330 = 3300V$

Package type

IGBT-series (here V-Series) / IGBT-technology

Current class I_c [A]

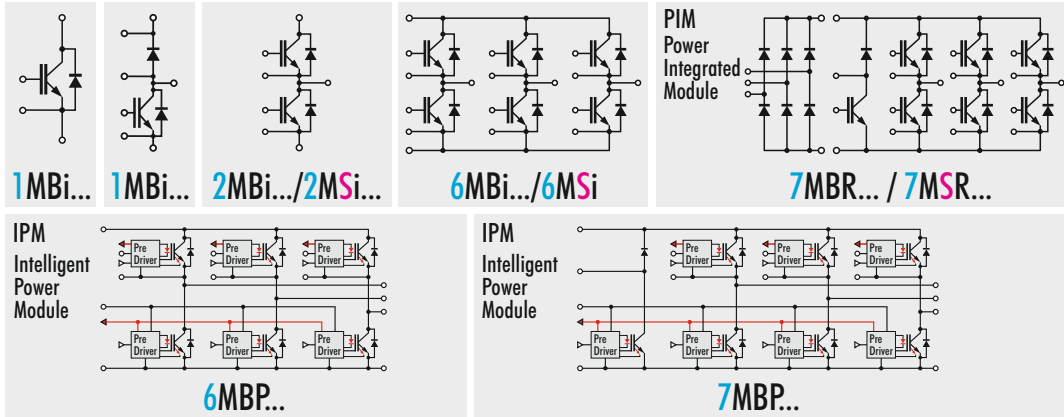
Device type & configuration

MBi: Standard IGBT module (1-, 2- and 6-pack)

MBR: PIM IGBT (Power Integrated Module)

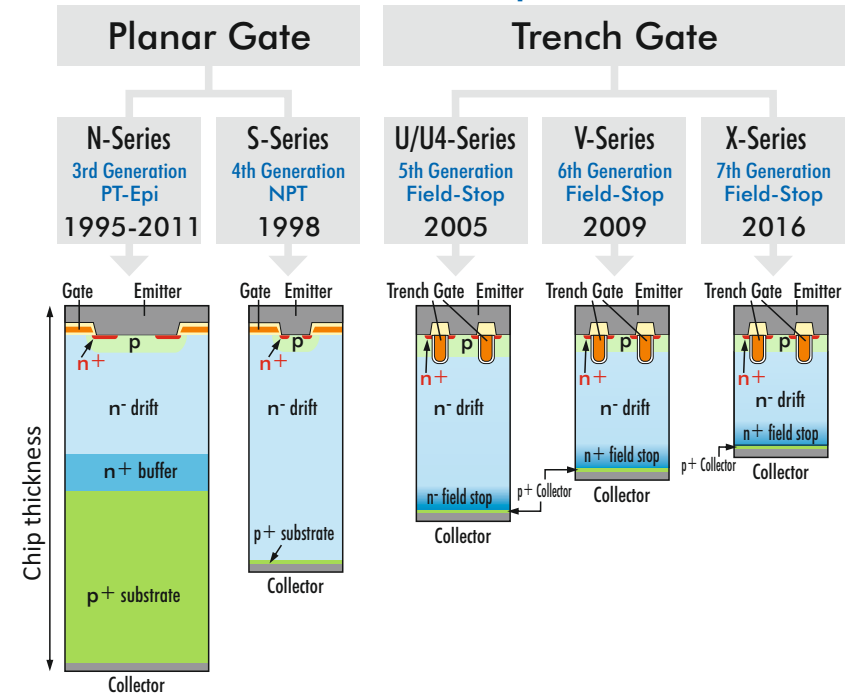
MBP: IPM IGBT (Intelligent Power Module)

MSi, MSR: The "S" indicates hybrid module with Si-IGBT & SiC Schottky free wheeling diodes



Number of IGBT-switches (not chips)

IGBT development



About Type Name

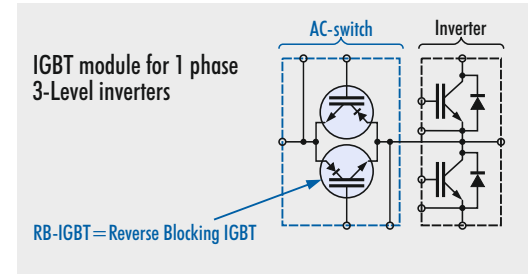
The Type Name is not exactly the item code for the ordering process

2. Modules with RB-IGBT (Reverse Blocking IGBT)

4 M Bi300 VG-120 R1-50

Voltage class of inverter part
 060 = 600V
 120 = 1200V
 170 = 1700V

Voltage class of AC-switch/RB-IGBT
 R = 600V
 R1 = 900V
 R2 = 1200V



3. Discrete IGBTs

F G W 35 N 60 HD

Fuji IGBT Package I_c [A] N-channel Series
 Voltage: 60 = 600V • 65 = 650V • 120 = 1200V

4. Super-Junction MOSFETs

F M P 60 N 133 S2 FD

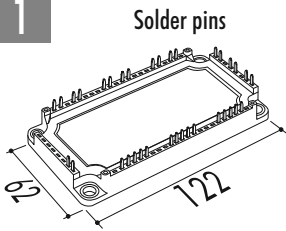
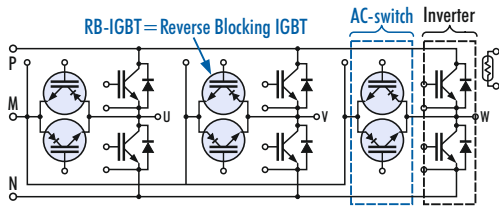
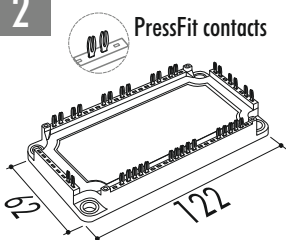
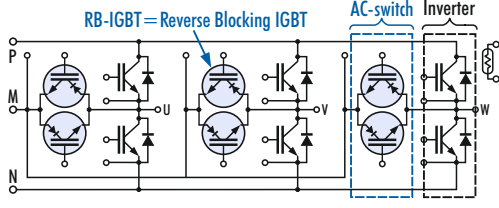
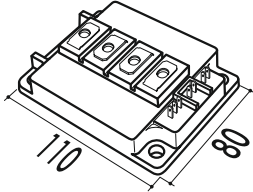
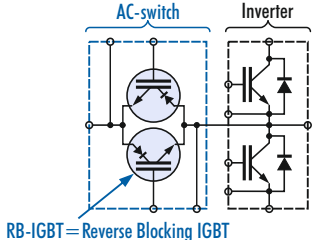
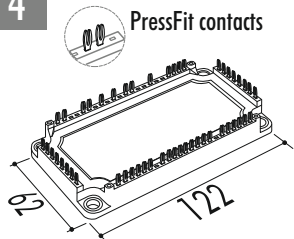
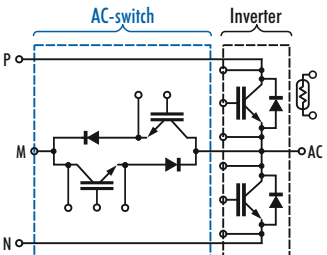
Fuji MOSFET Package N-channel $R_{DS(on),max}$ [mΩ] With built-in FRED Super-Junction MOSFET, S2-Series
 Voltage: 60 = 600V • 65 = 650V

5. SiC Schottky Barrier Diodes

F D C P 25 S 65

Fuji SiC-Diode Package I_{FAV} [A] Configuration C = Dual S = Single
 Voltage: 65 = 650V • 120 = 1200V

