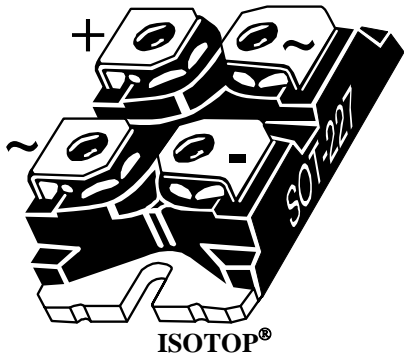
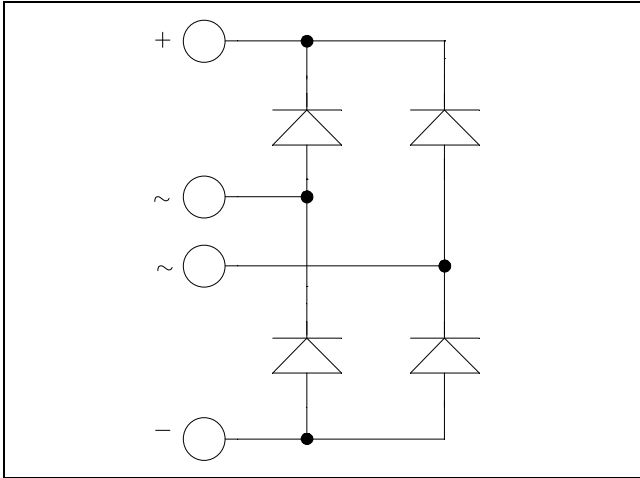


ISOTOP[®] SiC Diode
Full Bridge Power Module

V_{RRM} = 600V
I_C = 40A @ T_c = 100°C



Application

- Switch mode power supplies rectifier
- Induction heating
- Welding equipment
- High speed rectifiers

Features

- **SiC Schottky Diode**
 - Zero reverse recovery
 - Zero forward recovery
 - Temperature Independent switching behavior
 - Positive temperature coefficient on VF
- ISOTOP[®] Package (SOT-227)
- Very low stray inductance
- High level of integration

Benefits

- Outstanding performance at high frequency operation
- Low losses
- Low noise switching
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- RoHS Compliant

Absolute maximum ratings

| Symbol | Parameter | Max ratings | Unit |
|--------------------|---|------------------------|-----------------------|
| V _R | Maximum DC reverse Voltage | 600 | V |
| V _{RRM} | Maximum Peak Repetitive Reverse Voltage | | |
| I _{F(AV)} | Maximum Average Forward Current | 40 | A |
| I _{FSM} | Non-Repetitive Forward Surge Current | 500 | |
| | | 10 μs | T _C = 25°C |
| | | T _C = 100°C | |

