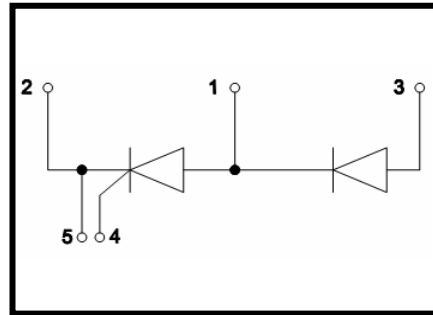


Features

- Isolation voltage 3500 V~
- Industrial Standard Package
- High Surge Capability
- Glass Passivated Chips
- Simple Mounting
- Electrically Isolated by DBC Ceramic


Applications

- DC Motor Control and Drives
- Battery Charges
- Welders
- Power Converters
- Lighting Control
- Heat and Temperature Control


Advantages

- Space and weight savings
- Improved temperature and power cycling

ABSOLUTE MAXIMUM RATINGS
 $T_C=25^\circ\text{C}$ unless otherwise specified

| Symbol | Test Condition | Value | Unit |
|-------------------|--|---------|--------------------|
| V_{RRM} | | 1600 | V |
| $I_{T(AV)}$ | $T_C=85^\circ$, 180° conduction, half sine wave; | 160 | A |
| $I_{T(RMS)}$ | as AC switch; | 355 | A |
| I_{TSM} | $T_J=45^\circ$, $t=10\text{ms}$ (50Hz), sine, $V_R=0$; | 4870 | A |
| | $T_J=45^\circ$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$; | 5100 | |
| | $T_J=45^\circ$, $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$; | 4100 | |
| | $T_J=45^\circ$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$; | 4300 | |
| I^2t | $T_J=45^\circ$, $t=10\text{ms}$ (50Hz), sine, $V_R=0$; | 119 | K A ² s |
| | $T_J=45^\circ$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=0$; | 130 | |
| | $T_J=45^\circ$, $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$; | 84 | |
| | $T_J=45^\circ$, $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$; | 92.5 | |
| I_{DRM}/I_{RRM} | $T_J=125^\circ$, $V_D=V_R=1600\text{V}$; | 50 | mA |
| dV/dt | $T_J=125^\circ$, exponential to 67% rated V_{DRM} | 1000 | V/us |
| V_{ISOL} | 50Hz, all terminals shorted, $t=1\text{s}$, $I_{ISOL}\leq 1\text{mA}$; | 3500 | V~ |
| T_J | Max. junction operating temperature range | -40~125 | |
| T_{STG} | Max. storage temperature range | -40~150 | °C |

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ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

| Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------|--|------|------|------|------------|
| V_{TO} | $16.7\% \times I_{AV} < I < I_{AV}, T_J = 130^{\circ}\text{C};$ | | | 0.80 | V |
| | $I > I_{AV}, T_J = 130^{\circ}\text{C};$ | | | 0.98 | V |
| r_t | $16.7\% \times I_{AV} < I < I_{AV}, T_J = 130^{\circ}\text{C};$ | | | 1.67 | m Ω |
| | $I > I_{AV}, T_J = 130^{\circ}\text{C};$ | | | 1.38 | m Ω |
| I_H | $V_{AK} = 6\text{V}, \text{initial } I_T = 30\text{A};$ | | | 200 | mA |
| I_L | Anode supply =6V, resistive load=1 Ω , gate pulse =10V, 100us; | | | 400 | mA |
| V_{TM} | $I_{TM} = 502\text{A}, t_d = 10 \text{ms}, \text{half sine};$ | | 1.54 | | V |
| P_{GM} | $t_p \leq 5\text{ms}, T_J = 125^{\circ}\text{C};$ | | | 12 | W |
| $P_{GM(AV)}$ | $f = 50\text{Hz}, T_J = 125^{\circ}\text{C};$ | | | 3 | W |
| I_{GM} | $t_p \leq 5\text{ms}, T_J = 125^{\circ}\text{C};$ | | | 3 | A |
| $-V_{GT}$ | | | | 10 | V |
| V_{GT} | $V_A = 6\text{V}, R_A = 1\Omega, T_J = -40^{\circ}\text{C};$ | | | 4 | V |
| | $V_A = 6\text{V}, R_A = 1\Omega;$ | | | 2.5 | |
| | $V_A = 6\text{V}, R_A = 1\Omega, T_J = 125^{\circ}\text{C};$ | | | 1.7 | |
| I_{GT} | $V_A = 6\text{V}, R_A = 1\Omega, T_J = -40^{\circ}\text{C};$ | | | 270 | mA |
| | $V_A = 6\text{V}, R_A = 1\Omega;$ | | | 150 | |
| | $V_A = 6\text{V}, R_A = 1\Omega, T_J = 125^{\circ}\text{C};$ | | | 80 | |
| V_{GD} | $V_{AK} = V_{DRM}, T_J = 125$ | | | 0.3 | V |
| I_{GD} | | | | 10 | mA |
| di/dt | $I_{TM} = 400\text{A}, \text{rated } V_{DRM}, T_J = 125$ | | | 300 | A/us |