IGBT-Modules for 3-Level-inverters

		600V		1200V		1700V		
		I_C	V-Series 6th Generation	AC-switch	V-Series 6th Generation	AC-switch	V-Series 6th Generation	AC-switch
3 Phase	1	 Solder pins  RB-IGBT = Reverse Blocking IGBT AC-switch Inverter	50A		12MBi 50VN-120-50	600V		
			75A		12MBi 75VN-120-50	600V		
			100A		12MBi 100VN-120-50	600V		
		 PressFit contacts  RB-IGBT = Reverse Blocking IGBT AC-switch Inverter	50A		12MBi 50VX-120-50	600V		
			75A		12MBi 75VX-120-50	600V		
			100A		12MBi 100VX-120-50	600V		
1 Phase	3	  AC-switch Inverter RB-IGBT = Reverse Blocking IGBT	220A				4MBi 220VF-170R2-50	1200V
			300A		4MBi 300VG-120R-50	600V		
			340A		4MBi 300VG-120R1-50	900V		
			400A	4MBi 400VG-060R-50	600V	4MBi 400VF-120R-50	600V	
	4	 PressFit contacts  AC-switch Inverter	300A				4MBi 300VX-120S-50*	600V
			400A				4MBi 400VX-120S-50*	600V

*) Under development

IGBT-Modules for 3-Level-inverters

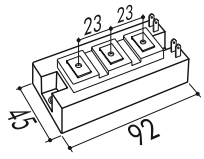
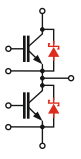
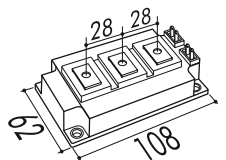
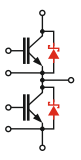
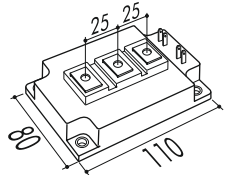
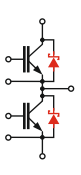
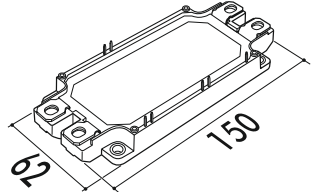
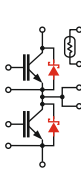
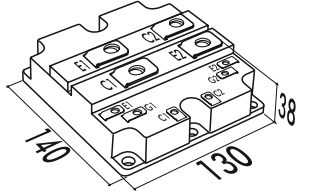
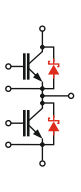
		1200V		1700V		
		V-Series 6th Generation	AC-switch	V-Series 6th Generation	AC-switch	
1 Phase	5	I-Type	600A	4MBi 600VM-120-50*		
	6	I-Type	600A	4MBi 600VC-120-50*		
		T-Type AC-switch	450A	4MBi 450VB-120R1-50	900V	4MBi 450VB-170R2-50*
		T-Type Inverter	600A			4MBi 600VB-170R2-50*
		T-Type Inverter	650A	4MBi 650VB-120R1-50	900V	
			900A	4MBi 900VB-120R1-50	900V	

*) Under development

AC-switch

		1200V	
		V-Series 6th Generation	
2-Pack	7	450A	2MBi 450VH-120F-50

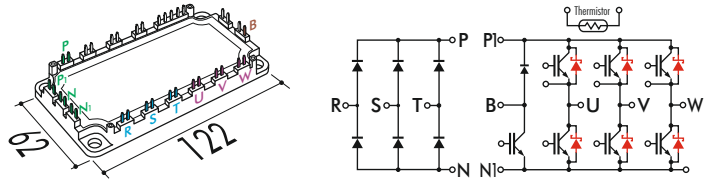
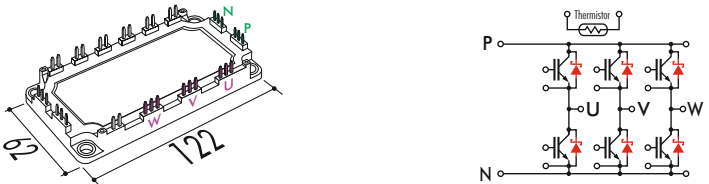
Hybrid IGBT-Modules with SiC-SBD 

		I_c	1200V V-Series 6th Generation	1700V V-Series 6th Generation	
2-Pack	8	 	200A	2MSi 200VAB-120-53*	
	9	 	300A	2MSi 300VAH-120C-53	
	10	 	400A	2MSi 400VE-170-53	
	11	 	300A	2MSi 300VAN-120-53*	
			450A	2MSi 450VAN-120-53*	2MSi 450VAN-170-53*
550A				2MSi 550VAN-170-53*	
600A			2MSi 600VAN-120-53*		
12	 	1200A	2MSi 1200VAT-170PC* 2MSi 1200VAT-170EC*		

Suffix -53 = With $V_{CE,sat}$ & V_F rank label

*) Under development

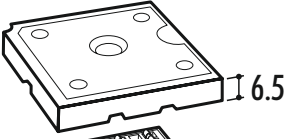
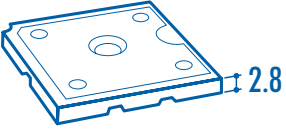
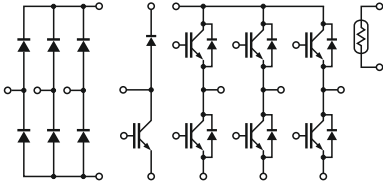
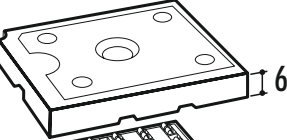
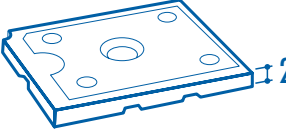
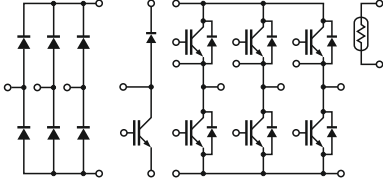
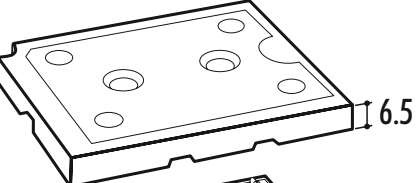
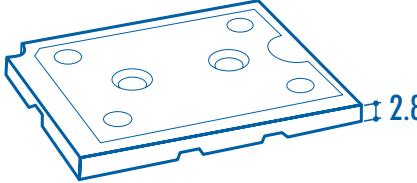
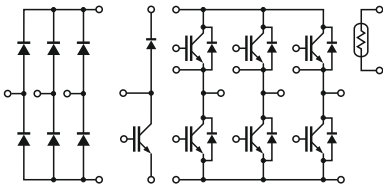
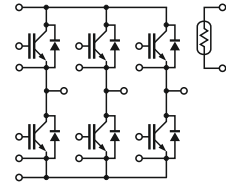
Hybrid IGBT-Modules with SiC-SBD

		600V	1200V		
PIM	13		V-Series 6th Generation	V-Series 6th Generation	
			35A	7MSR 35VB-120-50	
			50A	7MSR 50VB-060-50	7MSR 50VB-120-50
			75A	7MSR 75VB-060-50	
			100A	7MSR 100VB-060-50	
6-Pack	14			6MSi 100VB-120-50	
			100A		

Small PIM IGBTs (Power Integrated Modules)

