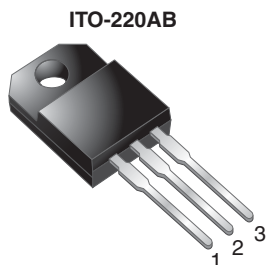


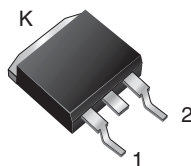
# Dual Common Cathode High Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

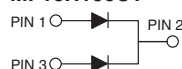


ITO-220AB

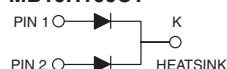
D<sup>2</sup>PAK (TO-263AB)



MF10H100CT



MB10H100CT



## 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 D<sup>2</sup>PAK (TO-263AB) package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for ITO-220AB package)
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

## 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               | ITO-220AB, D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration | Common cathode                           |

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

Molding compound meets UL 94 V-0 flammability rating  
Base P/NHE3\_X - RoHS-compliant, AEC-Q101 qualified  
("X" denotes revision code e.g. A, B, ....)

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

HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** as marked

**Mounting Torque:** 10 in-lbs maximum

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

| PARAMETER                                                                                    | SYMBOL         | MB10H100CT  | 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          |
|                                                                                              |                | 5.0         |            |
| 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 $t_p = 2.0$ $\mu$ 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-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          | MB  | MF  | UNIT                 |
|--------------------------------------|-----------------|-----|-----|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.2 | 5.2 | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE   | PREFERRED P/N                    | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------|----------------------------------|-----------------|--------------|---------------|---------------|
| ITO-220AB | MF10H100CTHE3_B/P <sup>(1)</sup> | 1.79            | P            | 50/tube       | Tube          |
| TO-263AB  | MB10H100CTHE3_B/P <sup>(1)</sup> | 1.35            | P            | 50/tube       | Tube          |
| TO-263AB  | MB10H100CTHE3_B/I <sup>(1)</sup> | 1.35            | I            | 800/reel      | Tape and reel |

**Note**

(1) AEC-Q101 qualified

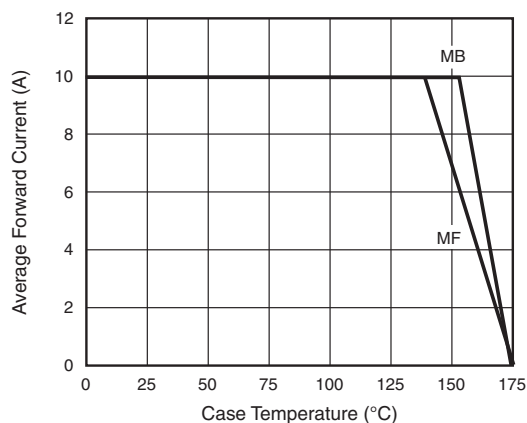
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve Per Diode

