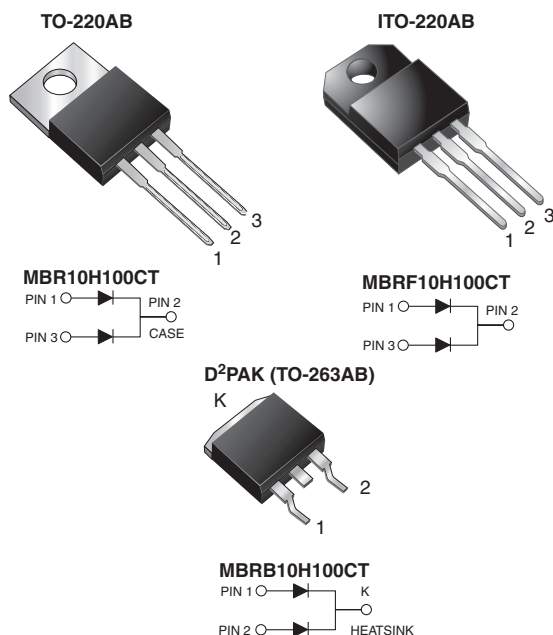




## Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



## 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](http://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, and polarity protection application.

## DESIGN SUPPORT TOOLS

[click logo to get started](#)
**3D**  
Models  
Available

## MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, D<sup>2</sup>PAK (TO-263AB)

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 maximum

## 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 $\mu$ A                                        |
| $T_J$ max.             | 175 °C                                             |
| Package                | TO-220AC, ITO-220AC, D <sup>2</sup> PAK (TO-263AB) |
| Circuit configurations | Common cathode                                     |

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

| PARAMETER                                                                                    | SYMBOL         | MBR10H100CT | 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          | A    |
| total device                                                                                 |                | 5.0         |      |
| per diode                                                                                    |                | 5.0         |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 150         | A    |
| Peak repetitive reverse current per diode at $t_p = 2.0$ $\mu$ s, 1 kHz                      | $I_{RRM}$      | 0.5         |      |
| Voltage rate of change (rated $V_R$ )                                                        | $dV/dt$        | 10 000      |      |
| 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   | $\mu\text{A}$ |
|                                                                                         |             |                     | $T_J = 100\text{ }^{\circ}\text{C}$ | 4.5   | mA            |

## Notes

(1) Pulse test: 300  $\mu\text{s}$  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          | MBR | MBRF | MBRB | UNIT                 |
| Typical thermal resistance per diode                                                 | $R_{\theta JC}$ | 2.2 | 5.2  | 2.2  | $^{\circ}\text{C/W}$ |

| ORDERING INFORMATION (Example) |                    |                 |              |               |               |
|--------------------------------|--------------------|-----------------|--------------|---------------|---------------|
| 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          |
| TO-263AB                       | MBRB10H100CT-E3/45 | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                       | MBRB10H100CT-E3/81 | 1.35            | 81           | 800/reel      | Tape and reel |