THERMAL AND MECHANICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$ unless otherwise specified

| Symbol | Test Condition | value | Unit |
|------------|--|--------|------|
| R_{thjc} | DC operation, per junction; | 0.18 | K/W |
| R_{THCS} | Mounting surface smooth, flat and greased, per junction; | 0.1 | K/W |
| Md | Mounting torque(M6) | 4 to 6 | N·m |
| | Terminal connection torque(M6) | | |
| Weight | Typical value | 156 | g |

Characteristic curves

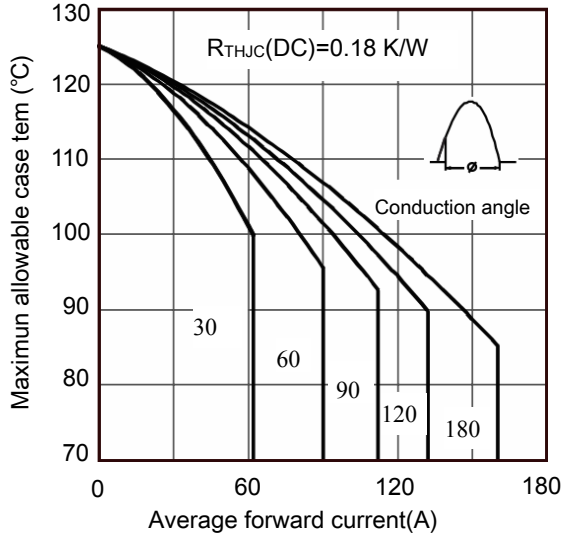


Figure 1. current rating characteristics

