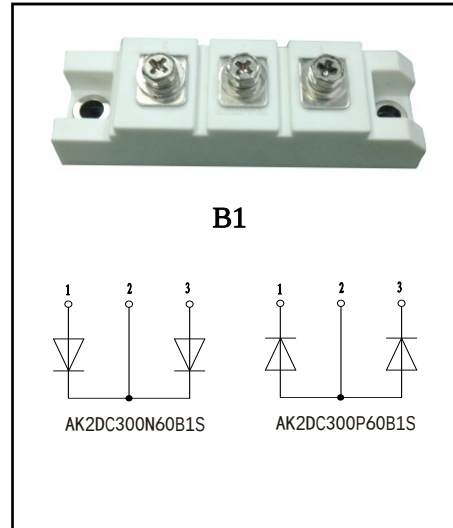


## PRODUCT FEATURES

- ☑ 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         |                                                          | 600         | V                             |
| $V_{RRM}$       | Maximum Repetitive Reverse Voltage   |                                                          | 600         | V                             |
| $I_{F(AV)}$     | Average Forward Current              | $T_C=110^{\circ}\text{C}$ , Per Diode                    | 300         | A                             |
|                 |                                      | $T_C=120^{\circ}\text{C}$ , 20KHz, Per Moudle            | 400         | A                             |
| $I_{F(RMS)}$    | RMS Forward Current                  | $T_C=110^{\circ}\text{C}$ , Per Diode                    | 420         | A                             |
| $I_{FSM}$       | Non-Repetitive Surge Forward Current | $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine  | 3000        | A                             |
|                 |                                      | $T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine | 3200        | A                             |
| $I^2t$          | $I^2t$ (For Fusing)                  | $T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine  | 45000       | $\text{A}^2\text{s}$          |
|                 |                                      | $T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine | 51200       | $\text{A}^2\text{s}$          |
| $P_D$           | Power Dissipation                    |                                                          | 893         | 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 Electrodes                    | Recommended (M6)                                         | 3~5         | N.M                           |
| $R_{\theta JC}$ | Thermal Resistance                   | Junction-to-Case                                         | 0.14        | $^{\circ}\text{C} / \text{W}$ |
| Weight          |                                      |                                                          | 123         | g                             |

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

| Symbol    | Parameter                     | Test Conditions                                                                                   | Min. | Typ. | Max. | Unit |
|-----------|-------------------------------|---------------------------------------------------------------------------------------------------|------|------|------|------|
| $I_{RM}$  | Reverse Leakage Current       | $V_R=600\text{V}$                                                                                 | --   | --   | 2    | mA   |
|           |                               | $V_R=600\text{V}, T_J=125^{\circ}\text{C}$                                                        | --   | --   | 10   | mA   |
| $V_F$     | Forward Voltage               | $I_F=300\text{A}$                                                                                 | --   | 1.15 | 1.65 | V    |
|           |                               | $I_F=300\text{A}, T_J=125^{\circ}\text{C}$                                                        | --   | --   | 1.45 | V    |
| $t_{rr}$  | Reverse Recovery Time         | $I_F=1\text{A}, V_R=30\text{V}, di_F/dt=-200\text{A}/\mu\text{s}$                                 | --   | 55   | --   | ns   |
| $t_{rr}$  | Reverse Recovery Time         | $V_R=300\text{V}, I_F=300\text{A}$<br>$di_F/dt=-200\text{A}/\mu\text{s}, T_J=25^{\circ}\text{C}$  | --   | 150  | --   | ns   |
| $I_{RRM}$ | Max. Reverse Recovery Current |                                                                                                   | --   | 17.5 | --   | A    |
| $t_{rr}$  | Reverse Recovery Time         | $V_R=300\text{V}, I_F=300\text{A}$<br>$di_F/dt=-200\text{A}/\mu\text{s}, T_J=125^{\circ}\text{C}$ | --   | 245  | --   | ns   |
| $I_{RRM}$ | Max. Reverse Recovery Current |                                                                                                   | --   | 30   | --   | A    |

