

Features

- 1.2kV Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

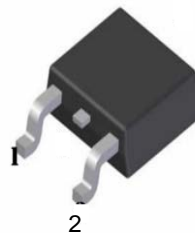
Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switch Mode Power Supplies (SMPS)
- Boost Diodes in PFC or DC/DC stages
- Free Wheeling Diodes in Inverter stages
- LED Lighting Power Supplies
- AC/DC Converters

Package



Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Value | Unit | Test Conditions | Note |
|-------------------|--|----------------|----------------------|---|--------|
| V_{RRM} | Repetitive Peak Reverse Voltage | 1200 | V | | |
| V_{RSM} | Surge Peak Reverse Voltage | 1300 | V | | |
| V_{DC} | DC Blocking Voltage | 1200 | V | | |
| I_F | Maximum DC Current | 10 5 2 | A | $T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=165^\circ\text{C}$ | Fig. 3 |
| I_{FRM} | Repetitive Peak Forward Surge Current | 13 8.4 | A | $T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine pulse $T_C=110^\circ\text{C}$, $t_p=10$ ms, Half Sine pulse | |
| I_{FSM} | Non-Repetitive Peak Forward Surge Current | 19 16.5 | A | $T_C=25^\circ\text{C}$, $t_p=10$ ms, Half Sine pulse $T_C=110^\circ\text{C}$, $t_p=10$ ms, Half Sine pulse | Fig. 8 |
| $I_{F,Max}$ | Non-Repetitive Peak Forward Current | 200 160 | A | $T_C=25^\circ\text{C}$, $t_p=10$ μs , Pulse $T_C=110^\circ\text{C}$, $t_p=10$ μs , Pulse | Fig. 8 |
| P_{tot} | Power Dissipation | 60 26 | W | $T_C=25^\circ\text{C}$ $T_C=110^\circ\text{C}$ | Fig. 4 |
| dV/dt | Diode dV/dt ruggedness | 200 | V/ns | $V_R=0-650\text{V}$ | |
| $\int i^2 dt$ | i^2t value | 1.8 1.4 | A^2s | $T_C=25^\circ\text{C}$, $t_p=10$ ms $T_C=110^\circ\text{C}$, $t_p=10$ ms | |
| T_J , T_{stg} | Operating Junction and Storage Temperature | -55 to +175 | $^\circ\text{C}$ | | |

Electrical Characteristics

| Symbol | Parameter | Typ. | Max. | Unit | Test Conditions | Note |
|--------|---------------------------|----------------|-----------|---------------|--|--------|
| V_F | Forward Voltage | 1.4 1.9 | 1.8 3 | V | $I_F = 2\text{ A } T_J = 25^\circ\text{C}$ $I_F = 2\text{ A } T_J = 175^\circ\text{C}$ | Fig. 1 |
| I_R | Reverse Current | 10 40 | 50 150 | μA | $V_R = 1200\text{ V } T_J = 25^\circ\text{C}$ $V_R = 1200\text{ V } T_J = 175^\circ\text{C}$ | Fig. 2 |
| Q_C | Total Capacitive Charge | 11 | | nC | $V_R = 800\text{ V, } I_F = 2\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$ | Fig. 5 |
| C | Total Capacitance | 167 11 8 | | pF | $V_R = 0\text{ V, } T_J = 25^\circ\text{C, } f = 1\text{ MHz}$ $V_R = 400\text{ V, } T_J = 25^\circ\text{C, } f = 1\text{ MHz}$ $V_R = 800\text{ V, } T_J = 25^\circ\text{C, } f = 1\text{ MHz}$ | Fig. 6 |
| E_C | Capacitance Stored Energy | 3.2 | | μJ | $V_R = 800\text{ V}$ | Fig. 7 |

Note: This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

| Symbol | Parameter | Typ. | Unit | Note |
|-----------------|--|------|---------------------------|--------|
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case | 2.5 | $^\circ\text{C}/\text{W}$ | Fig. 9 |

