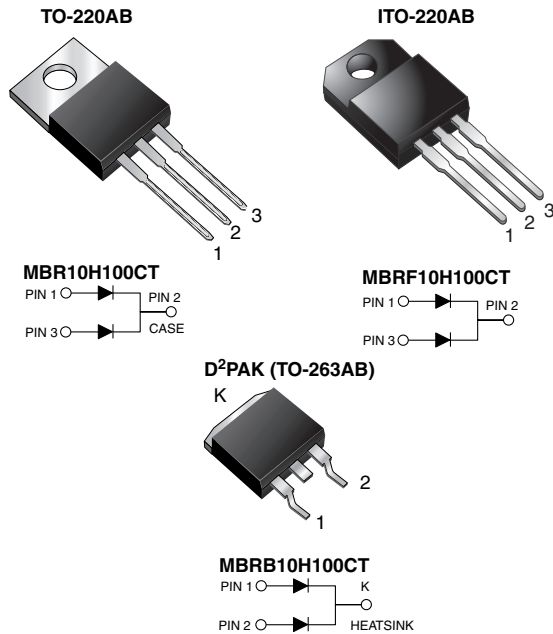




Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



RoHS
COMPLIANT
HALOGEN
FREE
Available

FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | |
|-------------------------|--|
| $I_{F(AV)}$ | 2 x 5 A |
| V_{RRM} | 100 V |
| I_{FSM} | 150 A |
| V_F | 0.61 V |
| I_R | 3.5 μ A |
| T_J max. | 175 °C |
| Package | TO-220AC, ITO-220AC, D ² PAK (TO-263AB) |
| Circuit configurations | Common cathode |

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - RoHS-compliant, Halogen free, commercial grade

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

E3 and M3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | MBR10H100CT MBRF10H100CT MBRB10H100CT | UNIT |
|--|----------------|---|------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | V |
| Working peak reverse voltage | V_{RWM} | 100 | |
| Maximum DC blocking voltage | V_{DC} | 100 | |
| Maximum average forward rectified current at $T_C = 105$ °C | $I_{F(AV)}$ | 10 5.0 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 150 | |
| Peak repetitive reverse current per diode at $t_p = 2.0$ μ s, 1 kHz | I_{RRM} | 0.5 | |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +175 | °C |
| Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1$ min | V_{AC} | 1500 | V |

**ELECTRICAL CHARACTERISTICS** ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUE | UNIT |
|---|-------------|---------------------|-------------------------------------|-------|---------------|
| Maximum instantaneous forward voltage per diode | $V_F^{(1)}$ | $I_F = 5\text{ A}$ | $T_J = 25\text{ }^{\circ}\text{C}$ | 0.76 | V |
| | | $I_F = 5\text{ A}$ | $T_J = 125\text{ }^{\circ}\text{C}$ | 0.61 | |
| | | $I_F = 10\text{ A}$ | $T_J = 25\text{ }^{\circ}\text{C}$ | 0.85 | |
| | | $I_F = 10\text{ A}$ | $T_J = 125\text{ }^{\circ}\text{C}$ | 0.71 | |
| Maximum reverse current per diode | $I_R^{(1)}$ | Rated V_R | $T_J = 25\text{ }^{\circ}\text{C}$ | 3.5 | μA |
| | | | $T_J = 100\text{ }^{\circ}\text{C}$ | 4.5 | 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 | MBR10H100CT | MBRF10H100CT | MBRB10H100CT | UNIT |
|--------------------------------------|-----------------|-------------|--------------|--------------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.2 | 5.2 | 2.2 | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-------------------------------|--------------------|-----------------|--------------|---------------|---------------|
| TO-220AB | MBR10H100CT-E3/45 | 1.85 | 45 | 50/tube | Tube |
| ITO-220AB | MBRF10H100CT-E3/45 | 1.79 | 45 | 50/tube | Tube |
| D ² PAK (TO-263AB) | MBRB10H100CT-M3/I | 1.35 | I | 800/reel | Tape and reel |

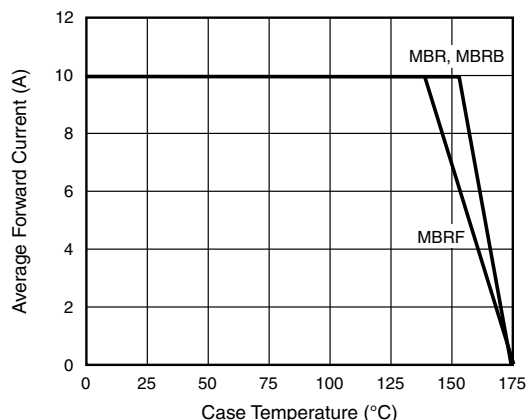
RATINGS AND CHARACTERISTICS CURVES ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve Per Diode