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

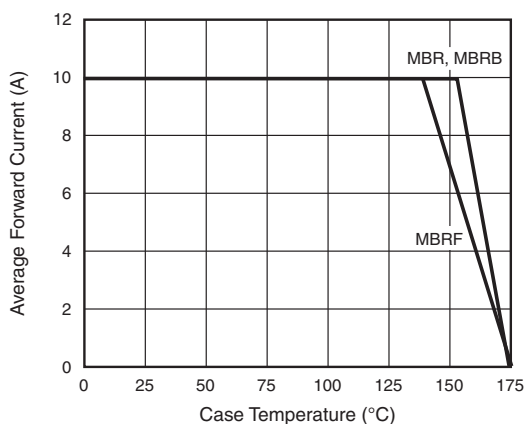


Fig. 1 - Forward Current Derating Curve Per Diode

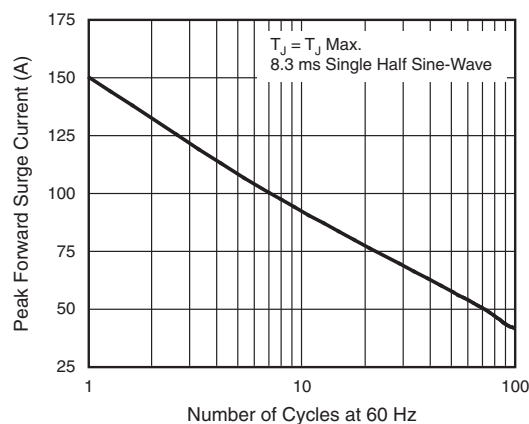


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

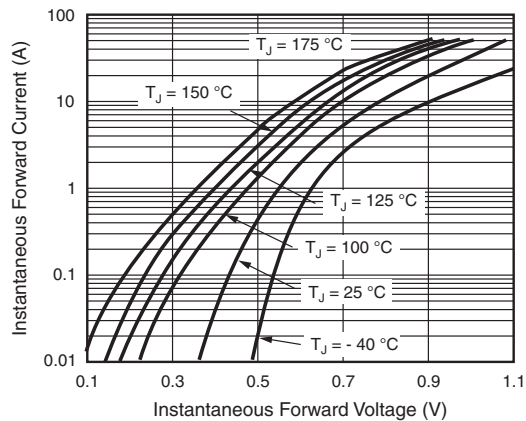


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

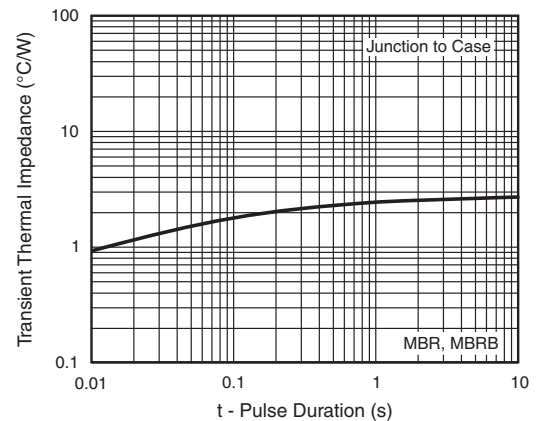


Fig. 6 - Typical Transient Thermal Impedance Per Diode

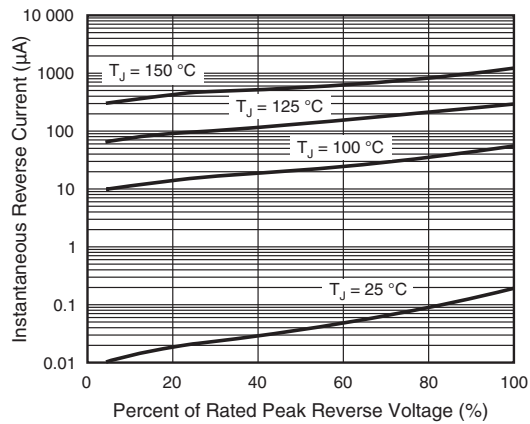


Fig. 4 - Typical Reverse Characteristics Per Diode

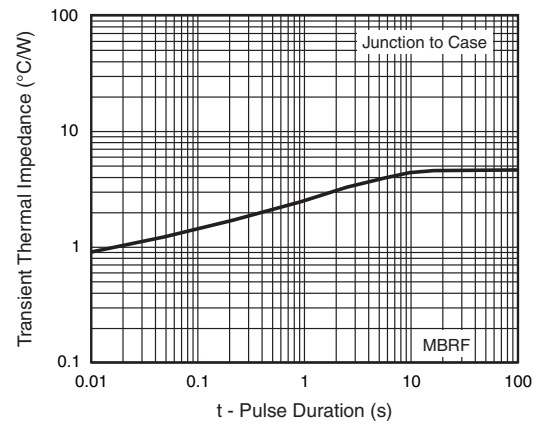


Fig. 7 - Typical Transient Thermal Impedance Per Diode

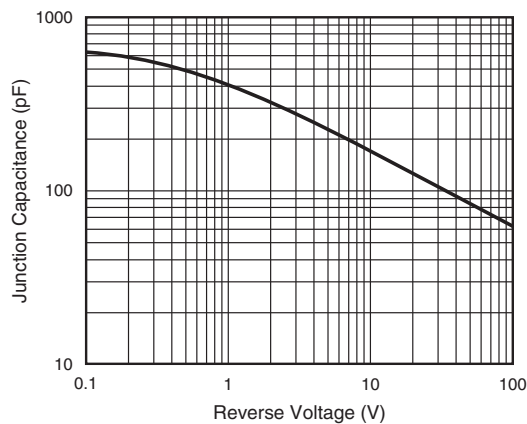
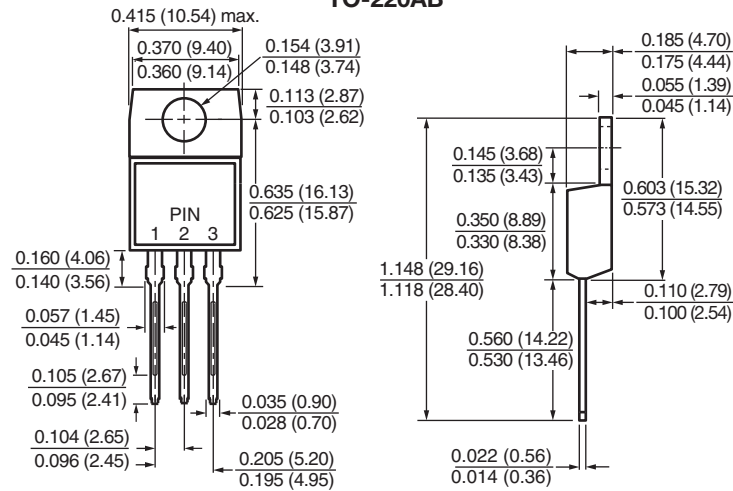


