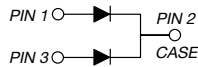
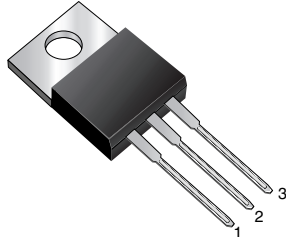


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

TMBS®
TO-220AB

FEATURES

- Trench MOS Schottky technology
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?999912


RoHS
 COMPLIANT
 HALOGEN
FREE
TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters or polarity protection application

MECHANICAL DATA
Case: TO-220AB

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

| PRIMARY CHARACTERISTICS | |
|-------------------------|---------------------|
| $I_{F(AV)}$ | 2 x 5.0 A |
| V_{RRM} | 90 V, 100 V |
| I_{FSM} | 120 A |
| V_F | 0.75 V |
| T_J max. | 150 °C |
| Package | TO-220AB |
| Diode variation | Dual common cathode |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|--------------|------------|------------|
| PARAMETER | SYMBOL | MBR1090CT | MBR10100CT | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 90 | 100 | V |
| Maximum peak reverse voltage | V_{RWM} | 90 | 100 | V |
| Maximum DC blocking voltage | V_{DC} | 90 | 100 | V |
| Maximum average forward rectified current at $T_C = 105\text{ °C}$ | $I_{F(AV)}$ | total device | | A |
| | | per diode | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 120 | | A |
| Voltage rate of change | dV/dt | 10 000 | | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +150 | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | |
|---|----------------------|-------------|-----------------------|------------|---------|
| PARAMETER | TEST CONDITIONS | SYMBOL | MBR1090CT | MBR10100CT | UNIT |
| Maximum instantaneous forward voltage | $I_F = 5.0\text{ A}$ | $V_F^{(1)}$ | $T_A = 125\text{ °C}$ | | V |
| | | | $T_A = 25\text{ °C}$ | | |
| Maximum reverse current per diode at working peak reverse voltage | | $I_R^{(2)}$ | $T_A = 25\text{ °C}$ | | μ A |
| | | | $T_A = 100\text{ °C}$ | | mA |

Notes

(1) Pulse test: 300 μ s pulse width, 1 % duty cycle

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



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | |
|--|-----------------|-----------|------------|--------------------|
| PARAMETER | SYMBOL | MBR1090CT | MBR10100CT | UNIT |
| Typical thermal resistance per diode | $R_{\theta JC}$ | | 4.4 | $^\circ\text{C/W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | MBR10100CT-M3/4W | 1.87 | 4W | 50/tube | Tube |

RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

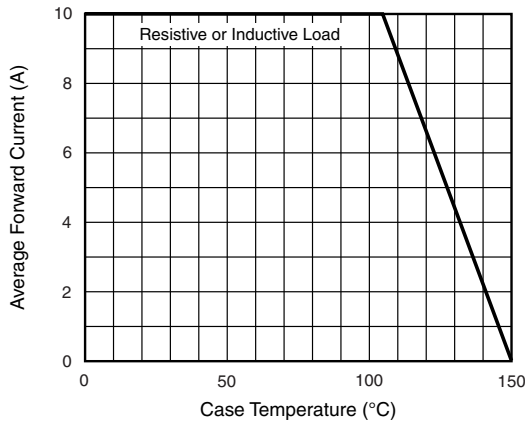


Fig. 1 - Forward Current Derating Curve

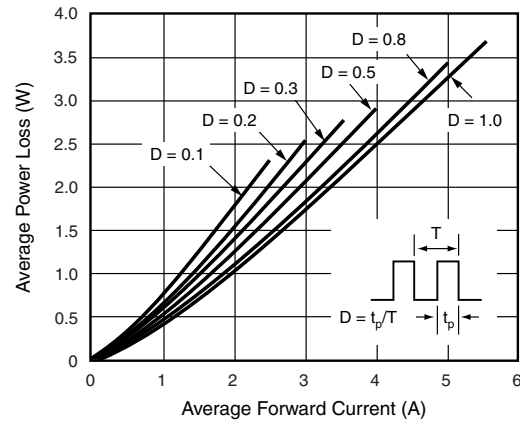


Fig. 3 - Forward Power Loss Characteristics Per Diode

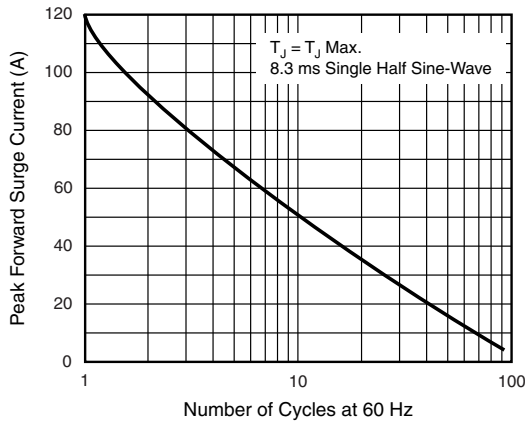


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

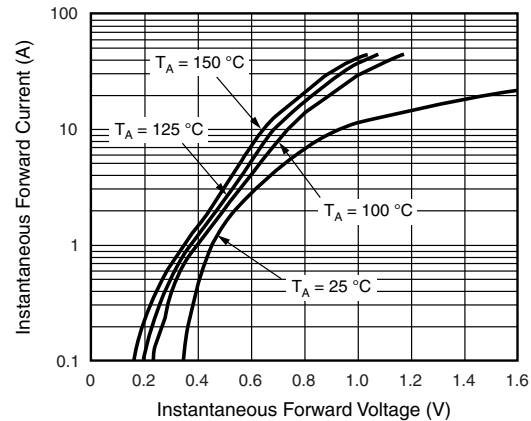


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

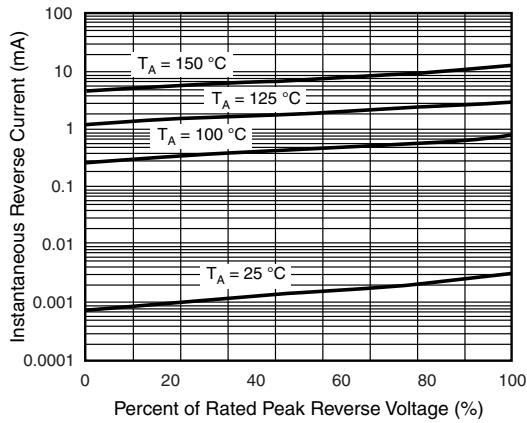


Fig. 5 - Typical Reverse Characteristics Per Diode

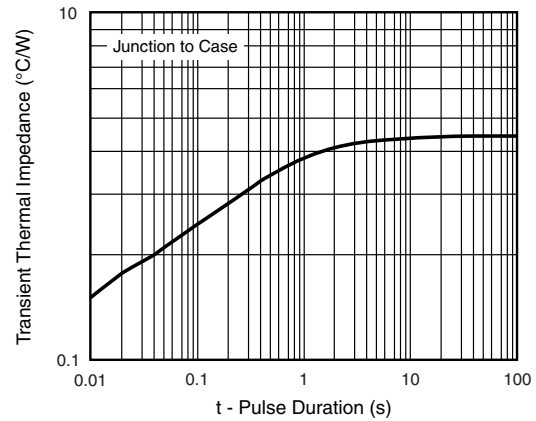


Fig. 7 - Typical Transient Thermal Impedance Per Diode

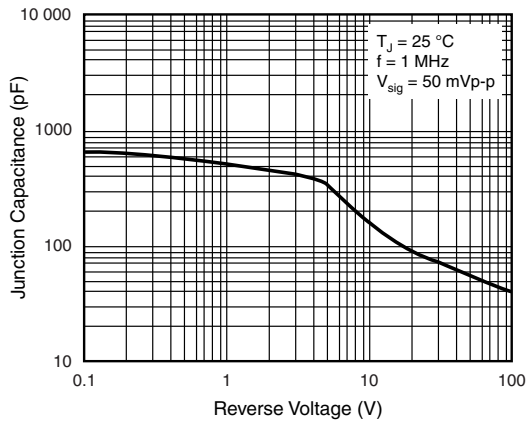
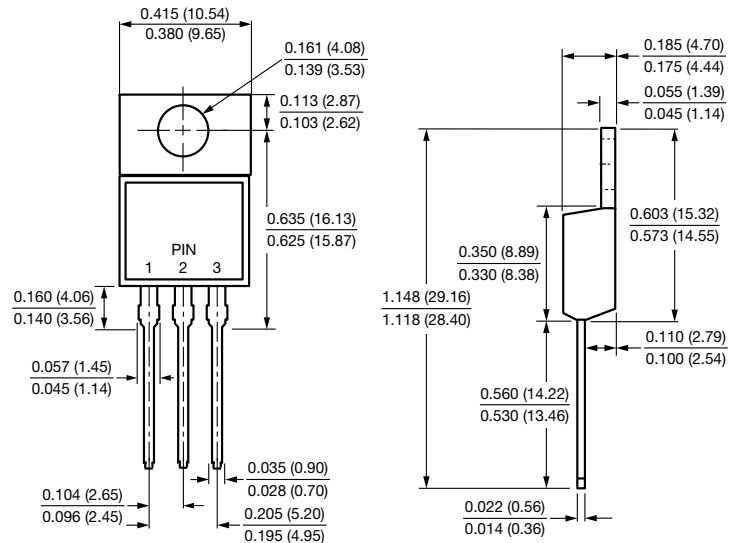


Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB





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