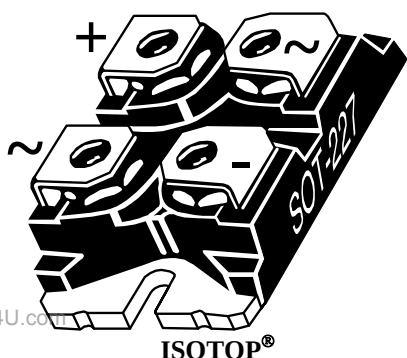
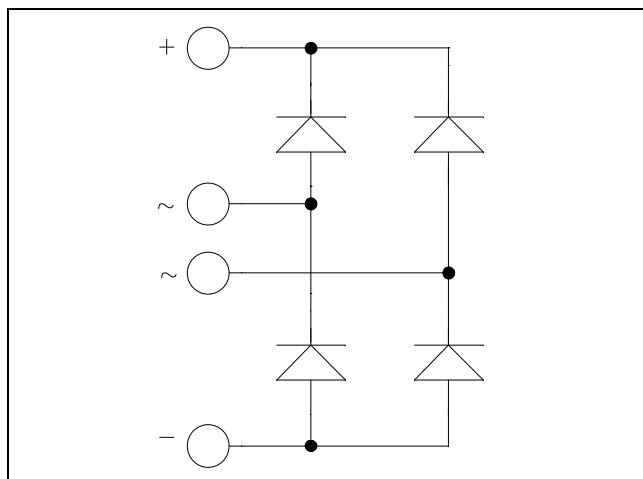


## ISOTOP<sup>®</sup> SiC Diode Full Bridge Power Module

$$V_{RRM} = 600V$$

$$I_C = 20A @ T_C = 100^{\circ}C$$



### 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<sup>®</sup> 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 <sub>R</sub>     | Maximum DC reverse Voltage              |                  |                                | 600         | V    |
| V <sub>RRM</sub>   | Maximum Peak Repetitive Reverse Voltage |                  |                                |             |      |
| I <sub>F(AV)</sub> | Maximum Average Forward Current         | Duty cycle = 50% | T <sub>C</sub> = 100°C         | 20          | A    |
| I <sub>FSM</sub>   | Non-Repetitive Forward Surge Current    |                  | 10 μs<br>T <sub>C</sub> = 25°C | 250         |      |

**CAUTION:** These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.  
See application note APT0502 on [www.microsemi.com](http://www.microsemi.com)

