

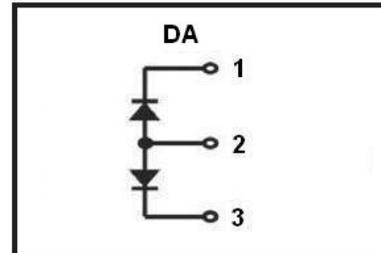
## PRODUCT FEATURES

- Ultrafast Reverse Recovery Time
- Soft Reverse Recovery Characteristics
- Low Reverse Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Inductance Package



## APPLICATIONS

- Inversion Welder
- Uninterruptible Power Supply (UPS)
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- Power Factor Correction (PFC) Circuit



## ABSOLUTE MAXIMUM RATINGS

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

| Symbol          | Parameter                            | Test Conditions  | Values      | Unit                        |
|-----------------|--------------------------------------|--|-------------|-----------------------------|
| $V_R$           | Maximum D.C. Reverse Voltage         |  | 1200        | V                           |
| $V_{RRM}$       | Maximum Repetitive Reverse Voltage   |  | 1200        | V                           |
| $I_{F(AV)}$     | Average Forward Current              | $T_C=110^{\circ}\text{C}$ , Per Diode                    | 150         | A                           |
|                 |                                      | $T_C=120^{\circ}\text{C}$ , 20KHz, Per Module            | 200         | A                           |
| $I_{F(RMS)}$    | RMS Forward Current                  | $T_C=110^{\circ}\text{C}$ , Per Diode                    | 210         | A                           |
| $I_{FSM}$       | Non-Repetitive Surge Forward Current | $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine  | 1500        | A                           |
|                 |                                      | $T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine | 1600        | A                           |
| $I^2t$          | $I^2t$ (For Fusing)                  | $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine  | 11200       | $\text{A}^2\text{s}$        |
|                 |                                      | $T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine | 12800       | $\text{A}^2\text{s}$        |
| $P_D$           | Power Dissipation                    |  | 568         | W                           |
| $T_J$           | Junction Temperature                 |  | -40 to +150 | $^{\circ}\text{C}$          |
| $T_{STG}$       | Storage Temperature Range            |  | -40 to +125 | $^{\circ}\text{C}$          |
| $V_{isol}$      | Insulation Test Voltage              | AC, $t=1\text{min}$                                      | 3000        | V                           |
| Torque          | Module-to-Sink                       | Recommended (M6)   | 3~5         | N·m                         |
| Torque          | Module Terminal                      | Recommended (M6)   | 3~5         | N·m                         |
| $R_{\theta JC}$ | Thermal Resistance                   | Junction-to-Case   | 0.22        | $^{\circ}\text{C}/\text{W}$ |
| Weight          |                                      |  | 160         | g                           |

ELECTRICAL CHARACTERISTICS

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

| Symbol           | Parameter                     | Test Conditions   | Min.  | Typ. | Max. | Unit |
|------------------|-------------------------------|---|---|------|------|------|
| I <sub>RM</sub>  | Reverse Leakage Current       | V <sub>R</sub> =1200V   | --  | --   | 2    | mA   |
|                  |                               | V <sub>R</sub> =1200V, T <sub>J</sub> =125°C                          | --  | --   | 10   | mA   |
| V <sub>F</sub>   | Forward Voltage               | I <sub>F</sub> =150A  | --  | 1.6  | --   | V    |
|                  |                               | I <sub>F</sub> =150A, T <sub>J</sub> =125°C                           | --  | 1.3  | --   | V    |
| t <sub>rr</sub>  | Reverse Recovery Time         | I <sub>F</sub> =1A, V <sub>R</sub> =30V, di <sub>F</sub> /dt=-200A/μs | --  | 60   | --   | ns   |
| t <sub>rr</sub>  | Reverse Recovery Time         | V <sub>R</sub> =600V, I <sub>F</sub> =150A                            | --  | 145  | --   | ns   |
| I <sub>RRM</sub> | Max. Reverse Recovery Current |   | di <sub>F</sub> /dt=-200A/μs, T <sub>J</sub> =25°C  | --   | 11   | --   |
| t <sub>rr</sub>  | Reverse Recovery Time         | V <sub>R</sub> =600V, I <sub>F</sub> =150A                            | --  | 545  | --   | ns   |
| I <sub>RRM</sub> | Max. Reverse Recovery Current |   | di <sub>F</sub> /dt=-200A/μs, T <sub>J</sub> =125°C | --   | 25   | --   |