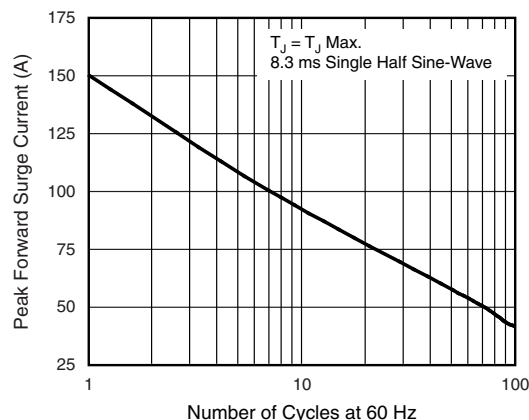


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

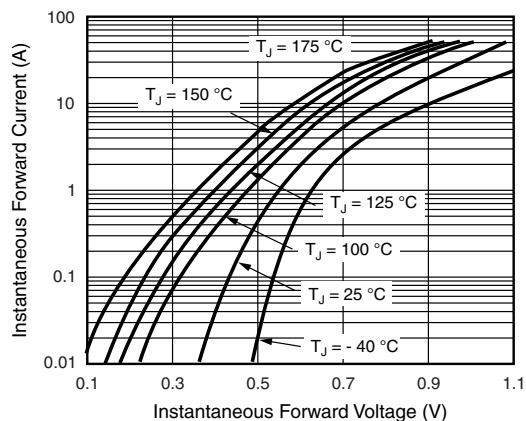


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

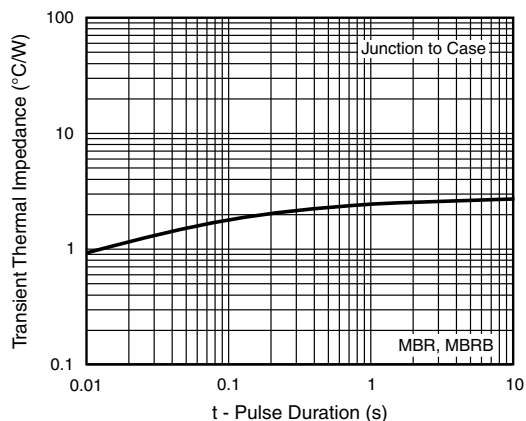


Fig. 6 - Typical Transient Thermal Impedance Per Diode

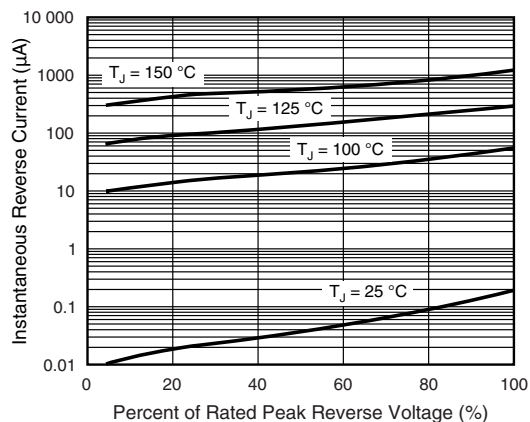


Fig. 4 - Typical Reverse Characteristics Per Diode

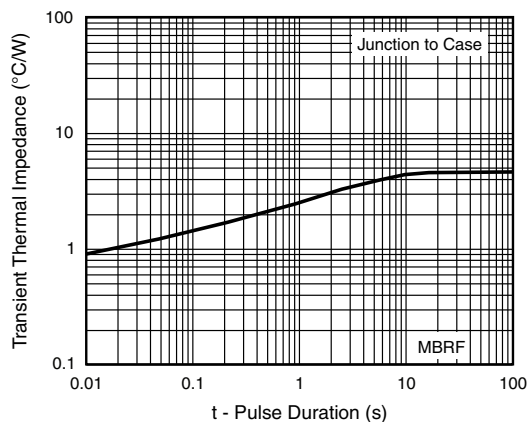


Fig. 7 - Typical Transient Thermal Impedance Per Diode

