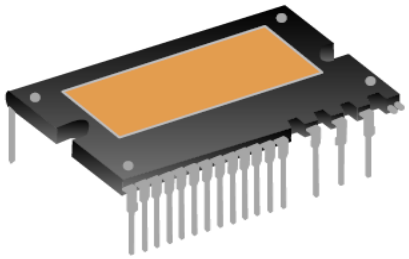
Description

CRM60GH30E4 are 3-phase Integrated Power Modules (IPM) designed for advanced appliance motor drive applications such as freezer compressor and pumps.

CRM60GH30E4 Integrated 6 low-loss IGBTs and FRDs, 3-phase full bridage drivers in a familiar package. The modules are optimized for low EMI characteristics.

Features

- 600V/30A three-phase inverter
- Works with 3.3V/5V MCU
- Integrated under-voltage protection
- High accurate over-current protection
- LVIC integrated >40μs fault duration time
- LVIC built-in temperature-sensing
- Integrated over temperature protection
- Integrated bootstrap functionality
- Isolation rating: 1500 Vrms/min



DIP-24B

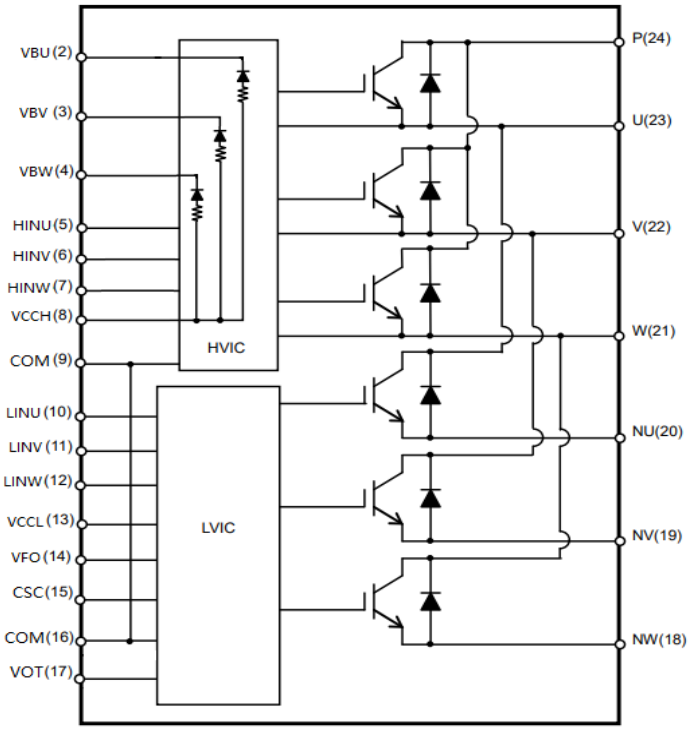
Applications

- Freezer compressor
- Air condition compressor
- Pumps

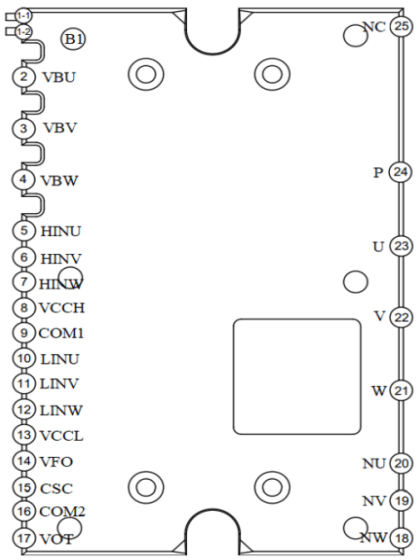
Package Marking and Ordering Information

Part #	Marking	Package	Packing	Quantity	V_{OT}
CRM60GH30E4	CRM60GH30E4	DIP-24B	Tube	360	Yes

