New Product

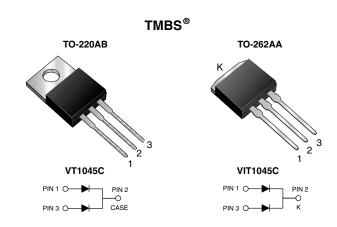


VT1045C, VIT1045C

Vishay General Semiconductor

Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.34$ V at $I_F = 2.5$ A



| PRIMARY CHARACTERISTICS | | | | | |
|--|--------|--|--|--|--|
| I _{F(AV)} 2 x 5.0 A | | | | | |
| V _{RRM} | 45 V | | | | |
| I _{FSM} | 100 A | | | | |
| V _F at I _F = 5.0 A | 0.41 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
- 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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB and TO-262AA

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 AEC-Q101 qualified

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

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | | | | |
|---|------------------|-----------------------------------|---------------|----------|------|--|--|
| PARAMETER | | SYMBOL | VT1045C | VIT1045C | UNIT | | |
| Maximum repetitive peak reverse voltage | | V _{RRM} | 45 | | V | | |
| Maximum average forward rectified current (fig. 1) | per device | I _{F(AV)} | 10 | | A | | |
| | per diode | | 5.0 | | | | |
| Peak forward surge current 8.3 ms single half sine-w superimposed on rated load per diode | I _{FSM} | 100 | | А | | | |
| Operating junction and storage temperature range | | T _J , T _{STG} | - 40 to + 150 | | °C | | |

RoHS COMPLIANT HALOGEN

FREE

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| ELECTRICAL CHARACTERISTICS ($T_A = 25$ °C unless otherwise noted) | | | | | | | |
|---|------------------------|---------------------------|-------------------------------|------|------|------|--|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT | |
| Instantaneous forward voltage per diode | I _F = 2.5 A | – T _A = 25 °C | - V _F (1) | 0.44 | - | V | |
| | I _F = 5.0 A | | | 0.49 | 0.58 | | |
| | I _F = 2.5 A | - T _A = 125 °C | | 0.34 | - | | |
| | I _F = 5.0 A | | | 0.41 | 0.50 | | |
| Reverse current per diode | V 45 V | T _A = 25 °C | I _R ⁽²⁾ | - | 500 | μA | |
| | V _R = 45 V | T _A = 125 °C | | 5 | 15 | 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 noted) | | | | | | |
|--|------------|-----------------------|---------|----------|------|--|
| PARAMETER | | SYMBOL | VT1045C | VIT1045C | UNIT | |
| Typical thermal resistance | per diode | Р | 3.5 | | °C/W | |
| | per device | $R_{	extsf{	heta}JC}$ | 2.5 | | | |

| ORDERING INFORMATION (Example) | | | | | | | |
|--------------------------------|--------------------|-----------------|--------------|---------------|---------------|--|--|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | | |
| TO-220AB | VT1045C-M3/4W | 1.87 | 4W | 50/tube | Tube | | |
| TO-262AA | VIT1045C-M3/4W | 1.45 | 4W | 50/tube | Tube | | |
| TO-220AB | VT1045CHM3/4W (1) | 1.87 | 4W | 50/tube | Tube | | |
| TO-262AA | VIT1045CHM3/4W (1) | 1.45 | 4W | 50/tube | Tube | | |

Note

⁽¹⁾ AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

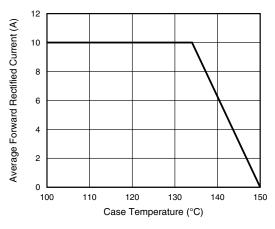


Fig. 1 - Maximum Forward Current Derating Curve

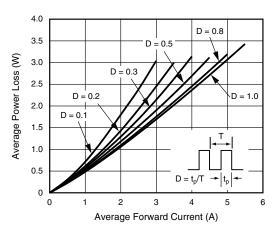


Fig. 2 - Forward Power Loss Characteristics Per Diode

For technical questions within your region, please contact one of the following: <u>DiodesAmericas@vishay.com</u>, <u>DiodesAsia@vishay.com</u>, <u>DiodesEurope@vishay.com</u>

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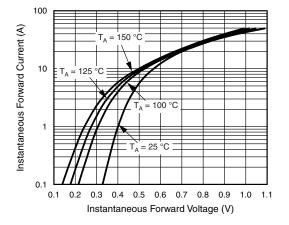


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

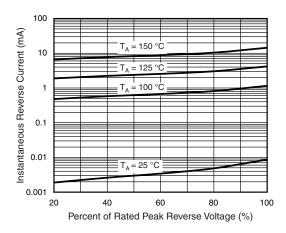


Fig. 4 - Typical Reverse Characteristics Per Diode

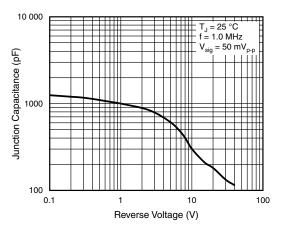


Fig. 5 - Typical Junction Capacitance Per Diode

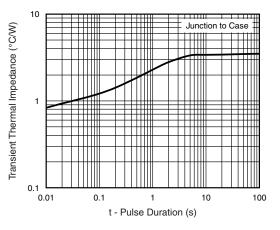


Fig. 6 - Typical Transient Thermal Impedance Per Diode

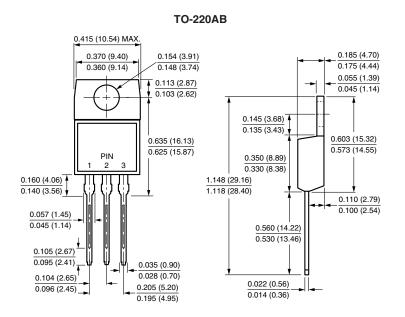
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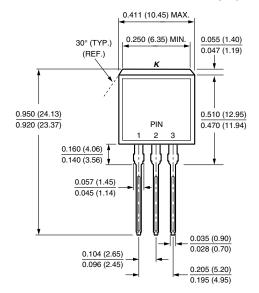
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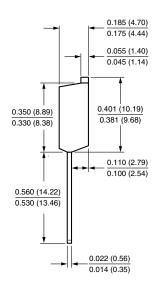


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



TO-262AA





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