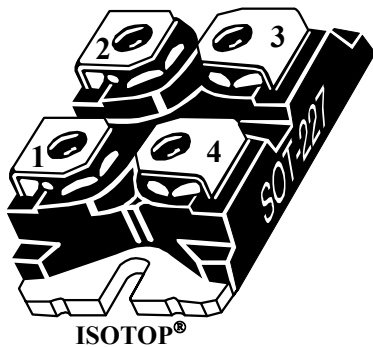
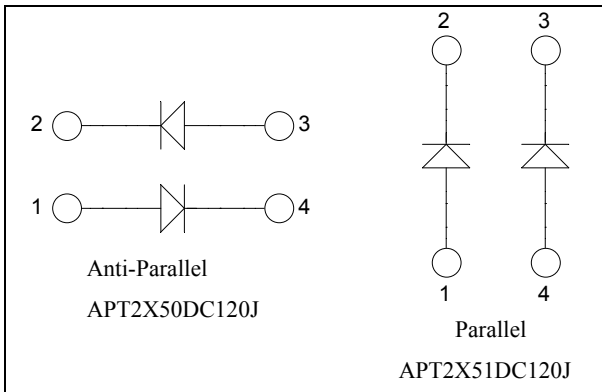


ISOTOP[®] SiC Diode
Power Module
 $V_{RRM} = 1200V$
 $I_F = 50A @ T_C = 100^{\circ}C$

Application

- Uninterruptible Power Supply (UPS)
- 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 (per leg)

| Symbol | Parameter | Max ratings | Unit |
|-------------|---|----------------------|------|
| V_R | Maximum DC reverse Voltage | 1200 | V |
| V_{RRM} | Maximum Peak Repetitive Reverse Voltage | | |
| $I_{F(AV)}$ | Maximum Average Forward Current | 50 | A |
| I_{FSM} | Non-Repetitive Forward Surge Current | | |
| | | 10 μ s | |
| | | $T_C = 100^{\circ}C$ | |
| | | $T_C = 25^{\circ}C$ | |

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

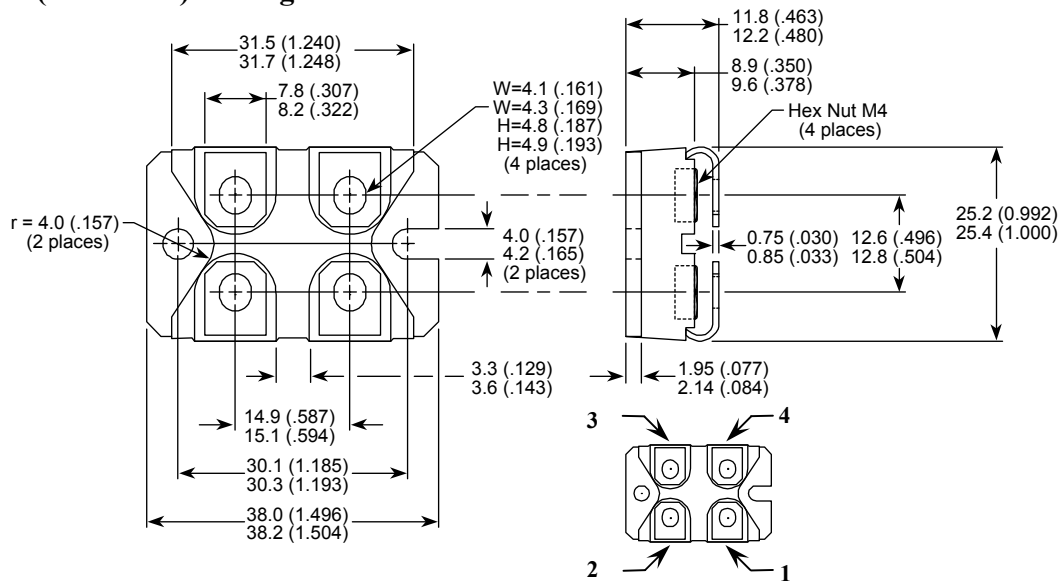
All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

