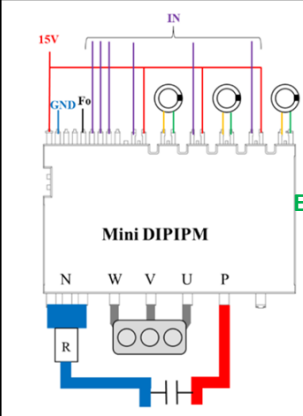
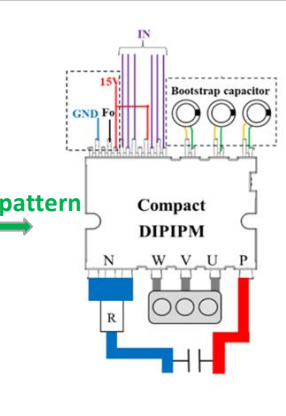


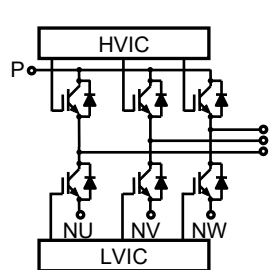
Compact DIIPM™ for Compact Inverter Stage

Mitsubishi Electric has developed a new Compact package Intelligent Power Module (Compact DIIPM™) with current/voltage ratings of 30A-50A/600V (PSS30SF1F6 – PSS50SF1F6) for Packaged Air Conditioners, Heat Pump Compressor and Low Power Industrial Drive Applications. By utilizing reverse-conducting insulated-gate bipolar transistors (RC-IGBTs), the module's package size has been reduced 43% compared with of that of the conventional Mini DIIPM™ package maintaining same isolation voltage (2500Vrms/1min), enabling more compact inverter stages.

Product Advantages

- ❑ Reduced package outline (including terminal) by approximately 43% compared to conventional Mini DIIPM™ series through RC-IGBT integration
- ❑ Transfer molded structure achieving heat dissipation and insulation with a high thermal conductivity insulating sheet
- ❑ Achieves a smaller size than conventional Mini DIIPM™, enabling space savings on inverter boards.
- ❑ Interlock function for arm short-circuit protection simplifies inverter substrate design
- ❑ Supports continuous operation down to -40°C, enabling use in cold climates
- ❑ Built-in protection and additional functions: short-circuit, UVLO, Temperature output function
- ❑ UL recognized, isolation voltage 2500 V AC RMS

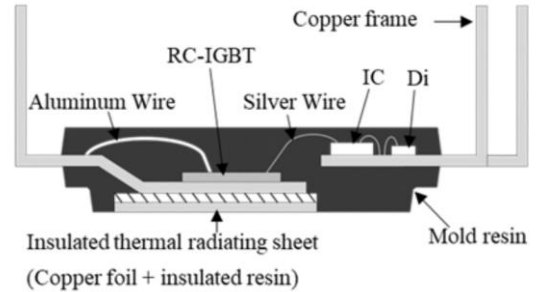
Description	Mini DIIPM™	Compact DIIPM™
Power chip	7 th Gen. IGT	RC-IGBT
T _{jop}	-30...150deg C	Improved → -40...150deg C
T _{case}	-30...125deg C	Improved → -40...125deg C
Package Outline (inc. terminals)	52.5 x 35.9 mm	43% reduced → 35.6 x 30.1 mm
V _{iso}	2500Vrms	maintained → 2500Vrms
Terminal		Easy pattern → 

Circuit	Circuit Diagram	Package Size	Product Name	Application
6in1		35.6 mm X 24.4 mm	PSS30SF1F6 (30A / 600V)	HVAC Pumps Fans Small AC Drives
			PSS50SF1F6 (50A / 600V)	



Compact DIIPM™ Package

- Compact DIIPM™ has 53% smaller footprint (excl. terminals) than the conventional Mini DIIPM™. By implementing high thermal density insulating sheet with RC-IGBT, Compact DIIPM™ provide the smallest 3-phase IPM for motor drive applications up to 3.7kW with 50A/600V rating.
- Compact DIIPM™ package has been optimized to maintain same isolation voltage (2500Vrms/1min) as of conventional Mini DIIPM™.



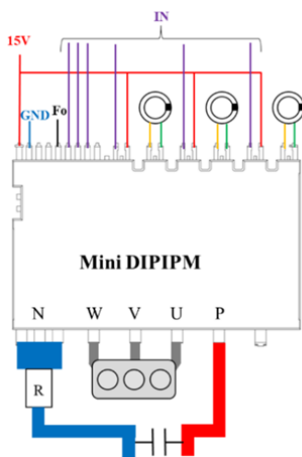
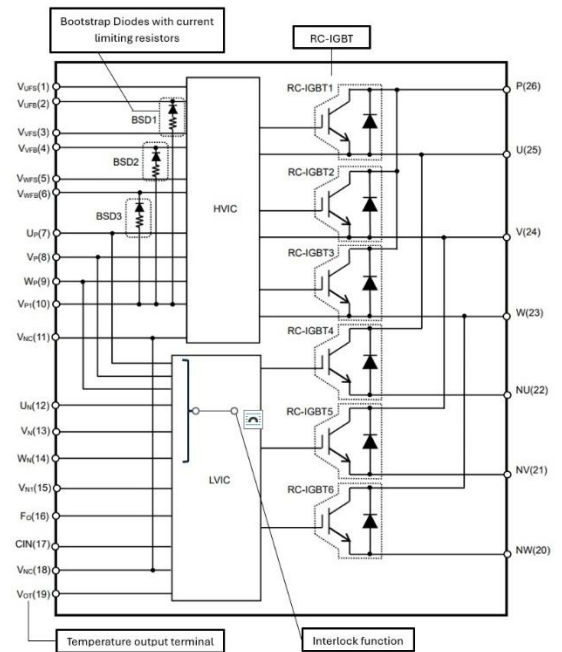
Ease of Use

Compact DIIPM™ shows an improvement in the following areas compared to the conventional Mini DIIPM™

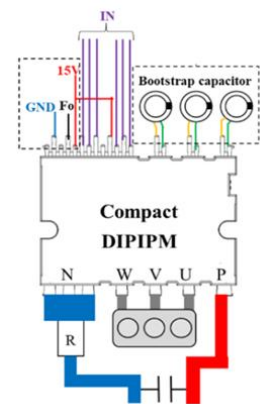
- Reduction of thermal resistance by RC-IGBT chip level improvement and higher performance insulation sheet
- Extension of minimum operation junction and case temperature specification, $T_{case, min} = T_{jop, min} = -40deg C$
- Implementation of interlock function to prevent simultaneous turn-on of both P and N sides

Simplified PCB Pattern

- Simple power supply wiring by reduction of HVIC quantity
- Integrate input signal terminals



- 53% reduction in footprint (excl. terminals maintaining 2500Vrms/1min isolation)
- Optimized power supply & control terminal wiring
- Added interlock function



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.mitsubishichips.eu