Typical Performance

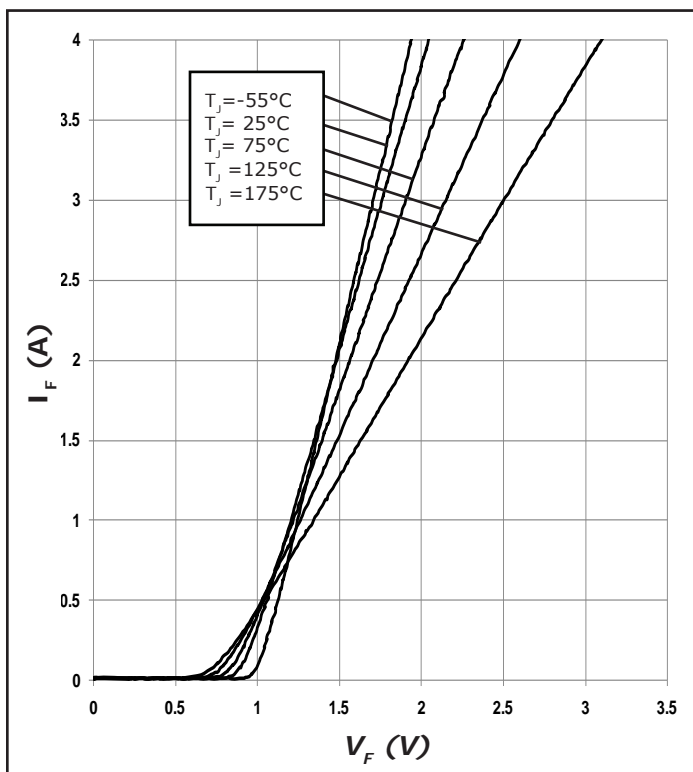


Figure 1. Forward Characteristics

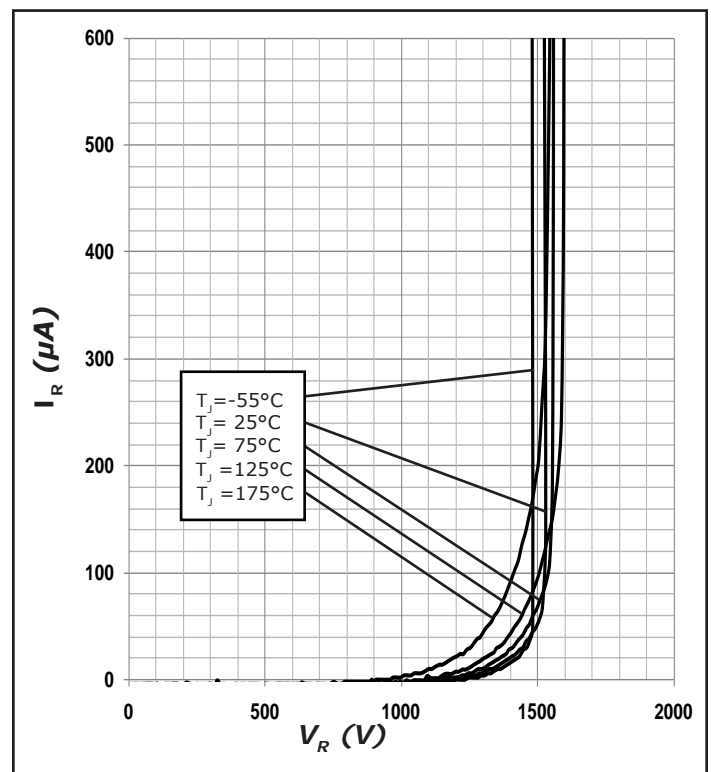


Figure 2. Reverse Characteristics

Typical Performance

