

Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.54$ V at $I_F = 5$ A

TO-3PW



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.

PRIMARY CHARACTERISTICS

| | |
|-----------------------|----------|
| $I_{F(AV)}$ | 2 x 30 A |
| V_{RRM} | 200 V |
| I_{FSM} | 300 A |
| E_{AS} at L = 60 mH | 150 mJ |
| V_F at $I_F = 30$ A | 0.77 V |
| T_J max. | 150 °C |

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 ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | V60200PGW | UNIT |
|---|----------------|---------------|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 200 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | per device | 60 |
| | | per diode | 30 |
| 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 $T_J = 25$ °C, L = 60 mH per diode | E_{AS} | 150 | mJ |
| Peak repetitive reverse current at $t_p = 2$ μ s, 1 kHz, $T_J = 38$ °C \pm 2 °C per diode | I_{RRM} | 0.5 | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 150 | °C |

V60200PGW



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} | 200 (minimum) | - | V |
| Instantaneous forward voltage per diode | I _F = 10 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.69 | - | V |
| | I _F = 15 A | | | 0.90 | - | |
| | I _F = 30 A | | | 1.28 | 1.48 | |
| | I _F = 10 A | T _A = 125 °C | | 0.54 | - | |
| | I _F = 15 A | | | 0.66 | - | |
| | I _F = 30 A | | | 0.77 | 0.85 | |
| Reverse current per diode | V _R = 180 V | T _A = 25 °C | I _R ⁽²⁾ | 3.4 | - | μA |
| | | T _A = 125 °C | | 4.6 | - | mA |
| | V _R = 200 V | T _A = 25 °C | | - | 210 | μA |
| | | T _A = 125 °C | | 7.5 | 27 | 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 | V60200PGW | 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 | V60200PGW-M3/4W | 4.5 | 4W | 30/tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

