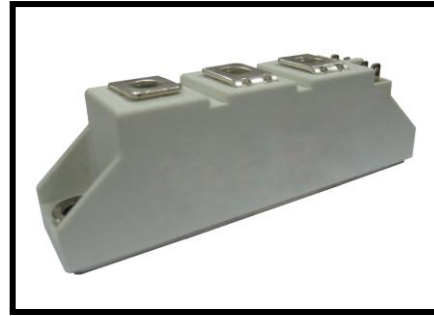


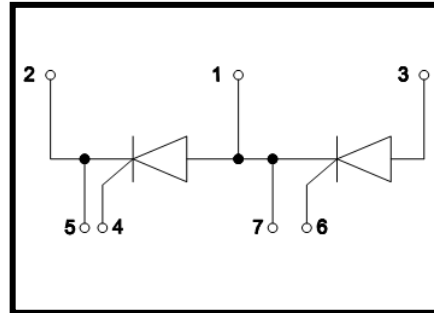
**Features**

- 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**

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

| Symbol            | Test Condition  | Value   | Unit        |
|-------------------|---|---------|-------------|
| $V_{RRM}/V_{DRM}$ |   | 1600    | V           |
| $I_{T(AV)}$       | $T_C=85^{\circ}C$ , 180° conduction, half sine wave;        | 90      | A           |
| $I_{T(RMS)}$      | as AC switch;   | 190     | A           |
| $I_{TSM}$         | $T_J=45^{\circ}C$ , $t=10ms$ (50Hz), sine, $V_R=0$ ;        | 1500    | A           |
|                   | $T_J=45^{\circ}C$ , $t=8.3ms$ (60Hz), sine, $V_R=0$ ;       | 1650    |             |
|                   | $T_J=45^{\circ}C$ , $t=10ms$ (50Hz), sine, $V_R=V_{RRM}$ ;  | 1350    |             |
|                   | $T_J=45^{\circ}C$ , $t=8.3ms$ (60Hz), sine, $V_R=V_{RRM}$ ; | 1400    |             |
| $i^2t$            | $T_J=45^{\circ}C$ , $t=10ms$ (50Hz), sine, $V_R=0$ ;        | 11.2    | $K A^2s$    |
|                   | $T_J=45^{\circ}C$ , $t=8.3ms$ (60Hz), sine, $V_R=0$ ;       | 13.6    |             |
|                   | $T_J=45^{\circ}C$ , $t=10ms$ (50Hz), sine, $V_R=V_{RRM}$ ;  | 9.1     |             |
|                   | $T_J=45^{\circ}C$ , $t=8.3ms$ (60Hz), sine, $V_R=V_{RRM}$ ; | 9.8     |             |
| $I_{DRM}/I_{RRM}$ | $T_J=130^{\circ}C$ , $V_D=V_R=1600V$ , gate open circuit;   | 20      | mA          |
| dV/dt             | $T_J=130^{\circ}C$ , exponential to 67% rated $V_{DRM}$     | 500     | V/us        |
| $V_{ISOL}$        | 50Hz, all terminals shorted, $t=1s$ , $I_{ISOL} \leq 1mA$ ; | 3500    | V~          |
| $T_J$             | Max. junction operating temperature range                   | -40~130 | $^{\circ}C$ |
| $T_{STG}$         | Max. storage temperature range                              | -40~150 | $^{\circ}C$ |