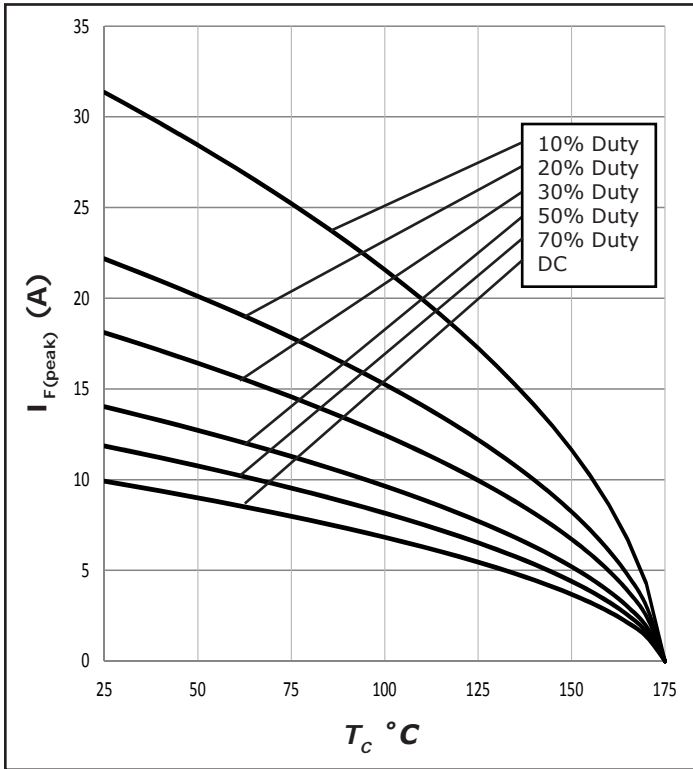


Figure 3. Current Derating

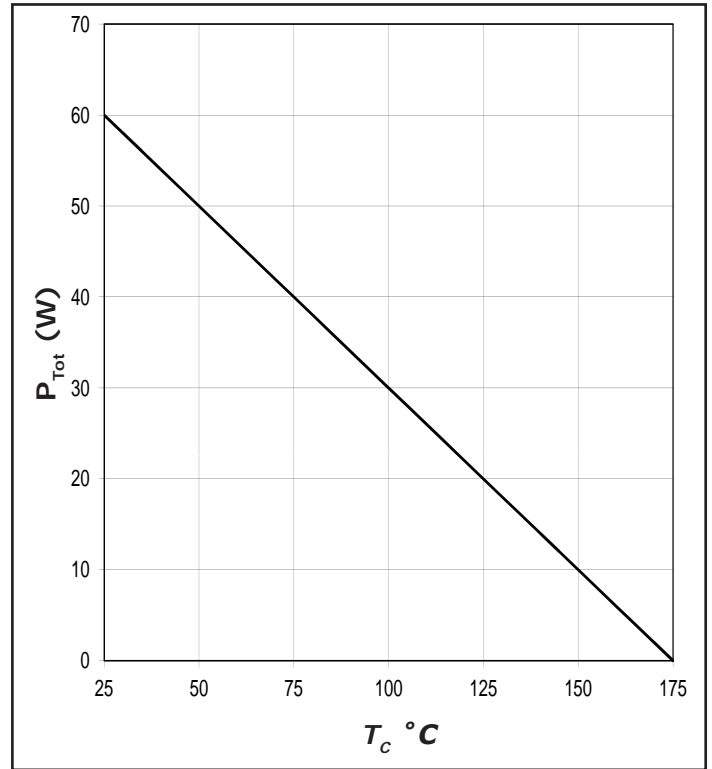


Figure 4. Power Derating

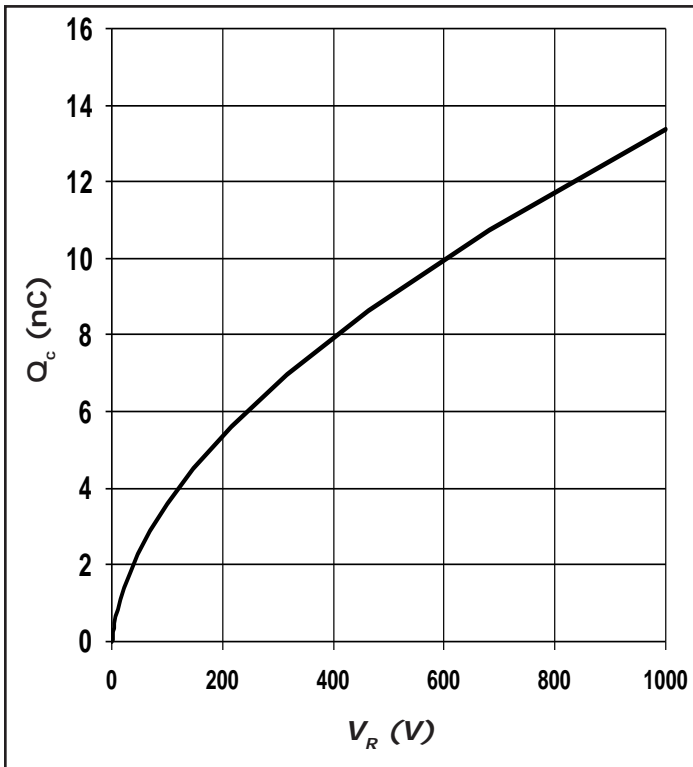