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on www.microsemi.com

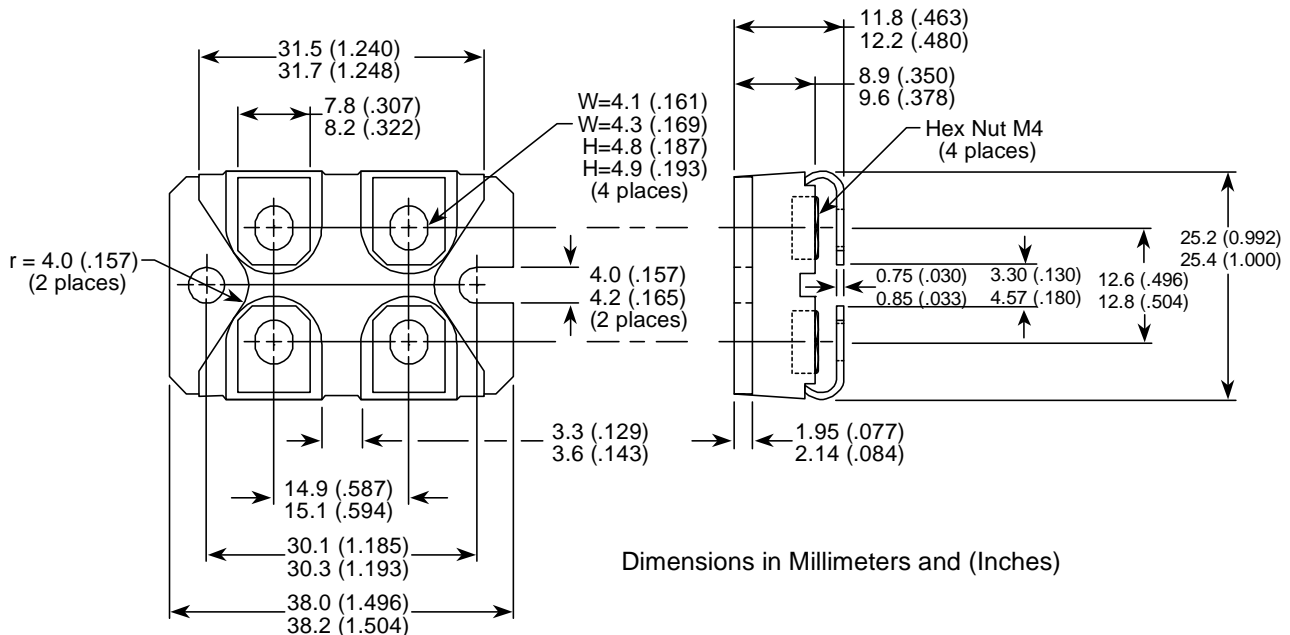
All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

Electrical Characteristics

| Symbol | Characteristic | Test Conditions | Min | Typ | Max | Unit | |
|----------|---------------------------------|---|---------------------------|-----|-----|------|---------------|
| V_F | Diode Forward Voltage | $I_F = 40\text{A}$ | $T_j = 25^\circ\text{C}$ | | 1.6 | 1.8 | V |
| | | | $T_j = 175^\circ\text{C}$ | | 2 | 2.4 | |
| I_{RM} | Maximum Reverse Leakage Current | $V_R = 600\text{V}$ | $T_j = 25^\circ\text{C}$ | | 200 | 800 | μA |
| | | | $T_j = 175^\circ\text{C}$ | | 400 | 4000 | |
| Q_C | Total Capacitive Charge | $I_F = 40\text{A}, V_R = 300\text{V}$ $di/dt = 1200\text{A}/\mu\text{s}$ | | 56 | | nC | |
| C | Total Capacitance | $f = 1\text{MHz}, V_R = 200\text{V}$ | | 260 | | pF | |
| | | $f = 1\text{MHz}, V_R = 400\text{V}$ | | 200 | | | |

