SK609 IGBT driver card introduction

Single 15V power supply, it is recommended to use a switching power supply with a power of more than 60W

Built-in brand-isolated power supply, single-channel 4.8W output power, peak current ±30A.

Full-bridge inverter control design, directly drives four-channel IGBTs, with reserved expansion interfaces.

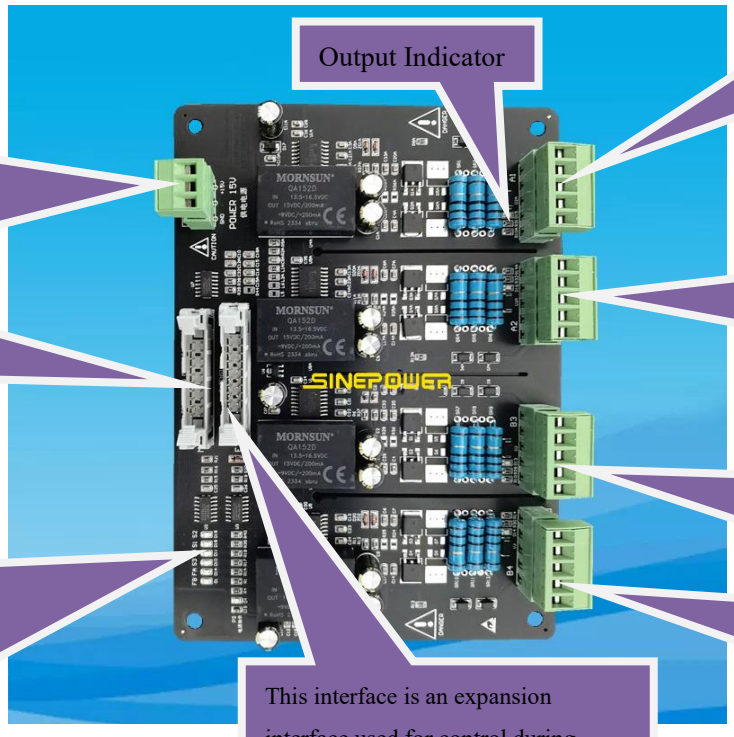
Power status, drive signals, and fault signals are indicated by LEDs, making the operating status clear at a glance.

The primary and secondary sides are electrically isolated at 4.0KV, ensuring safety and reliability.Desaturation detection, short circuit protection, and undervoltage protection functions.

The upper and lower diodes are designed to prevent short circuits in the output, thus preventing accidental triggering and avoiding IGBT failure.

Drive switching frequency up to 60kHz（The higher the driving frequency, the smaller the capacity of the driven IGBT module will be.）

External dimensions：180X130X30mm　Opening size:165X115mm



Shipped model distinction	
SK609A	Standard version
SK609B	Special Requirements Version
SK609C	Special Requirements Version

Driver module usage precautions

1、 Gate resistors are soldered on the driver module. Each output consists of 30Ω x 3 resistors connected in parallel. Therefore, the gate resistor for each output is 3.3Ω at the factory. Users can adjust the gate resistor according to the actual IGBT current.

2、 For IGBT connection, the leads from the drive output terminal to the IGBT gate and emitter should be shorter and twisted to reduce parasitic inductance, but the feedback connection of the collector should not be twisted together.

3、 Be careful to prevent short circuits between the gate and emitter outputs. If the short circuit lasts for more than a few seconds, it may damage the devices on the board. Minimize the stray inductance of the IGBT main circuit and set up a good IGBT overvoltage absorption circuit to avoid peak voltage breakdown of the IGBT.

4、 When testing the output waveform of the driver module, the IGBT must be connected. The oscilloscope's ground wire should be connected to the emitter of the IGBT, and the probe should be connected to the gate of the IGBT. If the IGBT is not connected and the measurement is performed directly on the driver module, the C and E pins of the output terminals on the driver board must be short-circuited.

5、 The driver module must be equipped with a DC power supply with an output voltage of 15V and a power of 60W or more. Do not connect to power supplies of other voltages, otherwise the module will be damaged. Pay attention to the positive and negative terminals of the power supply. Connect the wires correctly according to the labels. There is a reverse protection diode on the driver module. Reversing the power supply polarity will not burn out the driver, but it will short-circuit the power supply. Users need to pay attention to this.

6、The formula for calculating drive power is Po = Qc * Fo * Vp, where Po is the required drive power, Qc is the gate charge of the IGBT, Fo is the operating frequency, and Vp is the drive voltage difference, Vp = 15 + 9V = 24V. The actual required drive power should not exceed the single-channel output power value, and it is best to leave a

10% margin.

7、Gate resistance empirical value reference table:

IGBT Rated current(A)	Rg Gate resistance range(Ω)
50	10.0-20.0
100	6.0-10.0
200	3.0-7.5
300	2.5-5.6
600	1.6-3.0
800	1.3-2.2
1000	1.0-2.0
1500	0.8-1.5

8、Module operating parameters:

symbol	name	parameter	unit
Vdc	Power supply	15	V
Po	Maximum output power of a single channel	4.8	W
Io	Single-channel output transient peak current	±30	A
Viso	Original secondary side electrical isolation（50Hz/1min）	4.0	KV
Rg	Minimum gate resistance / gate resistor	1.0	Ω

9、Driver module interface definition reference: