

Features:

- 1200V Schottky Diode
- Zero Reverse Recovery Current
- High Frequency Operation
- Positive Temperature Coefficient
- Temperature independent

Switching

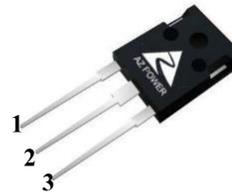
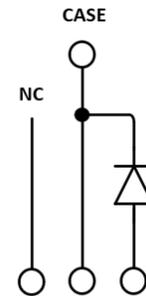
Benefits:

- Unipolar Rectifier
- Minimal switching loss
- Higher Efficiency
- Low cooling requirement

| Symbol | Value | Unit |
|-----------------------------------|-------|------|
| V_{RRM} | 1200 | V |
| I_F ($T_c=146^\circ\text{C}$) | 35 | A |
| Q_C | 286 | nC |

Applications:

- Switch Mode Power Supply
- Booster diodes in PFC, DC/DC
- AC/DC converters

Outline

TO-247-3
Circuit

Maximum Ratings

| Symbol | Parameter | Value | Unit | Test Conditions |
|-------------|---|------------|------------------|---|
| V_R | DC Peak Reverse Voltage | 1200 | V | $T_J = 25^\circ\text{C}$ |
| V_{RRM} | Repetitive Peak Reverse | 1200 | V | $T_J = 25^\circ\text{C}$ |
| V_{RSM} | Surge Peak Reverse Voltage | 1300 | V | $T_J = 25^\circ\text{C}$ |
| I_F | Continuous Forward Current | 91 | A | $T_C = 25^\circ\text{C}$ |
| | | 72 | | $T_C = 75^\circ\text{C}$ |
| | | 35 | | $T_C = 146^\circ\text{C}$ |
| I_{FRM} | Repetitive Peak Forward Surge Current | 292 | A | $T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| | | 158 | | $T_c = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| I_{FSM} | Non-Repetitive Peak Forward Surge Current | 338 | A | $T_C = 25^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| | | 285 | | $T_c = 110^\circ\text{C}, T_p = 10\text{ms}, \text{Half Sine Wave}$ |
| P_D | Power Dissipation | 394 | W | $T_C = 25^\circ\text{C}$ |
| | | 131 | | $T_c = 125^\circ\text{C}$ |
| $T_{J,max}$ | Operating Junction Temperature | 175 | $^\circ\text{C}$ | |
| T_{stg} | Storage Temperature Range | -55 to 175 | $^\circ\text{C}$ | |

Thermal characteristics

| Symbol | Parameter | Min. | Typ. | Max. | Unit |
|------------|--------------------|------|------|------|---------------|
| R_{thJC} | Thermal resistance | | 0.38 | | $^{\circ}C/W$ |

Electrical Characteristics

| Symbol | Parameter | Value | | | Unit | Test Conditions |
|----------|-------------------------|-------|--------------------|-------------|---------|---|
| | | Min. | Typ. | Max. | | |
| V_{DC} | DC Blocking Voltage | 1200 | | | V | $I_R = 200\mu A, T_J = 25^{\circ}C$ |
| V_F | Forward Voltage | | 1.45 2.2 | 1.7 2.5 | V | $I_F = 35A, T_J = 25^{\circ}C$ $I_F = 35A, T_J = 175^{\circ}C$ |
| I_R | Reverse Current | | 10 50 | 200 1000 | μA | $V_R = 1200V, T_J = 25^{\circ}C$ $V_R = 1200V, T_J = 175^{\circ}C$ |
| Q_C | Total Capacitive Charge | | 286 | | nC | $I_F = 35A, dI/dt = 550A/\mu s$ $T_J = 25^{\circ}C, V_R = 800V$ |
| C | Total Capacitance | | 1810 256 201 | | pF | $V_R = 1V, T_J = 25^{\circ}C, f = 1\text{ MHz}$ $V_R = 400V, T_J = 25^{\circ}C, f = 1\text{ MHz}$ $V_R = 800V, T_J = 25^{\circ}C, f = 1\text{ MHz}$ |

