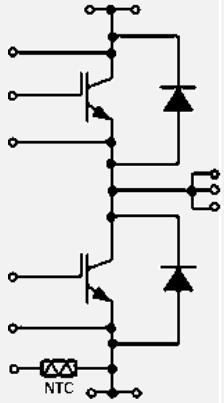
MITSUBISHI ELECTRIC
Changes for the Better

The Next Generation Standard Module for High Power:
LV100 optimized for Renewable and Industrial Applications

High power applications in the field of renewable energy and industry require reliable, scalable and standardized power modules. Providing optimized solutions, Mitsubishi Electric is expanding the line-up of the standardized LV100 package to 1200V ,1700V and 2000Vblocking voltages by utilization of proven SLC package and 7th Gen. IGBT/Diode chips technology.

Product Advantages

- New standardized package for high power applications
- Highest power density
- Latest 7th Gen. IGBT and Diode chips with superior trade-off providing significant power loss reduction
- 2000V class as optimized solution for 1500V_{DC} renewable 2-level inverters
- Thermal cycle failure free SLC package technology
- Advanced layout provides low stray inductance and symmetrical current sharing and is ready for SiC MOSFET devices
- Easy paralleling providing scalable solutions
- Three AC-output terminals for high loads
- Optional pre-applied phase change TIM available
- Integrated Thermistor
- Easy assembly by pre-applied phase change thermal interface material (PC-TIM) option

I_C [A]	Circuit Diagram	V_{CES} [V]		
		1200	1700	2000V
800		CM800DW-24T	CM800DW-34T CM800DW-34TA*1	
1200		CM1200DW-24T	CM1200DW-34T	CM1200DW-40T

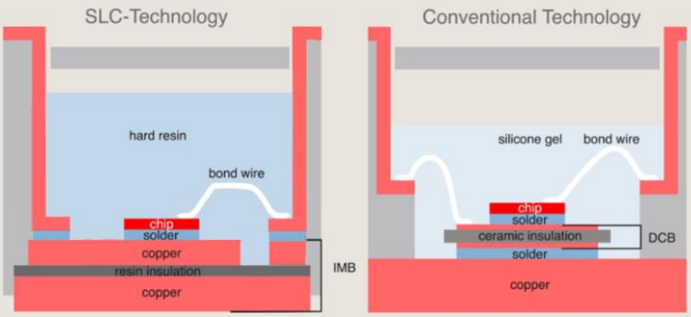
*1) Version with higher diode current rating optimized e.g. for wind generator side converter or AFE

Wind Solar Industrial Power Transmission

MITSUBISHI ELECTRIC
Changes for the Better

Thermal cycle failure free SLC (SoLid Cover)-Technology

new

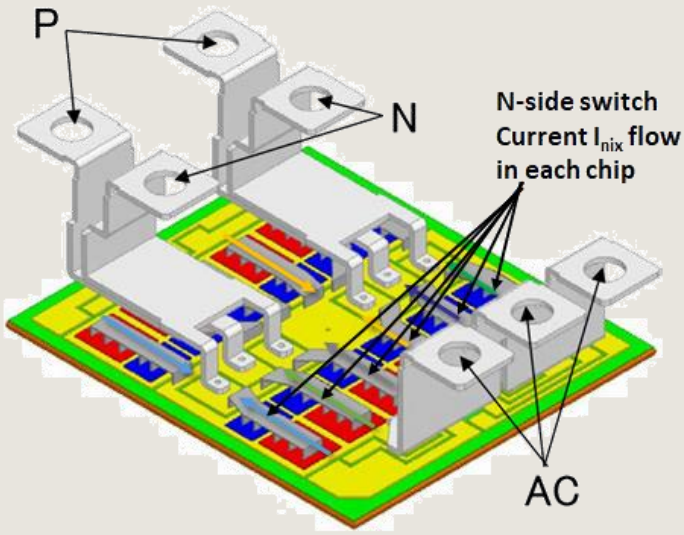


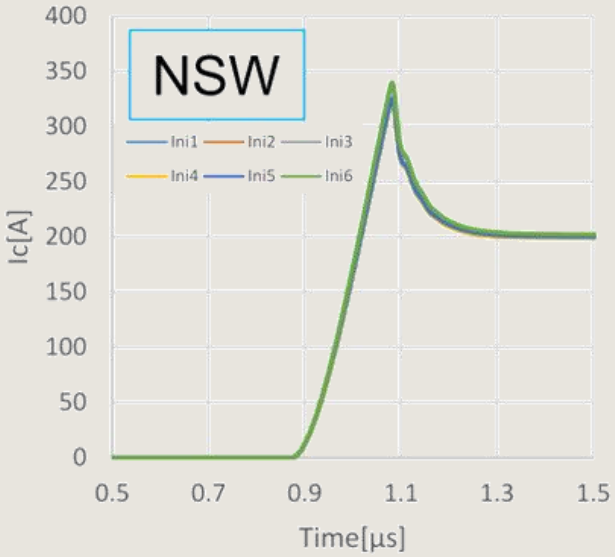
SLC-Technology is a newly developed package technology combining a resin-insulated metal baseplate and hard direct potting resin.

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 elimination of thermal cycle failure.
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. Hence, the IMB is a key element of the SLC-Technology for high power density and low stray inductance.

LV100 Internal Layout

In high power IGBT modules, multiple IGBT and diode chips are connected in a parallel configuration.
A non-homogeneous current distribution causes a certain chip to carry the highest current and this chip will experience the highest temperature which ultimately limits the performance and life-time of the total system. Therefore the LV100 layout is designed symmetrically to achieve homogeneous current distribution. In combination with the low inductive laminated terminal design the LV100 housing is suitable to be equipped with fast switching semiconductors such as SiC devices. As result, a potential future change from Si-IGBT to SiC-MOSFET devices is feasible with less changes and redesign efforts.





Mitsubishi Electric Europe B.V. (European Headquarters)
– Semiconductor European Business Group –
Mitsubishi-Electric-Platz 1 / D-40882 Ratingen
Phone +49 (0) 2102 486 0
Fax +49 (0) 2102 486 7220
www.MitsubishiElectric.com
www.meu-semiconductor.eu

March . 2023