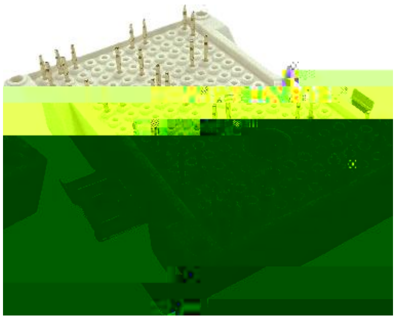
S1P05R120HBB

1200V / 240A All-Silicon Carbide MOSFET Half-Bridge Module

Features



Electrical features

V_{Dss} = 1200V

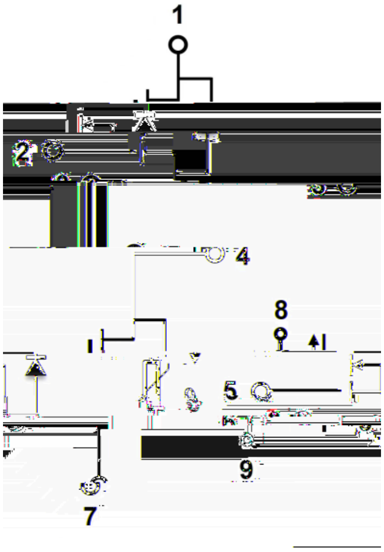
I_D nom = 240A

High-speed Switching Possible

High Power Density

High Frequency Operation

Ultra-low Losses



Applications

Servo drives

UPS system

Motor drives

High power converters

Photovoltaic

Wind power generation

Induction heating equipment

Table of contents

1 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 = 6	
$V_{GS,max}$	Gate source voltage	-8 /+22	V	Absolute maximum values	
V_{GSop}	Gate source voltage	-4 /+18	V	Recommended operational values	
I_D	Continuous drain current	240	A	V_{GS} = 18V, T_C = 100	
$I_{D(pulse)}$	Pulsed drain current	480	A	Pulse width tp limited by T_j,max	
T_J ,T_{stg}	Operating Junction and storage temperature	-40 to +175			

2 Packaging Characteristics

Table 2 Package Characteristics

Symbol	Description	Value	Unit	Note
R_{HS}	High-side Resistance	4.5		

[redacted]

S1P05R120HBB

S1P05R120HBB

Datasheet

4 Electrical characteristic diagram

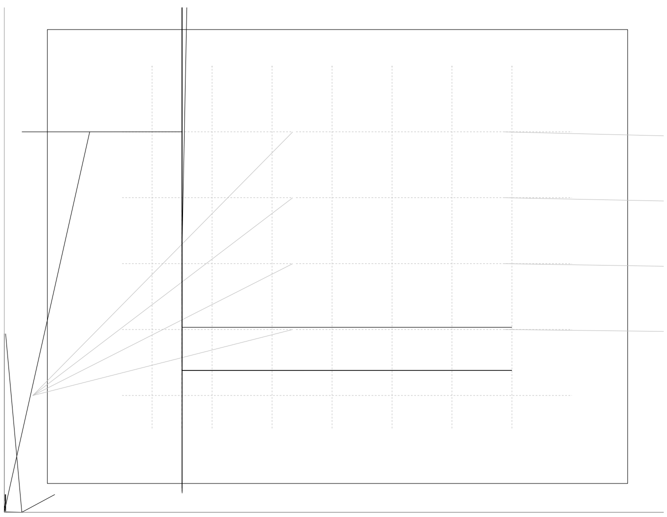


Figure 1. Output Characteristic, T_{vj}

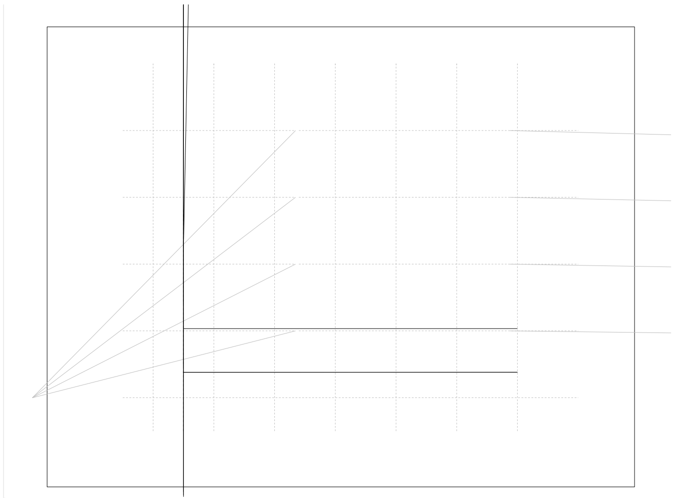


Figure 2. Output Characteristic, T_{vj}

Figure 3. Transfer Characteristic

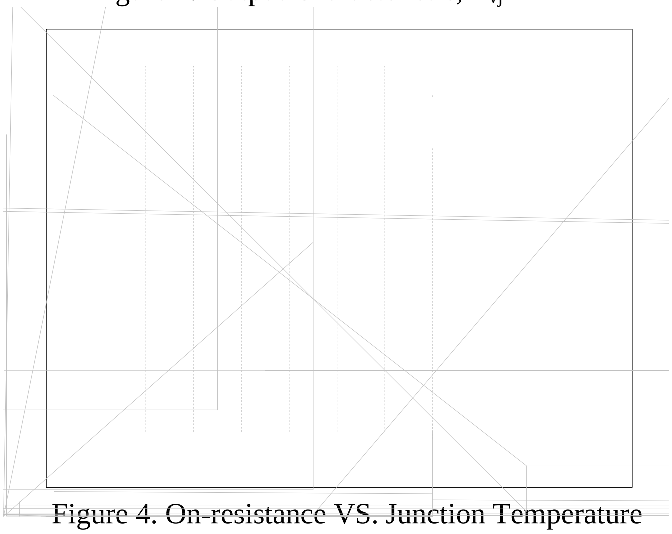


Figure 4. On-resistance VS. Junction Temperature

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

Figure 6. Capacitance VS. V_{DS}

Figure 7. 3rd Quadrant Characteristic

Figure 8. MOSFET Switching Energy vs. External Gate Resistance

Figure 9. MOSFET Switching Energy vs. Drain to Source Current

Figure 10. Transient Thermal Impedance (junction to case)

S1P05R120HBB

Datasheet V01_00

http://www.sichainsemi.com 2024.

S1P05R120HBB