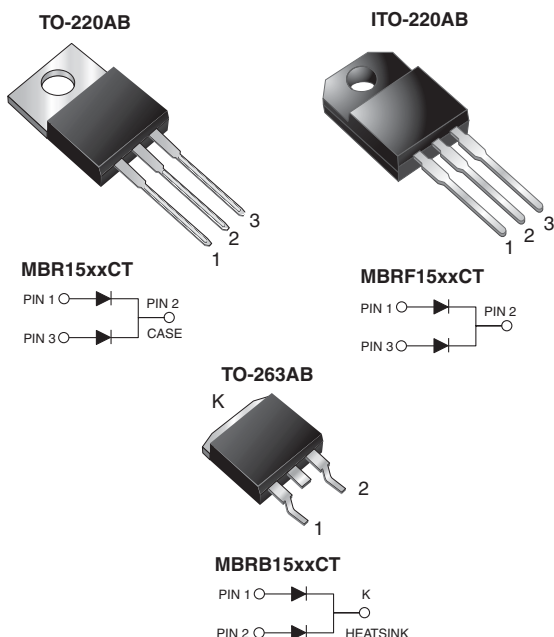
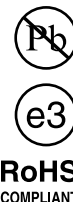


## Dual Common Cathode Schottky Rectifier



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- 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)
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, TO-263AB

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

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

### PRIMARY CHARACTERISTICS

|                  |                               |
|------------------|-------------------------------|
| $I_{F(AV)}$      | 2 x 7.5 A                     |
| $V_{RRM}$        | 35 V to 60 V                  |
| $I_{FSM}$        | 150 A                         |
| $V_F$            | 0.57 V, 0.65 V                |
| $T_J$ max.       | 150 °C                        |
| Package          | TO-220AB, ITO-220AB, TO-263AB |
| Diode variations | Dual Common Cathode           |

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

| PARAMETER   | SYMBOL             | MBR1535CT     | MBR1545CT | MBR1550CT | MBR1560CT | UNIT |
|---|--------------------|---------------|-----------|-----------|-----------|------|
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>   | 35            | 45        | 50        | 60        | V    |
| Working peak reverse voltage  | V <sub>RWM</sub>   | 35            | 45        | 50        | 60        |      |
| Maximum DC blocking voltage   | V <sub>DC</sub>    | 35            | 45        | 50        | 60        |      |
| Maximum average forward rectified current <div>total device</div> <div>at T<sub>C</sub> = 105 °C</div> <div>per diode</div> | I <sub>F(AV)</sub> | 15            |           |           |           | A    |
|   |                    | 7.5           |           |           |           |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode                                | I <sub>FSM</sub>   | 150           |           |           |           |      |
| Peak repetitive reverse surge current per diode at t <sub>p</sub> = 2.0 μs, 1 kHz   | I <sub>RRM</sub>   | 1.0           |           | 0.5       |           |      |
| Voltage rate of change (rated V <sub>R</sub> )  | dV/dt              | 10 000        |           |           |           |      |
| Operating junction temperature range  | T <sub>J</sub>     | - 65 to + 150 |           |           |           | °C   |
| Storage temperature range   | T <sub>STG</sub>   | - 65 to + 175 |           |           |           |      |
| Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min  | V <sub>AC</sub>    | 1500          |           |           |           | V    |

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

| PARAMETER  | SYMBOL      | TEST CONDITIONS      |                                     | MBR1535CT | MBR1545CT | MBR1550CT | MBR1560CT | UNIT |
|--|-------------|----------------------|-------------------------------------|-----------|-----------|-----------|-----------|------|
| Maximum instantaneous forward voltage per diode                        | $V_F^{(1)}$ | $I_F = 7.5\text{ A}$ | $T_C = 25\text{ }^{\circ}\text{C}$  | -         |           | 0.75      |           | V    |
|  |             | $I_F = 7.5\text{ A}$ | $T_C = 125\text{ }^{\circ}\text{C}$ | 0.57      |           | 0.65      |           |      |
|  |             | $I_F = 15\text{ A}$  | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.84      |           | -         |           |      |
|  |             | $I_F = 15\text{ A}$  | $T_C = 125\text{ }^{\circ}\text{C}$ | 0.72      |           | -         |           |      |
| Maximum instantaneous reverse current at DC blocking voltage per diode | $I_R^{(2)}$ | Rated $V_R$          | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.1       |           | 1.0       |           | mA   |
|  |             |                      | $T_C = 125\text{ }^{\circ}\text{C}$ | 15        |           | 50        |           |      |