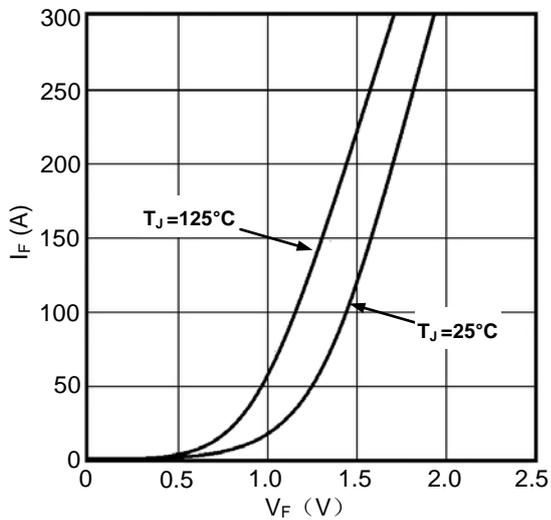


Figure1. Forward Voltage Drop vs Forward Current

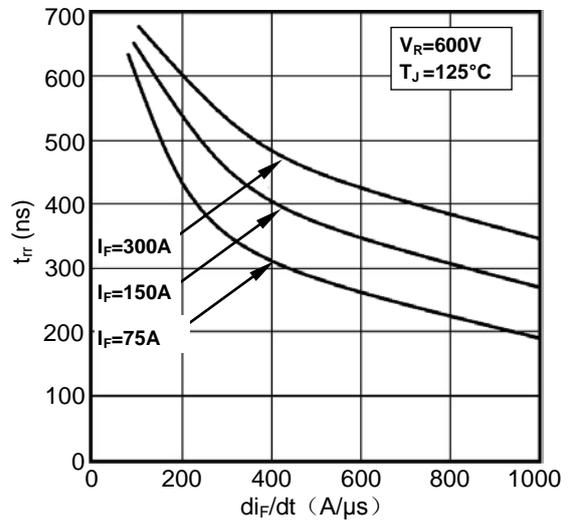


Figure2. Reverse Recovery Time vs di<sub>F</sub>/dt

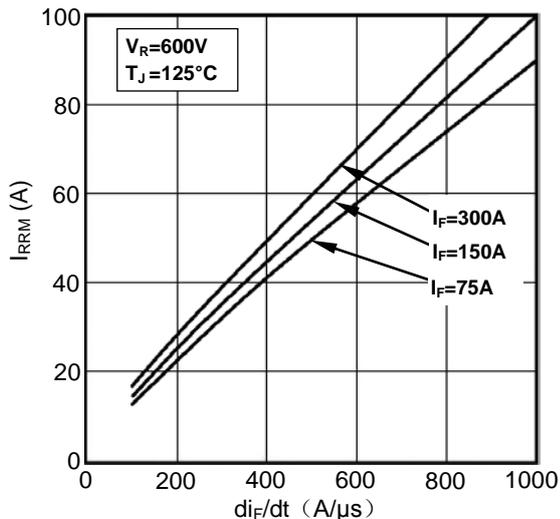


Figure3. Reverse Recovery Current vs di<sub>F</sub>/dt

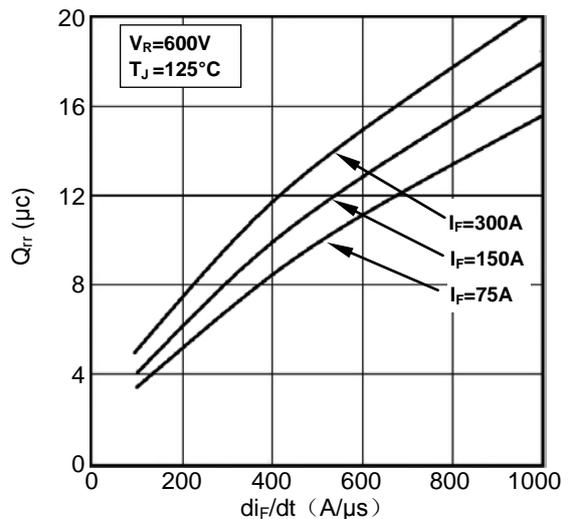


