

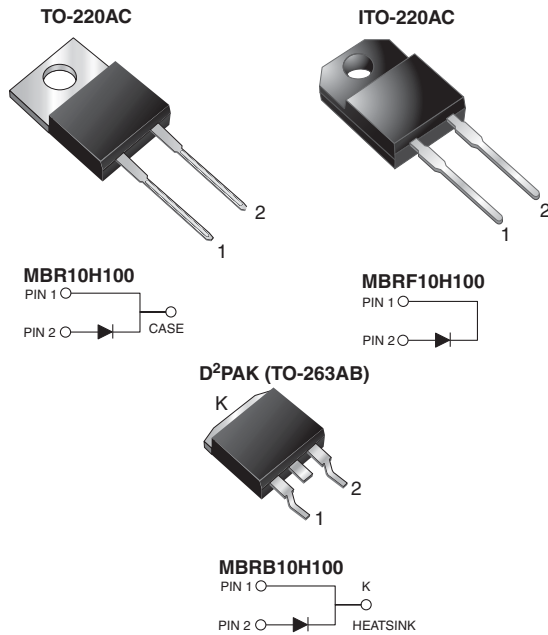


**THE DATASHEET OF  
MBRF10H150CT-E3/45**



## 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-220AC and ITO-220AC 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, or polarity protection application.

### DESIGN SUPPORT TOOLS

[click logo to get started](#)

**3D**  
Models  
Available

### MECHANICAL DATA

**Case:** TO-220AC, ITO-220AC, 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 |  |
|-------------------------|--|
| $I_{F(AV)}$             | 10 A   |
| $V_{RRM}$               | 100 V  |
| $I_{FSM}$               | 250 A  |
| $V_F$                   | 0.64 V   |
| $I_R$                   | 4.5 $\mu$ A  |
| $T_J$ max.              | 175 °C   |
| Package                 | TO-220AC, ITO-220AC, D <sup>2</sup> PAK (TO-263AB) |
| Circuit configurations  | Single   |

| MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)                            |                |             |            |
|--|----------------|-------------|------------|
| PARAMETER  | SYMBOL         | MBR10H100   | 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  | $I_{F(AV)}$    | 10          | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 250         |            |
| Peak repetitive reverse current at $t_p = 2.0$ $\mu$ s, 1 kHz                      | $I_{RRM}$      | 0.5         |            |
| 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-220AC only) from terminal to heatsink $t = 1$ min           | $V_{AC}$       | 1500        | V          |



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) |             |                     |                                   |       |               |
|--|-------------|---------------------|-----------------------------------|-------|---------------|
| PARAMETER  | SYMBOL      | TEST CONDITIONS     |                                   | VALUE | UNIT          |
| Maximum instantaneous forward voltage  | $V_F^{(1)}$ | $I_F = 10\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$  | 0.77  | V             |
|  |             | $I_F = 10\text{ A}$ | $T_C = 125\text{ }^\circ\text{C}$ | 0.64  |               |
|  |             | $I_F = 20\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$  | 0.88  |               |
|  |             | $I_F = 20\text{ A}$ | $T_C = 125\text{ }^\circ\text{C}$ | 0.73  |               |
| Maximum reverse current  | $I_R^{(2)}$ | Rated $V_R$         | $T_J = 25\text{ }^\circ\text{C}$  | 4.5   | $\mu\text{A}$ |
|  |             |                     | $T_J = 125\text{ }^\circ\text{C}$ | 6.0   | mA            |

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |     |      |      |                    |
|---|-----------------|-----|------|------|--------------------|
| PARAMETER   | SYMBOL          | MBR | MBRF | MBRB | UNIT               |
| Typical thermal resistance  | $R_{\theta JC}$ | 2.7 | 5.8  | 2.7  | $^\circ\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (Example) |                  |                 |              |               |               |
|---------------------------------------|------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N    | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC                              | MBR10H100-E3/45  | 1.80            | 45           | 50/tube       | Tube          |
| ITO-220AC                             | MBRF10H100-E3/45 | 1.94            | 45           | 50/tube       | Tube          |
| TO-263AB                              | MBRB10H100-E3/45 | 1.33            | 45           | 50/tube       | Tube          |
| TO-263AB                              | MBRB10H100-E3/81 | 1.33            | 81           | 800/reel      | Tape and reel |



