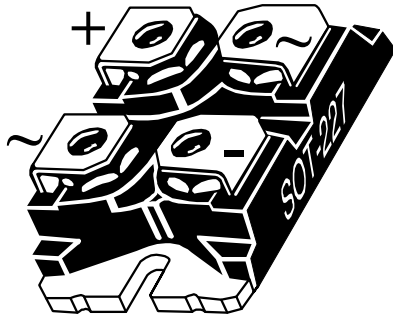
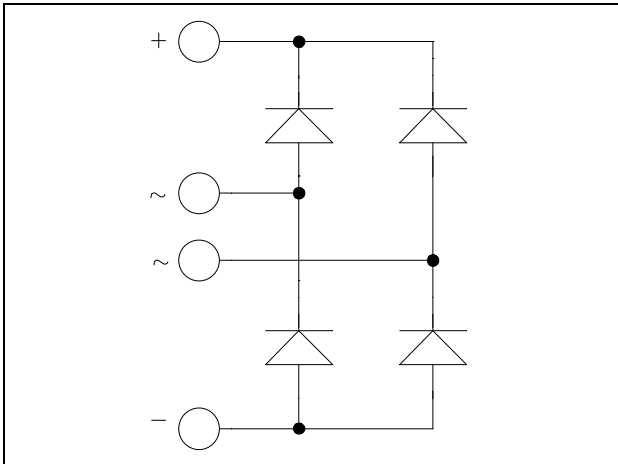


## ISOTOP<sup>®</sup> Fast Diode Full Bridge Power Module

$V_{RRM} = 600V$   
 $I_C = 60A @ T_c = 80^{\circ}C$



### Application

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

### Features

- Ultra fast recovery times
- Soft recovery characteristics
- High blocking voltage
- High current
- Low leakage current
- Very low stray inductance
- High level of integration
- ISOTOP<sup>®</sup> Package (SOT-227)

### 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         | Duty cycle = 50% | $T_C = 25^{\circ}C$ | 90  | A |
|             |   |                  | $T_C = 80^{\circ}C$ |     |   |
| $I_{FSM}$   | Non-Repetitive Forward Surge Current    | 8.3ms            | $T_J = 45^{\circ}C$ | 500 |   |

**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)

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

**Electrical Characteristics**

| <i>Symbol</i> | <i>Characteristic</i>           | <i>Test Conditions</i> | <i>Min</i>                | <i>Typ</i> | <i>Max</i> | <i>Unit</i>   |
|---------------|---------------------------------|------------------------|---------------------------|------------|------------|---------------|
| $V_F$         | Diode Forward Voltage           | $I_F = 60\text{A}$     |                           | 1.7        | 2.3        | V             |
|               |                                 | $I_F = 120\text{A}$    |                           | 2          |            |               |
|               |                                 | $I_F = 60\text{A}$     | $T_j = 125^\circ\text{C}$ | 1.4        |            |               |
| $I_{RM}$      | Maximum Reverse Leakage Current | $V_R = 600\text{V}$    | $T_j = 25^\circ\text{C}$  |            | 25         | $\mu\text{A}$ |
|               |                                 |                        | $T_j = 125^\circ\text{C}$ |            | 500        |               |
| $C_T$         | Junction Capacitance            | $V_R = 200\text{V}$    |                           | 145        |            | pF            |