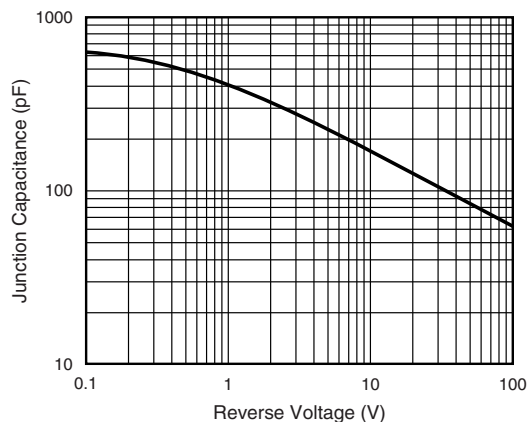
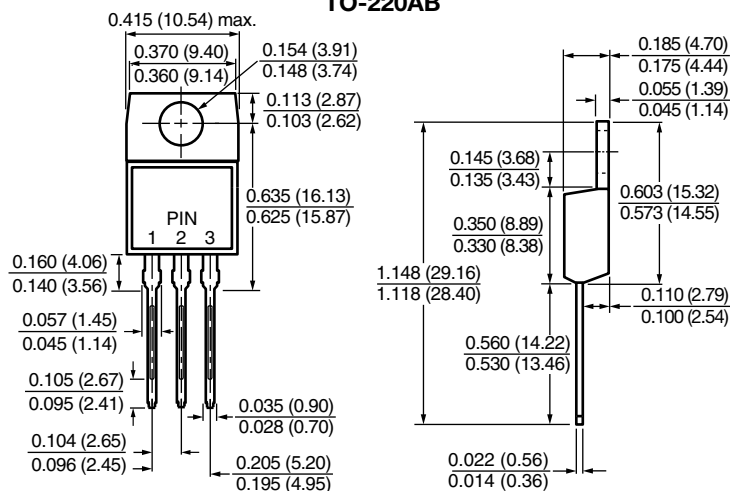


Fig. 5 - Typical Junction Capacitance Per Diode

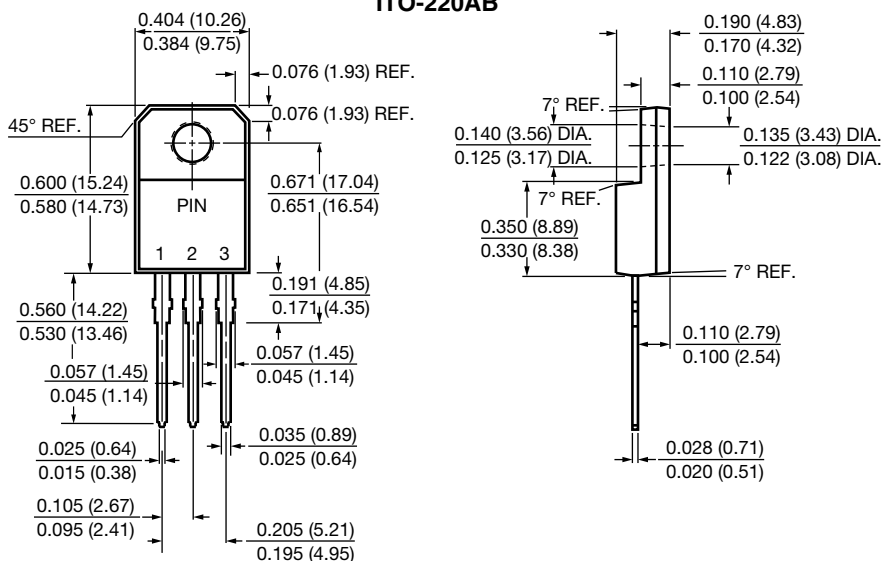


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

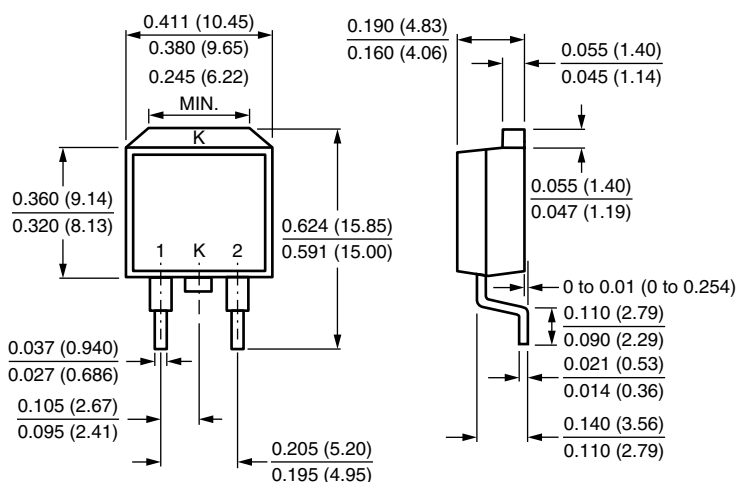
TO-220AB



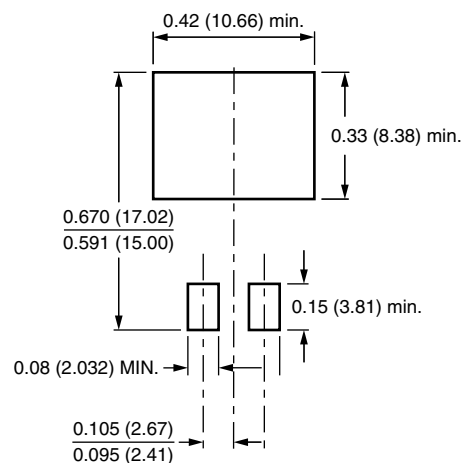
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout





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