Typical Performance

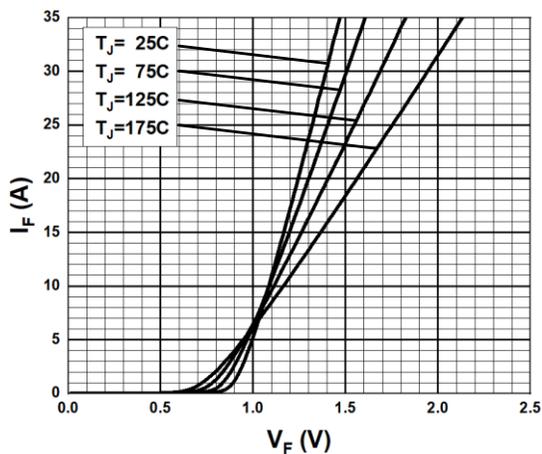


Fig. 1 Forward Characteristics

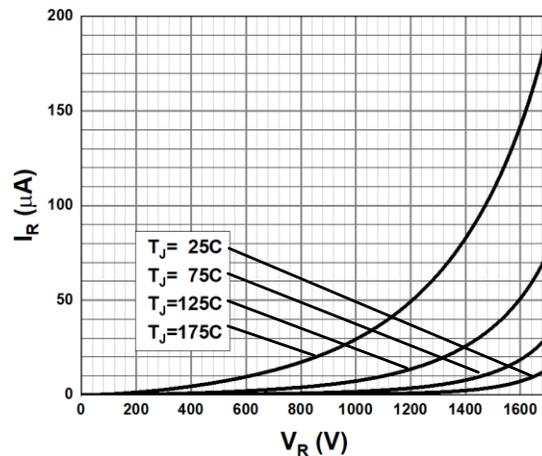


Fig. 2 Reverse Characteristics

Typical Performance

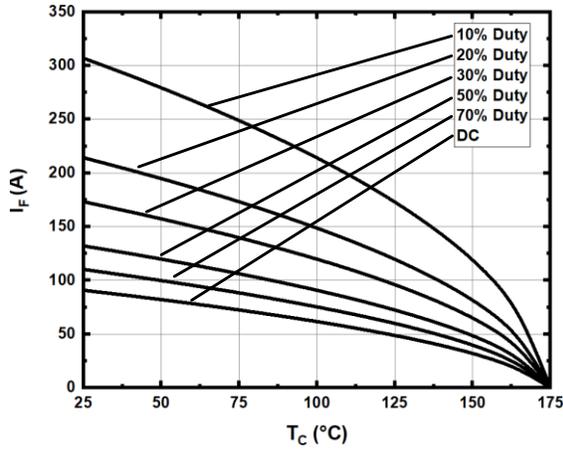


Fig. 3 Current Derating

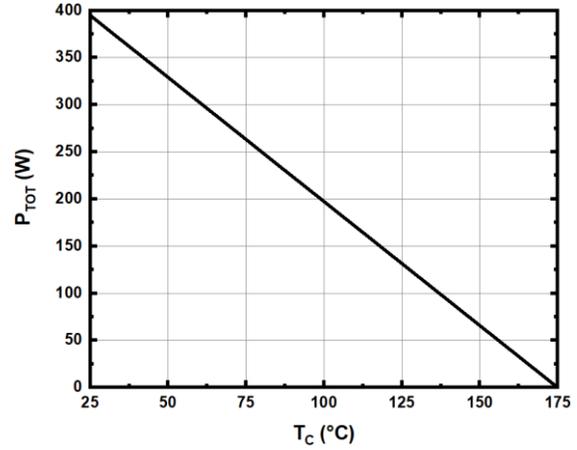


Fig. 4 Power Derating

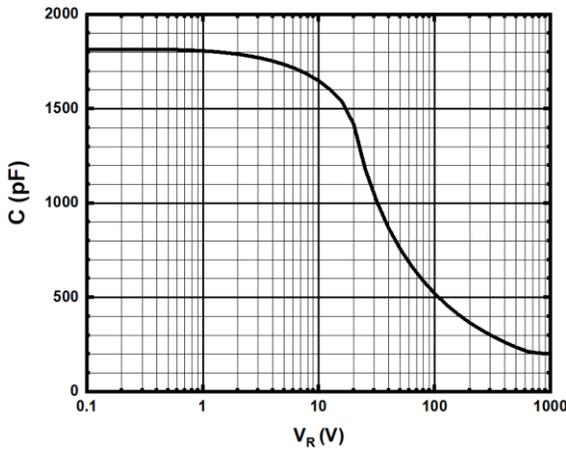


Fig. 5 Capacitance vs. Reverse Voltage

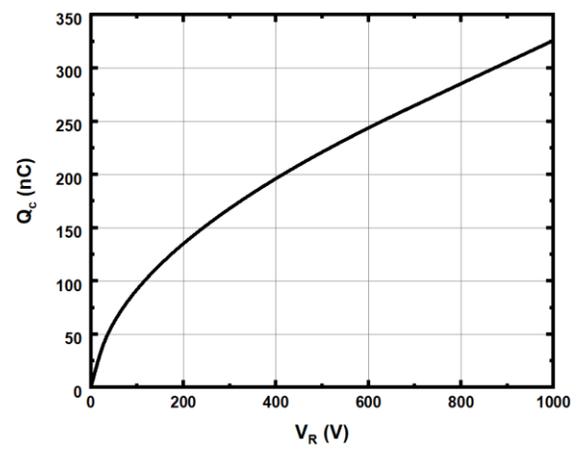


Fig. 6 Recovery Charge vs. Reverse Voltage

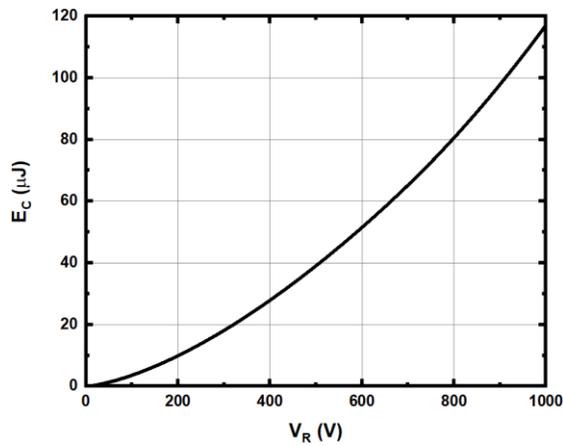


Fig. 7 Capacitance stored Energy

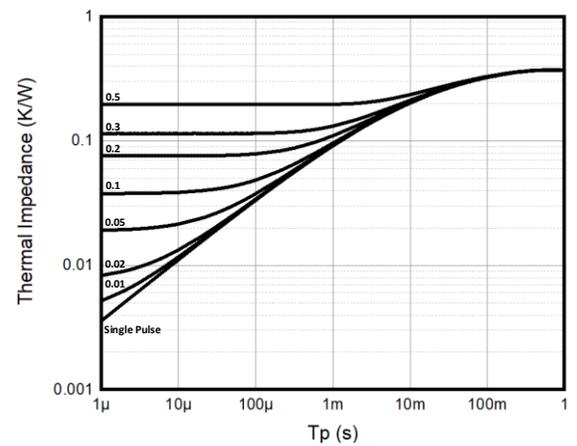
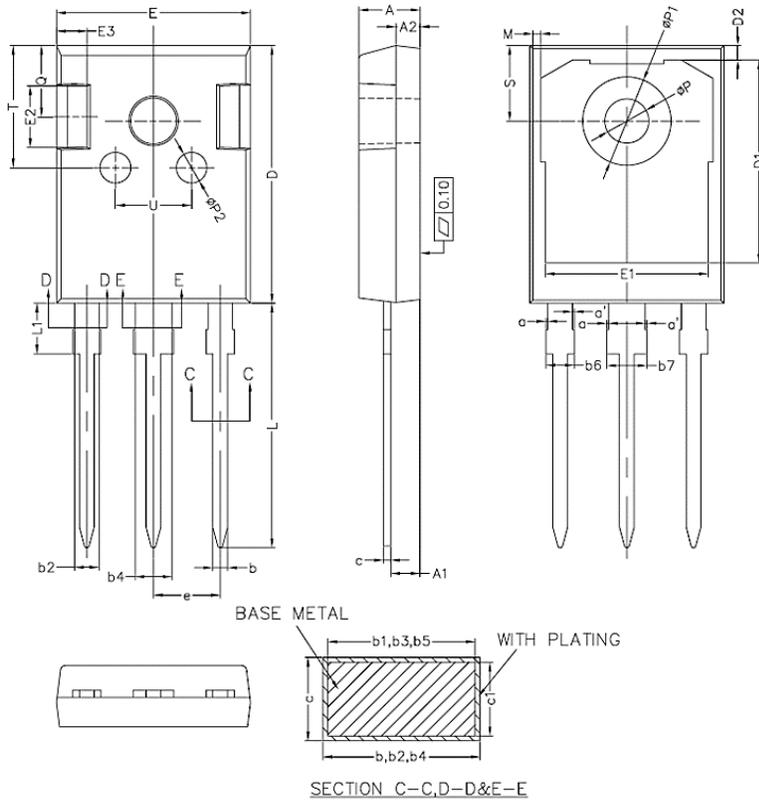


Fig. 8 Transient Thermal Impedance