**ELECTRICAL CHARACTERISTICS**T<sub>C</sub>=25°C unless otherwise specified

| Symbol              | Test Condition   | Min. | Typ. | Max. | Unit |
|---------------------|--|------|------|------|------|
| V <sub>TO</sub>     | 16.7% x p x I <sub>AV</sub> < I < p x I <sub>AV</sub> , T <sub>J</sub> =130°C;   |      |      | 0.80 | V    |
|                     | I > p x I <sub>AV</sub> , T <sub>J</sub> =130°C;   |      |      | 0.85 | V    |
| r <sub>t</sub>      | 16.7% x p x I <sub>AV</sub> < I < p x I <sub>AV</sub> , T <sub>J</sub> =130°C;   |      |      | 2.37 | mΩ   |
|                     | I > p x I <sub>AV</sub> , T <sub>J</sub> =130°C;   |      |      | 2.25 | mΩ   |
| I <sub>H</sub>      | V <sub>AK</sub> = 6V, resistive load;  |      |      | 250  | mA   |
| I <sub>L</sub>      | Anode supply =6V, resistive load=1Ω,<br>gate pulse =10V, 100us;  |      |      | 400  | mA   |
| V <sub>TM</sub>     | I <sub>TM</sub> =282A, t <sub>d</sub> =10 ms, half sine  |      | 1.60 |      | V    |
| P <sub>GM</sub>     | t <sub>p</sub> ≤5ms, T <sub>J</sub> =125°C;  |      |      | 12   | W    |
| P <sub>GM(AV)</sub> | f=50Hz, T <sub>J</sub> =125°C;   |      |      | 3    | W    |
| I <sub>GM</sub>     | t <sub>p</sub> ≤5ms, T <sub>J</sub> =125°C;  |      |      | 3    | A    |
| -V <sub>GT</sub>    |  |      |      | 10   | V    |
| V <sub>GT</sub>     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω, T <sub>J</sub> =-40°C;   |      |      | 4    | V    |
|                     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω;  |      |      | 2.5  |      |
|                     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω, T <sub>J</sub> =125°C;   |      |      | 1.7  |      |
| I <sub>GT</sub>     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω, T <sub>J</sub> =-40°C;   |      |      | 270  | mA   |
|                     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω;  |      |      | 150  |      |
|                     | V <sub>A</sub> =6V, R <sub>A</sub> =1Ω, T <sub>J</sub> =125°C;   |      |      | 80   |      |
| V <sub>GD</sub>     | V <sub>AK</sub> =V <sub>DRM</sub> , T <sub>J</sub> =125°C  |      |      | 0.25 | V    |
| I <sub>GD</sub>     |  |      |      | 6    | mA   |
| di/dt               | T <sub>J</sub> = 25°C, V <sub>D</sub> =0.67V <sub>DRM</sub> , I <sub>TM</sub> =345A,<br>I <sub>g</sub> = 500mA, tr < 0.5 μs, tp > 6 μs |      |      | 150  | A/us |

**THERMAL AND MECHANICAL CHARACTERISTICS**T<sub>C</sub>=25°C unless otherwise specified

| Symbol            | Test Condition  | value  | Unit |
|-------------------|---|--------|------|
| R <sub>thjc</sub> | DC operation,per junction;                            | 0.35   | K/W  |
| R <sub>THCS</sub> | Mounting surface smooth,flat and greased,per junction | 0.1    | K/W  |
| Md                | Mounting torque(M5)                                   | 3 to 5 | N·m  |
|                   | Terminal connection torque(M5)                        |        |      |
| Weight            | Typical value   | 105    | g    |

