



IGBT Modules – NX-Type

The Mitsubishi Electric NX-Type IGBTs greatly simplify the design of medium power inverters for various applications like industrial drives, wind power, solar power and UPS. The significantly improved thermal impedance and very low loss, 7th Generation CSTBT™ technology facilitate a very efficient, economical and robust inverter design.

The NX-Type line-up has been expanded from 35 A up to 1000 A / 1200 V and all new 1700 V and 650 V line-up of dual modules to suit a wider power range of applications. The applied SLC-Technology of the NX-Type IGBT modules enables the design of inverters with higher output current, higher power density and improved reliability. An expanded line-up based on coming 8th Gen. IGBT is underdevelopment.

SiC 2-in-1 modules in compatibles NX housing are available to substitute the line-up for high efficiency or high frequency applications.

Product Advantages

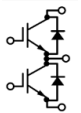



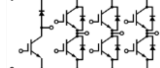

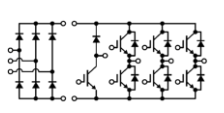
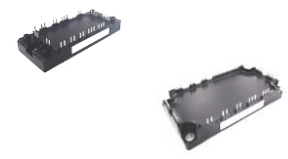
- ❑ Low-loss 7th generation CSTBT™
- ❑ SLC package technology
- ❑ $T_{j,max}$ of 175°C for overload switching operation
- ❑ Superior thermal cycling capability
- ❑ High power density
- ❑ Low-profile package
- ❑ Integral Thermistor

User benefits

- Extended module life time
- Reduction of assembly costs
- Compactness and extended power range
- Scalability of power classes

Achieved by

- Highest thermal cycling capability by Insulated Metal Baseplate (IMB)
- Optional Press Fit terminals
- Production lot-independent paralleling capability
- Low loss 7th gen. Chipset
- Low thermal resistance $R_{th(j-c)}$
- Reduced package inductance by single pattern layout
- Full power rating line-up of 650V, 1200V and 1700V IGBT modules
- SiC 2-in-1 MOSFET in compatible housing available

Circuit	Topology	Package image	Package size	650V	1200V	1700V
2-in-1			62 x 152 mm ²		225A	225A
				300A	300A	300A
				450A	450A	450A
				600A	600A (Si + SiC ¹)	600A (Si + SiC ¹)
					800A	
6-in-1			62 x 122 mm ²		1000A *(8th Gen.)	
					1000A	
				100A	100A	100A
				150A	150A	150A
7-in-1			62 x 137 mm ²	200A	200A	
					100A	
				150A	150A	
				200A		
CIB			45 x 107.5 mm ²		35A	
				50A	50A	
				75A	75A	
			62 x 122 mm ²	100A		
					75A	
				100A	100A	
				150A	150A	



Industrial



Solar



Wind



Power
Transmission

SLC (SoLiD Cover)-Technology

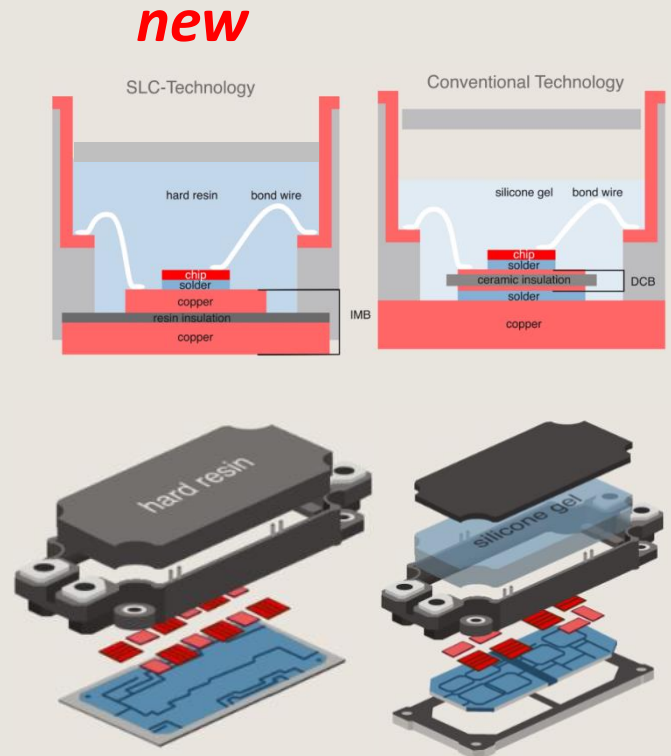
SLC-Technology is a newly developed package technology combining a resin-insulated metal baseplate and hard direct potting resin.

The IMB (Insulated Metal Baseplate) combines an electrically insulating resin layer with a top and bottom side copper layer by direct bonding, thus eliminating the substrate solder layer and the baseplate.

Less layers and matched thermal expansion coefficients lead to high thermal cycling capability, exceeding several times the conventional capability. At the same time, the thermal resistance at same chip size is reduced by 30% compared to conventional modules having Aluminum-Oxide Insulation.

The SLC concept utilizes one common substrate instead of multiple ceramic substrates. This approach expands the effective area available for mounting chips and eliminates wire bond interconnections.

The top side circuit pattern thickness could be significantly enlarged. This reduces the electrical resistance and or allowing to shrink the pattern size. Hence, the IMB is a key element of the SLC-Technology for high power density and low stray inductance.

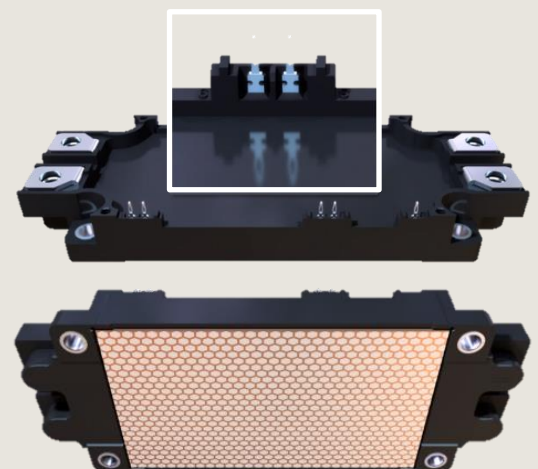


User-friendly design features

The NX-Type of 7th Generation IGBT modules line-up contains press-fit as well as solder pin types. The optimized “needle eye”-pin type has a self adjusting shape for easy assembly.

The package is also available as an option with applied PC-TIM. This removes the need to apply grease and achieves lower thermal contact resistance.

Both features enable a highly reliable mounting process even in harsh environments and easy maintenance in the field.



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SiC Modules:



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