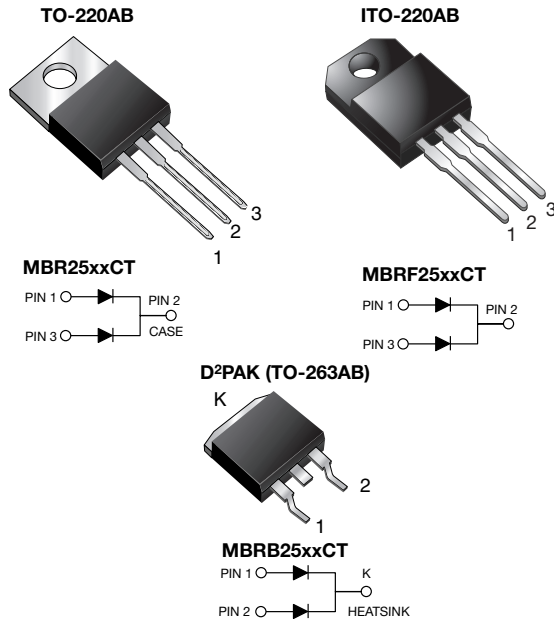


## Dual Common Cathode Schottky Rectifier



### 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 D<sup>2</sup>PAK (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 available
  - Automotive ordering code: base P/NHE3\_A
- 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, D<sup>2</sup>PAK (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

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 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, 45 V   |
| $I_{FSM}$               | 150 A  |
| $V_F$                   | 0.73 V at 30 A                                     |
| $T_J$ max.              | 150 °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      | MBR2535CT    | MBR2545CT | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 35           | 45        | V    |
| Working peak reverse voltage   | $V_{RWM}$   | 35           | 45        |      |
| Maximum DC blocking voltage  | $V_{DC}$    | 35           | 45        |      |
| Maximum average forward rectified current at $T_C = 130$ °C                                  | $I_{F(AV)}$ | total device | 25        | A    |
|  |             | per diode    | 12.5      |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$   | 150          |           | A    |
| Peak repetitive reverse surge current per diode at $t_p = 2$ μs, 1 kHz                       | $I_{RRM}$   | 1.0          |           |      |
| Peak non-repetitive reverse energy (8/20 μs waveform) per diode                              | $E_{RSM}$   | 25           |           | mJ   |
| Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 kΩ           | $V_C$       | 25           |           | kV   |
| Voltage rate of change (rated $V_R$ )  | dV/dt       | 10 000       |           | V/μs |
| Operating junction temperature range   | $T_J$       | -65 to +150  |           | °C   |
| Storage temperature range  | $T_{STG}$   | -65 to +175  |           |      |
| Isolation voltage (ITO-220AB 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  | TEST CONDITIONS     | SYMBOL                            | MBR2535CT | MBR2545CT | UNIT |
| Maximum instantaneous forward voltage per diode  | $I_F = 15\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$  | -         |           | V    |
|  |                     | $T_C = 125\text{ }^\circ\text{C}$ | -         |           |      |
|  | $I_F = 30\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$  | 0.82      |           |      |
|  |                     | $T_C = 125\text{ }^\circ\text{C}$ | 0.73      |           |      |
| Maximum instantaneous reverse current at blocking voltage per diode                          |                     | $T_C = 25\text{ }^\circ\text{C}$  | 0.2       |           | mA   |
|  |                     | $T_C = 125\text{ }^\circ\text{C}$ | 40        |           |      |

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ 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  | $^\circ\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (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 (1)   | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                             | MBRF2545CTHE3/45 (1)  | 1.99            | 45           | 50/tube       | Tube          |
| TO-263AB                              | MBRB2545CTHE3/45 (1)  | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                              | MBRB2545CTHE3/81 (1)  | 1.35            | 81           | 800/reel      | Tape and reel |
| TO-263AB                              | MBRB2545CTHE3_A/P (1) | 1.35            | P            | 50/tube       | Tube          |
| TO-263AB                              | MBRB2545CTHE3_A/I (1) | 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)