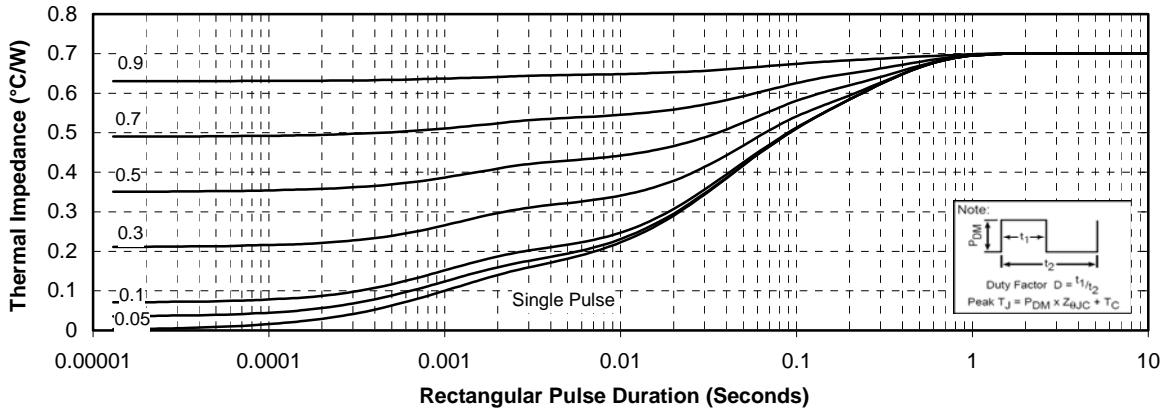
Thermal and package characteristics

| Symbol | Characteristic | Min | Typ | Max | Unit |
|----------------|--|------|------|-----|---------------------------|
| R_{thJC} | Junction to Case Thermal resistance | | | 0.7 | $^\circ\text{C}/\text{W}$ |
| R_{thJA} | Junction to Ambient | | | 20 | |
| V_{ISOL} | RMS Isolation Voltage, any terminal to case $t = 1\text{ min}$, $I_{isol} < 1\text{mA}$, 50/60Hz | 2500 | | | V |
| T_J, T_{STG} | Storage Temperature Range | -55 | | 175 | $^\circ\text{C}$ |
| T_L | Max Lead Temp for Soldering: 0.063" from case for 10 sec | | | 300 | |
| Torque | Mounting torque (Mounting = 8-32 or 4mm Machine and terminals = 4mm Machine) | | | 1.5 | N.m |
| Wt | Package Weight | | 29.2 | | g |

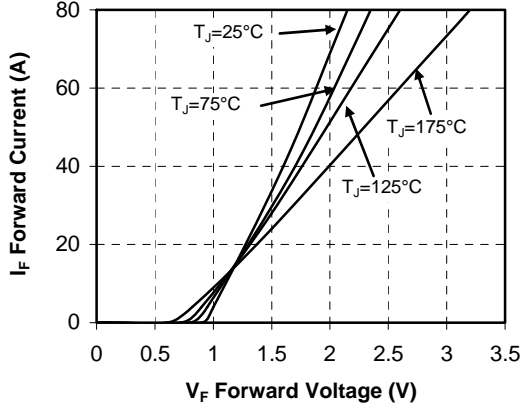
SOT-227 (ISOTOP[®]) Package Outline


Typical Performance Curve

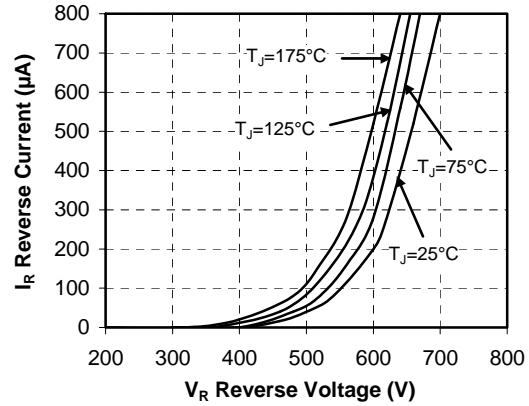
Maximum Effective Transient Thermal Impedance, Junction to Case vs Pulse Duration



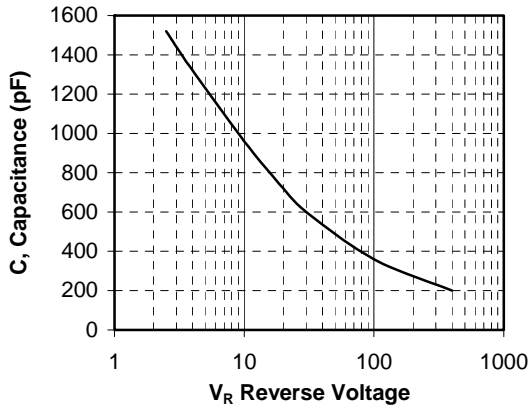
Forward Characteristics



Reverse Characteristics



Capacitance vs. Reverse Voltage



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Microsemi reserves the right to change, without notice, the specifications and information contained herein

Microsemi's products are covered by one or more of U.S. patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 6,939,743 7,352,045 5,283,201 5,801,417 5,648,283 7,196,634 6,664,594 7,157,886 6,939,743 7,342,262 and foreign patents. U.S and Foreign patents pending. All Rights Reserved.