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

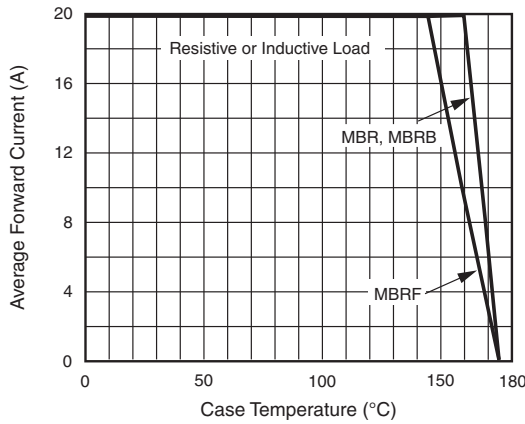


Fig. 1 - Forward Current Derating Curve

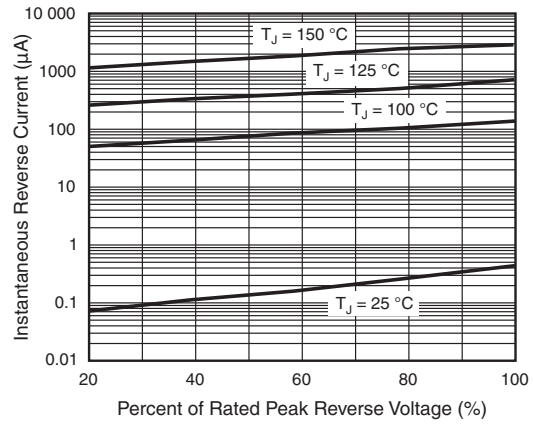


Fig. 4 - Typical Reverse Characteristics

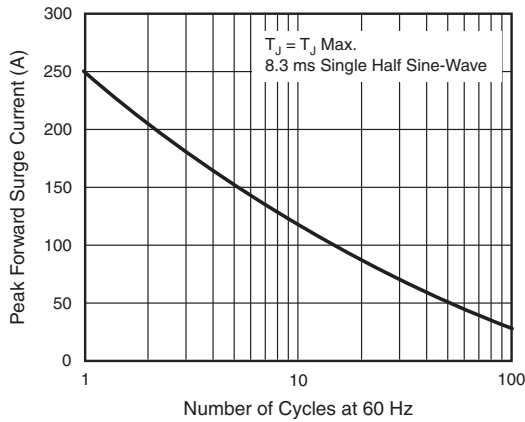


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

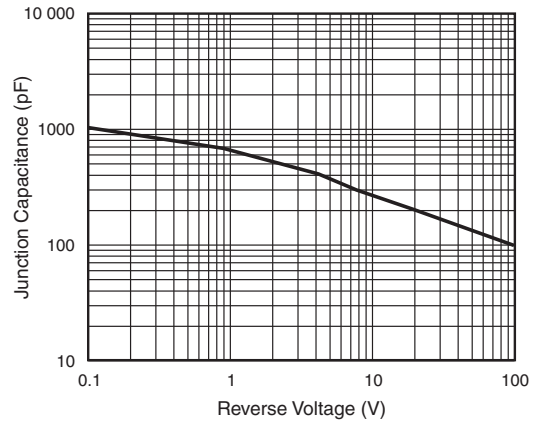


Fig. 5 - Typical Junction Capacitance

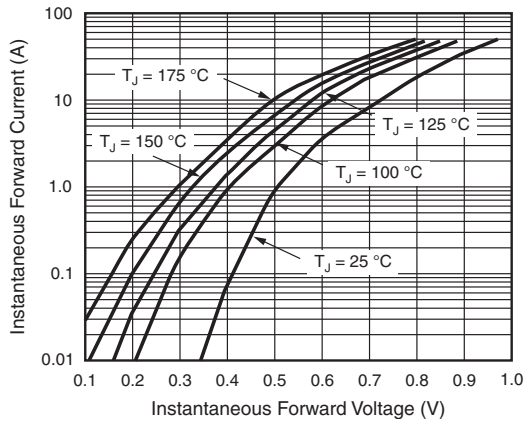


Fig. 3 - Typical Instantaneous Forward Characteristics