		600V	650V	1200V		
		V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation	
With PressFit contacts	15	10A	7MBR 10VKA-060-50	7MBR 10VKA-120-50	7MBR 10XKA-120-50	
		15A	7MBR 15VKA-060-50	7MBR 15VKA-120-50	7MBR 15XKA-120-50	
		20A	7MBR 20VKA-060-50			
		25A			7MBR 25XKA-120-50	
		30A	7MBR 30VKA-060-50	7MBR 30XKA-065-50		
With PressFit contacts	16	15A		7MBR 15VKB-120-50	7MBR 15XKB-120-50	
		25A		7MBR 25VKB-120-50	7MBR 25XKB-120-50	
		35A		7MBR 35VKB-120-50	7MBR 35XKB-120-50	
		50A	7MBR 50VKB-060-50	7MBR 50XKB-065-50		
		10A	7MBR 10VKC-060-50	7MBR 10XKC-065-50	7MBR 10VKC-120-50	7MBR 10XKC-120-50
With solder pins	17	15A	7MBR 15VKC-060-50	7MBR 15XKC-065-50	7MBR 15VKC-120-50	7MBR 15XKC-120-50
		20A	7MBR 20VKC-060-50	7MBR 20XKC-065-50		
		25A				7MBR 25XKC-120-50
		30A	7MBR 30VKC-060-50	7MBR 30XKC-065-50		
		15A			7MBR 15VKD-120-50	7MBR 15XKD-120-50
With solder pins	18	25A		7MBR 25VKD-120-50	7MBR 25XKD-120-50	
		35A		7MBR 35VKD-120-50	7MBR 35XKD-120-50	
		50A	7MBR 50VKD-060-50	7MBR 50XKD-065-50		

PIM and 6-PACK IGBTs with V-Series IGBT (MiniSKiiP® compatible)

						I_c	1200V V-Series 6th Generation
MiniSKiiP® 1	19	Standard lid → Suffix = -50  6.5 40 42 15.8	Slim lid → Suffix = -53  2.8	PIM-IGBT 	8A	7MBR 8VJA-120-50	7MBR 8VJA-120-53
						15A	7MBR 15VJA-120-50
MiniSKiiP® 2	20	Standard lid → Suffix = -50  6.5 52 59 15.8	Slim lid → Suffix = -53  2.8	PIM-IGBT 	25A	7MBR 25VJB-120-50	7MBR 25VJB-120-53
						35A	7MBR 35VJB-120-50
MiniSKiiP® 3	21	Standard lid → Suffix = -50  6.5 56 82 15.8	Slim lid → Suffix = -53  2.8	PIM-IGBT 	50A	7MBR 50VJC-120-50	7MBR 50VJC-120-53
					75A	7MBR 75VJC-120-50	7MBR 75VJC-120-53
					100A	7MBR 100VJC-120-50	7MBR 100VJC-120-53
				6-PACK-IGBT 	100A	6MBi 100VJC-120-50*	6MBi 100VJC-120-53*
					150A	6MBi 150VJC-120-50*	6MBi 150VJC-120-53*
			6MBi 150VJC-120-55* <i>With SiN-DCB</i>				

MiniSKiiP® is a trademark of SEMIKRON Elektronik GmbH & Co. KG - Germany

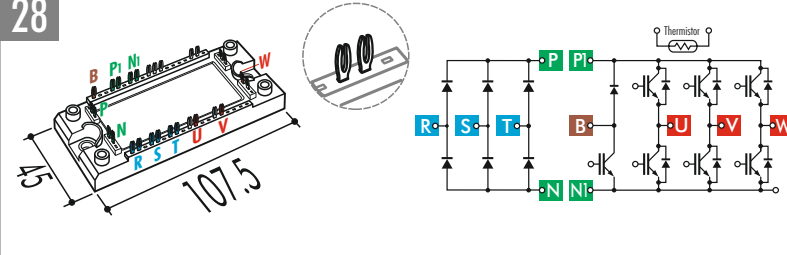
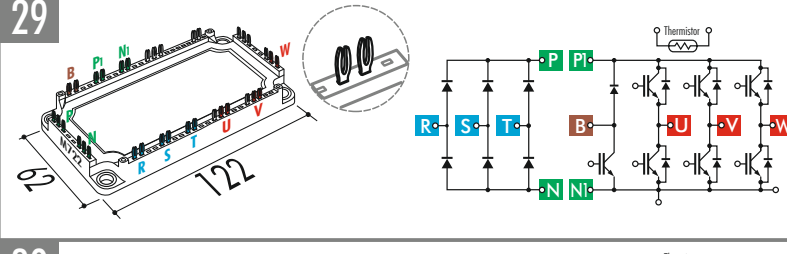
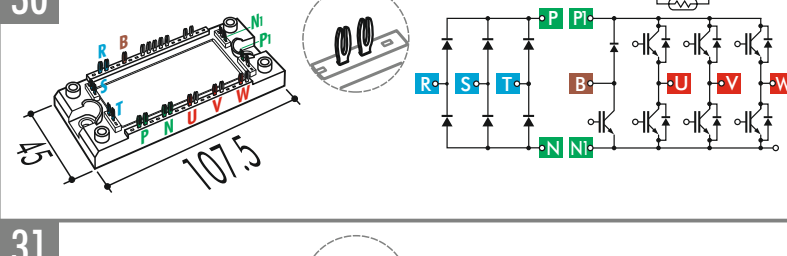
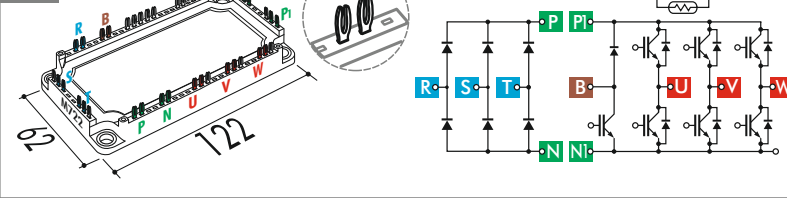
*) Under development

PIM IGBTs (Power Integrated Module) with solder pins

		600V	650V	1200V			
		V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation		
22			25A		7MBR 25VA-120-50		
			35A		7MBR 35VA-120-50		
			50A	7MBR 50VA-060-50			
23			35A		7MBR 35VB-120-50		
			50A		7MBR 50VB-120-50		
			75A	7MBR 75VB-060-50		7MBR 75VB-120-50	
			100A	7MBR 100VB-060-50			
24			25A		7MBR 25VM-120-50		
			35A		7MBR 35VM-120-50	7MBR 35XMA-120-50	
			50A		7MBR 50VM-120-50	7MBR 50XMA-120-50	
			75A	7MBR 75XMA-065-50		7MBR 75XME-120-50	
25			25A		7MBR 25VP-120-50		
			35A		7MBR 35VP-120-50	7MBR 35XPA-120-50	
			50A	7MBR 50VP-060-50	7MBR 50XPA-065-50	7MBR 50VP-120-50	7MBR 50XPA-120-50
			75A	7MBR 75VP-060-50	7MBR 75XPA-065-50		7MBR 75XPE-120-50
			100A	7MBR 100VP-060-50	7MBR 100XPE-065-50		
26			50A		7MBR 50VN-120-50		
			75A		7MBR 75VN-120-50	7MBR 75XNA-120-50	
			100A		7MBR 100VN-120-50	7MBR 100XNA-120-50	
			150A	7MBR 150XNA-065-50		7MBR 150VN-120-50	7MBR 150XNE-120-50
27			50A		7MBR 50VR-120-50		
			75A		7MBR 75VR-120-50	7MBR 75XRA-120-50	
			100A	7MBR 100VR-060-50	7MBR 100XRA-065-50	7MBR 100VR-120-50	7MBR 100XRA-120-50
			150A	7MBR 150VR-060-50	7MBR 150XRA-065-50	7MBR 150VR-120-50	7MBR 150XRE-120-50

