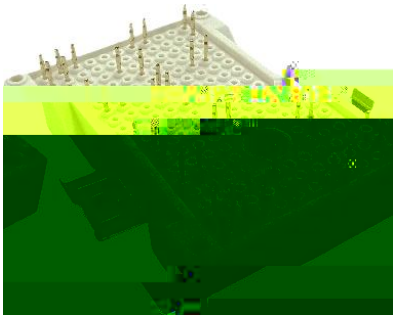
# S1P05R120HBB

### 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

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# 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 | | |

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Datasheet

# 4 Electrical characteristic diagram

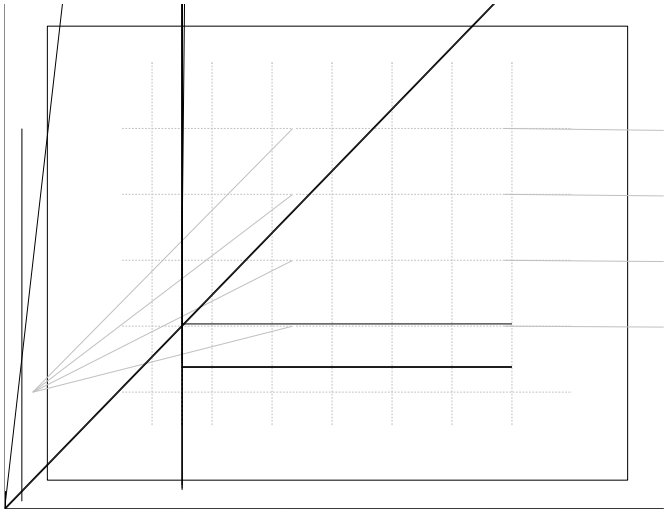


Figure 1. Output Characteristic, $T_{vj}$

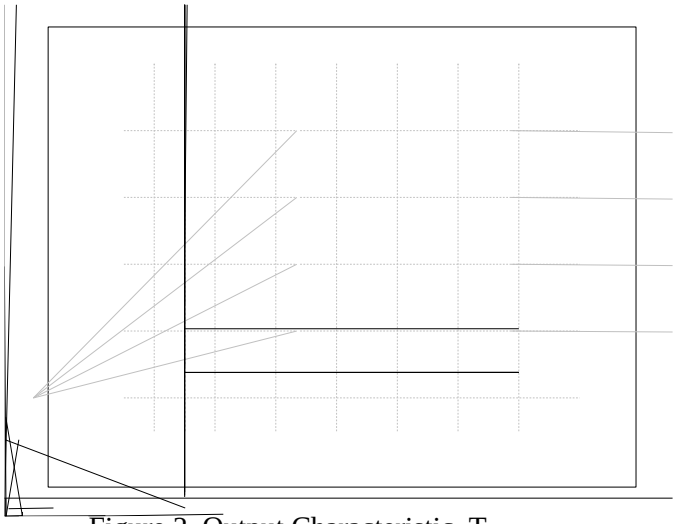


Figure 2. Output Characteristic, $T_{vj}$



Figure 3. Transfer Characteristic



Figure 4. On-resistance VS. Junction Temperature



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

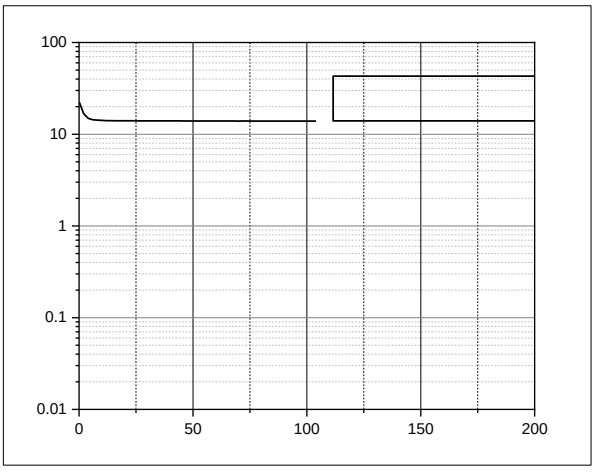



Figure 6. Capacitance VS. $V_{DS}$

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)

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