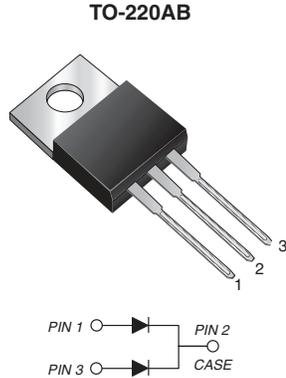


Dual Common Cathode High Voltage Schottky Rectifier



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?99912


RoHS
COMPLIANT

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-E3 - RoHS-compliant, commercial grade

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs max.

| 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 |
| Circuit configurations | Common cathode |

| MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted) | | | | |
|---|----------------|---------------|------------|------------------|
| PARAMETER | SYMBOL | MBR1090CT | MBR10100CT | UNIT |
| Max. repetitive peak reverse voltage | V_{RRM} | 90 | 100 | V |
| Working peak reverse voltage | V_{RWM} | 90 | 100 | V |
| Max. DC blocking voltage | V_{DC} | 90 | 100 | V |
| Max. 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 |
| Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$ per diode | E_{AS} | 60 | | 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} | 0.5 | | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | V/ μs |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 150 | | °C |

| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ °C}$ unless otherwise noted) | | | | | | |
|---|----------------------|-----------------------|-----------|-----------|------------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | MBR1090CT | MBR10100CT | UNIT |
| Maximum instantaneous forward voltage per diode | $I_F = 5.0\text{ A}$ | $T_C = 125\text{ °C}$ | V_F (1) | 0.75 | | V |
| | $I_F = 5.0\text{ A}$ | $T_C = 25\text{ °C}$ | | 0.85 | | |
| Maximum reverse current per diode at working peak reverse voltage | | | I_R (2) | 100 | | μA |
| | | | | 6.0 | | mA |

Notes

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

(2) Pulse test: Pulse width $\leq 40\text{ ms}$



| THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ 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-E3/4W | 1.87 | 4W | 50/tube | Tube |

