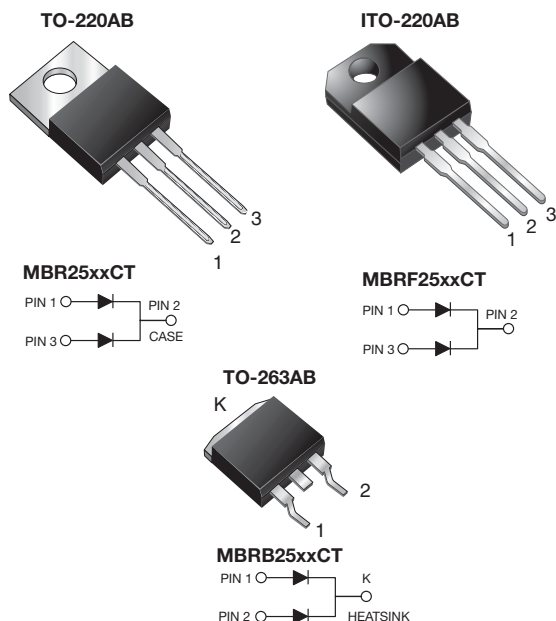


## Dual Common Cathode Schottky Rectifier



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, 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 dip 260 °C, 40 s (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 low voltage, 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  
Epoxy 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 JESD22-B102  
E3 suffix meets JESD 201 class 2 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 12.5 A                     |
| $V_{RRM}$        | 35 V to 60 V                   |
| $I_{FSM}$        | 150 A                          |
| $V_F$            | 0.73 V at 30 A, 0.65 V at 15 A |
| $T_J$ max.       | 150 °C                         |
| Package          | TO-220AB, ITO-220AB, TO-263AB  |
| Diode variations | Common cathode                 |

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

| PARAMETER                                                                                    | SYMBOL                                                   | MBR2535CT   | MBR2545CT | MBR2550CT | MBR2560CT | 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 at T <sub>C</sub> = 130 °C                         | I <sub>F(AV)</sub> <div>total device<br/>per diode</div> | 25          |           |           |           | A    |
|                                                                                              |                                                          | 12.5        |           |           |           |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I <sub>FSM</sub>                                         | 150         |           |           |           | A    |
| Peak repetitive reverse surge current per diode at t <sub>p</sub> = 2 μs, 1 kHz              | I <sub>RRM</sub>                                         | 1.0         |           | 0.5       |           |      |
| Peak non-repetitive reverse energy (8/20 μs waveform) per diode                              | E <sub>RSM</sub>                                         | 25          |           |           |           | mJ   |
| Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 kΩ           | V <sub>C</sub>                                           | 25          |           |           |           | kV   |
| Voltage rate of change (rated V <sub>R</sub> )                                               | dV/dt                                                    | 10 000      |           |           |           | V/μs |
| 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                                                           | TEST CONDITIONS       |                         | SYMBOL                        | MBR2535CT | MBR2545CT | MBR2550CT | MBR2560CT | UNIT |
|---------------------------------------------------------------------|-----------------------|-------------------------|-------------------------------|-----------|-----------|-----------|-----------|------|
| Maximum instantaneous forward voltage per diode                     | I <sub>F</sub> = 15 A | T <sub>C</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | -         |           | 0.75      |           | V    |
|                                                                     |                       | T <sub>C</sub> = 125 °C |                               | -         |           | 0.65      |           |      |
|                                                                     | I <sub>F</sub> = 30 A | T <sub>C</sub> = 25 °C  |                               | 0.82      |           | -         |           |      |
|                                                                     |                       | T <sub>C</sub> = 125 °C |                               | 0.73      |           | -         |           |      |
| Maximum instantaneous reverse current at blocking voltage per diode |                       | T <sub>C</sub> = 25 °C  | I <sub>R</sub> <sup>(1)</sup> | 0.2       |           | 1.0       |           | mA   |
|                                                                     |                       | T <sub>C</sub> = 125 °C |                               | 40        |           | 50        |           |      |