Characteristic curves

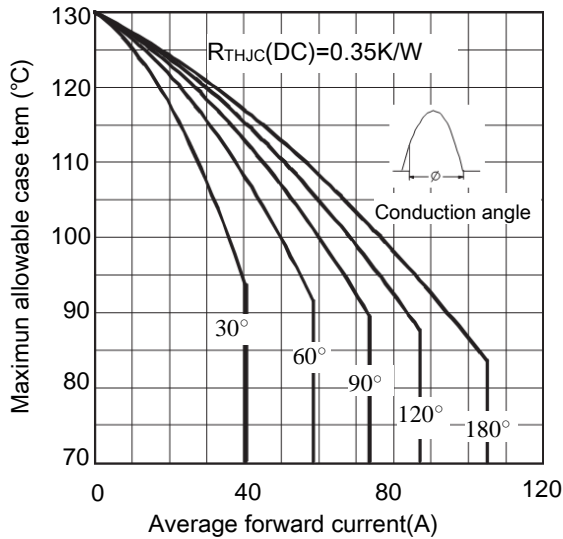


Figure 1. current rating characteristics

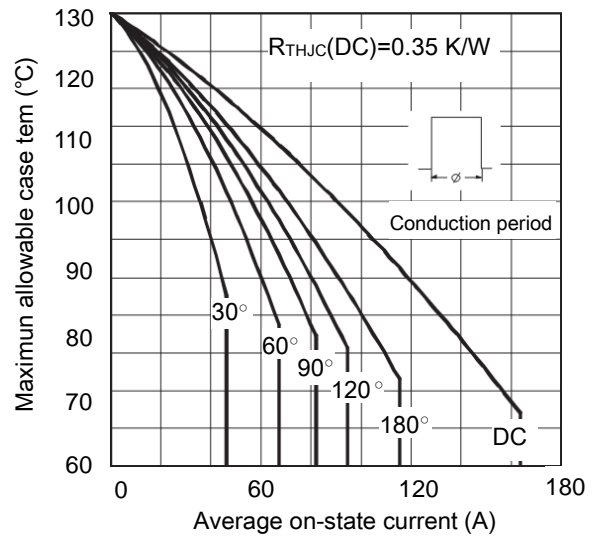


Figure 2. current rating characteristics

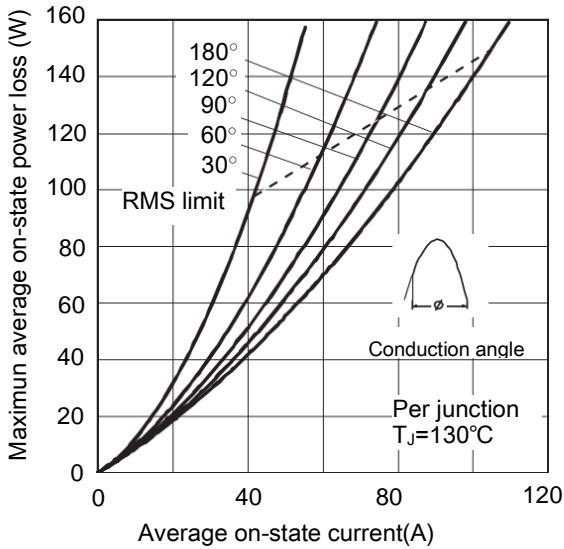


Figure 3. on-state power loss characteristics

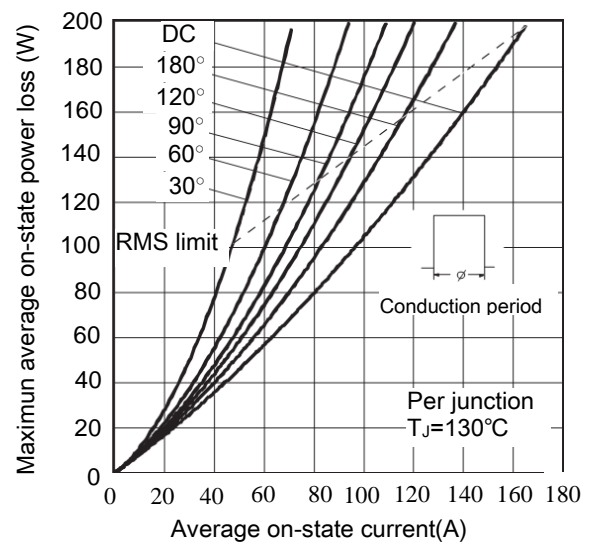