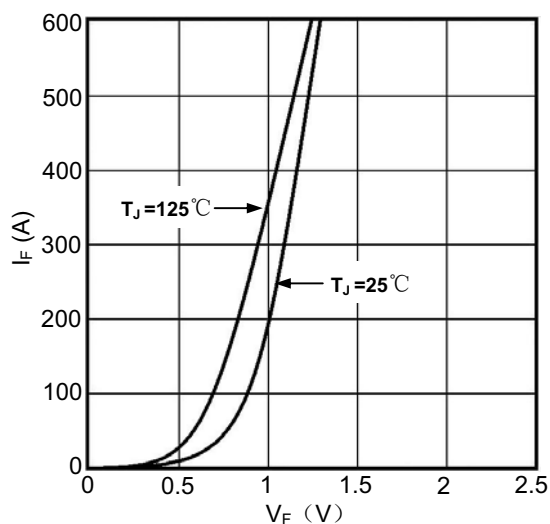
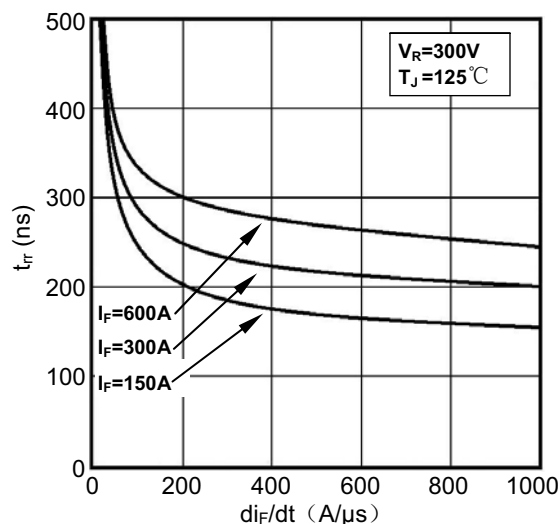
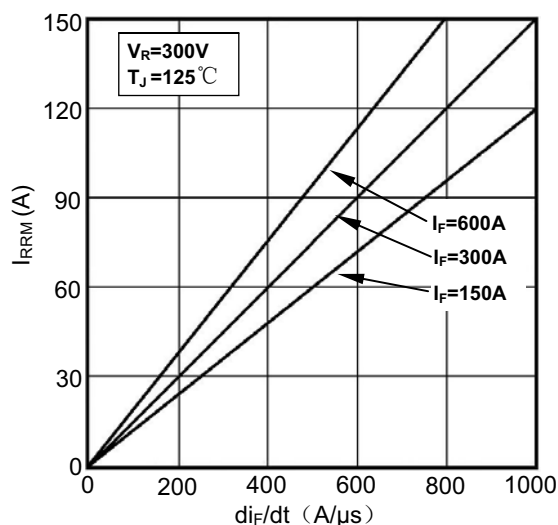
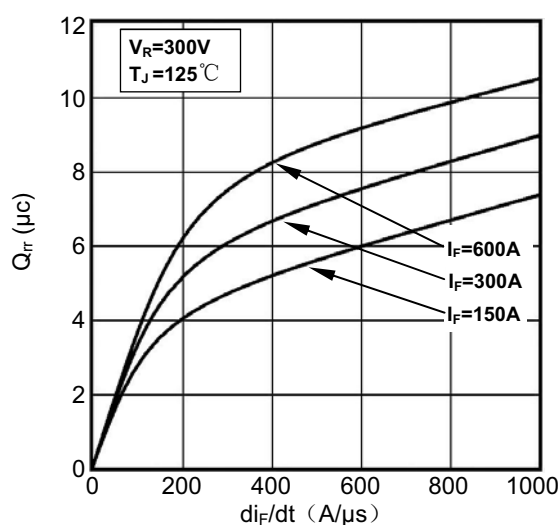


