

英飞凌IPM & IMOTION™ 2.0 新产品介绍

英飞凌科技（中国）有限公司
2021年4月

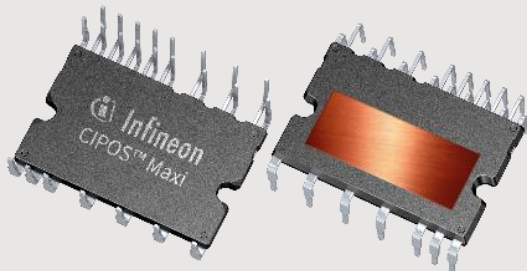


IM818-series at a Glance

- Provide Excellent Performance with Highest Power Density in 1200 V Class

Products

DIP 36x23D



Dimension [mm] 36 x 22.7 x 3.1 mm³ with 24 pins

Configuration 3-phase inverter with open emitters

Voltage Rating 1200 V

IGBT Current Rating 5 A, 10 A, 15 A
($T_C = 80\text{ }^\circ\text{C}$, $T_J < 150\text{ }^\circ\text{C}$)

Key Features

- > Fully isolated Dual In-Line molded module with **1200 V TRENCHSTOP™ IGBT**
- > **Power capability over 3 kW**
- > Rugged 1200 V SOI gate driver technology (6ED)
- > Integrated bootstrap functionality
- > Over current shutdown
- > Under-voltage lockout at all channels
- > Independent temperature thermistor
- > Low side pins accessible for all phase current monitoring

Application

- > Commercial air conditioners
 - > Outdoor fan/active filter
- > Industrial motor drives
- > Pumps
- > Fans

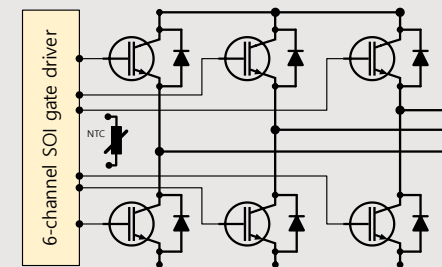


Product Line

Part No.	Package	Current Rating	Voltage Rating	Ver.
IM818-SCC	DIP 36x23D	5 A	1200 V	IGBT 4
IM818-MCC	DIP 36x23D	10 A	1200 V	IGBT 4
IM818-LCC	DIP 36x23D	15 A	1200 V	IGBT 4

Topology

Topology: 3 phase inverter

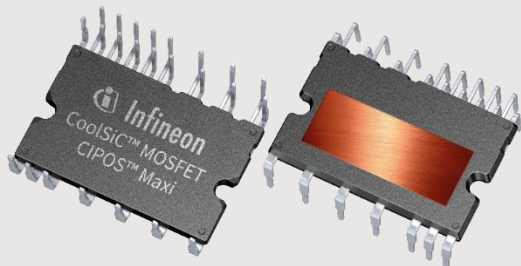


IM828-series at a Glance

-The 1st Worldwide 1200 V Silicon Carbide IPM

Products

DIP 36x23D



Dimension [mm]	36 x 22.7 x 3.1 mm ³ with 24 pins
Configuration	3-phase inverter with open emitters
Voltage Rating	1200 V
Rds(on)	55 mΩ (I _D =20 A, V _{in} =5 V, T _J < 25°C)
I _D DC drain current	20A (T _C = 80°C, T _J < 150°C)

Key Features

- Fully isolated Dual In-Line molded module with **1200 V CoolSiC™ MOSFET**
- **Power capability over 8 kW**
- Super excellent heat dissipation
- Rugged 1200 V SOI gate driver technology (6ED)
- Integrated bootstrap functionality
- Over current shutdown
- Under-voltage lockout at all channels
- Independent temperature thermistor
- Low side pins accessible for all phase current monitoring

Application

- > Commercial air conditioners
 - Active filter (PFC)/compressor
- > Industrial motor drives
- > Pumps

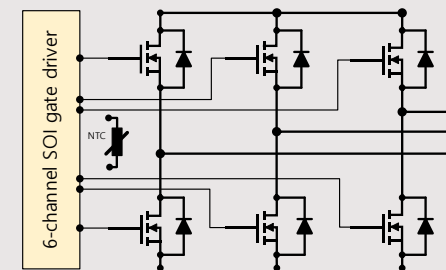


Product Line

Part No.	Package	Rds(on)	Voltage Rating	Ver.
IM828-XCC	DIP 36x23D	55 mΩ	1200 V	CoolSiC™ MOSFET

Topology

Topology: 3 phase inverter



iMOTION™ SmartDriver

Combining Integration and Flexibility



Features

IMD111/2T (MCE 2.0)

- › Motor Control Algorithm (Sensorless/ hall-based FOC)
- › Scripting engine
- › iMOTION™ tools for motor/ PFC configuration and tuning
- › Optional PFC control

IEC 60335 ('class B')

Protection Features

- › Dead time insertion & shoot-through prevention
- › Overcurrent / overvoltage / under voltage lockout