With solder pins

PIM IGBTs (Power Integrated Modules) with PressFit contacts

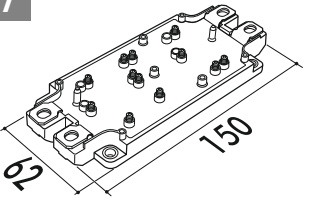
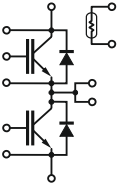
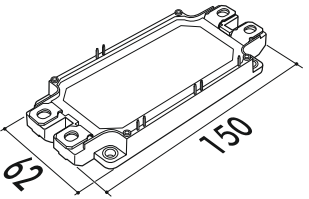
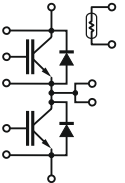
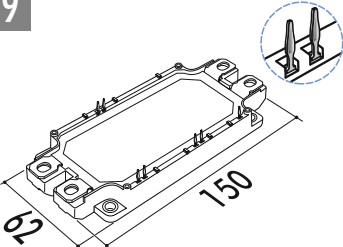
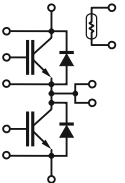
	I_C	600V	650V	1200V	
		V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation
28 	25A		7MBR 50XWA-065-50	7MBR 25VW-120-50	
	35A			7MBR 35VW-120-50	7MBR 35XWA-120-50
	50A			7MBR 50VW-120-50	7MBR 50XWA-120-50
	75A		7MBR 75XWA-065-50		7MBR 75XWE-120-50
29 	50A			7MBR 50VX-120-50	
	75A		7MBR 75XXA-065-50	7MBR 75VX-120-50	7MBR 75XXA-120-50
	100A		7MBR 100XXA-065-50	7MBR 100VX-120-50	7MBR 100XXA-120-50
	150A		7MBR 150XXA-065-50	7MBR 150VX-120-50	7MBR 150XXE-120-50
30 	25A			7MBR 25VY-120-50	
	35A			7MBR 35VY-120-50	7MBR 35XYA-120-50
	50A	7MBR 50VY-060-50	7MBR 50XYA-065-50	7MBR 50VY-120-50	7MBR 50XYA-120-50
	75A	7MBR 75VY-060-50	7MBR 75XYA-065-50		7MBR 75XYE-120-50
	100A	7MBR 100VY-060-50	7MBR 100XYE-065-50		
31 	50A			7MBR 50VZ-120-50	
	75A			7MBR 75VZ-120-50	7MBR 75XZA-120-50
	100A	7MBR 100VZ-060-50	7MBR 100XZA-065-50	7MBR 100VZ-120-50	7MBR 100XZA-120-50
	150A	7MBR 150VZ-060-50	7MBR 150XZA-065-50	7MBR 150VZ-120-50	7MBR 150XZE-120-50

6-Pack IGBTs

			I_C	600V	1200V		1700V		
				V-Series 6th Generation	V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation		
With solder pins	32			50A	6MBi 50VA-060-50	6MBi 50VA-120-50			
				75A	6MBi 75VA-060-50	6MBi 75VA-120-50			
				100A	6MBi 100VA-060-50	6MBi 100VA-120-50			
	33			100A		6MBi 100VB-120-50	6MBi 100XBA-120-50		
				150A	6MBi 150VB-060-50	6MBi 150VB-120-50	6MBi 150XBA-120-50		
				200A		6MBi 180VB-120-50 <small>Equivalent to 200A by lower $R_{th(j-c)}$</small>	6MBi 200XBA-120-50 6MBi 200XBE-120-50		
With PressFit contacts	34			50A	6MBi 50VW-060-50	6MBi 50VW-120-50			
				75A	6MBi 75VW-060-50	6MBi 75VW-120-50			
				100A	6MBi 100VW-060-50	6MBi 100VW-120-50			
	35			100A		6MBi 100VX-120-50	6MBi 100XXA-120-50	6MBi 100VX-170-50	
				150A	6MBi 150VX-060-50	6MBi 150VX-120-50	6MBi 150XXA-120-50		
				200A		6MBi 180VX-120-50 <small>Equivalent to 200A by lower $R_{th(j-c)}$</small>	6MBi 200XXA-120-50 6MBi 200XXE-120-50		
High power	36			With solder pins					
				225A		6MBi 225V-120-50			
				300A		6MBi 300V-120-50		6MBi 300V-170-50	
				450A		6MBi 450V-120-50		6MBi 450V-170-50	
				550A		6MBi 550V-120-50			
				With PressFit contacts					
				225A		6MBi 225VY-120-50*		6MBi 225VY-170-50*	
				300A		6MBi 300VY-120-50*		6MBi 300VY-170-50*	
				450A		6MBi 450VY-120-50*		6MBi 450VY-170-50*	
550A		6MBi 550VY-120-50*		6MBi 550VY-170-50*					

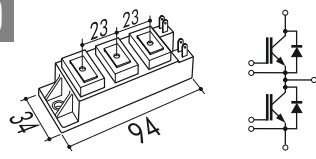
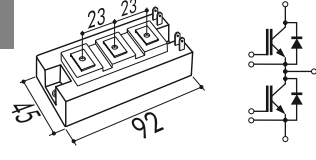
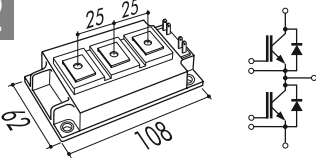
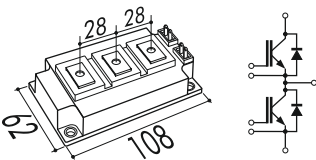
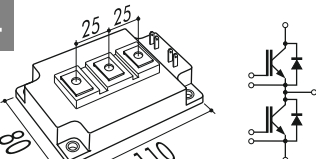
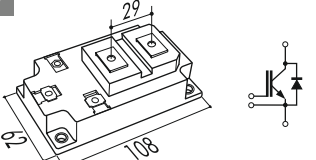
*) Under development

2-Pack IGBT-Modules with Spring-, Pin- & PressFit contacts

		1200V			1700		
		V-Series 6th Generation	V-Series 6th Generation With SiN-substrate 20% Lower thermal impedance	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation	
		I_C					
Spring contacts	 	225A	2MBi 225VJ-120-50				
		300A	2MBi 300VJ-120-50				
		450A	2MBi 450VJ-120-50				
		550A				2MBi 550VJ-170-50	
		600A		2MBi 600VJ-120-50			
Solder pins	 	225A	2MBi 225VN-120-50	2MBi 225VN-120S-50	2MBi 225XNA-120-50 *	2MBi 225XNA-170-50 *	
		300A	2MBi 300VN-120-50	2MBi 300VN-120S-50	2MBi 300XNA-120-50 *	2MBi 300VN-170-50	2MBi 300XNA-170-50 *
		450A	2MBi 450VN-120-50	2MBi 450VN-120S-50	2MBi 450XNA-120-50 *	2MBi 450VN-170-50	2MBi 450XNA-170-50 *
		550A				2MBi 550VN-170-50	
		600A		2MBi 600VN-120-50	2MBi 600XNE-120-50 *		2MBi 600XNE-170-50 *
		800A			2MBi 800XNE-120-50 *		
PressFit contacts	 	225A	2MBi 225VX-120-50		2MBi 225XNB-120-50 *	2MBi 225VX-170-50	2MBi 225XNB-170-50 *
		300A	2MBi 300VX-120-50		2MBi 300XNB-120-50 *	2MBi 300VX-170-50	2MBi 300XNB-170-50 *
		450A	2MBi 450VX-120-50		2MBi 450XNB-120-50 *	2MBi 450VX-170-50	2MBi 450XNB-170-50 *
		550A				2MBi 550VX-170-50	
		600A		2MBi 600VX-120-50	2MBi 600XNF-120-50 *		2MBi 600XNF-170-50 *
		800A			2MBi 800XNF-120-50 *		

