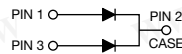


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.39\text{ V}$ at $I_F = 5\text{ A}$



TO-3PW



| PRIMARY CHARACTERISTICS | |
|------------------------------|----------|
| $I_{F(AV)}$ | 2 x 25 A |
| V_{RRM} | 100 V |
| I_{FSM} | 300 A |
| E_{AS} at L = 100 mH | 280 mJ |
| V_F at $I_F = 25\text{ A}$ | 0.66 V |
| T_J max. | 150 °C |

FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
 COMPLIANT
 HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

MECHANICAL DATA

Case: TO-3PW

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-M3 - halogen-free and RoHS compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|---|----------------|---------------|------------------|
| PARAMETER | SYMBOL | V50100PW | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | V |
| Maximum average forward rectified current (fig. 1) | | per device | 50 |
| | | per diode | 25 |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 300 | A |
| Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, L = 100 mH per diode | E_{AS} | 280 | mJ |
| Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$ per diode | I_{RRM} | 1.0 | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/ μs |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 150 | °C |

V50100PW

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|-------------------------|-------------------------|-------------------------------|---------------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | I _R = 1.0 mA | T _A = 25 °C | V _{BR} | 100 (minimum) | - | V |
| Instantaneous forward voltage per diode | I _F = 5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.48 | - | V |
| | I _F = 10 A | | | 0.56 | - | |
| | I _F = 20 A | | | 0.69 | - | |
| | I _F = 25 A | | | 0.76 | 0.84 | |
| | I _F = 5 A | T _A = 125 °C | | 0.39 | - | |
| | I _F = 10 A | | | 0.50 | - | |
| | I _F = 20 A | | | 0.61 | - | |
| | I _F = 25 A | | | 0.66 | 0.74 | |
| Reverse current per diode | V _R = 70 V | T _A = 25 °C | I _R ⁽²⁾ | 23 | - | μA |
| | | T _A = 125 °C | | 11 | - | mA |
| | V _R = 100 V | T _A = 25 °C | | - | 1000 | μA |
| | | T _A = 125 °C | | 29 | 80 | mA |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|------------|------------------|----------|------|
| PARAMETER | | SYMBOL | V50100PW | UNIT |
| Typical thermal resistance | per diode | R _{θJC} | 1.5 | °C/W |
| | per device | | 0.8 | |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-3PW | V50100PW-M3/4W | 4.5 | 4W | 30/tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