Figure 5. Recovery Charge vs. Reverse Voltage

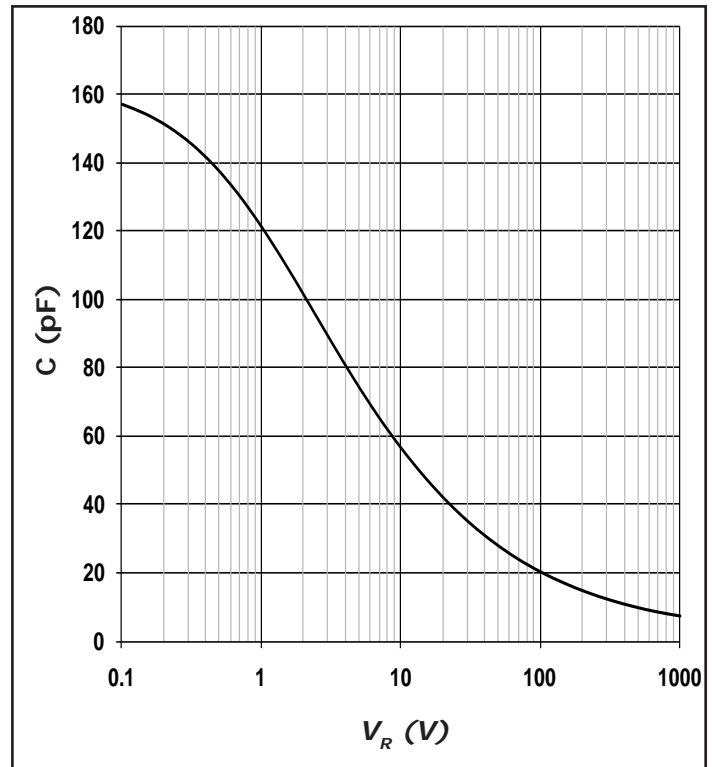


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance

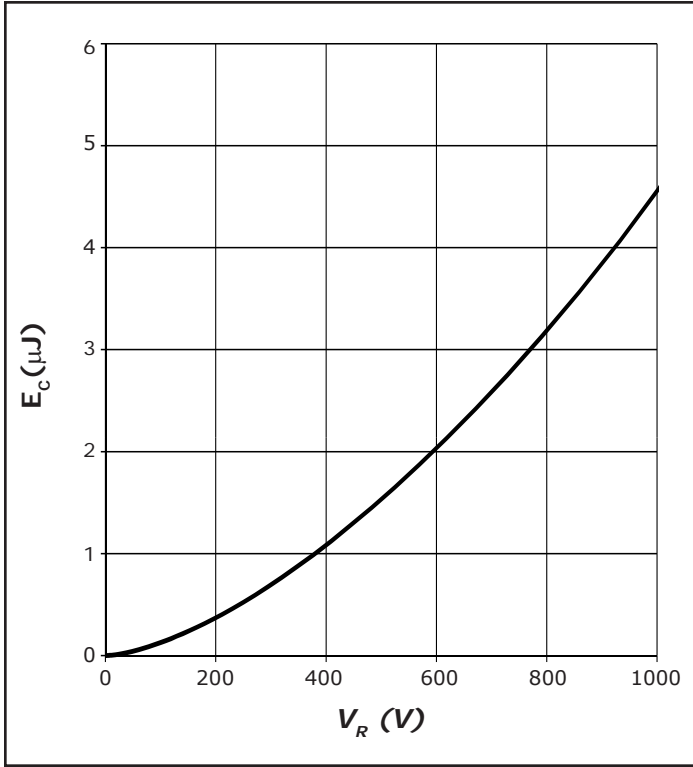