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

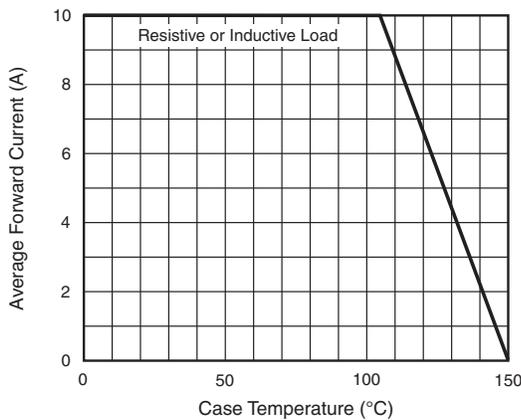


Fig. 1 - Forward Current Derating Curve

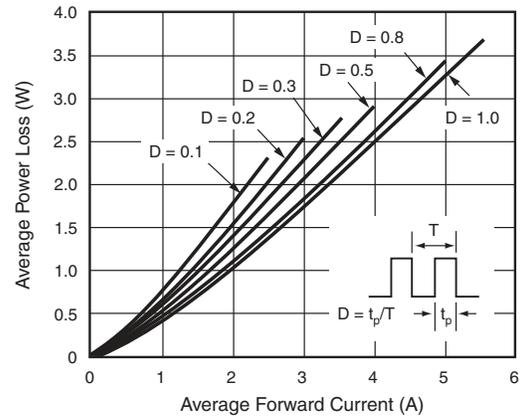


Fig. 3 - Forward Power Loss Characteristics Per Diode

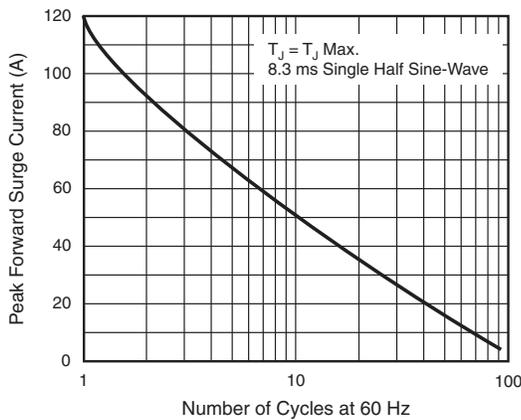


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

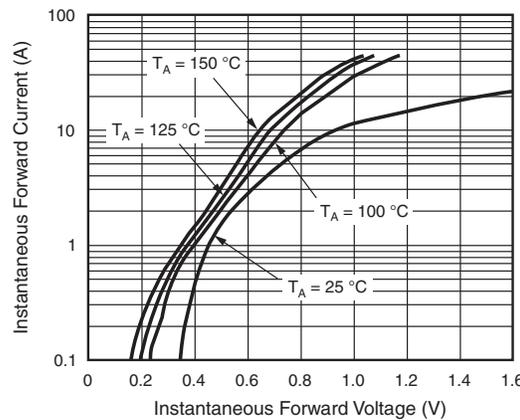


Fig. 4 - Typical Instantaneous Forward Characteristics Per Diode

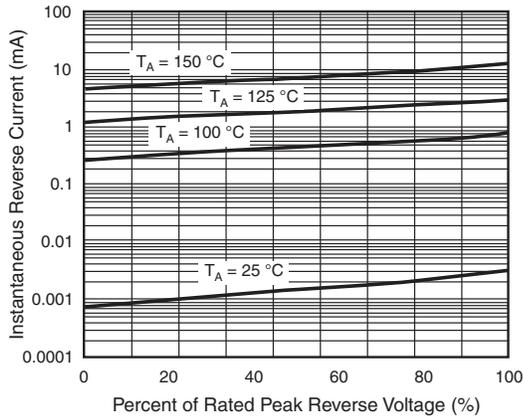


Fig. 5 - Typical Reverse Characteristics Per Diode

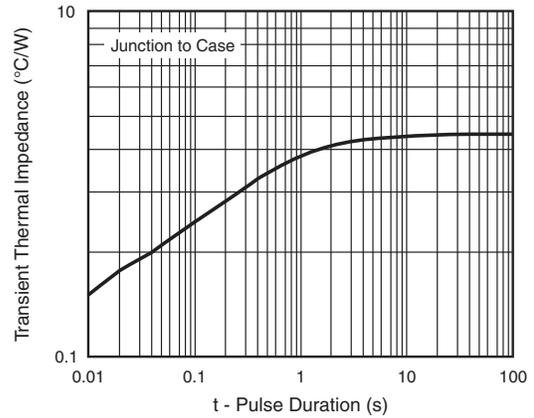


Fig. 7 - Typical Transient Thermal Impedance Per Diode

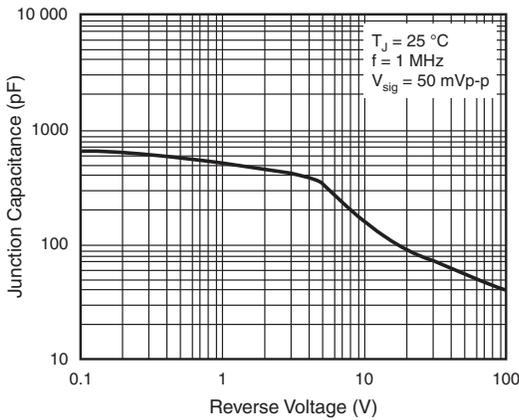
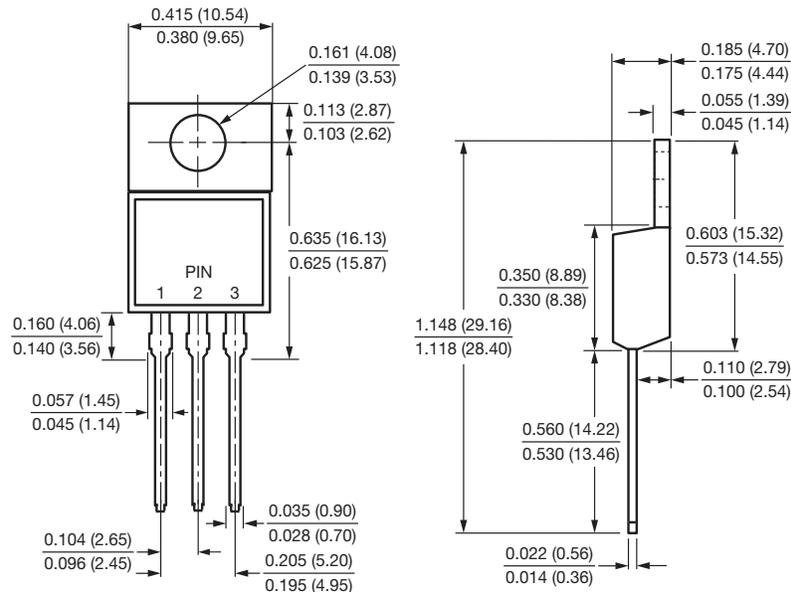


Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB







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