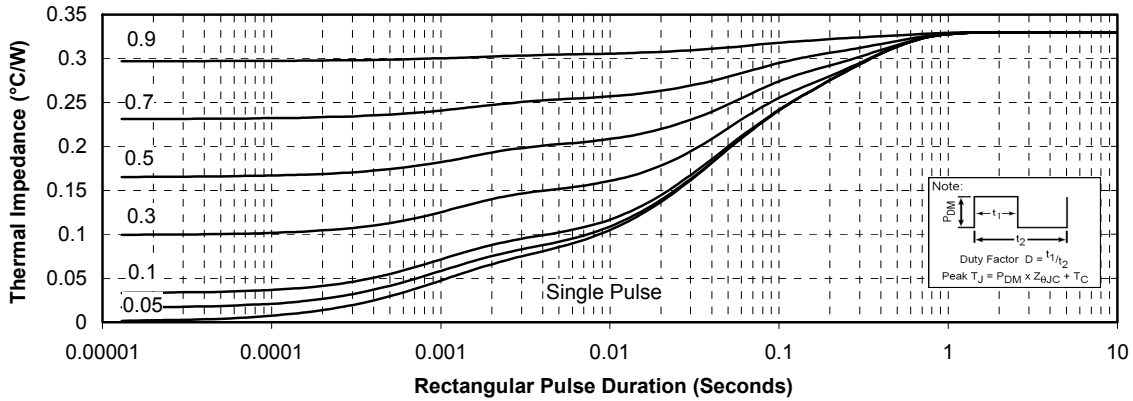
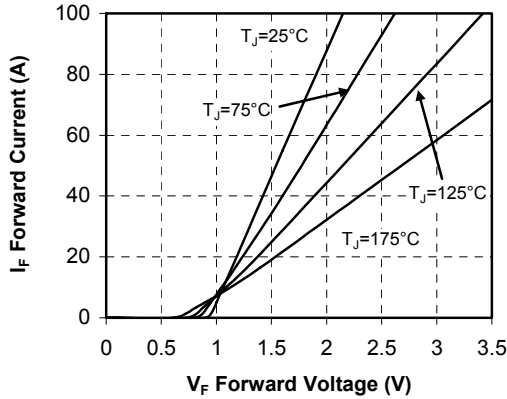
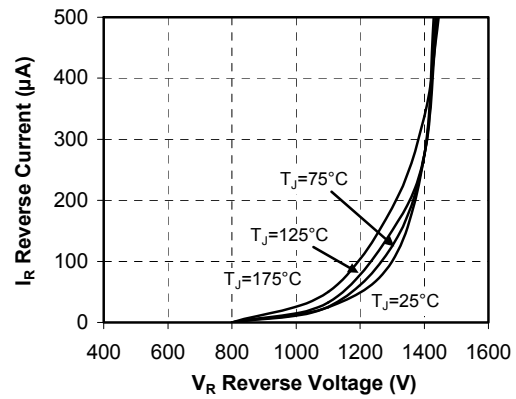
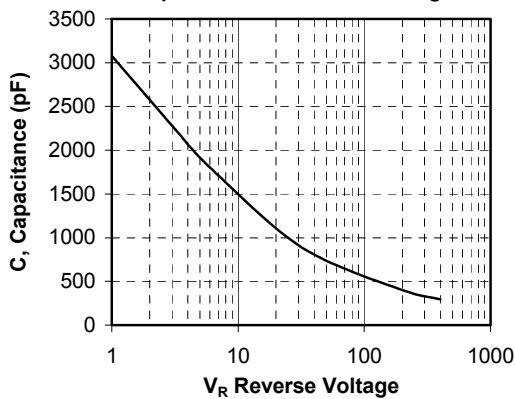
Electrical Characteristics (per leg)

| Symbol | Characteristic | Test Conditions | Min | Typ | Max | Unit | |
|----------|---------------------------------|---|---------------------------|-----|-----|------|---------------|
| V_F | Diode Forward Voltage | $I_F = 50\text{A}$ | $T_j = 25^\circ\text{C}$ | | 1.6 | 1.8 | V |
| | | | $T_j = 175^\circ\text{C}$ | | 2.3 | 3.0 | |
| I_{RM} | Maximum Reverse Leakage Current | $V_R = 1200\text{V}$ | $T_j = 25^\circ\text{C}$ | | 160 | 1000 | μA |
| | | | $T_j = 175^\circ\text{C}$ | | 280 | 5000 | |
| Q_C | Total Capacitive Charge | $I_F = 50\text{A}, V_R = 600\text{V}$ $di/dt = 2500\text{A}/\mu\text{s}$ | | 200 | | nC | |
| C | Total Capacitance | $f = 1\text{MHz}, V_R = 200\text{V}$ | | 480 | | pF | |
| | | $f = 1\text{MHz}, V_R = 400\text{V}$ | | 345 | | | |

Thermal and package characteristics (per leg)

| Symbol | Characteristic | Min | Typ | Max | Unit |
|----------------|--|------|------|------|---------------------------|
| R_{thJC} | Junction to Case Thermal resistance | | | 0.32 | $^\circ\text{C}/\text{W}$ |
| R_{thJA} | Junction to Ambient (IGBT & Diode) | | | 20 | $^\circ\text{C}/\text{W}$ |
| V_{ISOL} | RMS Isolation Voltage, any terminal to case $t = 1\text{ min}, 50/60\text{Hz}$ | 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 | $^\circ\text{C}$ |
| 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 Diode 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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