

# S1P02R170HBG-D Preliminary

**1700V / 900A All-Silicon Carbide MOSFET Half-Bridge Module**

## Features

Electrical features

- $V_{DS} = 1700V$

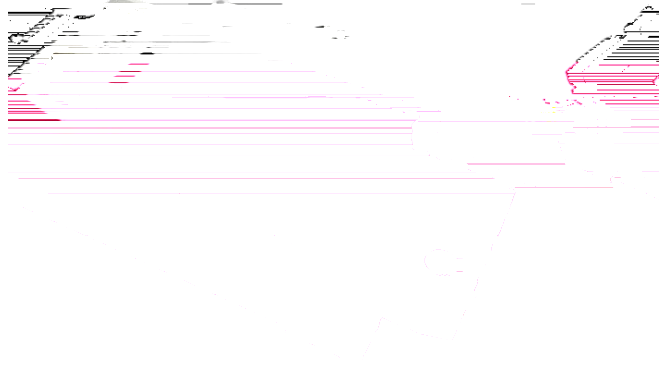
- $I_{D\ nom} = 900A$

High-speed Switching Possible

High Power Density

High Frequency Operation

Ultra-low Losses



## Applications

Motor drives

High power converters

Photovoltaics, wind power generation

Induction heating equipment

Electrified vehicle traction inverter

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1700V SiC Power MOSFET Module

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2 Packaging Characteristics

Table 2 Package Characteristics

| Symbol            | Description                                    | Value       | Unit | Note |
|-------------------|------------------------------------------------|-------------|------|------|
| R <sub>HS</sub>   | High-side Resistance                           | 1.6         |      |      |
| R <sub>LS</sub>   | Low-side Resistance                            | 1.6         |      |      |
| L <sub>s</sub>    | Stray inductance                               | 18          | nH   |      |
| V <sub>ISO</sub>  | Isolation Test Voltage RMS, f=50Hz, t=1min     | 3.4         | kV   |      |
| Distance          | Terminal to Heatsink Creepage Distance         | 14.5        | mm   |      |
|                   | Terminal to Terminal Creepage Distance         | 13.0        | mm   |      |
|                   | Terminal to Heatsink Clearance                 | 12.5        | mm   |      |
|                   | Terminal to Terminal Clearance                 | 10.0        | mm   |      |
| R <sub>th</sub>   | Average Thermal Resistance of Per Upper Switch | 0.106       |      |      |
|                   | Average Thermal Resistance of Per Lower Switch | 0.101       |      |      |
| T <sub>jmax</sub> | Maximum Junction Temperature                   | 175         |      |      |
| T <sub>jop</sub>  | Operation Junction Temperature                 | -40 to +175 |      |      |
| T <sub>STG</sub>  | Storage Temperature Range                      | -40 to +175 |      |      |
| W                 | Weight                                         | 380         | g    |      |
| Ms                | Maximum Mounting Torque                        | 6.0         | N·m  |      |

<sup>1</sup> Not subject to production test. Parameter verified by design/characterization.

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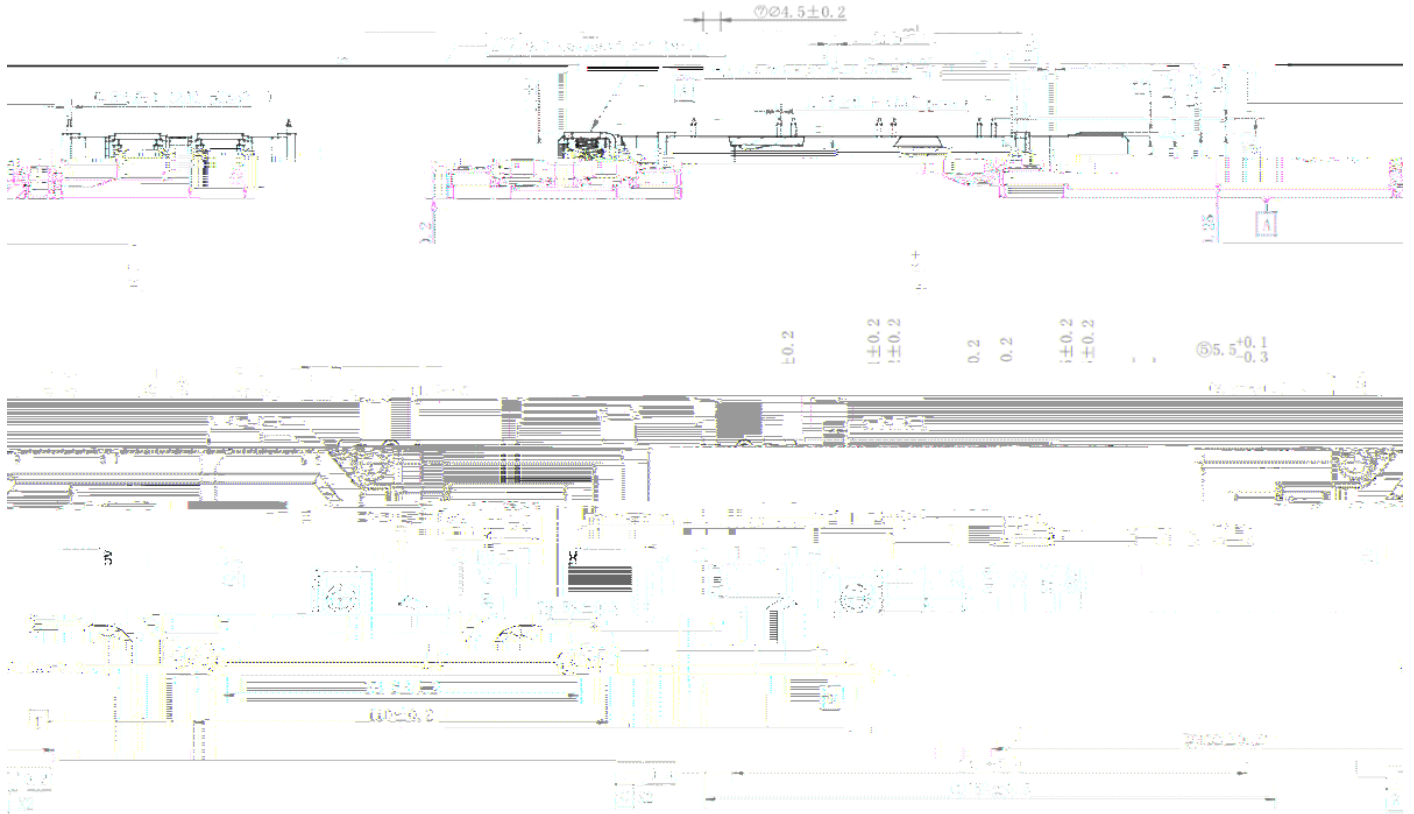
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1700V SiC Power MOSFET Module

## 4 Package drawing







Revision history

| Document version | Date of release | Description of changes |  |
|------------------|-----------------|------------------------|--|
| V01_00           | 2024-11-30      | ü ü                    |  |
|                  |                 |                        |  |
|                  |                 |                        |  |
|                  |                 |                        |  |

Attention

1. RoHS compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/ EC (RoHS2), as implemented January 2, 2013.

2. REACH compliance

REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Sichain representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

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6. Due to technical requirements products may contain dangerous substances. For information on the types in question please contact Sichain office.

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8. For use of our products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a Sichain representatives, for example but not limited to: transportation equipment, primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, and power transmission systems.