S1P02R120HBG-C (Preliminary)

1200V / 800A All-Silicon Carbide MOSFET Half-Bridge Module

Features

Electrical features

V_{DSS} = 1200V

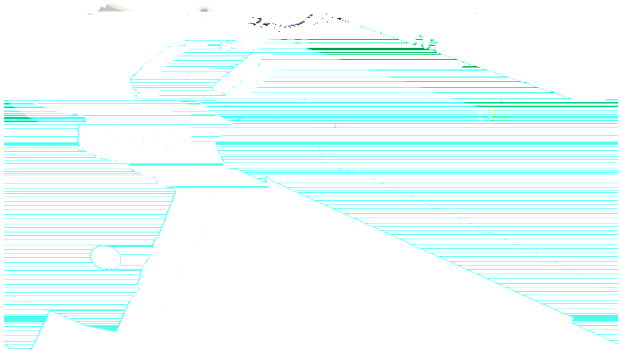
$I_{D,\ nom}$ = 800A

High-speed Switching Possible

High Power Density

High Frequency Operation

Ultra-low Losses



Applications

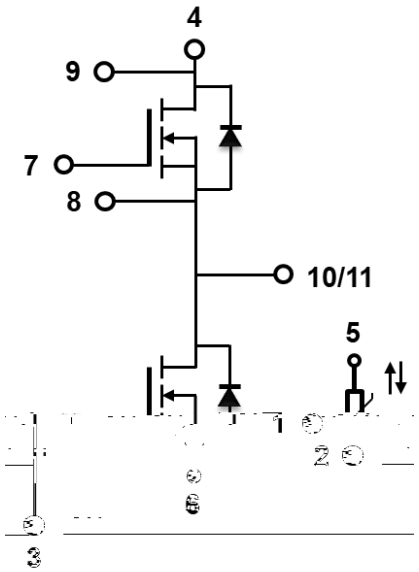
Motor drives

High power converters

Photovoltaics, wind power generation

Induction heating equipment

Electrified vehicle traction inverter



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1 à Maximum ratings

Table 1 Maximum rating (Tc = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{DS,max}$	Drain source voltage	1200	V	V_{GS} = 0V, I_D	
$V_{GS,max}$	Gate source voltage	-8 /+22	V		

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3 à Electrical characteristics

Table 4 SiC MOSFET characteristics (Tc = 25°C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
$V_{(BR)DSS}$	Drain-source breakdown voltage	1200	-	-	V	V_{GS} = 0V, I_D = 6	
		2.3	2.8	4.0	V	V_{DS} = V_{GS}, I_D = 224mA	
$V_{GS(th)}$	Gate threshold voltage						

Table 5 Body diode characteristics (Tc = 25°C unless otherwise specified)

Symbol	Parameter

4 à Electrical characteristic diagram

Figure 1. Output Characteristic, T_{vj}

Figure 2. Output Characteristic, T_{vj}

Figure 3. Transfer Characteristic

Figure 4. On-resistance VS. Junction Temperature

Figure 5. On-resistance VS. Drain to Source Current

Figure 6. Capacitance VS. V_{DS}

Revision history

Document version	Date of release	Description of changes	
V01_00	2025-07-03	Í Í	

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. REAC

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