Figure 7. Typical Capacitance Stored Energy

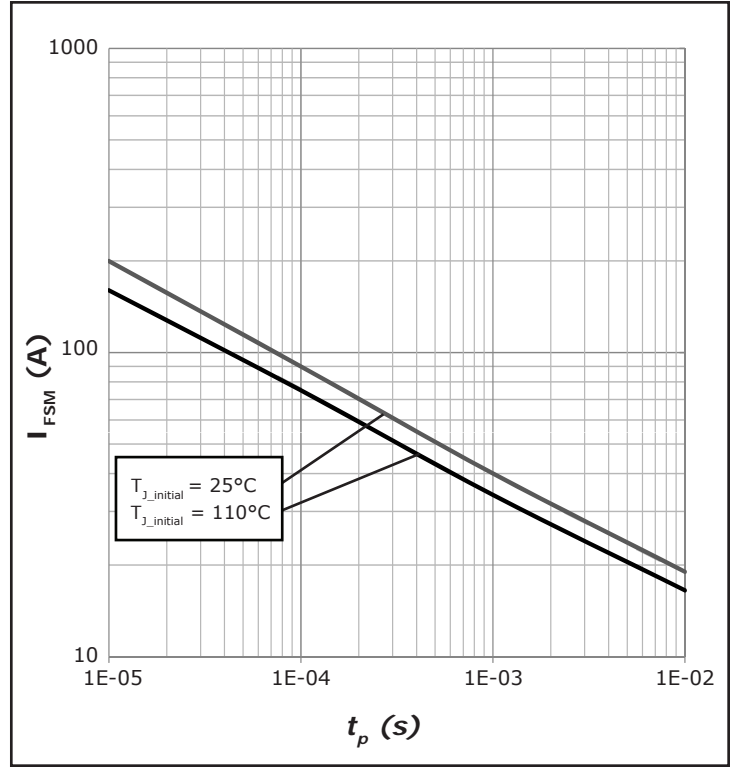


Figure 8. Non-repetitive peak forward surge current versus pulse duration (sinusoidal waveform)