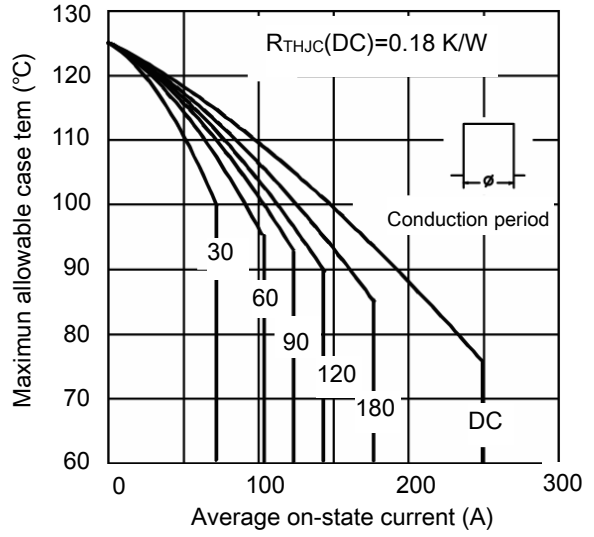


Figure 2. current rating characteristics

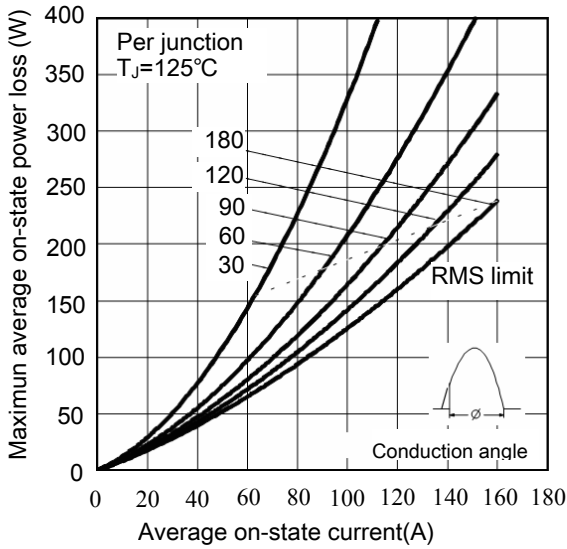


Figure 3. on-state power loss characteristics

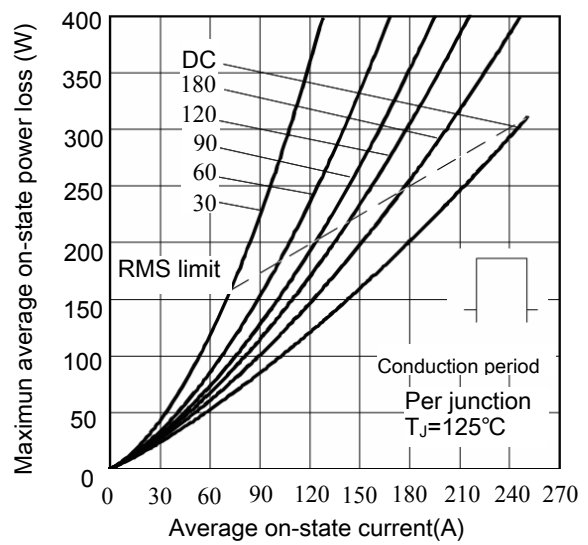


Figure 4. on-state power loss characteristics

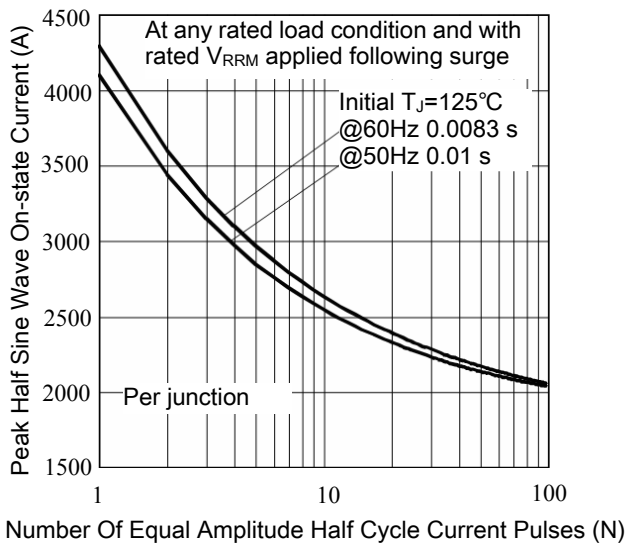


Figure 5. Maximum Non-Repetitive Surge Current

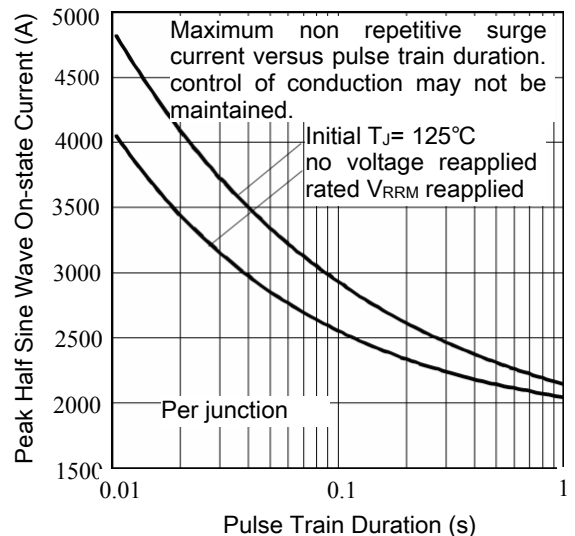


Figure 6. Maximum Non-Repetitive Surge Current

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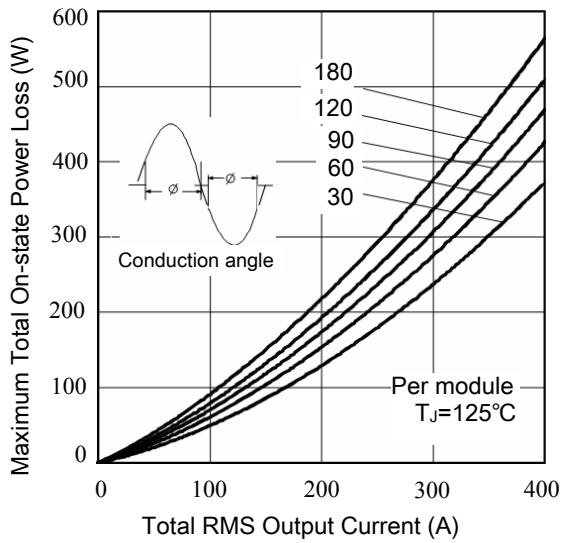


