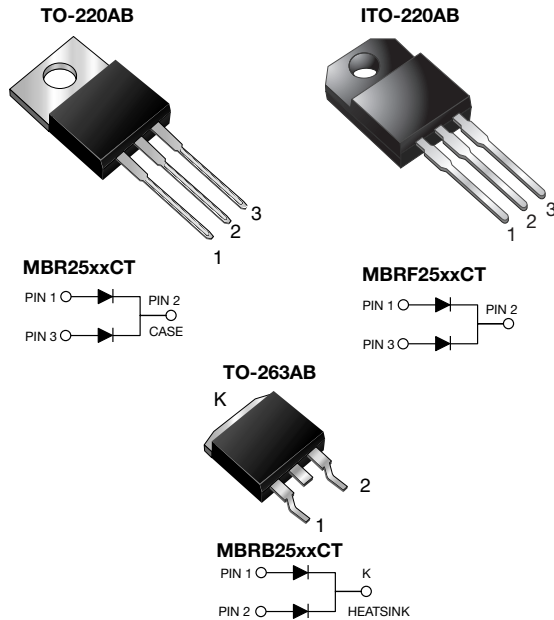


Dual Common Cathode Schottky Rectifier



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


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 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 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_{RRM} | 35 | 45 | 50 | 60 | V |
| Working peak reverse voltage | V_{RWM} | 35 | 45 | 50 | 60 | |
| Maximum DC blocking voltage | V_{DC} | 35 | 45 | 50 | 60 | |
| Maximum average forward rectified current at $T_C = 130$ °C | $I_{F(AV)}$ | 25 | | | | A |
| total device 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 $t_p = 2$ μ s, 1 kHz | I_{RRM} | 1.0 | | 0.5 | | |
| Peak non-repetitive reverse energy (8/20 μ s waveform) per diode | E_{RSM} | 25 | | | | mJ |
| Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 k Ω | V_C | 25 | | | | kV |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | | | | V/ μ s |
| 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 |



| 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 | $I_F = 15\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | - | 0.75 | | V |
| | | $T_C = 125\text{ }^\circ\text{C}$ | | - | 0.65 | | |
| | $I_F = 30\text{ A}$ | $T_C = 25\text{ }^\circ\text{C}$ | | 0.82 | - | | |
| | | $T_C = 125\text{ }^\circ\text{C}$ | | 0.73 | - | | |
| Maximum instantaneous reverse current at blocking voltage per diode | | $T_C = 25\text{ }^\circ\text{C}$ | $I_R^{(1)}$ | 0.2 | 1.0 | | mA |
| | | $T_C = 125\text{ }^\circ\text{C}$ | | 40 | 50 | | |

Note(1) Pulse test: 300 μs 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 ⁽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 |