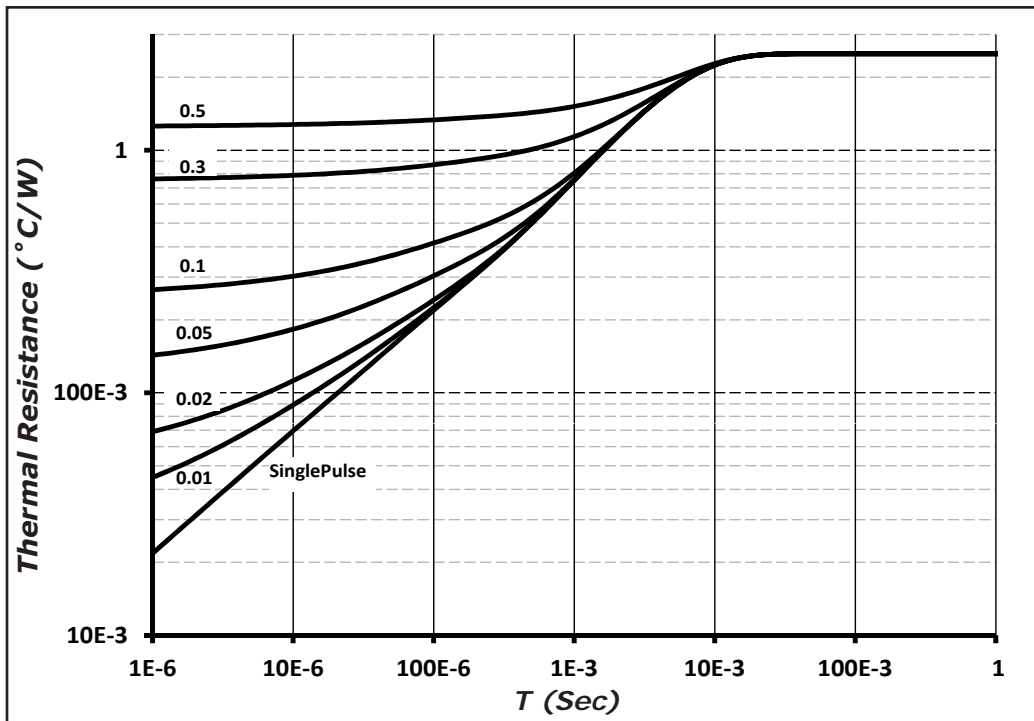
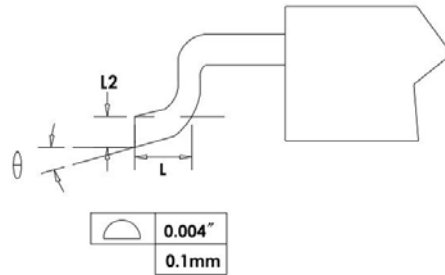
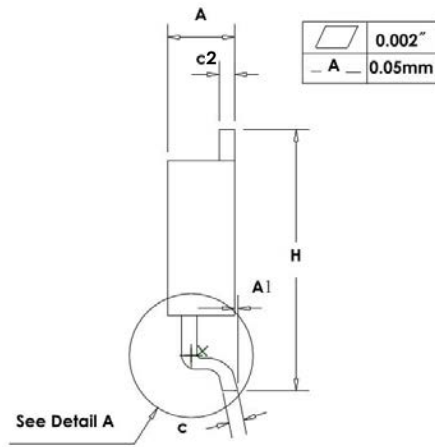
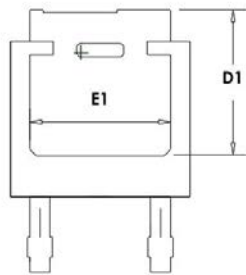
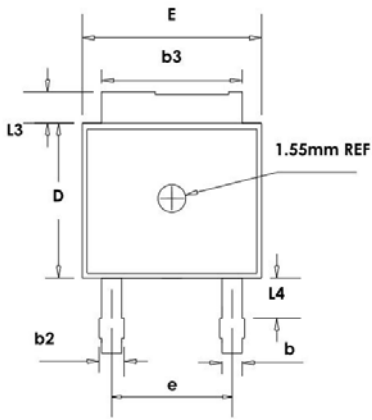


Figure 9. Transient Thermal Impedance

Package Dimensions

Package TO-252-2



| SYMBOL | MILLIMETERS | |
|--------|-------------|--------|
| | MIN | MAX |
| A | 2.159 | 2.413 |
| A1 | 0 | 0.13 |
| b | 0.64 | 0.89 |
| b2 | 0.653 | 1.143 |
| b3 | 5.004 | 5.6 |
| c | 0.457 | 0.61 |
| c2 | 0.457 | 0.864 |
| D | 5.867 | 6.248 |
| D1 | 5.21 | - |
| E | 6.35 | 7.341 |
| E1 | 4.32 | - |
| e | 4.58 BSC | |
| H | 9.65 | 10.414 |
| L | 1.106 | 1.78 |
| L2 | 0.51 BSC | |
| L3 | 0.889 | 1.27 |
| L4 | 0.64 | 1.01 |
| θ | 0° | 8° |

