

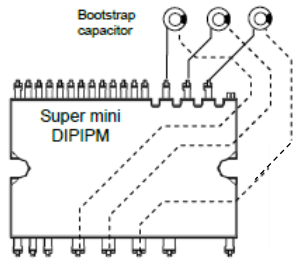
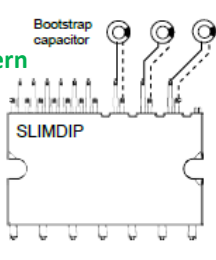
# SLIMDIP™ with Reverse Conducting IGBT

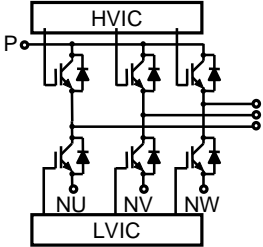
## - Slim your cost -

Mitsubishi Electric has developed a new SLIM package Intelligent Power Module (SLIMDIP™) for Consumer Goods Applications. Power chips, drive and protection circuits are all integrated into the module, which makes it a simple choice for AC100-200V class motor inverter control. SLIMDIP™ utilizes reverse conducting RC-IGBT technology, which applies MITSUBISHI's latest 7<sup>th</sup> generation IGBT chip design, enabling the use of a smaller package by reducing number of internal component when compared to MITSUBISHI's Super Mini DIPIPM series. By virtue of these features SLIMDIP™ is especially suitable for low cost inverterized home appliances and can contribute to system cost reduction.

### Product Advantages

- ❑ Smaller package (30% smaller than Super Mini DIPIPM)
- ❑ Integrated bootstrap diode eliminates the need for external diode, simplifying design & PCB layout
- ❑ Dedicated protection functions: short circuit, over temperature, under voltage lockout
- ❑ Robust package for high temperature operation,  $T_{C,max}$  of 115°C for switching operation
- ❑ UL recognized, isolation voltage  $V_{iso} = 2000V$  AC RMS

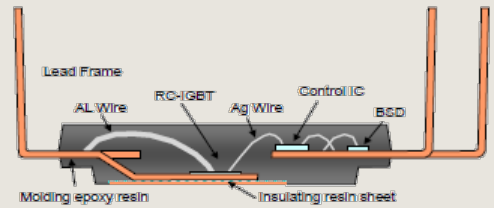
	Super Mini DIPIPM	SLIMDIP
Power chip	7 <sup>th</sup> Gen. IGBT	RC-IGBT
Tj max	150deg C	150deg C
Tc max	100deg C	115deg C
Package	Super Mini 24x38	SLIM 18.8x32.8
Viso	1500Vrms	2000Vrms
Terminal		

Circuit	Circuit Diagram	Package Size	Product Name	Application
6in1		18.8 mm X 32.8 mm	SLIMDIP-S (5A / 600V) SLIMDIP-L (15A / 600V) SLIMDIP-W (15A / 600V)	Air Conditioners Washing Machine Refrigerators Pumps Fans Small AC Drives



## SLIMDIP™ Package

- The SLIMDIP™ package has roughly a 30% smaller footprint area than the conventional Super Mini DIIPM. The package and power semiconductors are optimized to provide the smallest 3-phase IPM for motor drive applications up to 1.5kW.
- The conventional DIIPM package contains 6 IGBTs and 6 FWDs, but the new RC-IGBTs used in the SLIMDIP™ allows a 50% reduction in the number of power chips, thus shrinking the internal space requirement.



## Ease of Use

The SLIMDIP™ shows an improvement in the following areas compared to the Super Mini DIIPM, making it easier to use.

- An increased maximum case temperature specification,  $T_c \text{ max } 100 \rightarrow 115 \text{ deg C}$
- Both temperature protection tripping OT and analog temperature information are IC functions.

## Simplified PCB Pattern

Bootstrap circuits, which require external capacitors, are generally used to provide the high-side power supply in conventional DIIPM circuits. In a conventional DIIPM circuit, the pins used for bootstrap capacitor connection are located on opposite sides of the module. In the SLIMDIP, the ground pins are placed next to the high voltage supply pins, simplifying the PCB wiring design and thus utilizing less space.