Figure 4. on-state power loss characteristics

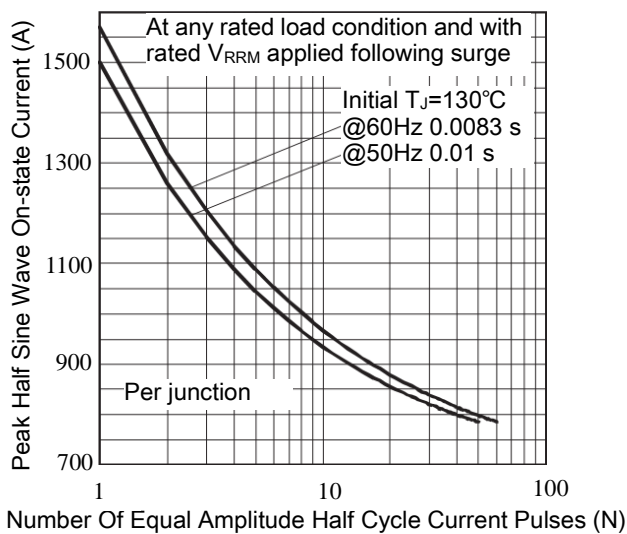


Figure 5. Maximum Non-Repetitive Surge Current

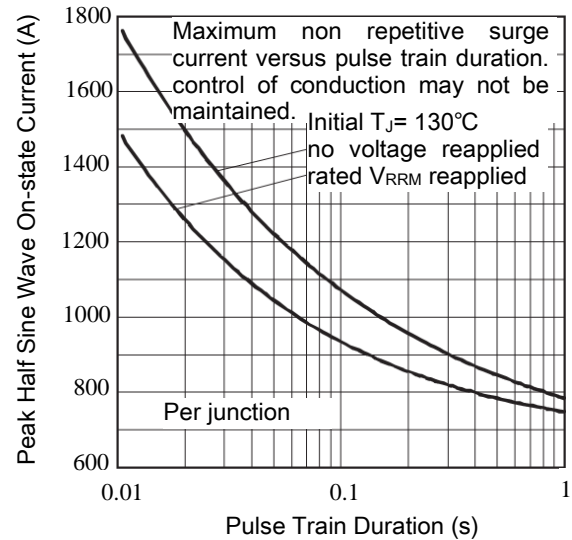


Figure 6. Maximum Non-Repetitive Surge Current

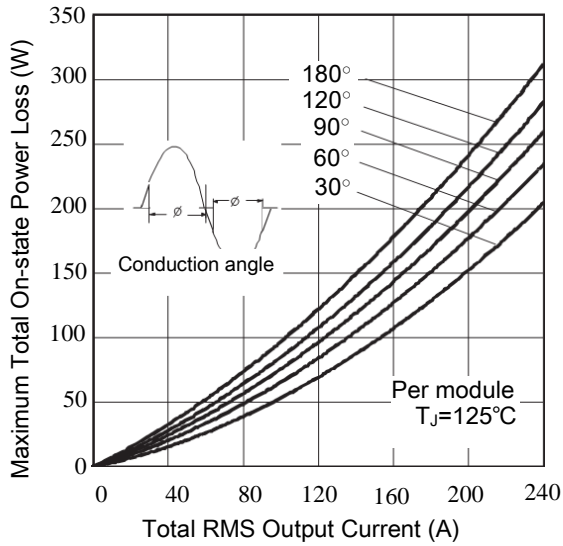


Figure 7. On-State Power Loss Characteristics-1

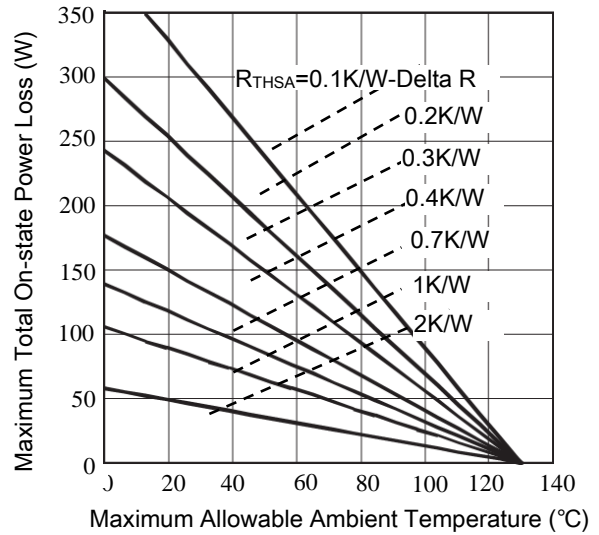