Figure4. Reverse Recovery Charge vs di<sub>F</sub>/dt

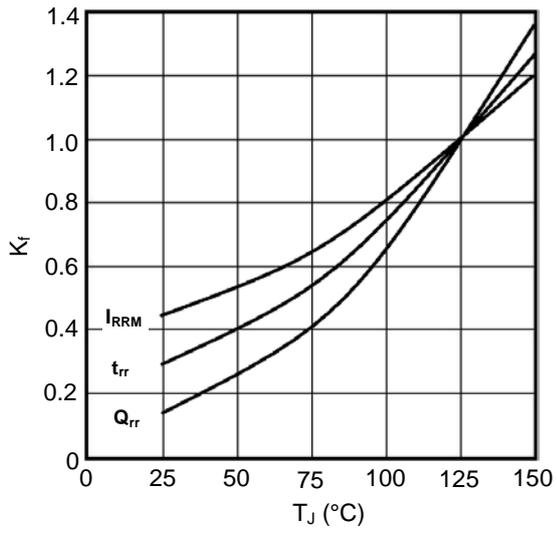


Figure5. Dynamic Parameters vs Junction Temperature

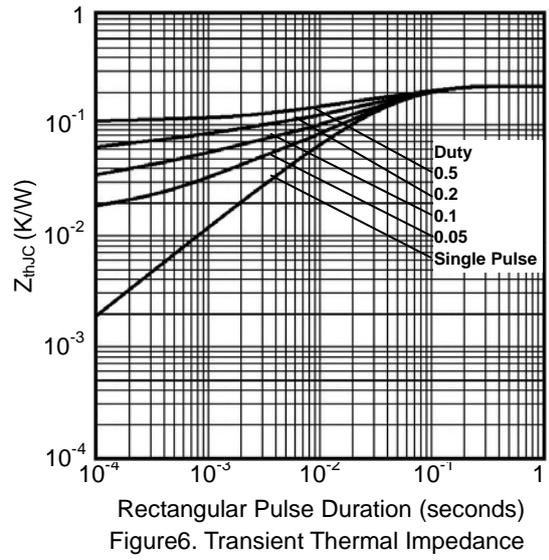
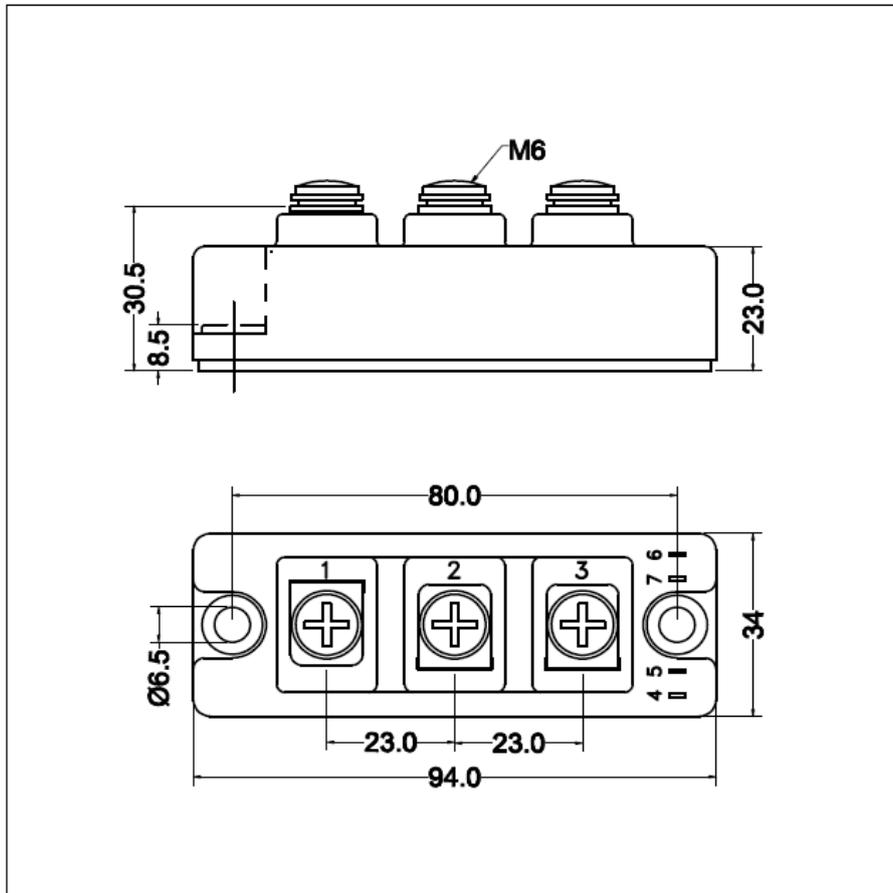


Figure6. Transient Thermal Impedance



Dimensions (mm)  
Figure7. Package Outline