Package TO-247-3 (Unit: mm)



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

| SYMBOL | MIN | NOM | MAX |
|--------|-------|-------|-------|
| A | 4.90 | 5.00 | 5.10 |
| A1 | 2.31 | 2.41 | 2.51 |
| A2 | 1.90 | 2.00 | 2.10 |
| a | 0 | — | 0.15 |
| a' | 0 | — | 0.15 |
| b | 1.16 | — | 1.26 |
| b1 | 1.15 | 1.2 | 1.22 |
| b2 | 1.96 | — | 2.06 |
| b3 | 1.95 | 2.00 | 2.02 |
| b4 | 2.96 | — | 3.06 |
| b5 | 2.95 | 3.00 | 3.02 |
| b6 | — | — | 2.25 |
| b7 | — | — | 3.25 |
| c | 0.59 | — | 0.66 |
| c1 | 0.58 | 0.60 | 0.62 |
| D | 20.90 | 21.00 | 21.10 |
| D1 | 16.25 | 16.55 | 16.85 |
| D2 | 1.05 | 1.20 | 1.35 |
| E | 15.70 | 15.80 | 15.90 |
| E1 | 13.10 | 13.30 | 13.50 |
| E2 | 4.90 | 5.00 | 5.10 |
| E3 | 2.40 | 2.50 | 2.60 |
| e | 5.34 | 5.44 | 5.54 |
| L | 19.80 | 19.92 | 20.10 |
| L1 | — | — | 4.30 |
| M | 0.35 | — | 0.95 |
| P | 3.50 | 3.60 | 3.70 |
| P1 | 7.00 | — | 7.40 |
| P2 | 2.40 | 2.50 | 2.60 |
| Q | 5.60 | — | 6.00 |
| S | 6.05 | 6.15 | 6.25 |
| T | 9.80 | — | 10.20 |
| U | 6.00 | — | 6.40 |

NOTES:
1. ALL DIMENSIONS REFER TO JEDEC STANDARD TO-247 AD DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
2. EJECTION MARK DEPTH $0.10^{+0.15}_{-0.05}$.

This Product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, systems, or air-traffic control systems.

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