Figure1. Forward Voltage Drop vs Forward Current


 Figure2. Reverse Recovery Time vs  $di_F/dt$ 

 Figure3. Reverse Recovery Current vs  $di_F/dt$ 

 Figure4. Reverse Recovery Charge vs  $di_F/dt$

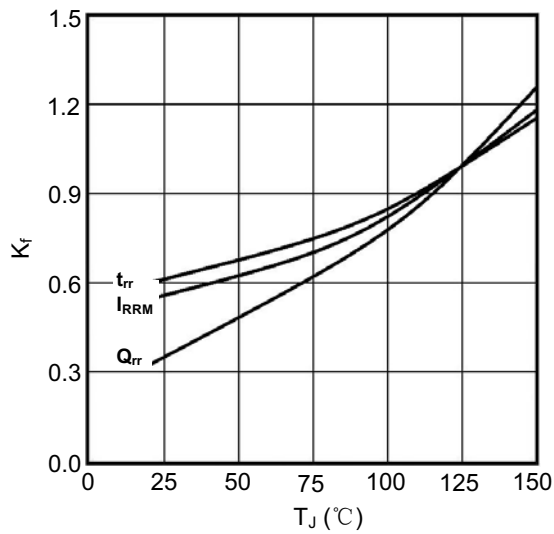


Figure5. Dynamic Parameters vs Junction Temperature

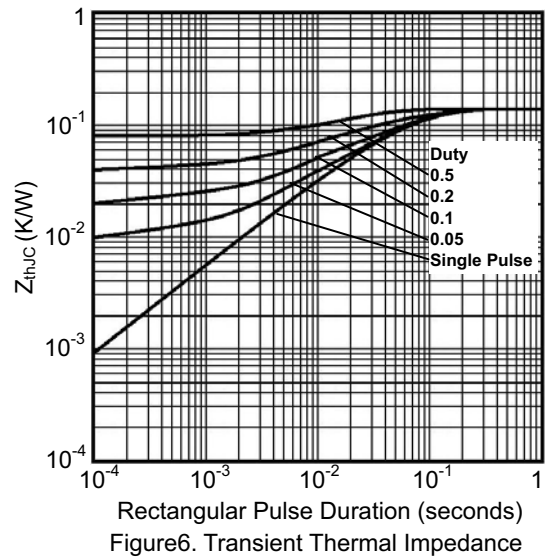
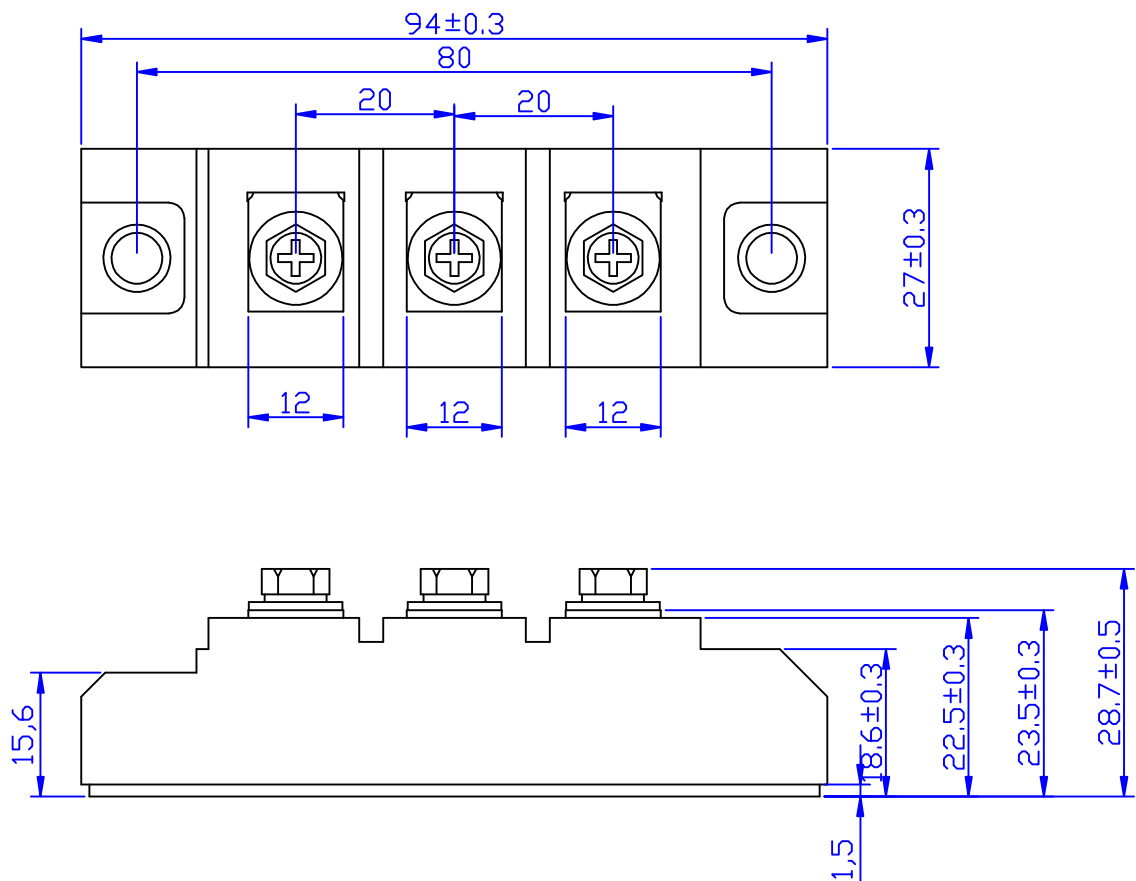


Figure6. Transient Thermal Impedance

## Package Outlines



Unit:mm