

Description

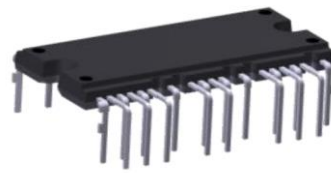
CRM60TK03E3 are 3-phase Integrated Power Modules (IPM) designed for advanced appliance motor drive applications such as Air condition etc.

CRM60TK03E3 Integrated 6 fast recovery MOSFETs, 3-phase half bridge high voltage gate drivers in a familiar package. The modules are optimized for low EMI characteristics.

CRM60TK03E3 internal integration of undervoltage, short circuit and other protection functions, providing excellent protection and a wide range of safe working area. The CRM60TK03E3 designed with high insulation and easy thermal conductivity, especially suitable for compact installation.

Features

- 600V/3A three-phase inverter
- Works with 3.3V/5V MCU
- Built-in high voltage gate drive circuit
- Built-in NTC resistor for temperature detection
- Integrated under-voltage protection
- Integrated high accurate short-circuit current protection
- Integrated enable shut down function
- Integrated cross-conduction prevention logic
- Floating channel designed for bootstrap operation
- Isolation rating: 1500 Vrms/min



DIP-25A



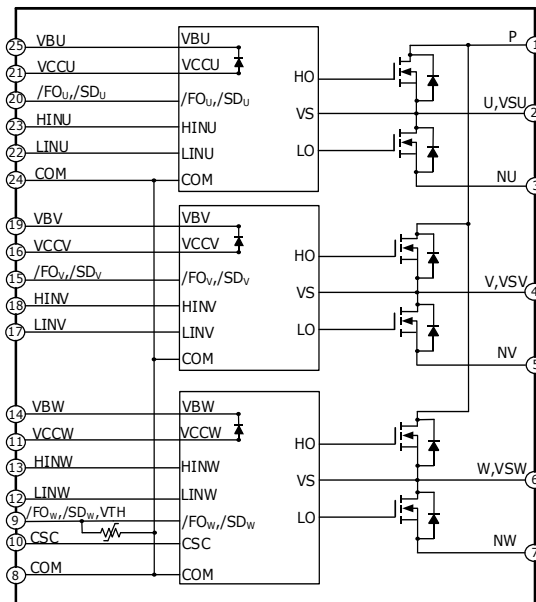
Applications

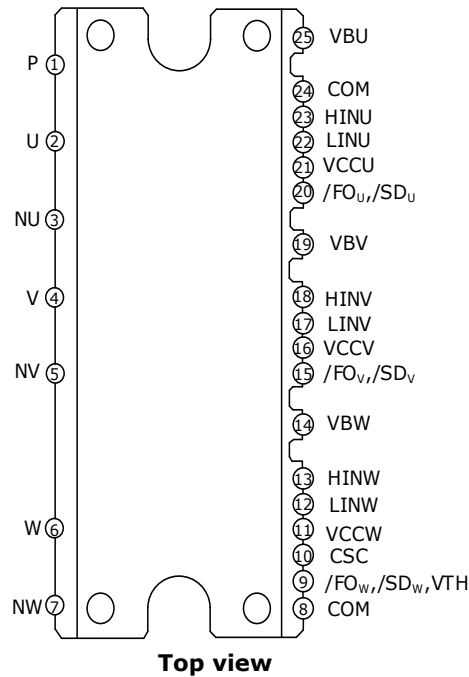
- Air condition
- Fans

Package Marking and Ordering Information

Part #	Marking	Package	Packing	Quantity
CRM60TK03E3	CRM60TK03E3	DIP-25A	Tube	150/308

