

IPMs Increase Reliability And Performance For Low- And Medium-Power Drives

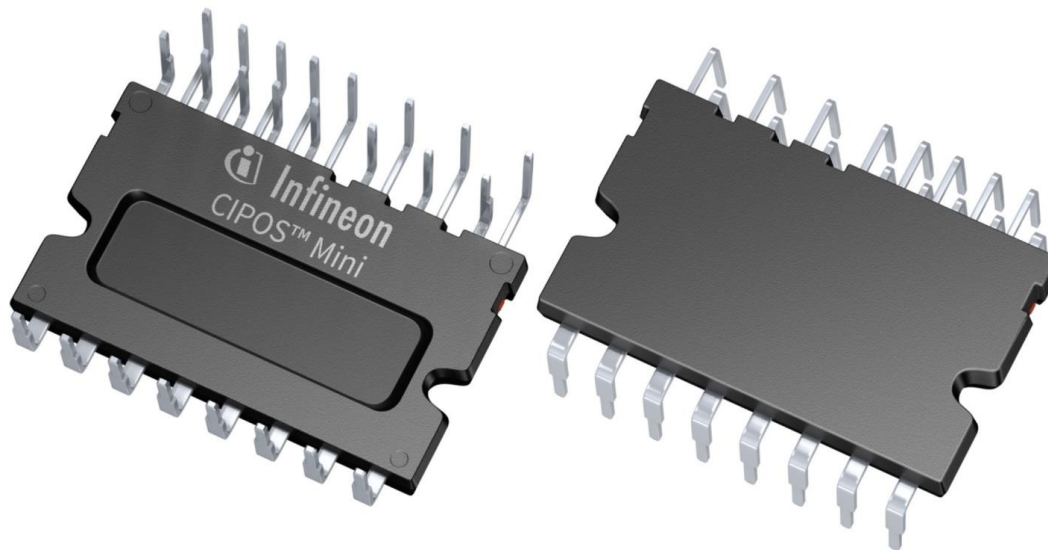
[Infineon Technologies'](#) IM523 series in the CIPOS Mini family features highly efficient IPMs (intelligent power modules) based on the new 600-V Reverse Conducting Drive 2 (RCD2) IGBT technology and these modules come with an open emitter. The CIPOS IM523 series enables the integration of various power and control components to increase reliability and optimize PCB size as well as system cost. The IPMs are designed to control three-phase motors in low- and medium-power variable-speed drives for home appliances, HVAC (heating, ventilation, and air conditioning) equipment, as well as for industrial fans and drives up to 1.4 kW.

The RCD2 IGBTs are combined with a full-featured, silicon-on-insulator (SOI) gate driver to enable lower power dissipation of the system. The three-phase inverter configurations with open emitters are integrated in a DIP 36 x 21 package (see the figure). The package concept is specially adapted to power applications which need good thermal conduction and electrical isolation. As the series exhibits best-in-class switching loss, according to the vendor, it is said to deliver excellent energy efficiency especially in applications with high switching frequency.

The devices are available in current ratings from 6 A to 17 A, with a breakdown voltage of 600 V. A built-in, UL-certified NTC thermistor for temperature monitoring, undervoltage lock-out (UVLO) on all channels, and overcurrent protection (OCP) further enhance the system reliability (see the table).

Package and mold compound offer improved humidity robustness. Additionally, the IPMs integrate a bootstrap circuit to simplify the PCB layout. Thanks to the industry-standard package, easy and fast design conversion of existing Mini IPMs (P2P) is possible without PCB redesign, thus shortening time-to-market, according to the vendor.

The CIPOS Mini IM523 series can be ordered now; volume production has started. More information is available at the CIPOS Mini IPMs [page](#) or see the datasheet links in the table.



(a)

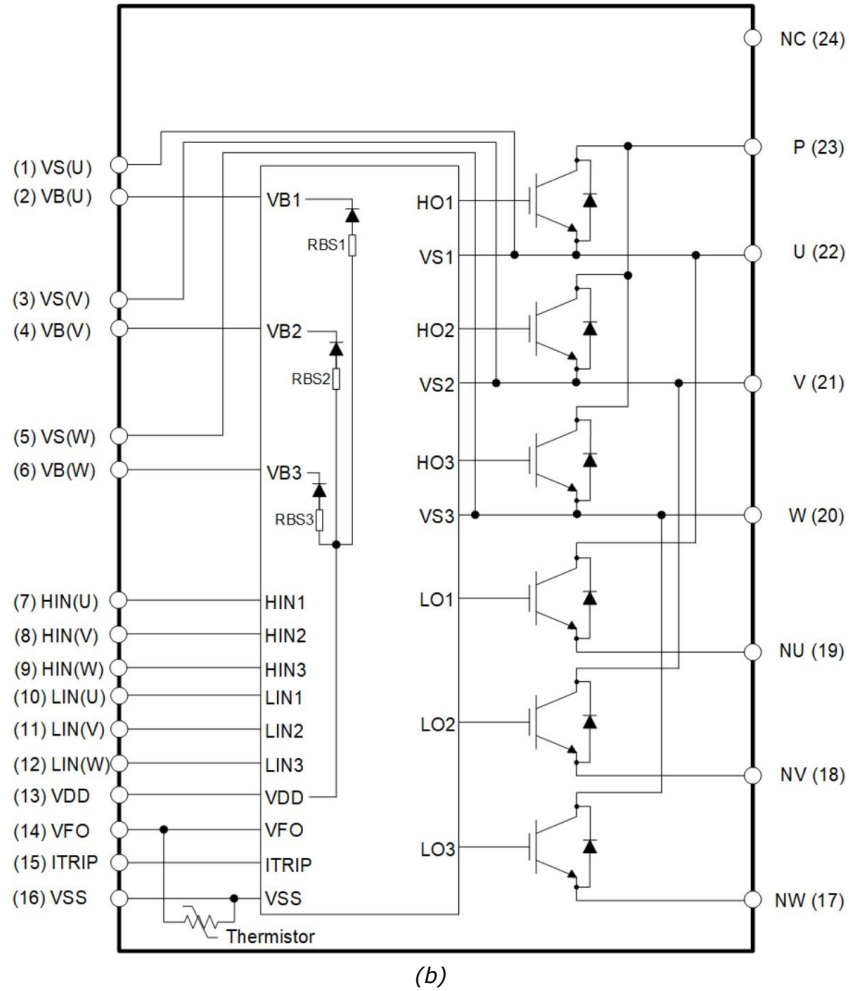


Fig. 1. The IM523 series intelligent power modules target three-phase motor control and low- and medium-power variable-speed drives. They feature RCD2 IGBTs in three-phase inverter configurations with open emitters combined with a silicon-on-insulator (SOI) gate driver—all housed in a DIP 36 x 21 package (a). An internal block diagram is shown in (b).

Table. Key specifications for IM523 series IPMs in the three-phase open-emitter configuration.

Model	Voltage class	P _{mot}	Rated current
IM523-L6A	600 V	1200 W	15 A
IM523-M6A	600 V	800 W	10 A
IM523-S6A	600 V	600 W	6 A
IM523-X6A	600 V	1400 W	17 A