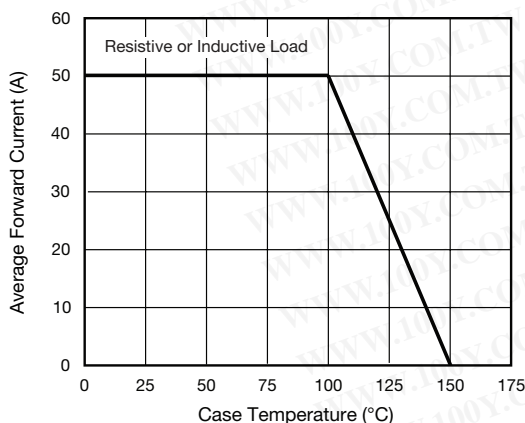


Fig. 1 - Forward Current Derating Curve

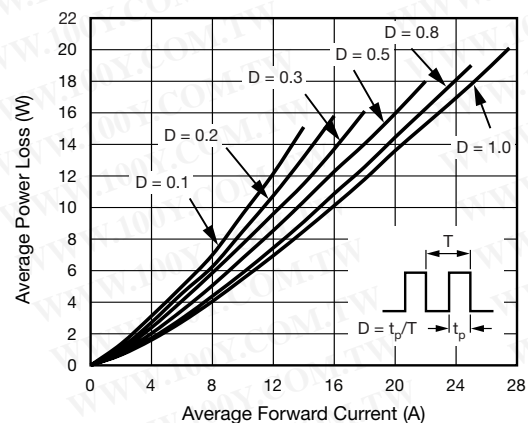


Fig. 2 - Forward Power Loss Characteristics Per Diode

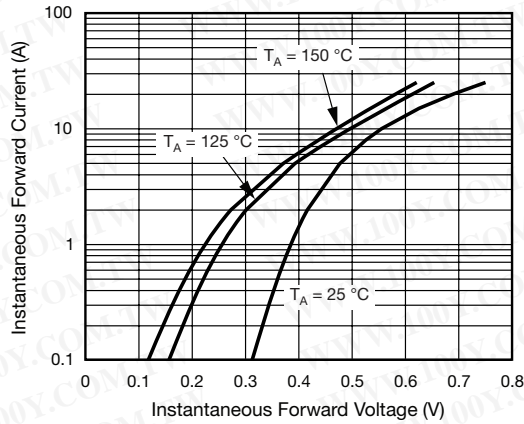


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

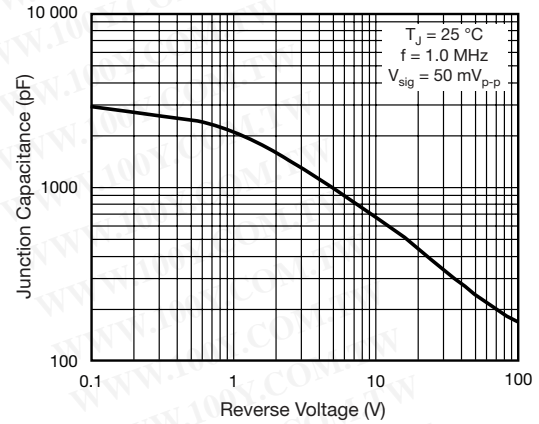


Fig. 5 - Typical Junction Capacitance Per Diode

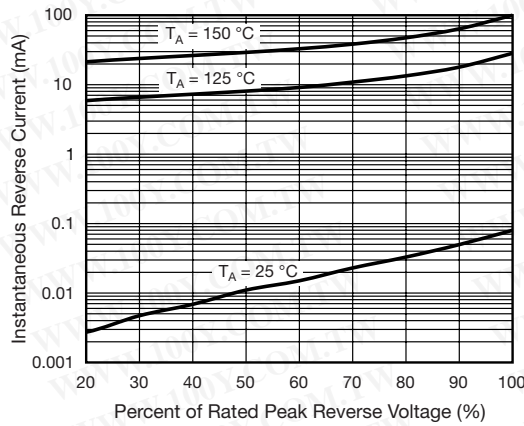


Fig. 4 - Typical Reverse Characteristics Per Diode

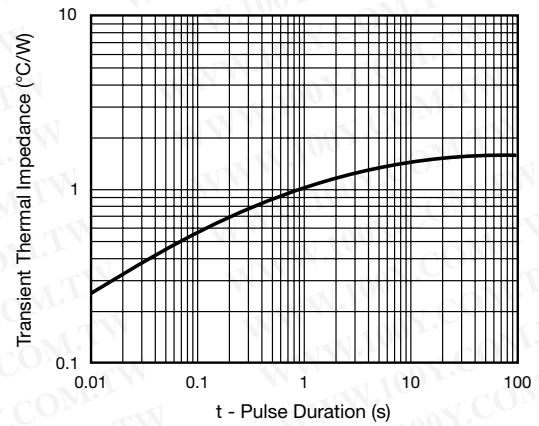
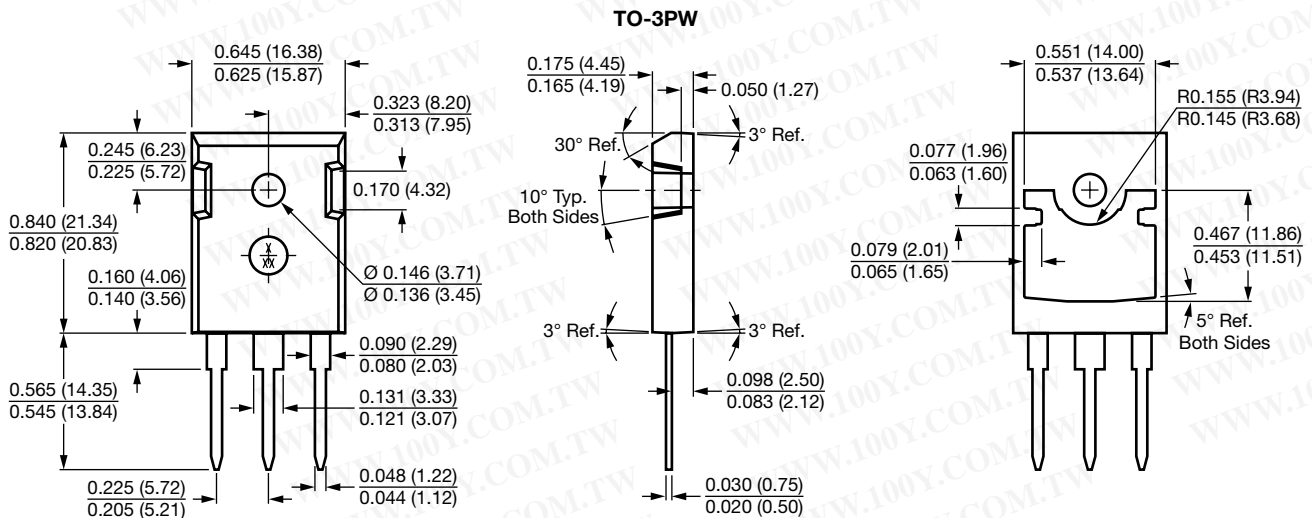


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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