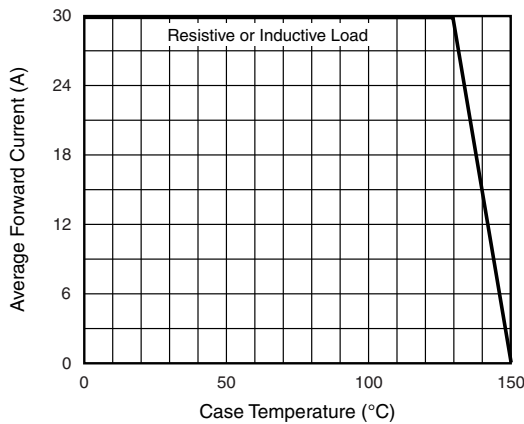


Fig. 1 - Forward Current Derating Curve

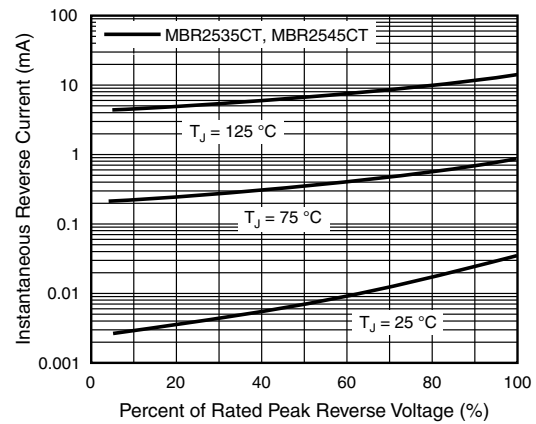


Fig. 4 - Typical Reverse Characteristics Per Diode

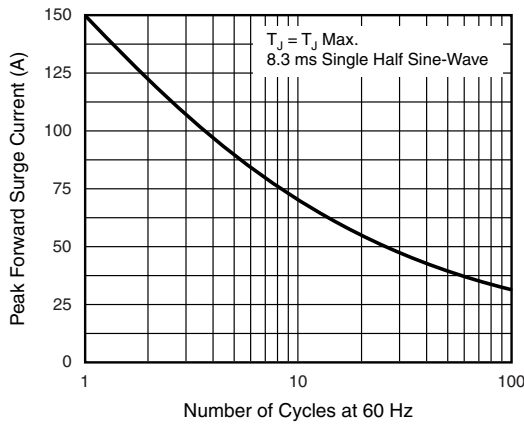


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

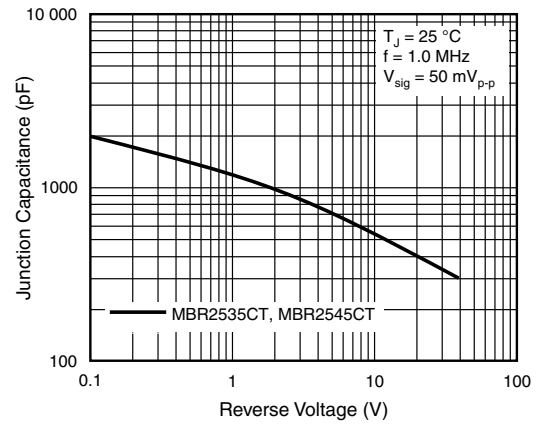


Fig. 5 - Typical Junction Capacitance Per Diode

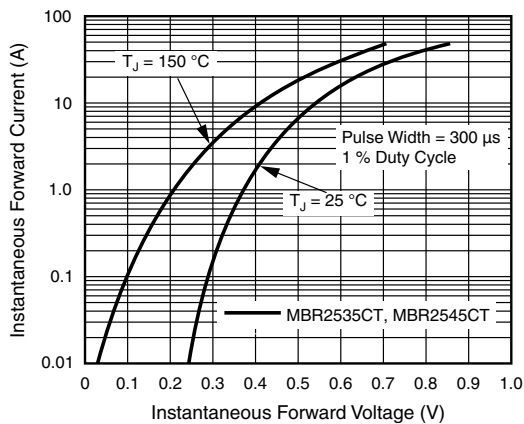


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

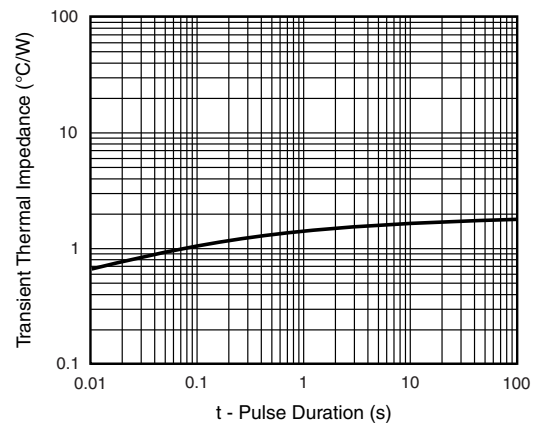
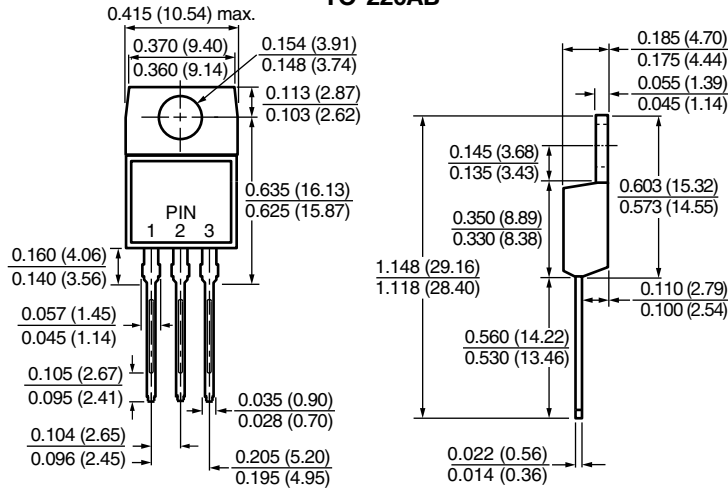