Note

(1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

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

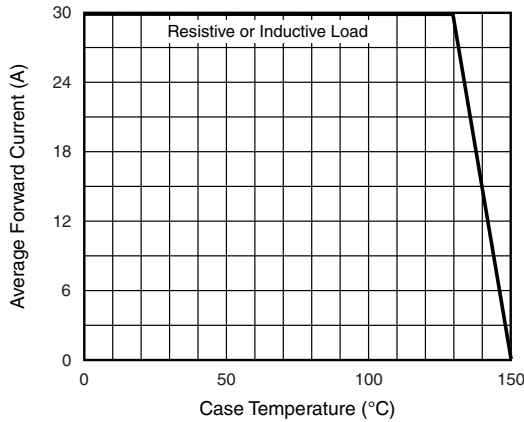


Fig. 1 - Forward Current Derating Curve

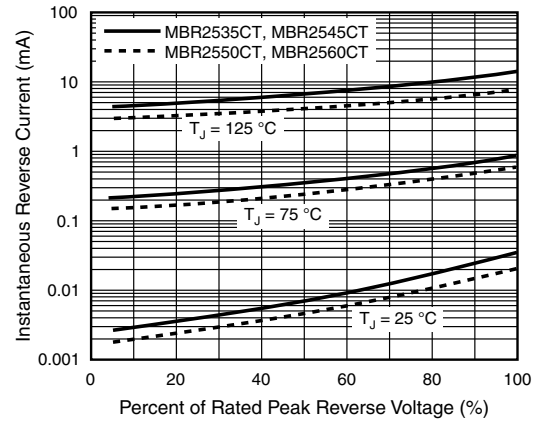


Fig. 4 - Typical Reverse Characteristics Per Diode

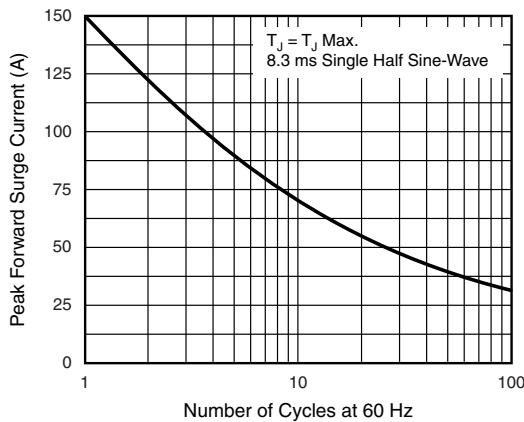


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

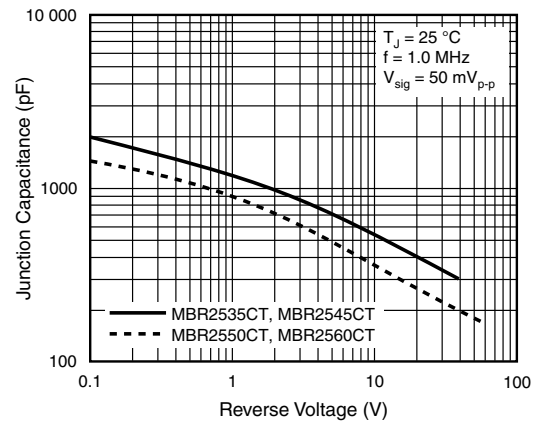


Fig. 5 - Typical Junction Capacitance Per Diode

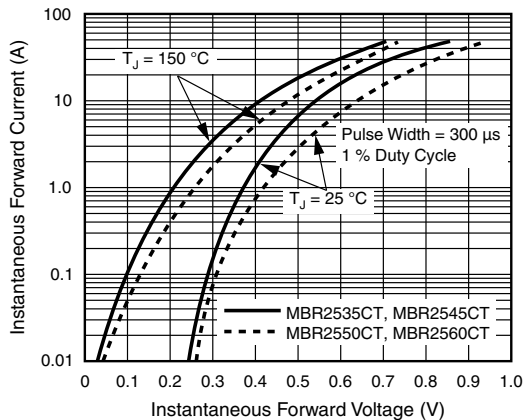


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

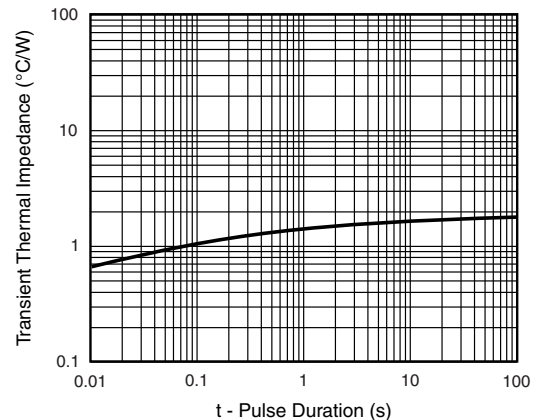
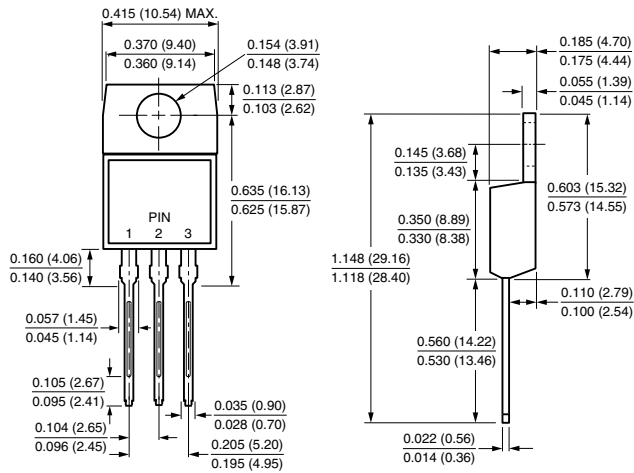


Fig. 6 - Typical Transient Thermal Impedance Per Diode

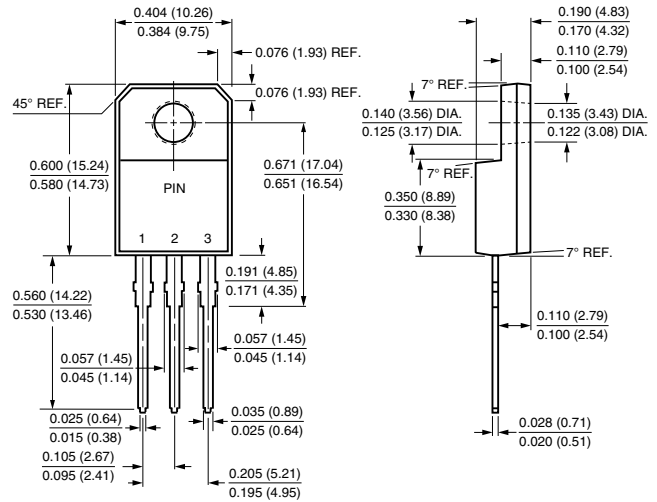


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

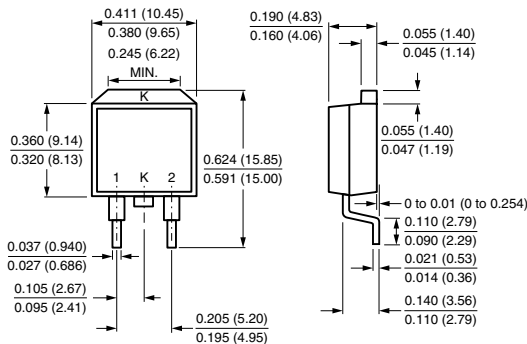
TO-220AB



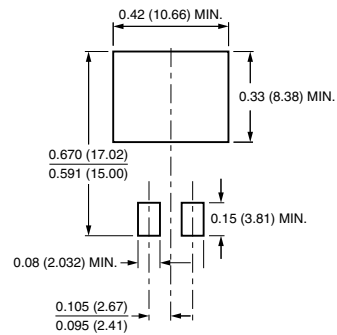
ITO-220AB



TO-263AB



Mounting Pad Layout





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