Fig. 5 - Typical Junction Capacitance Per Diode

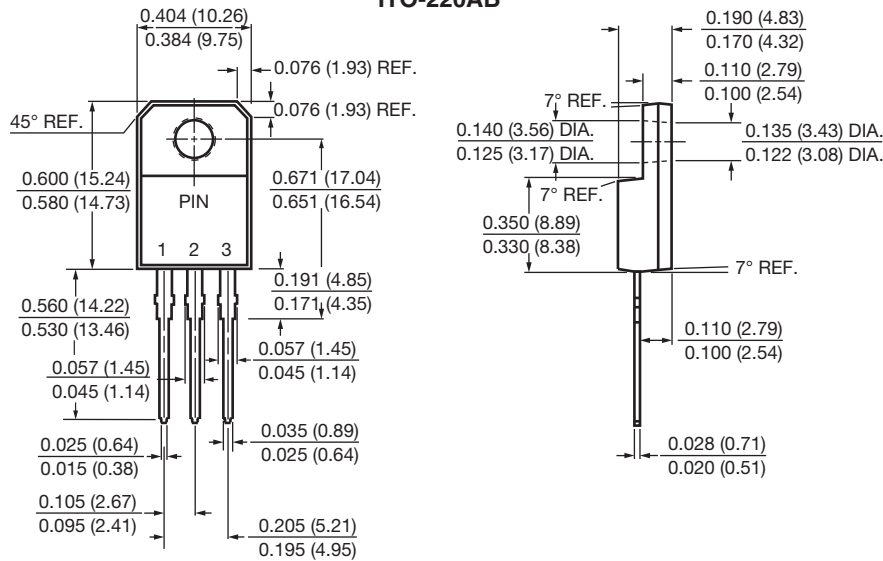


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

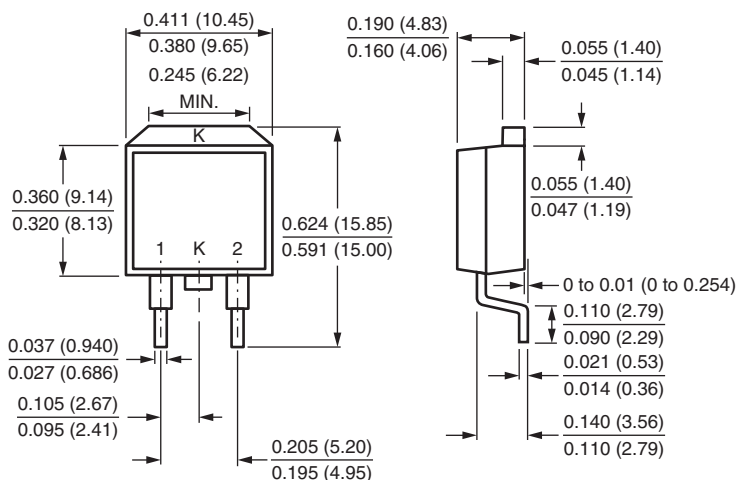
TO-220AB



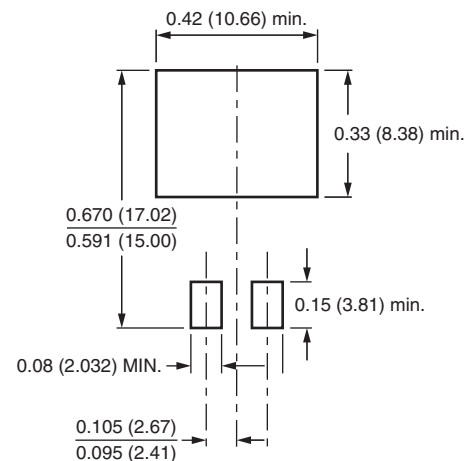
ITO-220AB



D<sup>2</sup>PAK (TO-263AB)



Mounting Pad Layout





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