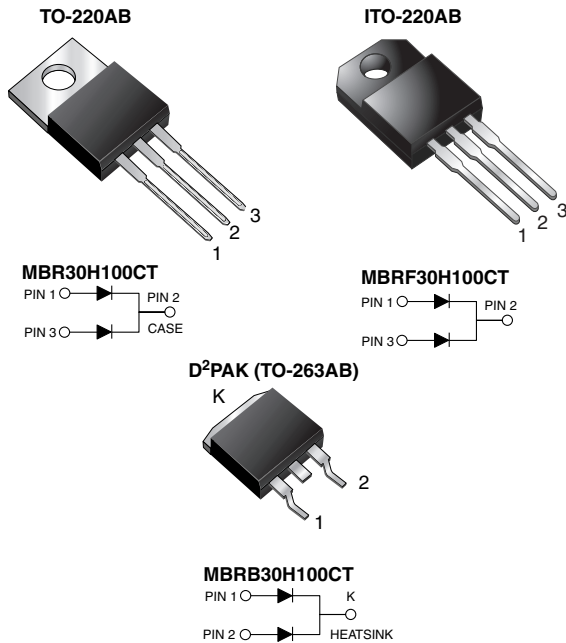


# Dual Common Cathode High Voltage Schottky Rectifier

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  
 HALOGEN  
**FREE**  
 Available

## TYPICAL APPLICATIONS

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

## 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

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

## LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS |  |
|-------------------------|--|
| $I_{F(AV)}$             | 2 x 15 A   |
| $V_{RRM}$               | 100 V  |
| $I_{FSM}$               | 275 A  |
| $V_F$                   | 0.67 V   |
| $I_R$                   | 5.0 $\mu$ A  |
| $T_J$ max.              | 175 °C   |
| Package                 | TO-220AB, ITO-220AB, D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration   | Common cathode                                     |

| MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)                                      |                |   |            |
|--|----------------|---|------------|
| PARAMETER  | SYMBOL         | MBR30H100CT<br>MBRF30H100CT<br>MBRB30H100CT | 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 (fig.1)  | total device   | 30  | A          |
|  | per diode      | 15  |            |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 275   |            |
| Peak repetitive reverse surge current per diode at $t_p = 2.0$ $\mu$ s, 1 kHz                | $I_{RRM}$      | 1.0   |            |
| Voltage rate of change (rated $V_R$ )  | dV/dt          | 10 000                                      | V/ $\mu$ 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 <sub>C</sub> = 25 °C unless otherwise noted) |                    |                       |                         |       |      |
|--|--------------------|-----------------------|-------------------------|-------|------|
| PARAMETER  | SYMBOL             | TEST CONDITIONS       |                         | VALUE | UNIT |
| Maximum instantaneous forward voltage per diode                            | V <sub>F</sub> (1) | I <sub>F</sub> = 15 A | T <sub>J</sub> = 25 °C  | 0.82  | V    |
|  |                    | I <sub>F</sub> = 15 A | T <sub>J</sub> = 125 °C | 0.67  |      |
|  |                    | I <sub>F</sub> = 30 A | T <sub>J</sub> = 25 °C  | 0.93  |      |
|  |                    | I <sub>F</sub> = 30 A | T <sub>J</sub> = 125 °C | 0.80  |      |
| Maximum reverse current per diode  | I <sub>R</sub> (2) | Rated V <sub>R</sub>  | T <sub>J</sub> = 25 °C  | 5.0   | μA   |
|  |                    |                       | T <sub>J</sub> = 125 °C | 6.0   | mA   |

**Note**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width, ≤ 40 ms

| THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted) |                  |             |              |              |      |
|---|------------------|-------------|--------------|--------------|------|
| PARAMETER   | SYMBOL           | MBR30H100CT | MBRF30H100CT | MBRB30H100CT | UNIT |
| Typical thermal resistance per diode                                    | R <sub>θJC</sub> | 1.9         | 4.6          | 1.9          | °C/W |

| ORDERING INFORMATION          |                    |                 |              |               |               |
|-------------------------------|--------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                       | PREFERRED P/N      | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                      | MBR30H100CT-E3/45  | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                     | MBRF30H100CT-E3/45 | 1.99            | 45           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB) | MBRB30H100CT-M3/I  | 1.35            | I            | 800/reel      | Tape and reel |