**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                 |
|--------------------------------------|-----------------|-----|------|------|----------------------|
| Maximum thermal resistance per diode | $R_{\theta JA}$ | 60  | -    | 60   | $^{\circ}\text{C/W}$ |
|                                      | $R_{\theta JC}$ | 3.0 | 5.0  | 3.0  |                      |

**ORDERING INFORMATION** (Example)

| PACKAGE   | PREFERRED P/N                   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------|---------------------------------|-----------------|--------------|---------------|---------------|
| TO-220AB  | MBR1545CT-E3/45                 | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB | MBRF1545CT-E3/45                | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB1545CT-E3/45                | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB1545CT-E3/81                | 1.35            | 81           | 800/reel      | Tape and reel |
| TO-220AB  | MBR1545CTHE3/45 <sup>(1)</sup>  | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB | MBRF1545CTHE3/45 <sup>(1)</sup> | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB1545CTHE3/45 <sup>(1)</sup> | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB1545CTHE3/81 <sup>(1)</sup> | 1.35            | 81           | 800/reel      | Tape and reel |

**Note**

(1) AEC-Q101 qualified



## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

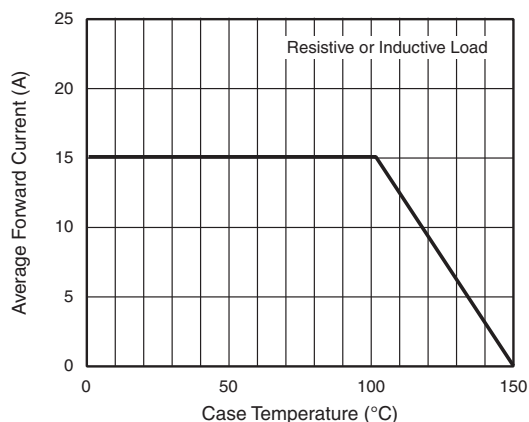


Fig. 1 - Forward Current Derating Curve

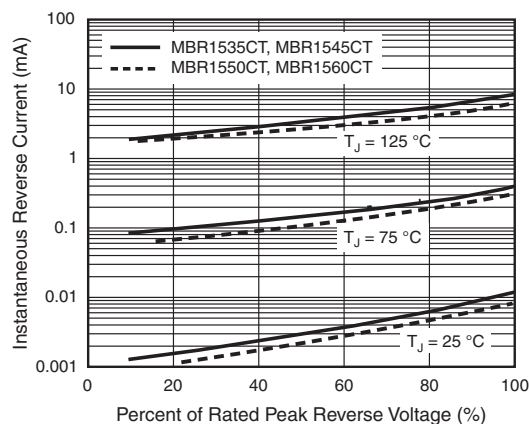


Fig. 4 - Typical Reverse Characteristics Per Diode

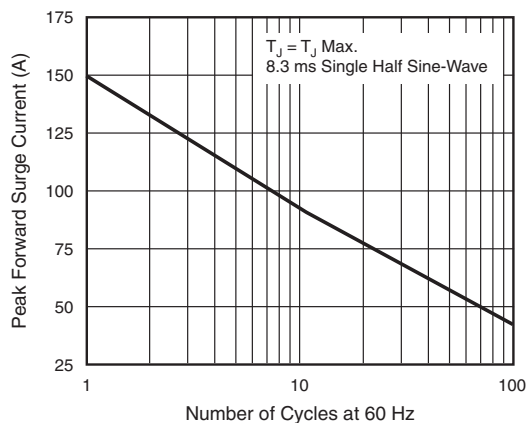


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

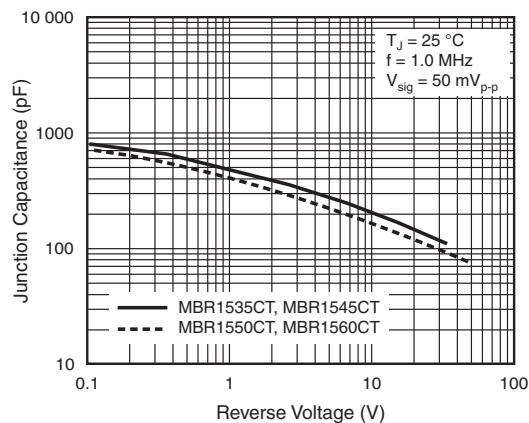


Fig. 5 - Typical Junction Capacitance Per Diode

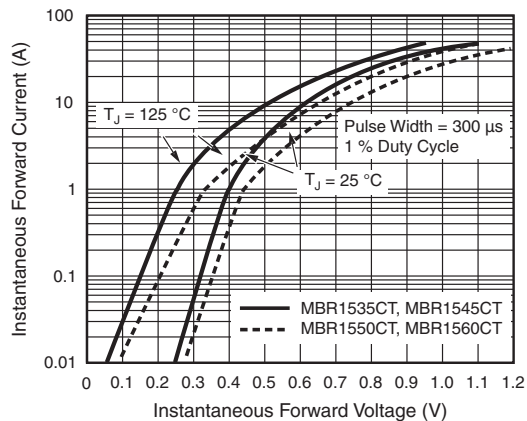


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

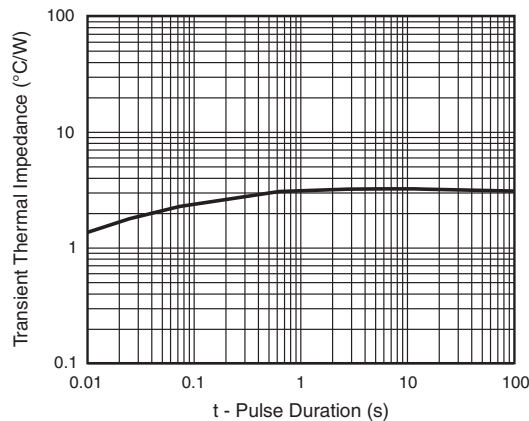
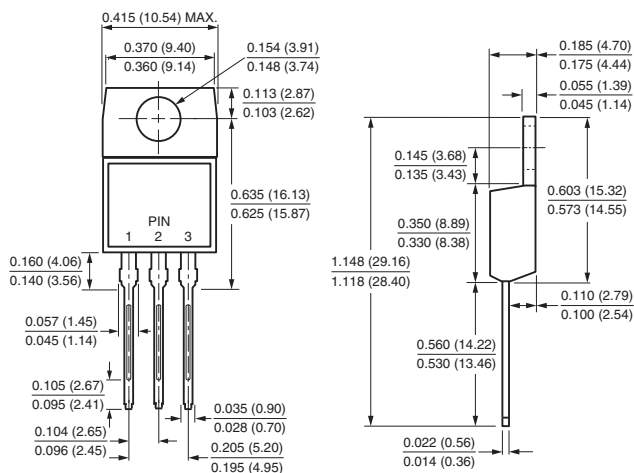


Fig. 6 - Typical Transient Thermal Impedance Per Diode

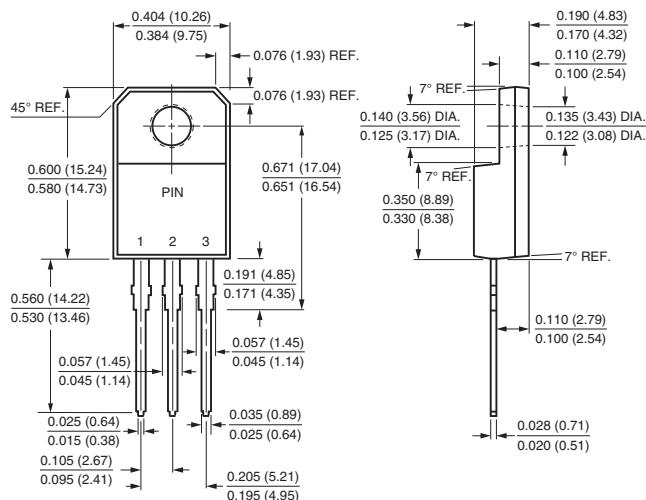


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

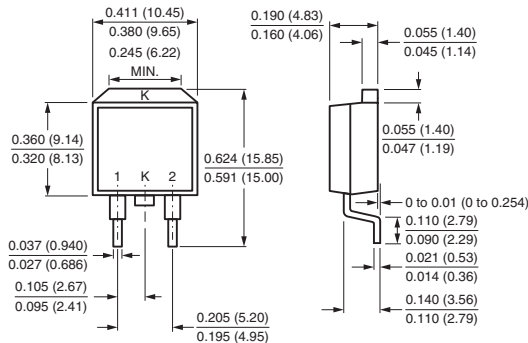
TO-220AB



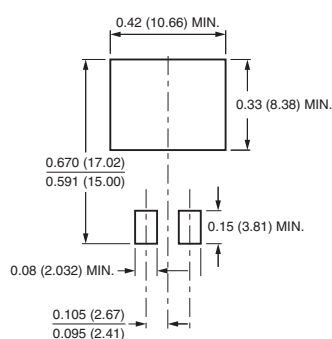
ITO-220AB



TO-263AB



Mounting Pad Layout





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