Internal Electrical Schematic



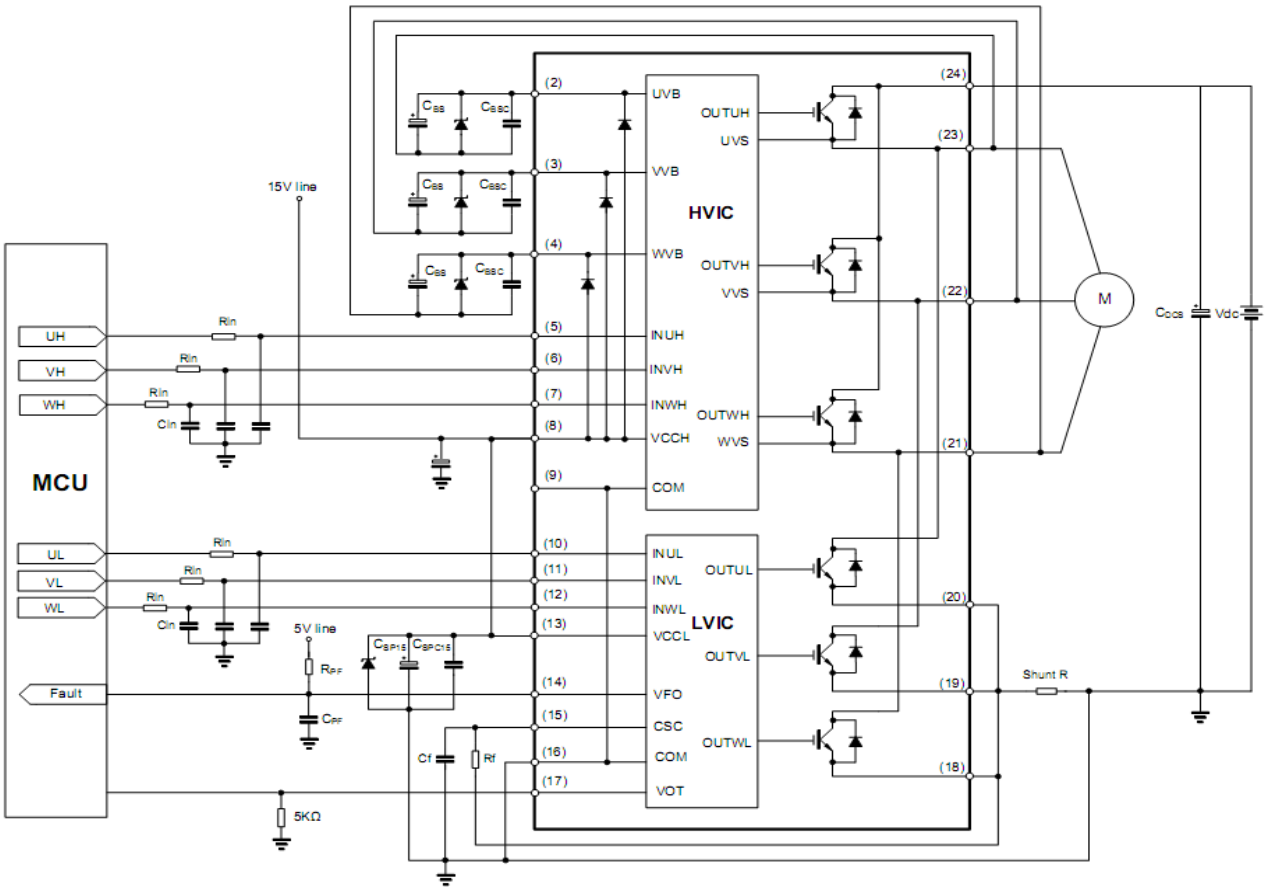
Module Pin-Out Description



Bottom view

Pin Number	Pin Name	Description
2	VBU	High Side Floating Supply Voltage U
3	VBV	High Side Floating Supply Voltage V
4	VBW	High Side Floating Supply Voltage W
5	HINU	Logic Input for High Side Gate Driver - Phase U
6	HINV	Logic Input for High Side Gate Driver - Phase V
7	HINW	Logic Input for High Side Gate Driver - Phase W
8	VCCH	High side IC supply voltage
9	COM	Logic Ground
10	LINU	Logic Input for Low Side Gate Driver - Phase U
11	LINV	Logic Input for Low Side Gate Driver - Phase V
12	LINW	Logic Input for Low Side Gate Driver - Phase W
13	VCCL	Low side IC supply voltage
14	VFO	Fault output / Temperature monitor
15	CSC	External capacitance, Over current shutdown input
16	COM	Logic Ground
17	VOT	Output for Temperature Sensing
18	NW	Phase W Low Side Source
19	NV	Phase V Low Side Source
20	NU	Phase U Low Side Source
21	W	Output - Phase W, High Side Floating Supply Offset W
22	V	Output - Phase V, High Side Floating Supply Offset V
23	U	Output - Phase U, High Side Floating Supply Offset U
24	P	DC Bus Voltage Positive
25	NC	Not Connected