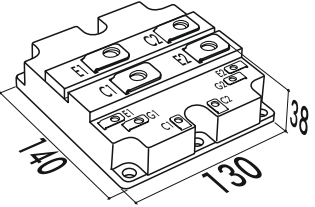
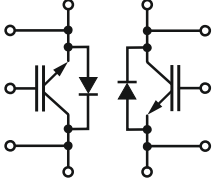
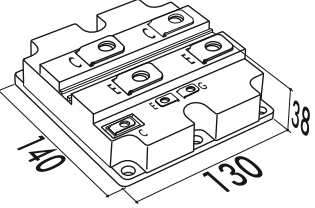
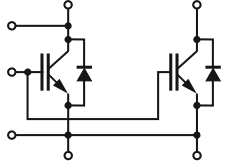
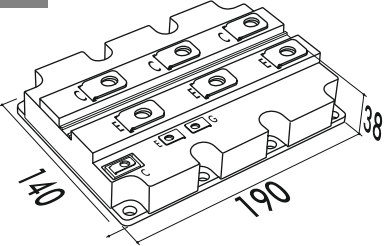
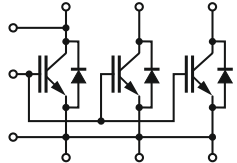
*) Under development

Standard 1- & 2-Pack

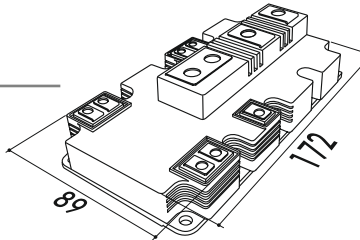
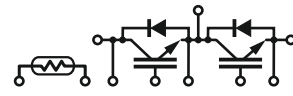
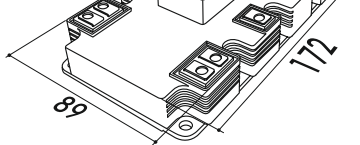
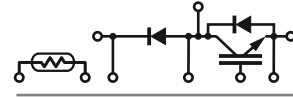
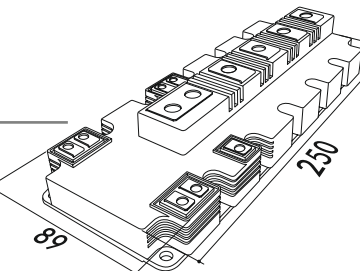
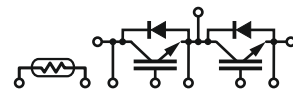
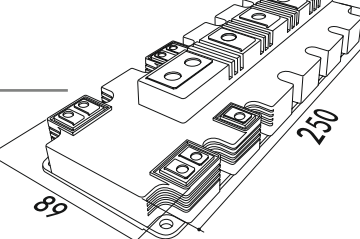
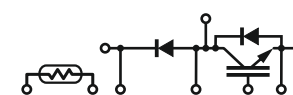
		600V	650V	1200V		1700V		
		V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	X-Series 7th Generation	
2-Pack	40 	75A		2MBi 75VA-120-50		2MBi 75VA-170-50	2MBi 75XAA-170-50 *	
		100A	2MBi 100VA-060-50		2MBi 100VA-120-50	2MBi 100XAA-120-50 *	2MBi 100VA-170-50	2MBi 100XAA-170-50 *
		150A	2MBi 150VA-060-50	2MBi 150XAA-065-50 *	2MBi 150VA-120-50	2MBi 150XAA-120-50 *		2MBi 150XAA-170-50 *
		200A	2MBi 200VA-060-50	2MBi 200XAA-065-50 *		2MBi 200XAA-120-50 *		
	41 	150A			2MBi 150VB-120-50			
		200A			2MBi 200VB-120-50	2MBi 200XBE-120-50 *		
		300A	2MBi 300VB-060-50	2MBi 300XBE-065-50 *		2MBi 300XBE-120-50 *		
		400A	2MBi 400VB-060-50	2MBi 400XBE-065-50 *				
	42 	300A			2MBi 300VD-120-50			
		400A	2MBi 400VD-060-50	2MBi 400XDE-065-50 *	2MBi 400VD-120-50			
		600A	2MBi 600VD-060-50	2MBi 600XDE-065-50 *				
	43 	150A					2MBi 150VH-170-50	2MBi 150XHA-170-50 *
200A				2MBi 200VH-120-50		2MBi 200VH-170-50	2MBi 200XHA-170-50 *	
300A				2MBi 300VH-120-50	2MBi 300XHA-120-50 *	2MBi 300VH-170-50	2MBi 300XHA-170-50 *	
400A							2MBi 400XHA-170-50 *	
450A				2MBi 450VH-120-50	2MBi 450XHA-120-50 *			
600A					2MBi 600XHA-120-50 *			
44 	300A			2MBi 300VE-120-50		2MBi 300VE-170-50	2MBi 300XEE-170-50 *	
	400A					2MBi 400VE-170-50	2MBi 400XEE-170-50 *	
	450A			2MBi 450VE-120-50	2MBi 450XEE-120-50 *			
	600A	2MBi 600VE-060-50	2MBi 600XEE-065-50 *	2MBi 600VE-120-50	2MBi 600XEE-120-50 *			
	900A							
1-Pack	45 	300A				1MBi 300V-170-50		
		400A			1MBi 400V-120-50 1MBi 400VF-120-50	1MBi 400V-170-50		
		600A			1MBi 600V-120-50 1MBi 600VF-120-50	1MBi 600V-170-50		
		900A			1MBi 900V-120-50			

*) Under development

High Power Modules 1- & 2-Pack

		1200V		1700V		3300V	
		V-Series 6th Generation With Cu-baseplate Soft turn-off	V-Series 6th Generation With Cu-baseplate Low switching loss	V-Series 6th Generation With AlSiC-baseplate Low switching loss	U-Series 5th Generation With AlSiC-baseplate Soft turn-off	U-Series 5th Generation With AlSiC-baseplate Low switching loss	
		I_c					
2-Pack	46  	600A	2MBi 600VG-120P	2MBi 600VG-170E	2MBi 600VT-170E		
		800A	2MBi 800VG-120P	2MBi 800VG-170E	2MBi 800VT-170E		
		1200A	2MBi 1200VG-120P	2MBi 1200VG-170E	2MBi 1200VT-170E		
1-Pack	47  	800A				1MBi 800UG-330	
		1000A				1MBi 1000UG-330	1MBi 1000UG-330B
		1200A	1MBi 1200VC-120P	1MBi 1200VC-170E	1MBi 1200VR-170E		
		1600A	1MBi 1600VC-120P	1MBi 1600VC-170E	1MBi 1600VR-170E		
		2400A	1MBi 2400VC-120P	1MBi 2400VC-170E	1MBi 2400VR-170E		
1-Pack	48  	1200A				1MBi 1200UE-330	
		1500A				1MBi 1500UE-330	1MBi 1500UE-330B
		2400A	1MBi 2400VD-120P	1MBi 2400VD-170E	1MBi 2400VS-170E		
		3600A	1MBi 3600VD-120P	1MBi 3600VD-170E	1MBi 3600VS-170E		