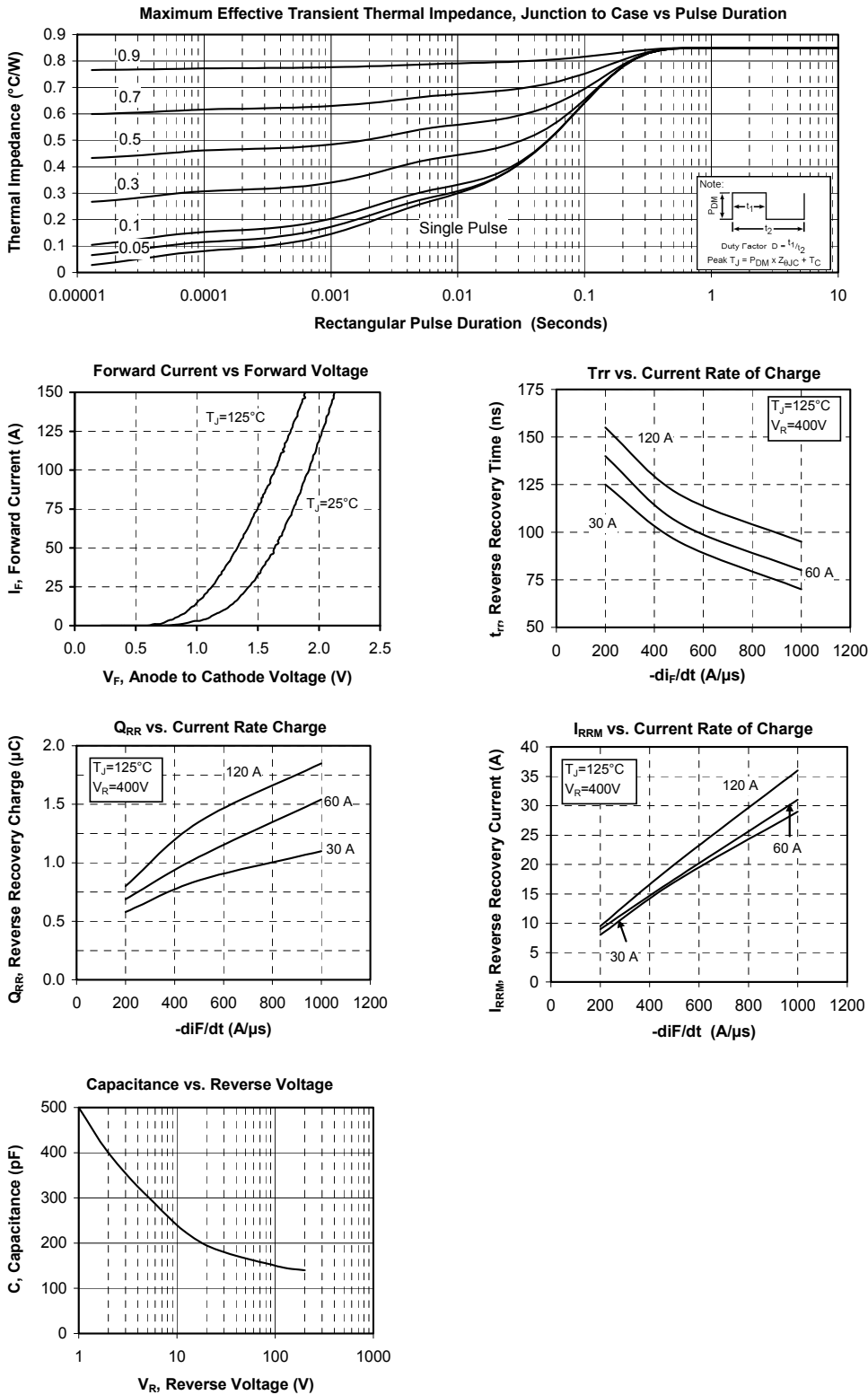
**Dynamic Characteristics**

| <i>Symbol</i> | <i>Characteristic</i>    | <i>Test Conditions</i>  | <i>Min</i>                | <i>Typ</i> | <i>Max</i> | <i>Unit</i> |
|---------------|--------------------------|---|---------------------------|------------|------------|-------------|
| $t_{rr}$      | Reverse Recovery Time    | $I_F = 60\text{A}$<br>$V_R = 400\text{V}$<br>$di/dt = 200\text{A}/\mu\text{s}$  | $T_j = 25^\circ\text{C}$  |            | 70         | ns          |
|               |                          |   | $T_j = 125^\circ\text{C}$ |            | 140        |             |
| $Q_{rr}$      | Reverse Recovery Charge  |   | $T_j = 25^\circ\text{C}$  |            | 100        | nC          |
|               |                          |   | $T_j = 125^\circ\text{C}$ |            | 690        |             |
| $I_{RRM}$     | Reverse Recovery Current |   | $T_j = 25^\circ\text{C}$  |            | 4          | A           |
|               |                          |   | $T_j = 125^\circ\text{C}$ |            | 9          |             |
| $t_{rr}$      | Reverse Recovery Time    | $I_F = 60\text{A}$<br>$V_R = 400\text{V}$<br>$di/dt = 1000\text{A}/\mu\text{s}$ | $T_j = 125^\circ\text{C}$ |            | 80         | ns          |
| $Q_{rr}$      | Reverse Recovery Charge  |   |                           |            | 1540       | nC          |
| $I_{RRM}$     | Reverse Recovery Current |   |                           |            | 31         | A           |