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

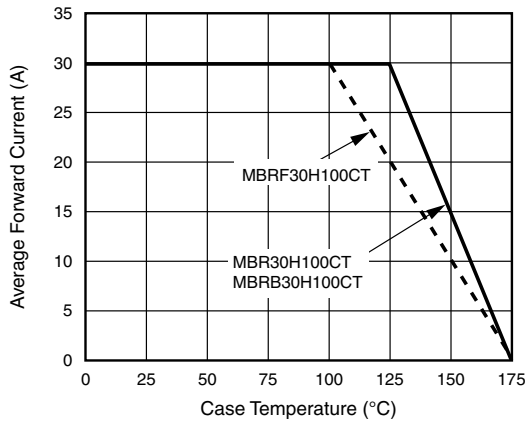


Fig. 1 - Forward Derating Curve Per Diode

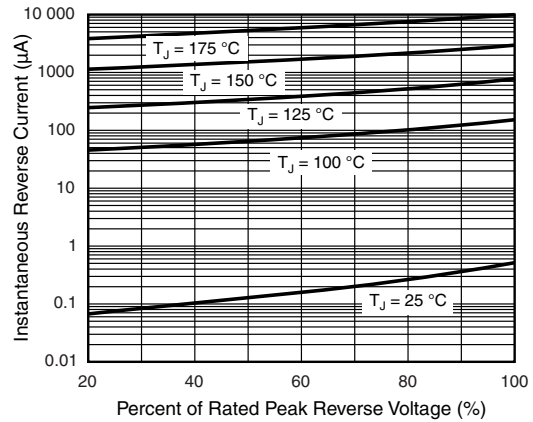


Fig. 4 - Typical Reverse Characteristics Per Diode

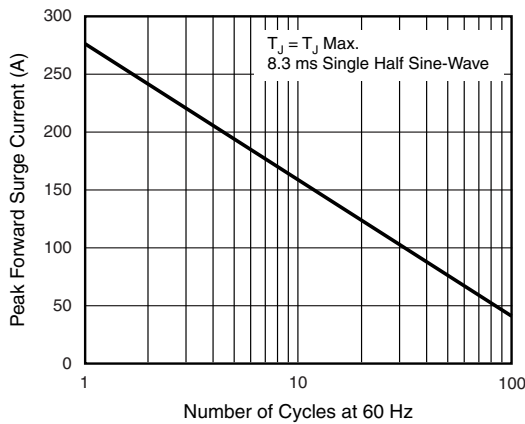


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

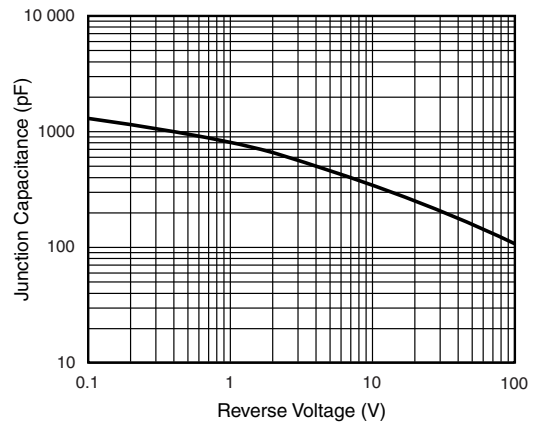


Fig. 5 - Typical Junction Capacitance Per Diode

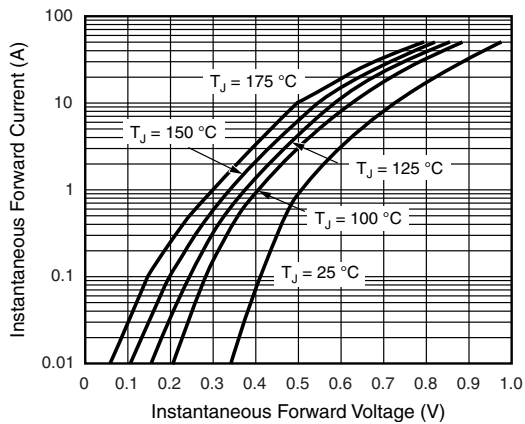


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