High Power Modules, 2-Pack & Chopper

		1200V		1700V		
		V-Series 6th Generation E-type (Low switching loss) P-type (Soft turn-off)	X-Series 7th Generation E-type (Low switching loss) P-type (Soft turn-off)	V-Series 6th Generation E-type (Low switching loss) P-type (Soft turn-off)	X-Series 7th Generation E-type (Low switching loss) P-type (Soft turn-off)	
2-Pack	49	600A	2MBi 600VXA-120E-50			
	 	650A			2MBi 650VXA-170E-50 2MBi 650VXA-170EA-50 <i>(With larger free wheeling diode)</i>	2MBi 650XXA-170E-50*
		900A	2MBi 900VXA-120E-50 2MBi 900VXA-120P-50	2MBi 900XXA-120E-50* 2MBi 900XXA-120P-50*		
		1200A		2MBi 1200XXE-120E-50* 2MBi 1200XXE-120P-50*		2MBi 1200XXE-170P-50*
Chopper	 	650A			1MBi 650VXA-170EL-50	
		900A	1MBi 900VXA-120PD-50			
		650A				1MBi 650VXA-170EH-50
		900A	1MBi 900VXA-120PC-50			
2-Pack	50	1000A			2MBi 1000VXB-170E-50 2MBi 1000VXB-170EA-50 <i>(With larger free wheeling diode)</i>	2MBi 1000XXB-170E-50*
	 	1400A	2MBi 1400VXB-120E-50 2MBi 1400VXB-120P-50	2MBi 1400XXB-120P-50*	2MBi 1400VXB-170E-50 2MBi 1400VXB-170P-50	2MBi 1400XXB-170P-50*
		1800A		2MBi 1800XXF-120P-50*		2MBi 1800XXF-170P-50*
Chopper	 	1000A			1MBi 1000VXB-170EL-50	
		1400A	1MBi 1400VXB-120PL-50		1MBi 1400VXB-170EL-50	
		1000A			1MBi 1000VXB-170EH-50	
		1400A	1MBi 1400VXB-120PH-50		1MBi 1400VXB-170EH-50	

Above devices are available with $V_{CE,sat}$ & V_F rank label for optimum paralleling (→ suffix -54 instead of -50)

*) Under development

Built-in protection functions

- Fault status output (Alarm)
- Under voltage protection (self shutdown)
- Short circuit protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor function ($V_{temp,out}$)

IPM IGBTs (Intelligent Power Modules)

	Series	600V		1200V	
		V-Series 6th Generation	X-Series 7th Generation	V-Series 6th Generation	
Without Brake-Chopper	51 With High Voltage Driver-IC		15A		
			20A		
			30A		
			35A		
			15A	6MBP 15XSF-060-50	
			20A	6MBP 20XSF-060-50	
			30A	6MBP 30XSF-060-50	
Without Brake-Chopper	52 I_c - & T_j -Sensors on chip		10A		6MBP 10VAA-120-50
			15A		6MBP 15VAA-120-50
			20A	6MBP 20VAA-060-50	
			25A		6MBP 25VAA-120-50
			30A	6MBP 30VAA-060-50	
			50A	6MBP 50VAA-060-50	
Without Brake-Chopper	53 I_c - & T_j -Sensors on chip		25A		6MBP 25VBA-120-50
			35A		6MBP 35VBA-120-50
			50A	6MBP 50VBA-060-50	
			50A	6MBP 50VBA-060-50	6MBP 50VBA-120-50
			75A	6MBP 75VBA-060-50	

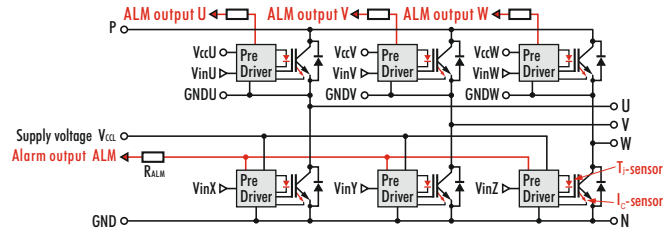
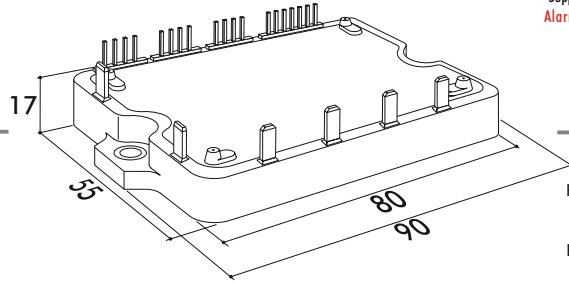
IPM IGBTs (Intelligent Power Modules)

Built-in protection functions

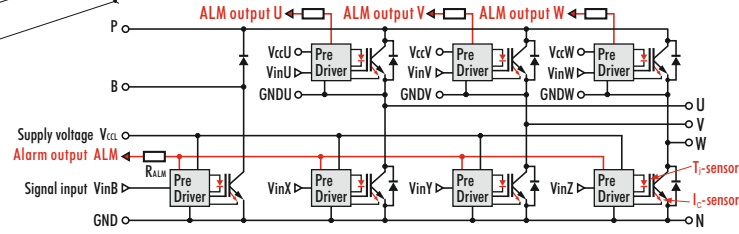
- Fault status output (Alarm)
- Under voltage protection (self shutdown)
- Short circuit protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor function ($V_{temp,out}$)

54 I_c - & T_j -Sensors on chip

Without Brake-Chopper



With Brake-Chopper



I_c	600V	1200V
	V-Series 6th Generation	V-Series 6th Generation
25A		6MBP 25VFN-120-50
35A		6MBP 35VFN-120-50
50A	6MBP 50VFN-060-50	6MBP 50VFN-120-50
75A	6MBP 75VFN-060-50	
100A	6MBP 100VFN-060-50	
25A		7MBP 25VFN-120-50
35A		7MBP 35VFN-120-50
50A	7MBP 50VFN-060-50	7MBP 50VFN-120-50
75A	7MBP 75VFN-060-50	
100A	7MBP 100VFN-060-50	

IPM IGBTs (Intelligent Power Modules)

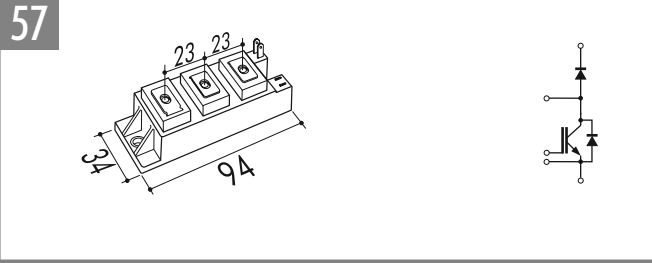
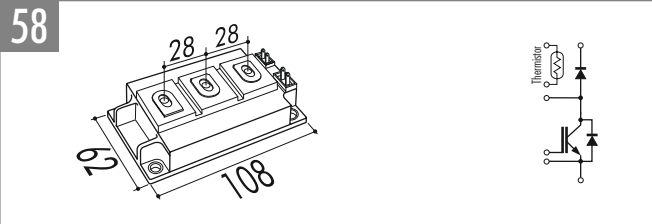
Built-in protection functions

- Fault status output (Alarm)
- Under voltage protection (self shutdown)
- Short circuit protection (self shutdown)
- Overheating protection (self shutdown)
- Temperature sensor function ($V_{temp,out}$)