Application Circuit

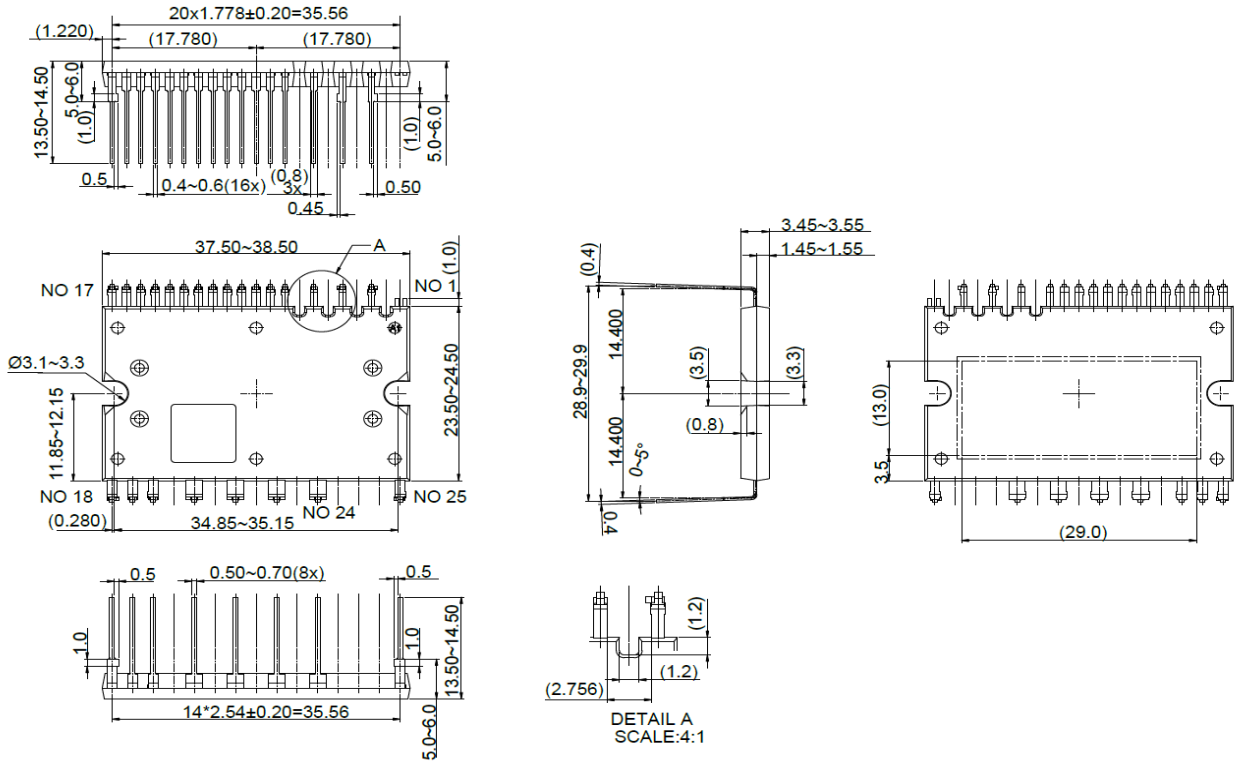


Remark:

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 5kΩ（typ.）pull-down resistor integrated in the IC input circuit.And adding RC filter circuit to the input will prevent the surge noise 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 output is open drain type.It should be pulled up to the positive side of 5V power supply by a resistor of about 10kΩ.
7、The time constant Rf and Cf of the protection circuit should be selected in the range of 1.5-2.0 μs.

Package Outline

DIP-24B **UNIT:mm**



Revision History

Revison	Date	Major changes
1.0	2022/5/6	Release of formal version
1.1	2023/2/3	Delete Bootstrap Diode Part

Disclaimer

Unless otherwise specified in the datasheet, the product is designed and qulified as a standard commercial product and is not intended for use in applications that require extraordinary levels of quality and reliability, such as automotive, aviation/aerospace and life-support devices or systems.

Any and all semicondutor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.

CRM(CQ) reserves the right to improve product design, function and reliability without notice.