LV100 type X Series : High-Voltage IGBT Modules
More Flexibility through Standardized Package

The newly developed next-generation power module called LV100-type X-Series HVIGBT module for traction and electric power applications in heavy industries features higher power density and efficiency for inverters. Moreover, it offers a standardized package that allows a flexible design of inverter systems. Samples of the 3.3kV version of the LV100-type X-Series HVIGBT module (CM450DA-66X & CM600DA-66X) are available. The line-up will be extended by 1.7kV, 3.3kV (HV100), 4.5kV and 6.5kV versions from 2018 onwards.

Product Advantages

- Power loss reduced by incorporating 7th-generation IGBT and RFC diode
- Contributing to high energy efficiency and high power density by improving package technology for low parasitic inductance and thermal resistance
- LV100 and HV100 modules have a common package foot print
- Simple, standard connections allow for optimal system design and a range of current ratings

Circuit	Circuit Diagram	Package Type	1700 V	3300 V	4500 V	6500 V
2in1		LV100 V_{iso} = 6 kV	900 A	CM450DA-66X 450 A		
			1200 A	CM600DA-66X 600 A		
2in1		HV100 V_{iso} = 10 kV		450 A	350 A	225 A
				600 A	450 A	300 A

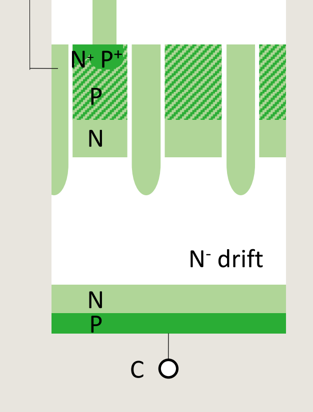
Railway

for a greener tomorrow

Chip Technology

LV100-type X-Series HVIGBT module use the same 7th-generation IGBT and diode as the new X Series including carrier-store layer and RFC.
The optimized N buffer achieves the operation at higher temperatures of 150 °C. Moreover, the optimized edge termination structure LNFLR (Linearly-Narrowed Field Limiting Ring) allows an increased active chip area of up to 28 % compared to previous products.

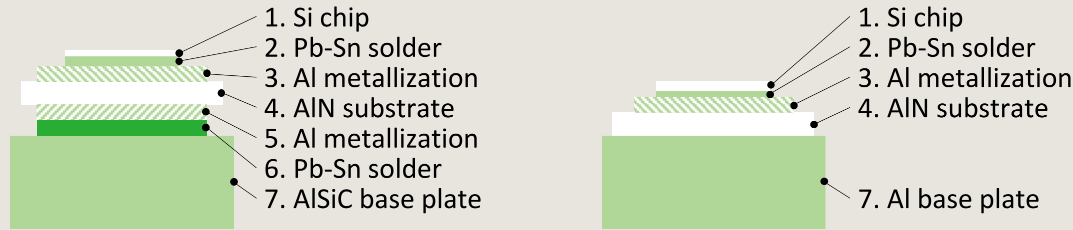
Compared to previous product*, active chip area is increased 28 % by optimizing edge termination.
* CM750HG-130R



Chip structure improving maximal temperature range

Package Technology

LV100 and HV100 modules have a standardized package design with a size of 100 mm x 140 mm x 40 mm. This allows manufacturers of industrial electronics simplified design, improved scalability for system configuration and secure multiple sources for inverters.
For the first time, aluminum is used as base-plate material in HV modules. It offers compared to classical materials, like AlSiC, a higher thermal conductivity and less weight. A new insulating material is introduced which increases the power-dissipation capability of the package further. Overall, this allows converter designs with increased output power and higher power density while the stress on thermal cycling is reduced.



New base plate results in higher thermal conductivity between junction and case and an increased thermal-cycling performance

Mitsubishi Electric Europe B.V. (European Headquaters)
- 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

May 2018