



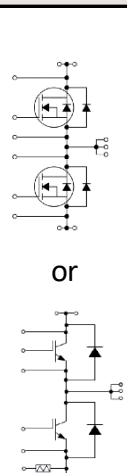
LV100 and HV100 X Series : High-Voltage Power Modules More Flexibility through Standardized Package

For traction and heavy industry, the newly developed next-generation dual power modules in LV100 and HV100 package enable robust and high power density inverters. The line-up covers all relevant voltage classes from 1700 V up to 6500 V. Parallel connection of modules is simplified by according terminal positions and the internal package structure. This and providing at least two different current ratings for each voltage class give converter designers higher flexibility for their individual projects. For highest efficiency requirements and cutting-edge converter systems, state-of-the-art Full-SiC and Hybrid-SiC technology will be available in the same package.



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 footprint
- ❑ Simple, standard connections allow for optimal system design and a range of current ratings
- ❑ Availability of future-proof SiC technology

Circuit	Circuit Diagram	Package Type	1700 V	3300 V	4500 V	6500 V
2-in-1	 <p>or</p>	LV100 $V_{iso} = 6 \text{ kV}$	<div style="text-align: center;">Full SiC</div> FMF750DC-66A 750 A FMF375DC-66A 375 A CMH1200DC-34X 1200A	CMH600DC-66X 600 A		
			CM1200DC-34X 1200 A CM1000DC-34X 1000 A	CM600DC-66X 600 A CM450DC-66X 450 A		
		HV100 $V_{iso} = 10.2 \text{ kV}$	<div style="text-align: center;">Silicon</div> CM600DG-66X 600 A CM450DG-66X 450 A	CM450DG-90X 450 A CM350DG-90X 350 A	CM300DG-130X 300 A CM225DG-130X 225 A	

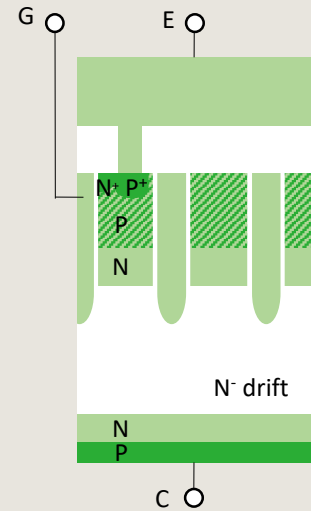


Chip Technology

LV100 and HV100 HVIGBT modules use the newly developed X-Series 7th-generation IGBTs with carrier-store layer and Relaxed Field of Cathode (RFC) diodes. These technologies enhance efficiency and robustness. The optimized N buffer achieves 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. Surface Charge Control (SCC) makes the device more robust against high humidity.



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



Chip structure improving maximal temperature range

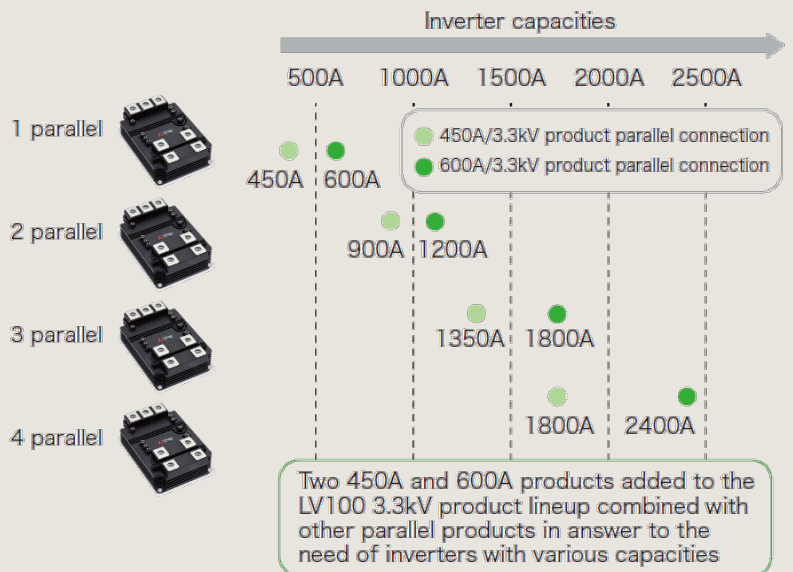
Package Technology

LV100 and HV100 modules have a standardized package design with a footprint of 100 mm x 140 mm. This allows manufacturers of industrial electronics simplified design, improved scalability for system configuration and secure multiple sources for inverters.

Terminal layout and chip arrangement enable easier parallel connection while optimizing current sharing between the modules. At the same time, Mitsubishi Electric offers at least two current ratings for each voltage class. For every project, our customers have to face individual load profiles and different power requirements. Now, due to a large line-up, semiconductor utilization increases and with it cost competitiveness.

The user-friendly placing of auxiliary gate terminal provide large space for custom gate-driver designs.

Of course, LV100 and HV100 are future-proof and SiC-ready. Several Full-SiC and Hybrid-SiC modules are available or under development.



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