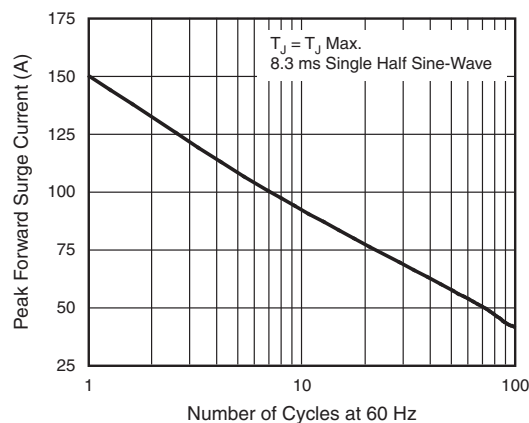


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

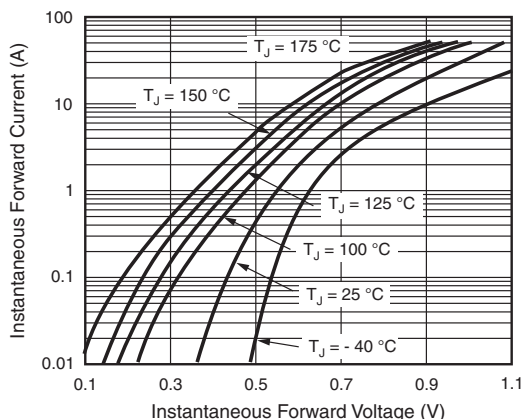


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

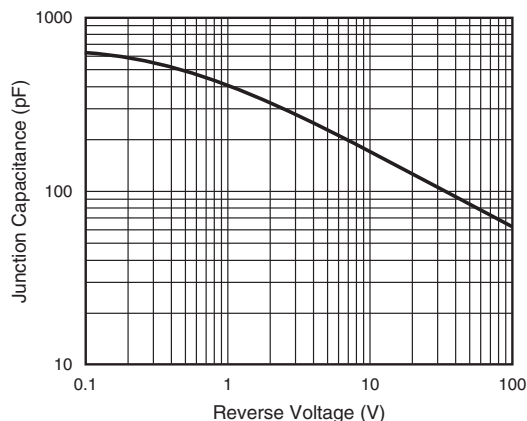


Fig. 5 - Typical Junction Capacitance Per Diode

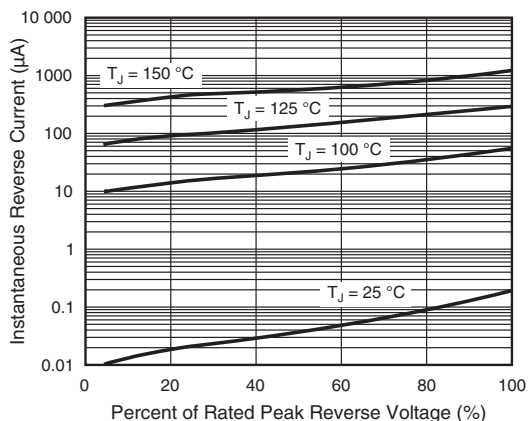


Fig. 4 - Typical Reverse Characteristics Per Diode

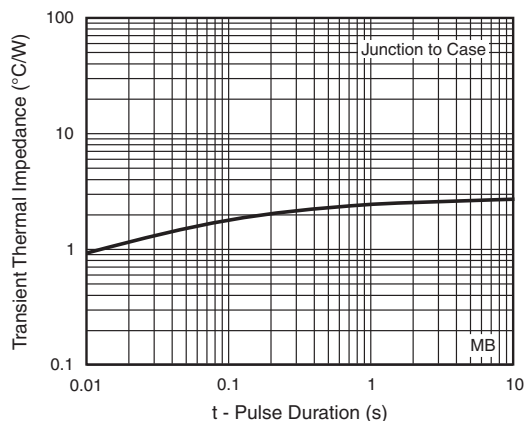


Fig. 6 - Typical Transient Thermal Impedance Per Diode

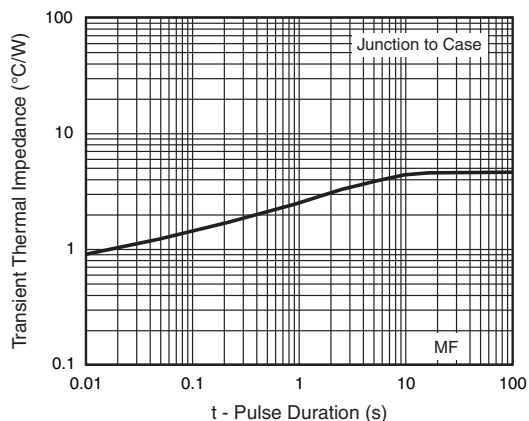
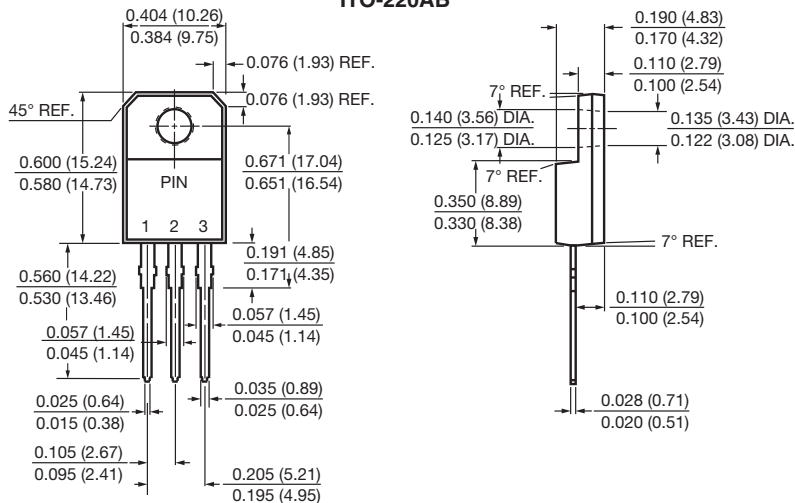


Fig. 7 - Typical Transient Thermal Impedance Per Diode

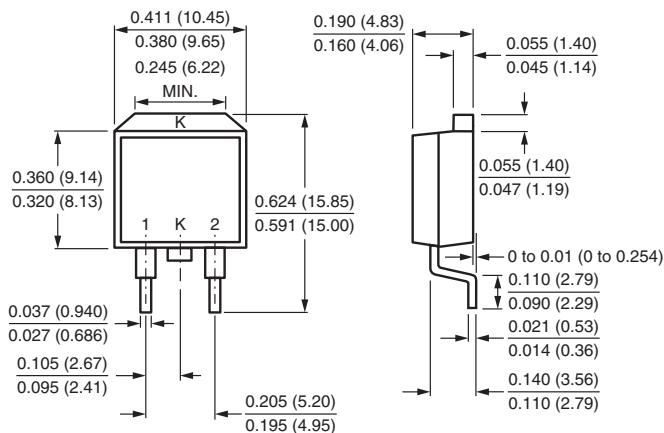


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

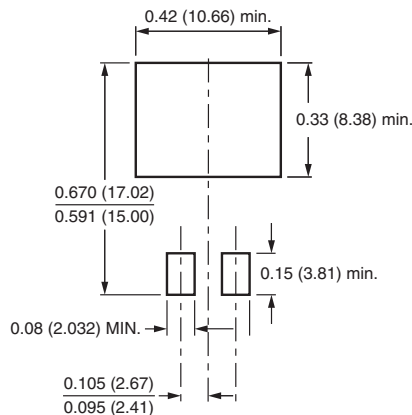
ITO-220AB



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



Mounting Pad Layout





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