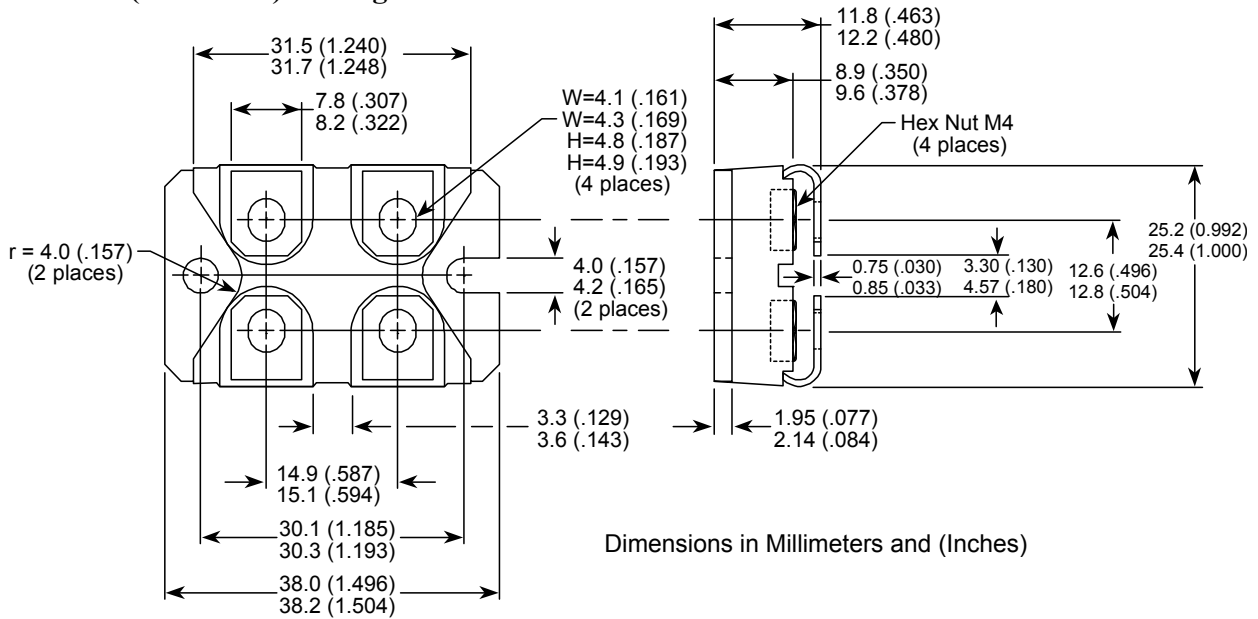
**Thermal and package characteristics**

| <i>Symbol</i>  | <i>Characteristic</i>  | <i>Min</i> | <i>Typ</i> | <i>Max</i> | <i>Unit</i>               |
|----------------|--|------------|------------|------------|---------------------------|
| $R_{thJC}$     | Junction to Case Thermal resistance  |            |            | 0.85       | $^\circ\text{C}/\text{W}$ |
| $R_{thJA}$     | Junction to Ambient  |            |            | 20         | $^\circ\text{C}/\text{W}$ |
| $V_{ISOL}$     | RMS Isolation Voltage, any terminal to case $t = 1$ min, 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                         |

## Typical Performance Curve



**SOT-227 (ISOTOP®) Package Outline**



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