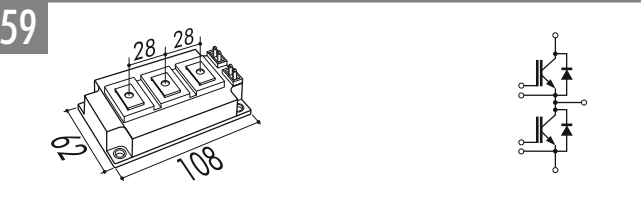
		600V		1200V	
		V-Series 6th Generation		V-Series 6th Generation	
		I_c		I_c	
Without Brake-Chopper	55 I_c - & T_j -Sensors on chip		25A	6MBP 25VDA-120-50	6MBP 25VDA-120-50
			35A	6MBP 35VDA-120-50	6MBP 35VDA-120-50
			50A	6MBP 50VDA-060-50	6MBP 50VDA-120-50 6MBP 50VDN-120-50 ¹⁾
			75A	6MBP 75VDA-060-50	6MBP 75VDA-120-50 6MBP 75VDN-120-50 ¹⁾
			100A	6MBP 100VDA-060-50 6MBP 100VDN-060-50 ¹⁾	6MBP 100VDA-120-50 6MBP 100VDN-120-50 ¹⁾
			150A	6MBP 150VDA-060-50 6MBP 150VDN-060-50 ¹⁾	
			200A	6MBP 200VDA-060-50 6MBP 200VDN-060-50 ¹⁾	
With Brake-Chopper	55 I_c - & T_j -Sensors on chip		25A	7MBP 25VDA-120-50	7MBP 25VDA-120-50
			35A	7MBP 35VDA-120-50	7MBP 35VDA-120-50
			50A	7MBP 50VDA-060-50	7MBP 50VDA-120-50 7MBP 50VDN-120-50 ¹⁾
			75A	7MBP 75VDA-060-50	7MBP 75VDA-120-50 7MBP 75VDN-120-50 ¹⁾
			100A	7MBP 100VDA-060-50 7MBP 100VDN-060-50 ¹⁾	7MBP 100VDA-120-50 7MBP 100VDN-120-50 ¹⁾
			150A	7MBP 150VDA-060-50 7MBP 150VDN-060-50 ¹⁾	
			200A	7MBP 200VDA-060-50 7MBP 200VDN-060-50 ¹⁾	
Without Brake-Chopper	56 I_c - & T_j -Sensors on chip		100A	6MBP 100VEA-120-50	6MBP 100VEA-120-50
			150A	6MBP 150VEA-120-50	6MBP 150VEA-120-50
			200A	6MBP 200VEA-060-50	6MBP 200VEA-120-50
			300A	6MBP 300VEA-060-50	
			400A	6MBP 400VEA-060-50	
With Brake-Chopper	56 I_c - & T_j -Sensors on chip		100A	7MBP 100VEA-120-50	7MBP 100VEA-120-50
			150A	7MBP 150VEA-120-50	7MBP 150VEA-120-50
			200A	7MBP 200VEA-060-50	7MBP 200VEA-120-50
			300A	7MBP 300VEA-060-50	
			400A	7MBP 400VEA-060-50	

1) With high thermal performance

Chopper (Standard and high speed IGBTs)

		1200V			
		I_C	Planar-NPT High Speed-Series	U-Series 5th Generation	V-Series 6th Generation
Chopper	57 	50A		1MBi 50U4F-120L-50	
		75A		1MBi 75U4F-120L-50	
		100A		1MBi 100U4F-120L-50	
		150A			1MBi 150VA-120L-50
		200A			1MBi 200VA-120L-50
	58 	200A	1MBi 200HH-120L-50	1MBi 200U4H-120L-50 Without thermistor	
300A		1MBi 300HH-120L-50			
400A		1MBi 400HH-120L-50			

High Speed IGBTs

		1200V	
		Planar-NPT High Speed-Series	
2-Pack	59 	100A	2MBi 100HJ-120-50
		150A	2MBi 150HJ-120-50
		200A	2MBi 200HJ-120-50
		300A	2MBi 300HJ-120-50

Discrete IGBTs

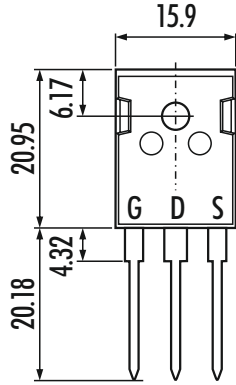
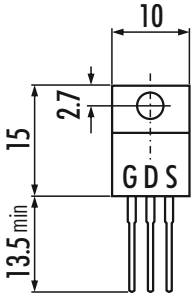
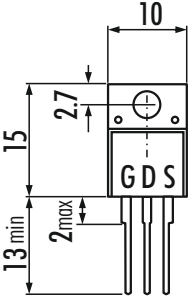
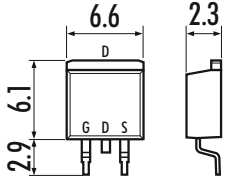
TO-247	60			V-Series, 6th Generation Low loss, ~10kHz		V-Series, 6th Generation High speed, 10~30kHz		W-Series, 6th Generation Ultra high speed, 20~100kHz	
				I_c		I_c		I_c	
				600V	1200V	600V	1200V	650V	1200V
			Without free wheeling diode	15A			FGW 15N 120H		
				25A					FGW 25N 120W
				30A			FGW 30N 120H		
				35A		FGW 35N 60H			
				40A			FGW 40N 120H	FGW 40N 65W *	FGW 40N 120W
				50A		FGW 50N 60H		FGW 50N 65W *	
				60A				FGW 60N 65W *	
				75A		FGW 75N 60H			
			With free wheeling diode	15A	FGW 15N 120VD		FGW 15N 120HD		
				25A	FGW 25N 120VD				FGW 25N 120WD FGW 25N 120WE ¹⁾ *
				30A	FGW 30N 60VD		FGW 30N 120HD	FGW 30N 65WD *	
				35A		FGW 35N 60HD FGW 35N 60HC ¹⁾			
				40A	FGW 40N 120VD		FGW 40N 120HD	FGW 40N 65WD * FGW 40N 65WE ¹⁾ *	FGW 40N 120WD FGW 40N 120WE ¹⁾ *
				50A	FGW 50N 60VD		FGW 50N 60HD FGW 50N 60HC ¹⁾	FGW 50N 65WD * FGW 50N 65WE ¹⁾ *	
				60A				FGW 60N 65WD * FGW 60N 65WE ¹⁾ *	
				75A		FGW 75N 60HD FGW 75N 60HC ¹⁾		FGW 75N 65WE ¹⁾ *	

*) Under development

1) With full rating free wheeling diode

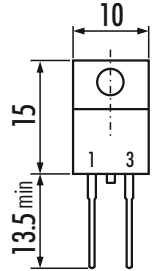
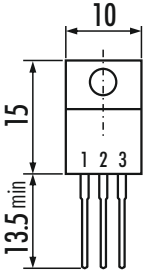
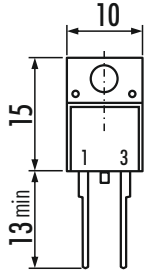
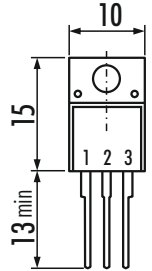
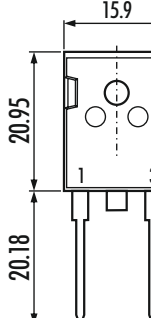
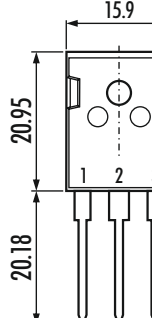
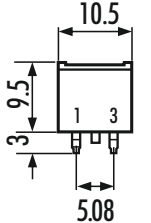
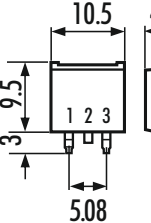

