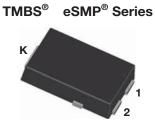
New Product



Vishay General Semiconductor

High Current Density Surface Mount Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.453$ V at $I_F = 5$ A



TO-277A (SMPC)

-O Anode 1 -O Anode 2 Cathode

| PRIMARY CHARACTERISTICS | | | | |
|---|---------|--|--|--|
| I _{F(AV)} | 10 A | | | |
| V _{RRM} | 100 V | | | |
| I _{FSM} | 180 A | | | |
| E _{AS} | 100 mJ | | | |
| V _F at I _F = 10 A | 0.574 V | | | |
| T _J max. | 150 °C | | | |

TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

FEATURES

- Very low profile typical height of 1.1 mm
- · Ideal for automated placement
- Trench MOS Schottky technology
- Low forward volatge drop, low power losses
- High efficiency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

MECHANICAL DATA

Case: TO-277A (SMPC)

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

Base P/NHM3 - halogen-free, RoHS compliant, and automotive grade

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

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | | | |
|--|-----------------------------------|---------------|------|--|--|
| PARAMETER | SYMBOL | V10P10 | UNIT | | |
| Device marking code | | V1010 | | | |
| Maximum repetitive peak reverse voltage | V _{RRM} | 100 | V | | |
| Maximum average forward rectified current (fig. 1) | I _{F(AV)} | 10 | A | | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I _{FSM} | 180 | А | | |
| Non-repetitive avalanche energy at $I_{AS} = 2.0 \text{ A}, T_J = 25 \text{ °C}$ | E _{AS} | 100 | mJ | | |
| Peak repetitive reverse current at $t_p = 2 \ \mu s$, 1 kHz, $T_J = 38 \ ^\circ C \ \pm 2 \ ^\circ C$ | I _{RRM} | 1.0 | A | | |
| Operating junction and storage temperature range | T _J , T _{STG} | - 40 to + 150 | ٥C | | |

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RoHS

COMPLIANT

HALOGEN

FREE

VISHAY.

Vishay General Semiconductor

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|---------------------------------|---------------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | I _R = 1 mA | T _A = 25 °C | V _{BR} | 100 (minimum) | - | V |
| Instantaneous forward voltage | I _F = 5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.512 | - | V |
| | I _F = 10 A | | | 0.625 | 0.68 | |
| | I _F = 5 A | T _A = 125 °C | | 0.453 | - | |
| | I _F = 10 A | | | 0.574 | 0.62 | |
| Reverse current | V _B = 70 V | T _A = 25 °C | - I _R ⁽²⁾ | 7.1 | - | μA |
| | v _R = 70 v | T _A = 125 °C | | 4.5 | - | mA |
| | V 100 V | T _A = 25 °C | | 30.4 | 150 | μA |
| | V _R = 100 V | T _A = 125 °C | | 10.4 | 20 | mA |

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width \leq 40 ms

| THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise specified) | | | | |
|--|---------------------------------|--------|------|--|
| PARAMETER | SYMBOL | V10P10 | UNIT | |
| Typical thermal resistance | R _{0JA} ⁽¹⁾ | 60 | °C/W | |
| | $R_{	ext{	heta}JL}$ | 3 | | |

Note

⁽¹⁾ Units mounted on recommended PCB 1 oz. pad layout

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-----------------|--------------|---------------|------------------------------------|--|
| PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | |
| V10P10-M3/86A | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel | |
| V10P10-M3/87A | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel | |
| V10P10HM3/86A (1) | 0.10 | 86A | 1500 | 7" diameter plastic tape and reel | |
| V10P10HM3/87A ⁽¹⁾ | 0.10 | 87A | 6500 | 13" diameter plastic tape and reel | |

Note

⁽¹⁾ Automotive grade

New Product



V10P10

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RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

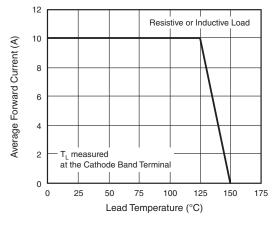


Fig. 1 - Maximum Forward Current Derating Curve

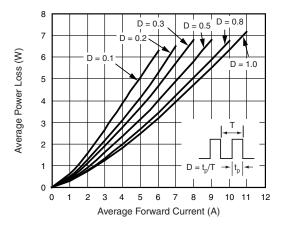


Fig. 2 - Forward Power Loss Characteristics

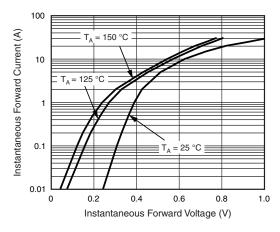
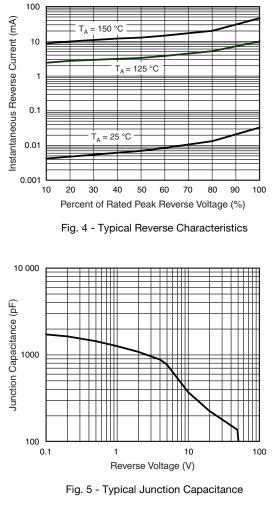
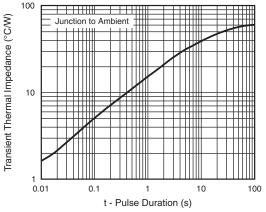


Fig. 3 - Typical Instantaneous Forward Characteristics

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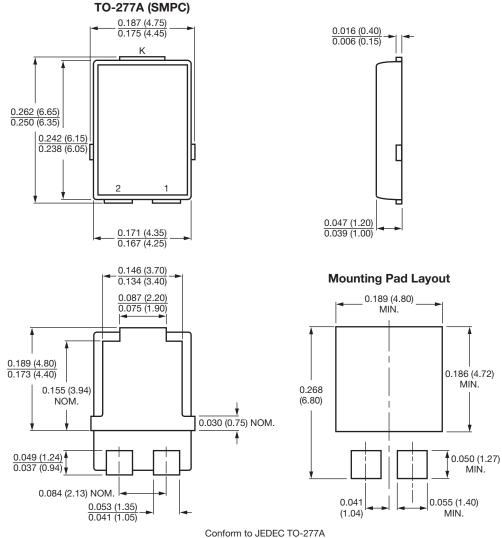
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V10P10



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