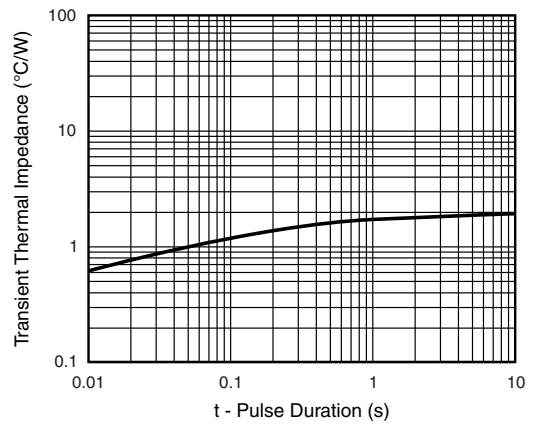
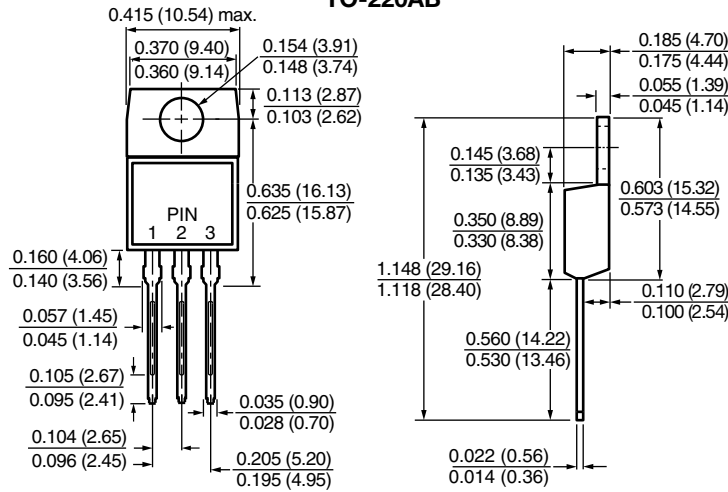


Fig. 6 - Typical Transient Thermal Impedance Per Diode

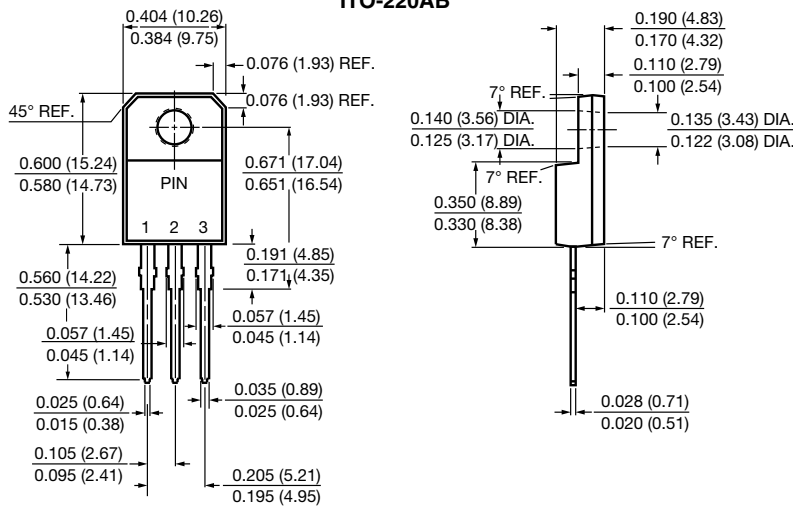


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

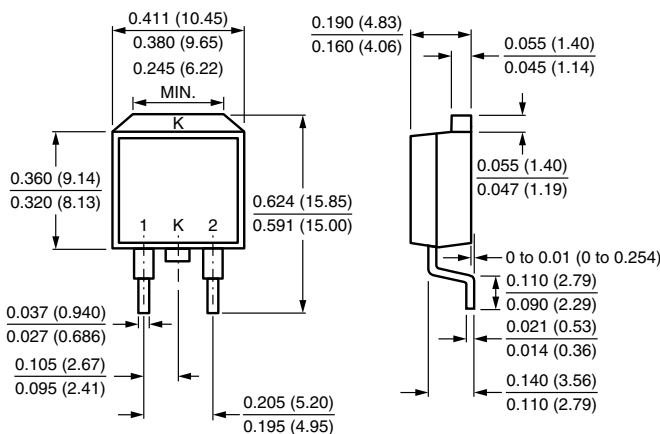
### TO-220AB



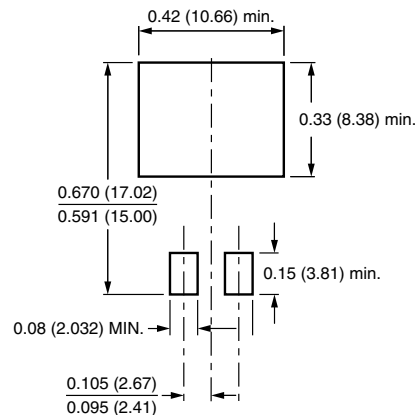
### ITO-220AB



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



### Mounting Pad Layout





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