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                  | SYMBOL          | MBR | MBRF | MBRB | UNIT                 |
|------------------------------------------------------------|-----------------|-----|------|------|----------------------|
| Typical thermal resistance from junction to case per diode | $R_{\theta JC}$ | 1.5 | 4.5  | 1.5  | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE   | PREFERRED P/N                   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------|---------------------------------|-----------------|--------------|---------------|---------------|
| TO-220AB  | MBR2545CT-E3/45                 | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB | MBRF2545CT-E3/45                | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB2545CT-E3/45                | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB2545CT-E3/81                | 1.35            | 81           | 800/reel      | Tape and reel |
| TO-220AB  | MBR2545CT-E3/4W                 | 1.85            | 4W           | 50/tube       | Tube          |
| TO-220AB  | MBR2545CTHE3/45 <sup>(1)</sup>  | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB | MBRF2545CTHE3/45 <sup>(1)</sup> | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB2545CTHE3/45 <sup>(1)</sup> | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB  | MBRB2545CTHE3/81 <sup>(1)</sup> | 1.35            | 81           | 800/reel      | Tape and reel |

**Note**

(1) AEC-Q101 qualified



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

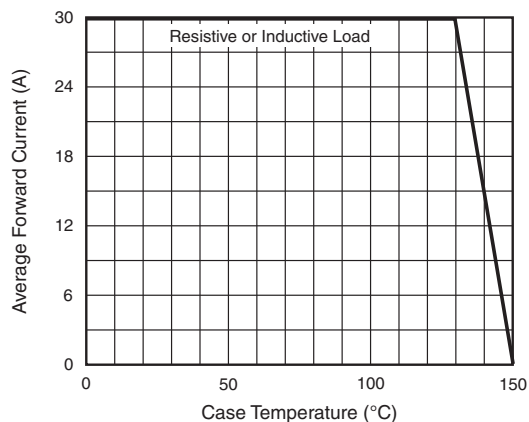


Fig. 1 - Forward Current Derating Curve

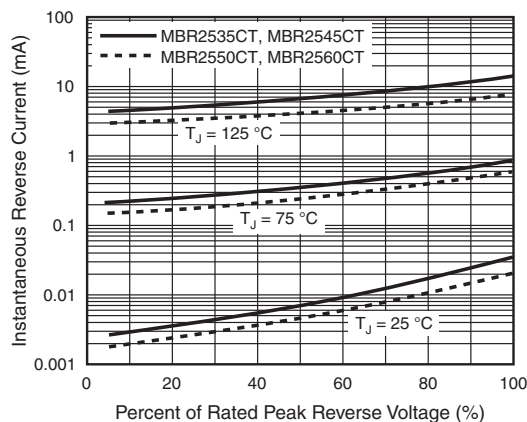


Fig. 4 - Typical Reverse Characteristics Per Diode

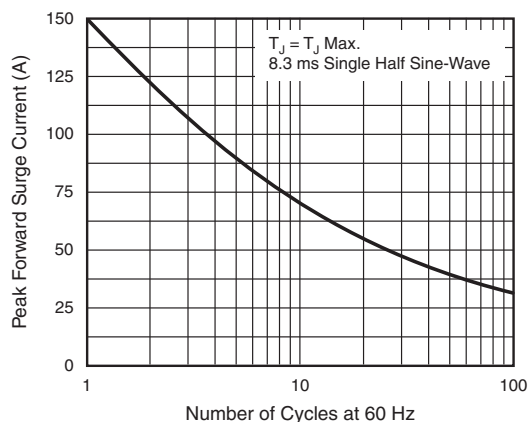


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

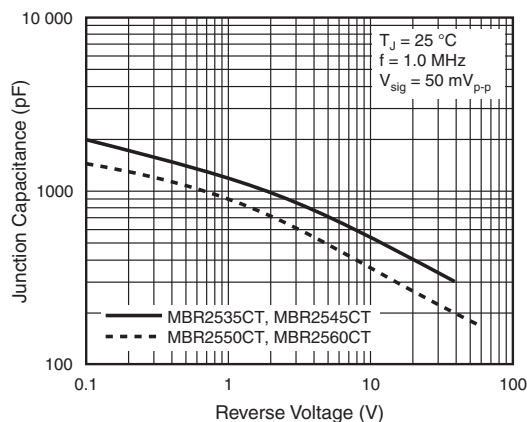


Fig. 5 - Typical Junction Capacitance Per Diode

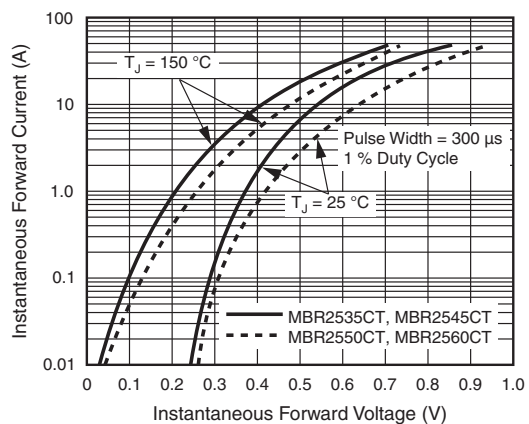


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

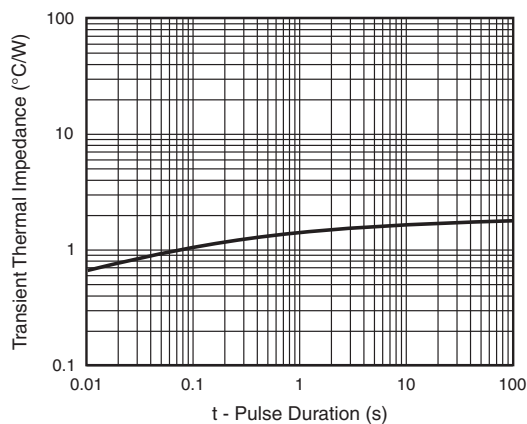
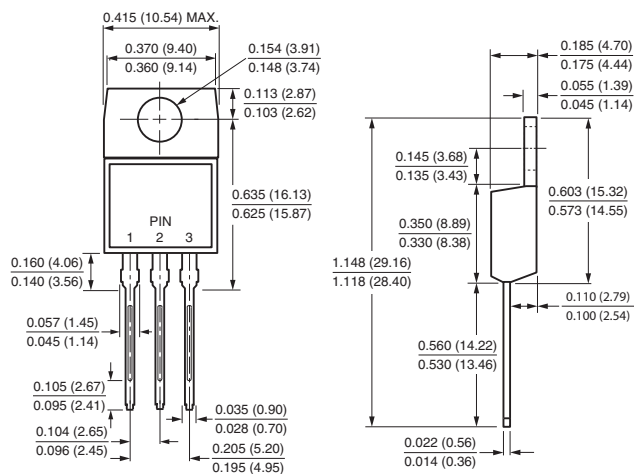


Fig. 6 - Typical Transient Thermal Impedance Per Diode

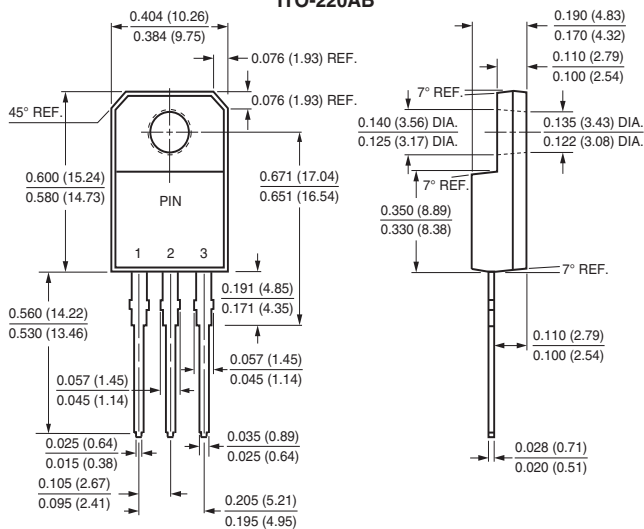


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

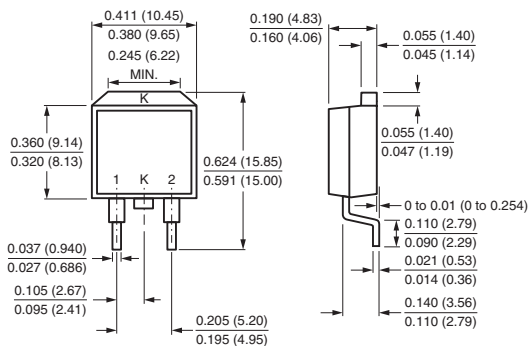
TO-220AB



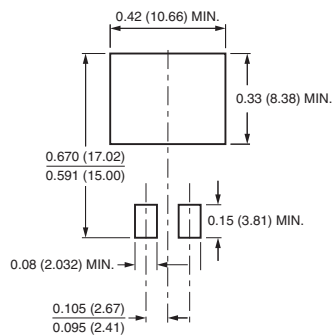
ITO-220AB



TO-263AB



Mounting Pad Layout





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