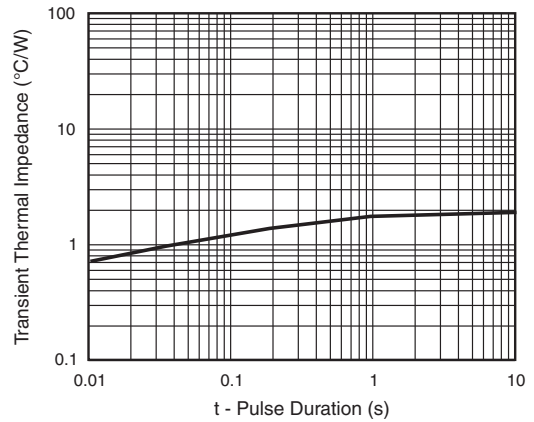
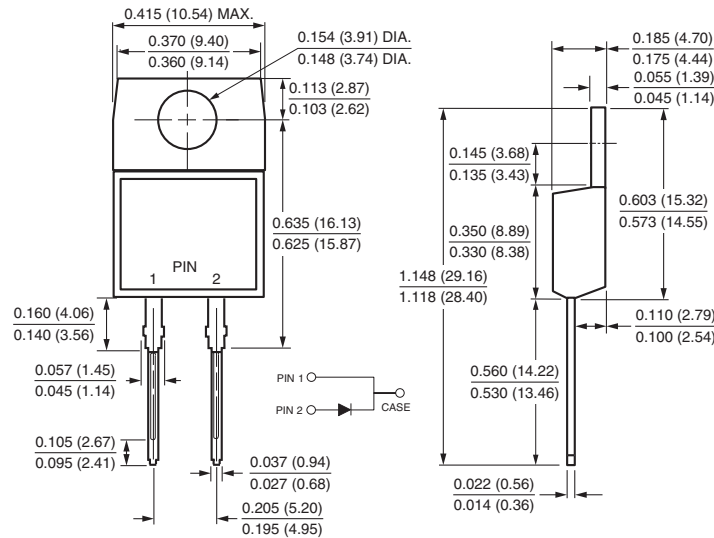


Fig. 6 - Typical Transient Thermal Impedance

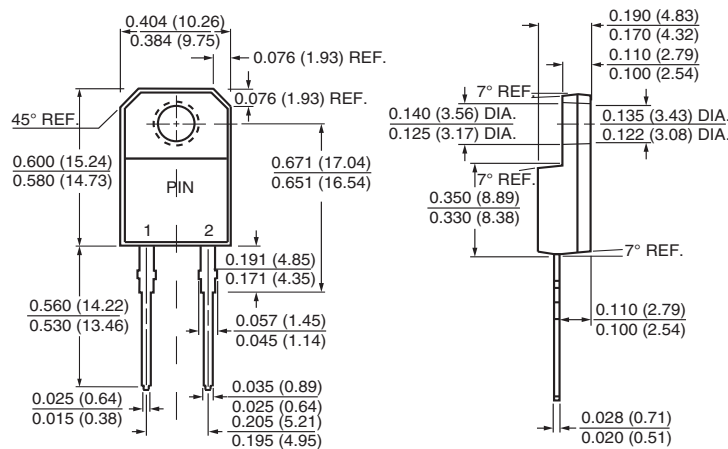


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

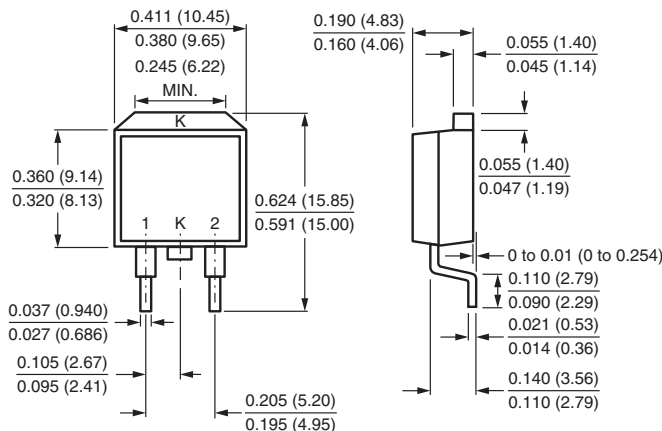
### TO-220AC



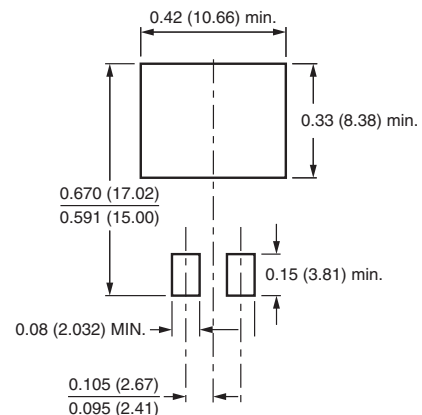
### ITO-220AC



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



### Mounting Pad Layout





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