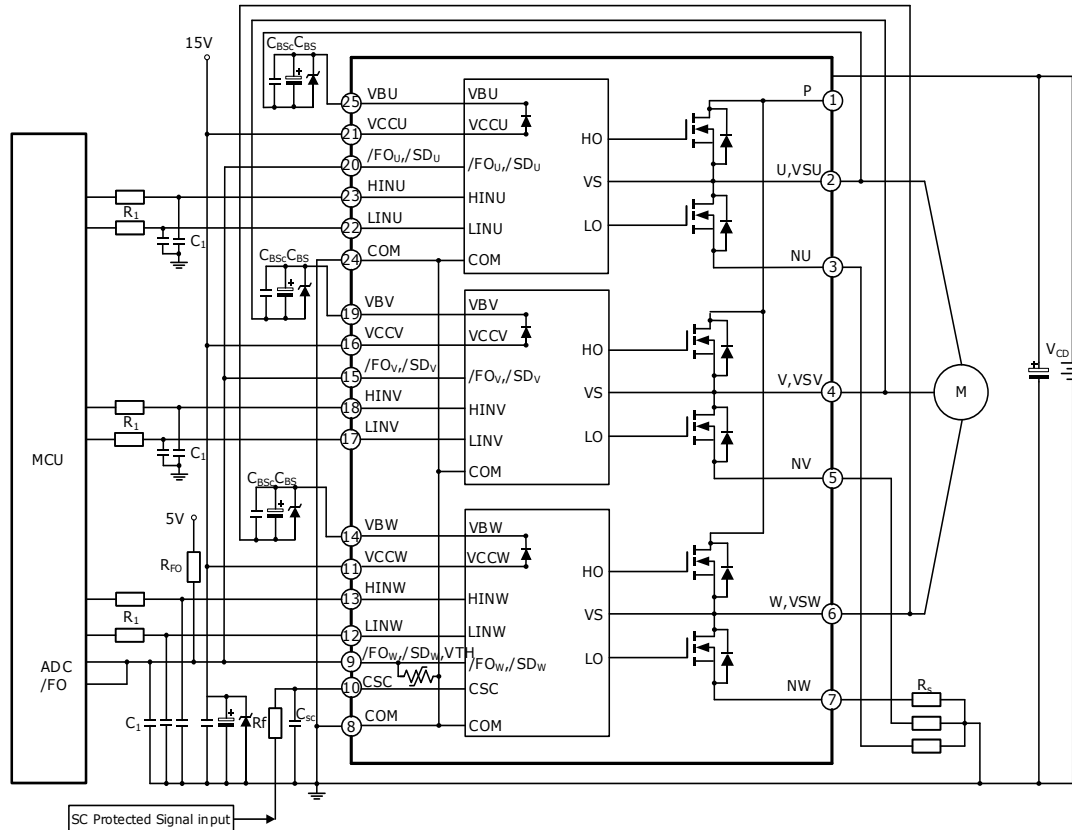
Internal Electrical Schematic



Module Pin-Out Description


Pin Number	Pin Name	Description
1	P	DC Bus Voltage Positive
2	U	Output - Phase U, High Side Floating Supply Offset U
3	NU	Phase U Low Side Source
4	V	Output - Phase V, High Side Floating Supply Offset V
5	NV	Phase V Low Side Source
6	W	Output - Phase W, High Side Floating Supply Offset W
7	NW	Phase W Low Side Source
8	COM	Logic Ground
9	/FO _w ,/SD _w ,VTH	W phase fault output ,W phase shut down, NTC Resistor Output
10	CSC	External capacitance, short-circuit current input
11	VCCW	W phase IC supply voltage
12	LINW	Logic Input for Low Side Gate Driver - Phase W
13	HINW	Logic Input for High Side Gate Driver - Phase W
14	VBW	High Side Floating Supply Voltage W
15	/FO _v ,/SD _v	V phase fault output ,V phase shut down
16	VCCV	V phase IC supply voltage
17	LINV	Logic Input for Low Side Gate Driver - Phase V
18	HINV	Logic Input for High Side Gate Driver - Phase V
19	VBV	High Side Floating Supply Voltage V
20	/FO _u ,/SD _u	U phase fault output ,U phase shut down
21	VCCU	U phase IC supply voltage
22	LINU	Logic Input for Low Side Gate Driver - Phase U
23	HINU	Logic Input for High Side Gate Driver - Phase U
24	COM	Logic Ground
25	VBU	High Side Floating Supply Voltage U

Application Circuit



Remark:

- 1、 To prevent malfunction, the wiring of each input should be as short as possible.
- 2、 Input drive is High-Active type. There is a 5.6kΩ (typ.) pull-down resistor integrated in the IC input circuit. And adding RC filter circuit to the input will prevent the surge caused by incorrect input.
- 3、 To prevent surge damage, it is recommended to add a high-frequency non-inductive flat capacitor (0.1uF to 0.22uF) between P and N. The cable connection of the capacitor should be as short as possible.
- 4、 The line between the current detection resistor and the IPM should be as short as possible, otherwise the large surge voltage generated by the connecting inductor may cause damage.
- 5、 All capacitors should be mounted as close to the terminals of the IPM as possible.
- 6、 FO_x output is open drain type. It should be pulled up to the positive side of 5V power supply by a resistor of about 3.3kΩ.
- 7、 The time constant R_f and C_{sc} of the protection circuit should be selected in the range of 1.5-2.0 μs.

Package Outline

DIP-25A

UNIT:mm