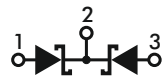

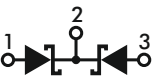

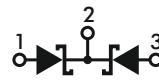

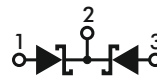
Reverse Blocking IGBT

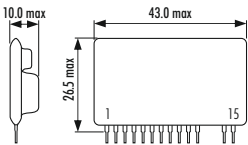
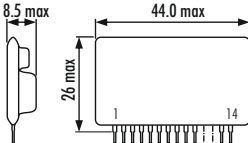
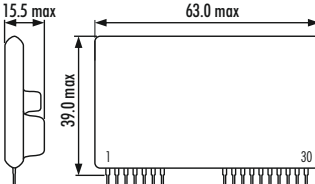
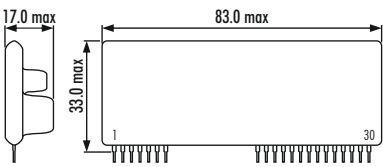
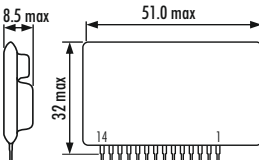
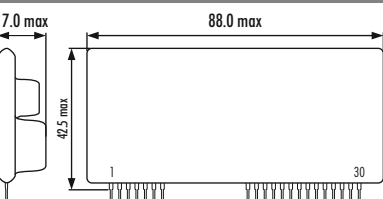
TO-247	61			I_c	
				600V	
				85A	FGW 85N 60RB

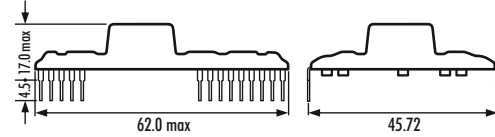
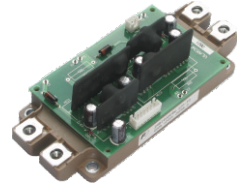
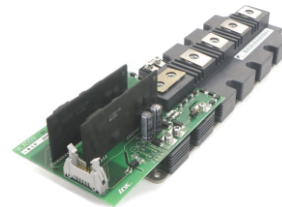
Super-Junction MOSFET			TO-247	TO-220	TO-220F	TO-252	
V_{DS}	$R_{DS(on),max}$	I_D					
600V	25.4 mΩ	95.5 A	FMW 60N 025S2				
	40.0 mΩ	66.2 A	FMW 60N 040S2				
	55.0 mΩ	50.3 A	FMW 60N 055S2				
	70.0 mΩ	39.4 A	FMW 60N 070S2				
	79.0 mΩ	37.1 A	FMW 60N 079S2	FMP 60N 079S2	FMV 60N 079S2		
	88.0 mΩ	32.8 A	FMW 60N 088S2	FMP 60N 088S2	FMV 60N 088S2		
	99.0 mΩ	29.2 A	FMW 60N 099S2	FMP 60N 099S2	FMV 60N 099S2		
	125.0 mΩ	23.4 A	FMW 60N 125S2	FMP 60N 125S2	FMV 60N 125S2		
	160.0 mΩ	18.4 A	FMW 60N 160S2	FMP 60N 160S2	FMV 60N 160S2		
	190.0 mΩ	15.5 A	FMW 60N 190S2	FMP 60N 190S2	FMV 60N 190S2		
280.0 mΩ	10.7 A		FMP 60N 280S2	FMV 60N 280S2	FMD 60N 280S2		
380.0 mΩ	8.1 A		FMP 60N 380S2	FMV 60N 380S2	FMD 60N 380S2		
650V	28.7 mΩ	89.8 A	FMW 65N 029S2*				
	45.0 mΩ	62.4 A	FMW 65N 045S2*				
	79.0 mΩ	37.1 A	FMW 65N 079S2*			FMV 65N 079S2*	
	101.0 mΩ	30.6 A	FMW 65N 101S2*	FMP 65N 101S2*	FMV 65N 101S2*		
600V	With built-in FRED	27.0 mΩ	95.5 A	FMW 60N 027S2 FD			
		43.0 mΩ	66.2 A	FMW 60N 043S2 FD			
		59.0 mΩ	50.3 A	FMW 60N 059S2 FD			
		75.0 mΩ	39.4 A	FMW 60N 075S2 FD			FMV 60N 075S2 FD
		84.0 mΩ	37.1 A	FMW 60N 084S2 FD	FMP 60N 084S2 FD	FMV 60N 084S2 FD	
		94.0 mΩ	32.8 A	FMW 60N 094S2 FD	FMP 60N 094S2 FD	FMV 60N 094S2 FD	
		105.0 mΩ	29.2 A	FMW 60N 105S2 FD	FMP 60N 105S2 FD	FMV 60N 105S2 FD	
		133.0 mΩ	23.4 A	FMW 60N 133S2 FD	FMP 60N 133S2 FD	FMV 60N 133S2 FD	
170.0 mΩ	18.4 A	FMW 60N 170S2 FD	FMP 60N 170S2 FD	FMV 60N 170S2 FD			

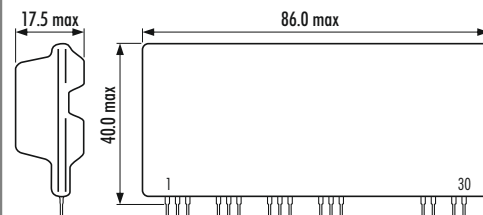
*) Under development

SiC Schottky Barrier Diodes $\overleftarrow{\text{S}}$

		TO-220		TO-220F (insulated)		TO-247		T-Pack S	
									
		Single	Dual	Single	Dual	Single	Dual	Single	Dual
I_{FAV}									
650V	10A	FDCP 10S 65		FDCA 10S 65		FDCY 10S 65		FDCC 10S 65	
	20A		FDCP 20C 65		FDCA 20C 65		FDCY 20C 65		FDCC 20C 65
	25A	FDCP 25S 65		FDCA 25S 65		FDCY 25S 65		FDCC 25S 65	
	50A						FDCY 50C 65		
1200V	18A			FDCA 18S 120		FDCY 18S 120			
	36A						FDCY 36C 120		

Single IGBT-Drivers		Type name	I_{peak}	$V_{iso,max}$	f_{max}
 <p>Single power supply needed with $V_{dc} = +20V$</p>	1200V	VLA 517-01R	4A	2.5kV	40kHz
	1700V				
 <p>Built-in power supply with short circuit protection</p>	1200V	VLA 542-01R	5A	2.5kV	20kHz
	1700V	VLA 546-01R	5A	4.0kV	20kHz
 <p>Built-in power supply with short circuit protection</p>	1200V	VLA 551-01R	5A	2.5kV	20kHz
	1700V	VLA 551K-01R	5A	4.0kV	20kHz
 <p>Built-in power supply with short circuit protection and adjustable fall-time</p>	1200V	VLA 500-01R	12A	2.5kV	20kHz
		VLA 502-01R	12A	2.5kV	60kHz
	1700V	VLA 500K-01R	12A	4.0kV	20kHz
 <p>Built-in power supply with short circuit protection and adjustable fall-time</p>	1200V				
	1700V	VLA 574-01R	15A	4.0kV	20kHz
 <p>Built-in power supply with short circuit protection and adjustable fall-time</p>	1200V				
	1700V	VLA 552-01R	24A	4.0kV	10kHz

Dual IGBT-Drivers		Type name	I_{peak}	$V_{iso,max}$	f_{max}
 <p>Built-in power supply & Short circuit protection with adjustable fall-time and UVLO</p>	1200V	VLA 567-01R	8A	2.5kV	20kHz
	1700V				
 <p>Built-in power supply & Short circuit protection</p>	1200V	VLA 536-01R	5A	2.5kV	20kHz
	1700V				
 <p>Built-in power supply & Short circuit protection</p>	1200V	VLA 559-01R	24A	4.0kV	5kHz
	1700V	VLA 559-02R	24A	4.0kV	5kHz

4 channel DC/DC converter for gate power supply			
Package	Type name	$V_{iso,max}$	Applications
	VLA 130-24205QR	2.5kV	Inverter up to 30kW Gate power supply for 3-Level IGBTs

For further plug & play IGBT-drivers please refer to the following suppliers:

power integrations
www.igbt-driver.com



AgileSwitch
www.agileswitch.com



ANVILEX
www.anvilex.de