Figure.8 On-State Power Loss Characteristics-2

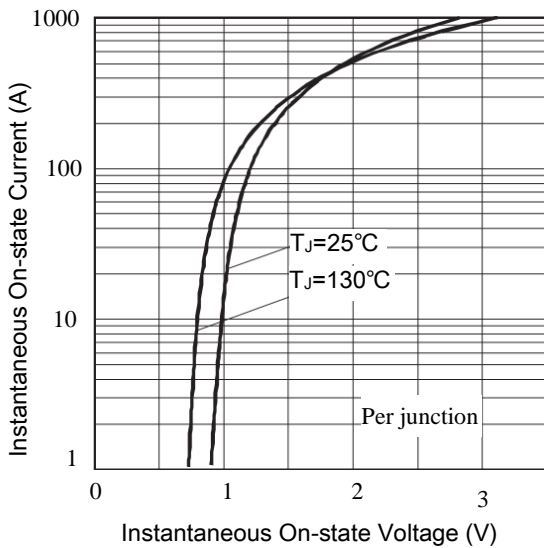


Figure.9 On State Voltage Drop Characteristics

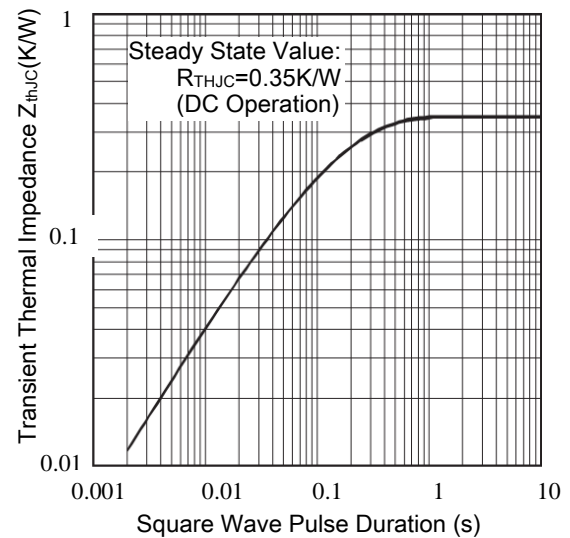


Figure.10 Thermal Impedance ZthJC Characteristics

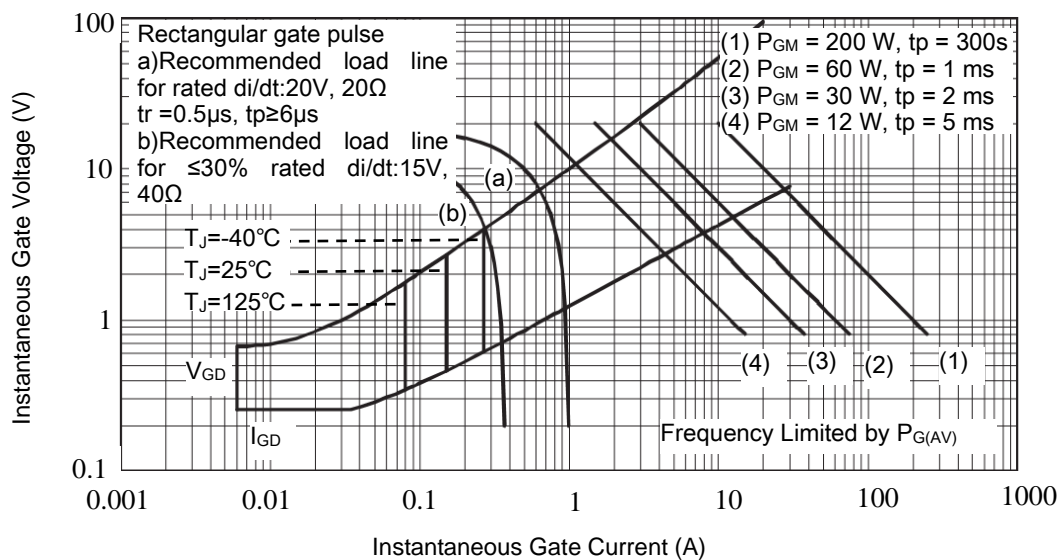


Figure.11 Gate Characteristics

Package Outline (Dimensions in mm)