Fig. 6 - Typical Transient Thermal Impedance Per Diode

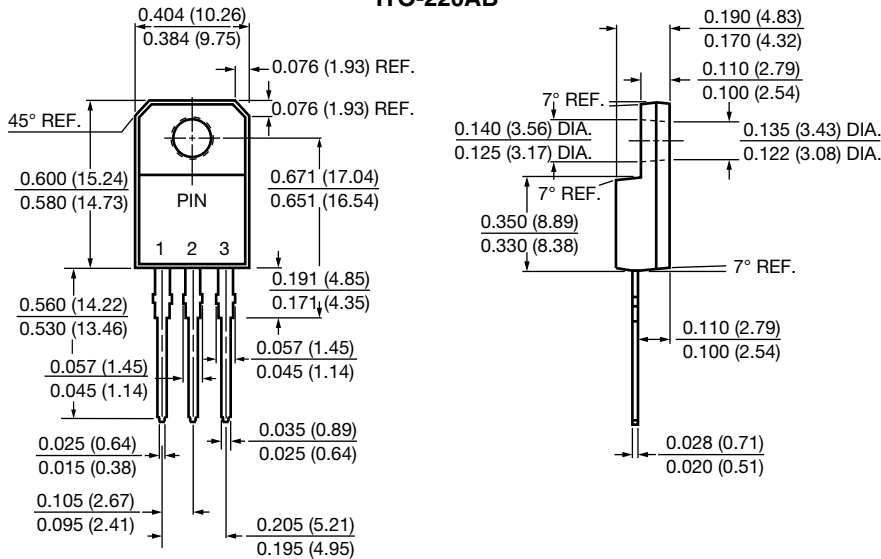


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

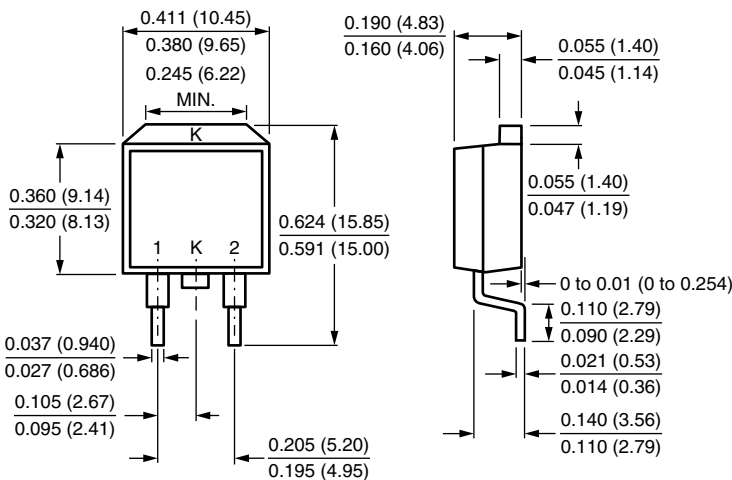
### TO-220AB



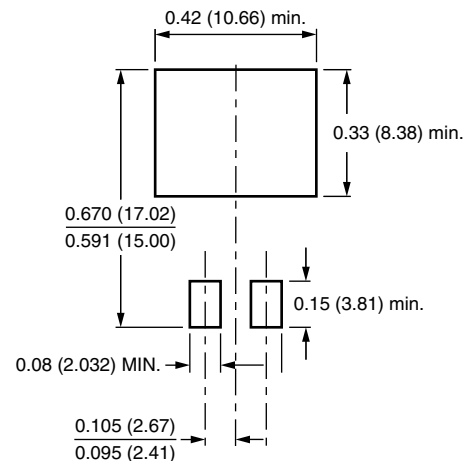
### ITO-220AB



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



### Mounting Pad Layout





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