Figure 7. On-State Power Loss Characteristics-1

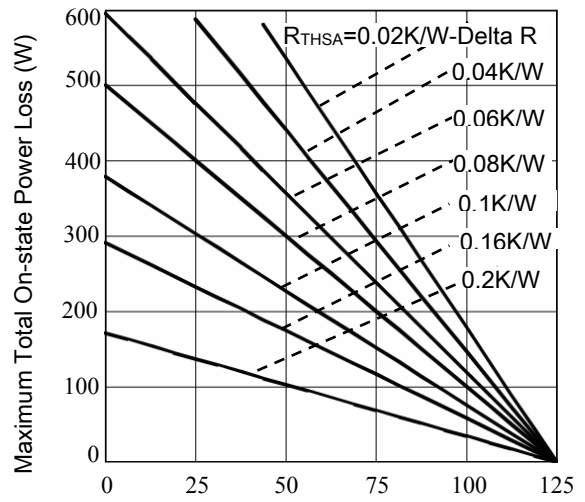


Figure 8 On-State Power Loss Characteristics-2

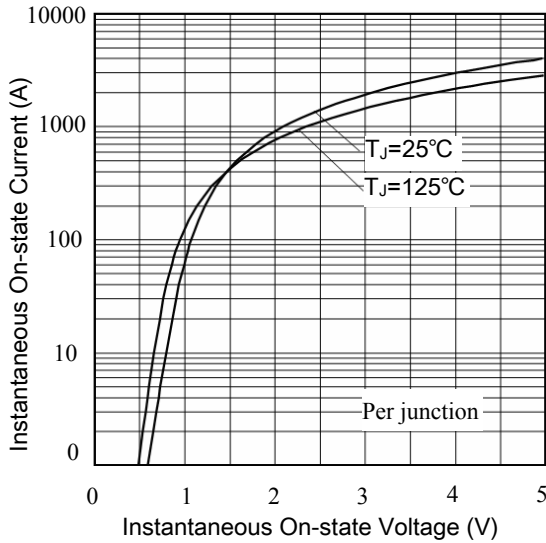


Figure.9 On State Voltage Drop Characteristics

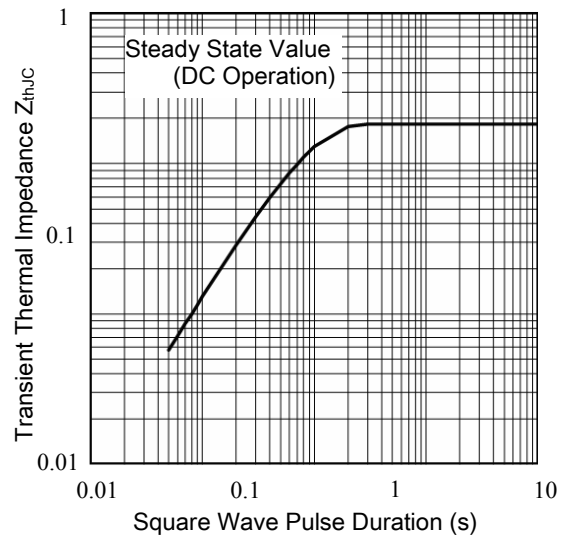


Figure.10 Thermal Impedance ZthJC Characteristics

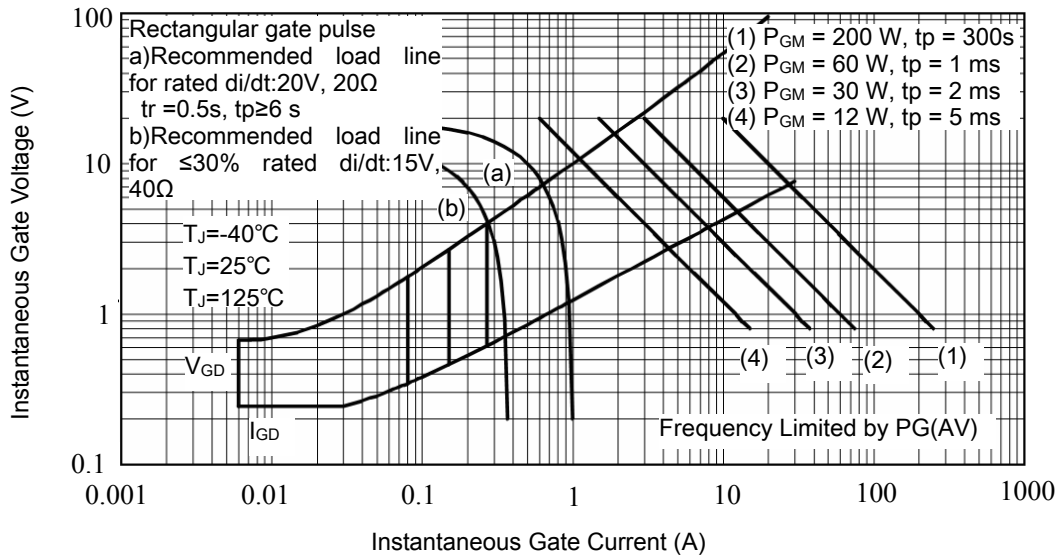


Figure.11 Gate Characteristics