Topology

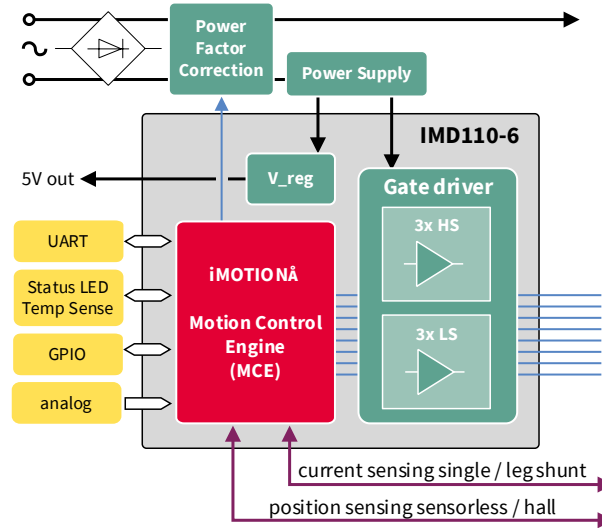
- › Single shunt, leg shunt / sensorless or hall-sensor supported
- › Totem pole / boost PFC (option – control only)

Gate Driver

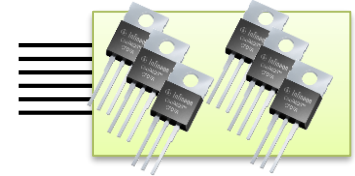
- › Voltage class: 600 V / VCC 15 V (single supply)
- › Io+ / Io- 240 mA / 420 mA

Package

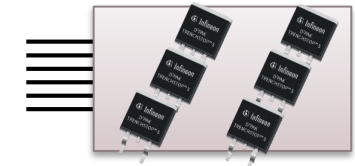
- › LQFP-40 (QFP-48 footprint with improved creepage)



CoolIMOS™ MOSFET for best light load efficiency

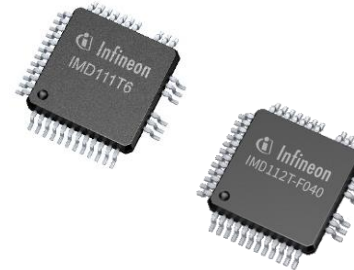


TRENCHSTOP™ IGBT for highest power density



Benefits

- › **Unique combination** of ready-2-use motor / PFC control algorithms with market leading gate driver
- › **Reduced System Cost** by reduced BOM count and PCB size
- › **Hall sensor based startup** and sensorless **high speed** operation
- › **Fastest time to market** by using iMOTION™ design kits



IMM100 Series Fact Sheet



Features

IMM101/2T (MCE 2.0)

- › Motor Control Algorithm (FOC, sensorless or hall)
- › Scripting engine
- › Boost PFC control

IEC 60335 ('class B')

IMM100A (Arm® Cortex® M0)

- › 48 MHz / 96 MHz clock speed
- › 128 kB Flash / 16 kB RAM
- › Motor Control Peripherals (Co-Processor, PWM, hall input, ADC, Comparators)

Protection Features

- › Dead time insertion & shoot-through prevention
- › Over current / over voltage / under voltage lockout

Topology

- › Single shunt, leg shunt, sensorless or Hall-sensor based operation

Power Stage

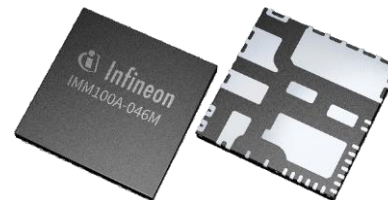
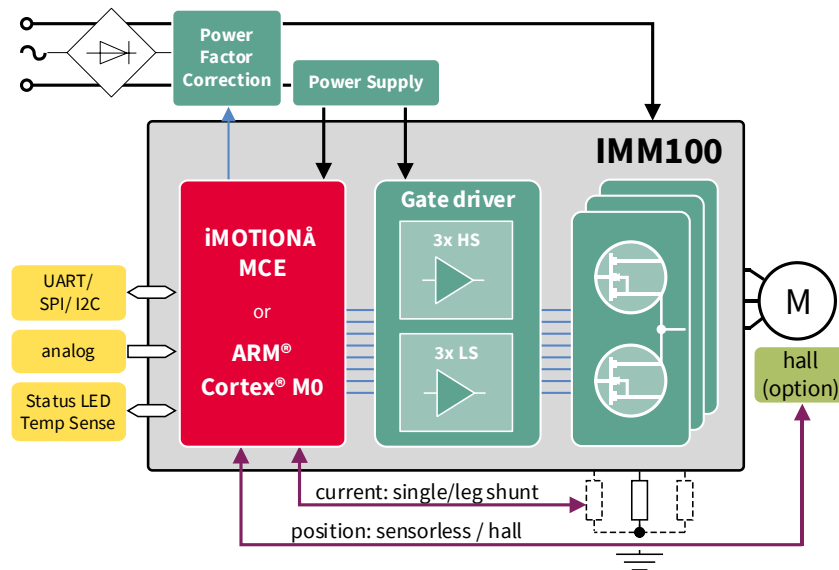
- › MOSFET, 3 options: 600V/1.4Ω, 500V/6Ω, 600V/0.95Ω
- › Motor power up to 30 W / 50 / 80 W (no heatsink)

Package

- › CIPOS™ Nano - PQFN12x12, SMT

Benefits

- › **Unique combination** of ready-2-use motor control algorithms (MCE) with market leading power stages
- › **Reduced System Cost** by reduced BOM count and single layer PCB option
- › **Easy to use** iMOTION™ design tools
- › **Fast time to market** by using iMOTION™ design kits





Part of your life. Part of tomorrow.