# APT20DC60HJ

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

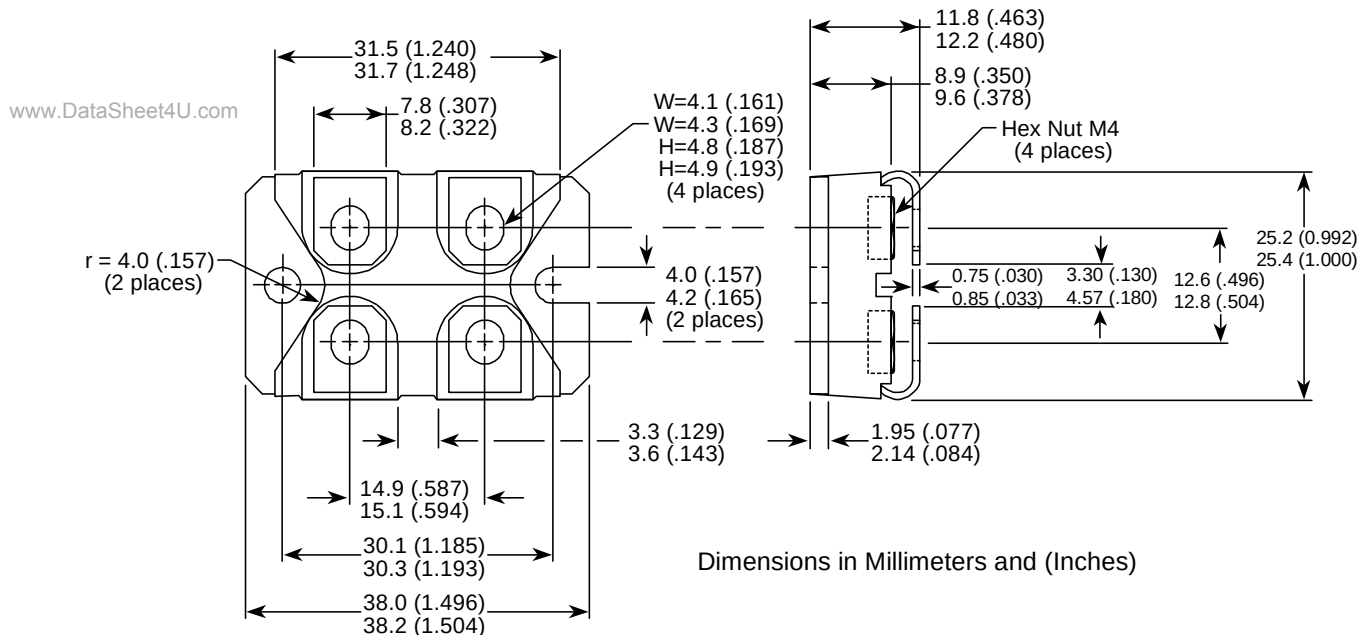
## Electrical Characteristics

| Symbol   | Characteristic                  | Test Conditions                                                               | Min                       | Typ | Max  | Unit          |
|----------|---------------------------------|-------------------------------------------------------------------------------|---------------------------|-----|------|---------------|
| $V_F$    | Diode Forward Voltage           | $I_F = 20\text{A}$                                                            | $T_j = 25^\circ\text{C}$  | 1.6 | 1.8  | V             |
|          |                                 |                                                                               | $T_j = 175^\circ\text{C}$ | 2   | 2.4  |               |
| $I_{RM}$ | Maximum Reverse Leakage Current | $V_R = 600\text{V}$                                                           | $T_j = 25^\circ\text{C}$  | 100 | 400  | $\mu\text{A}$ |
|          |                                 |                                                                               | $T_j = 175^\circ\text{C}$ | 200 | 2000 |               |
| $Q_C$    | Total Capacitive Charge         | $I_F = 20\text{A}$ , $V_R = 300\text{V}$<br>$di/dt = 800\text{A}/\mu\text{s}$ |                           | 28  |      | nC            |
| C        | Total Capacitance               | $f = 1\text{MHz}$ , $V_R = 200\text{V}$                                       |                           | 130 |      | pF            |
|          |                                 | $f = 1\text{MHz}$ , $V_R = 400\text{V}$                                       |                           | 100 |      |               |

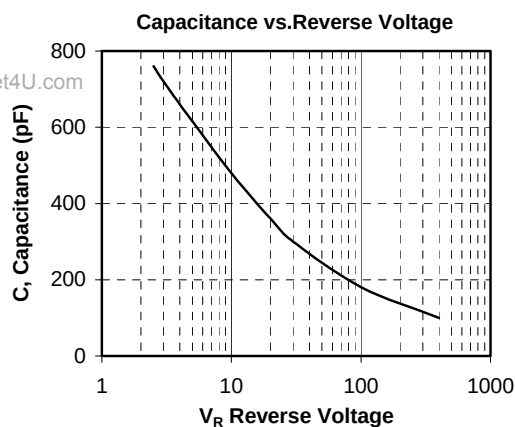
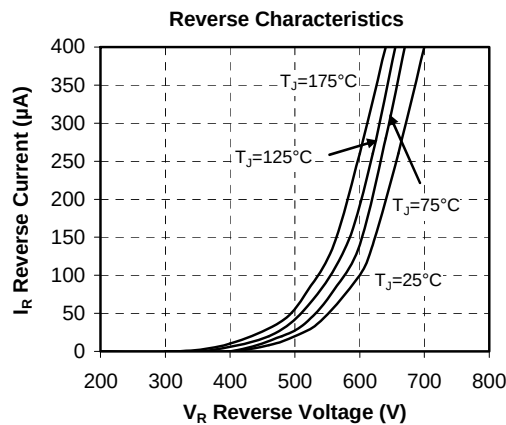
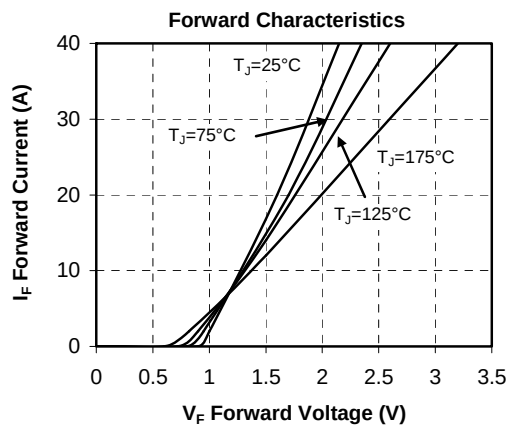
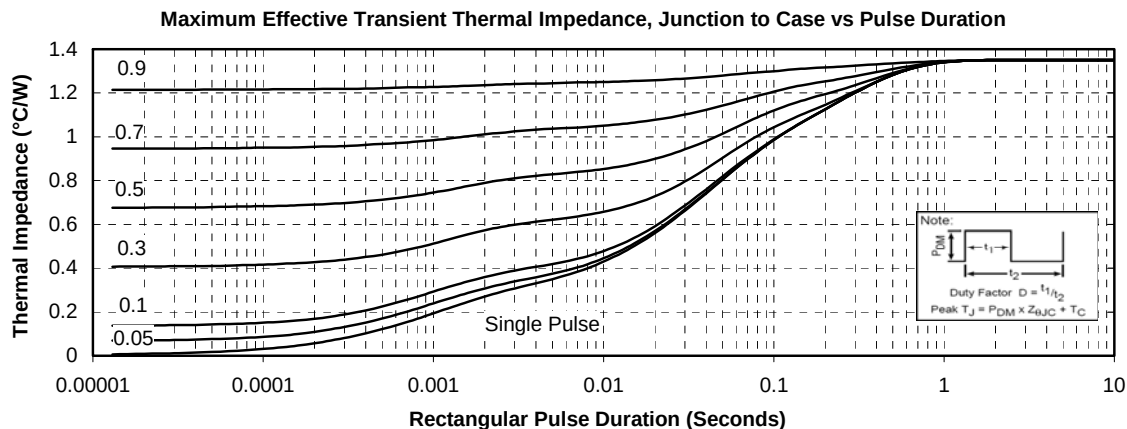
## Thermal and package characteristics

| Symbol         | Characteristic                                                                                     | Min  | Typ  | Max  | Unit                      |
|----------------|----------------------------------------------------------------------------------------------------|------|------|------|---------------------------|
| $R_{thJC}$     | Junction to Case Thermal resistance                                                                |      |      | 1.35 | $^\circ\text{C}/\text{W}$ |
| $R_{thJA}$     | Junction to Ambient                                                                                |      |      | 20   | $^\circ\text{C}/\text{W}$ |
| $V_{ISOL}$     | 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  | $^\circ\text{C}$          |
| 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<sup>®</sup>) Package Outline



## Typical Performance Curve



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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.