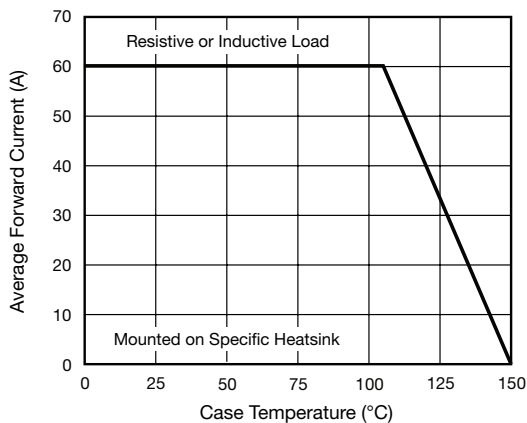


Fig. 1 - Forward Current Derating Curve

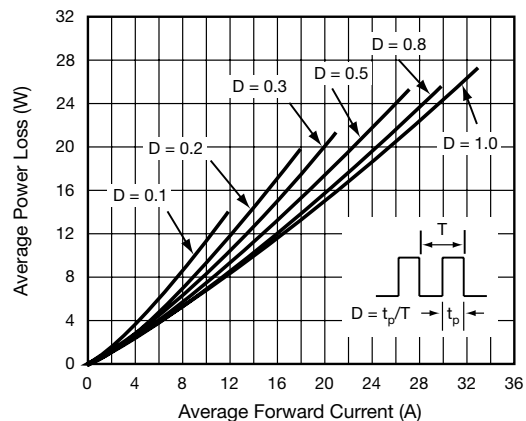


Fig. 2 - Forward Power Loss Characteristics Per Diode

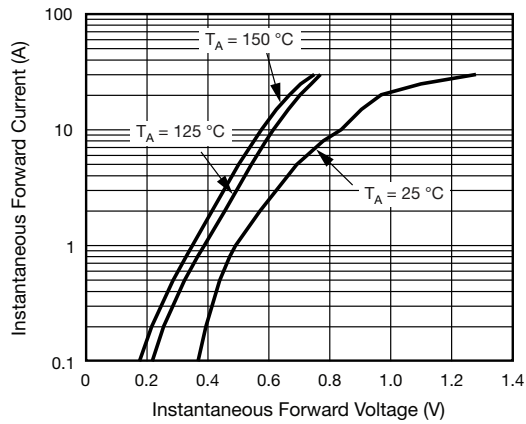


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

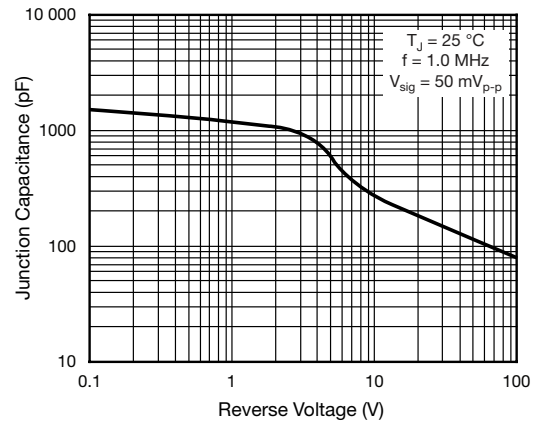


Fig. 5 - Typical Junction Capacitance Per Diode

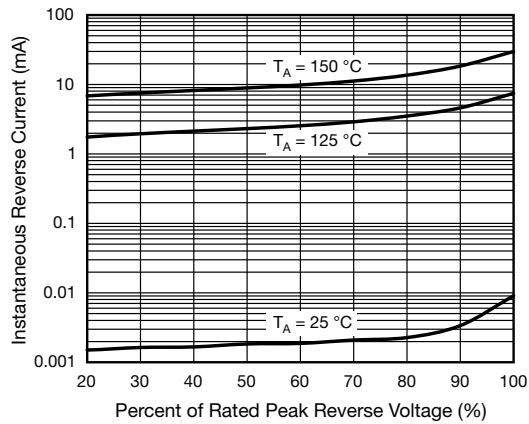


Fig. 4 - Typical Reverse Characteristics Per Diode

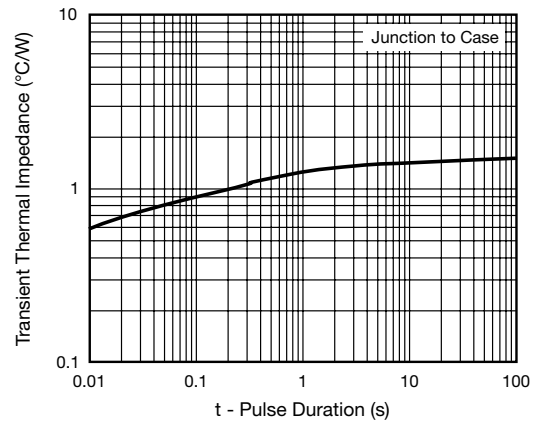
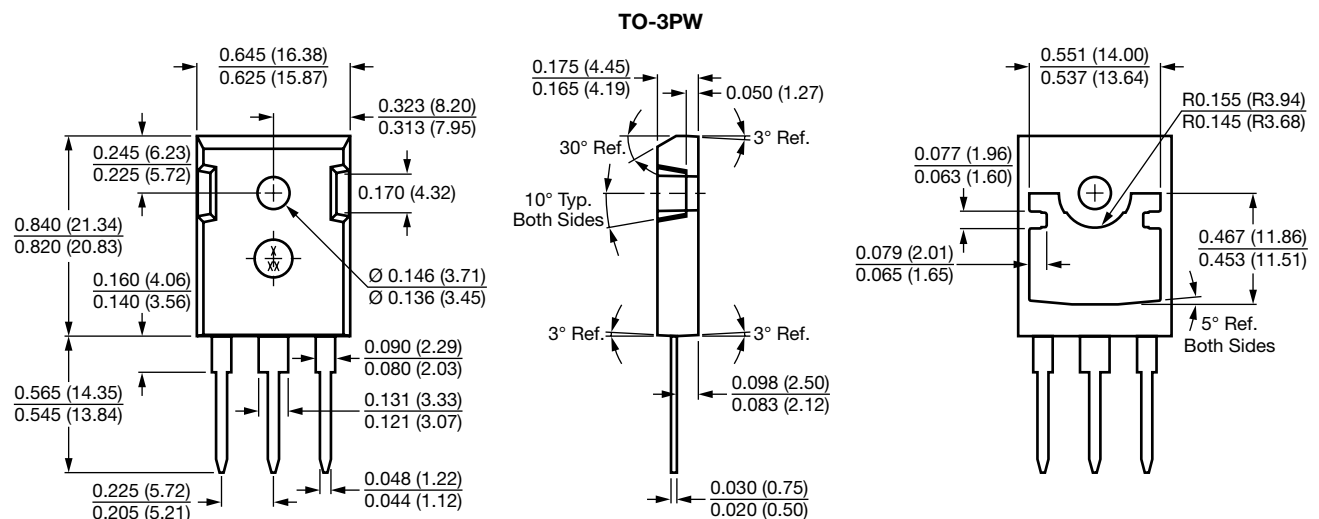


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.