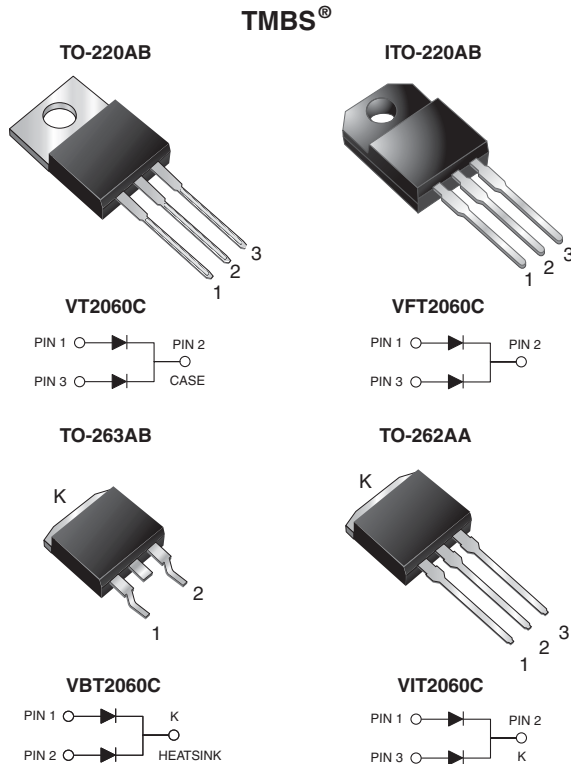




Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.40\text{ V}$ at $I_F = 5\text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency 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, ITO-220AB, and TO-262AA package)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters and reverse battery protection.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB, and TO-262AA

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

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

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

| PRIMARY CHARACTERISTICS | |
|------------------------------|---|
| $I_{F(AV)}$ | 2 x 10 A |
| V_{RRM} | 60 V |
| I_{FSM} | 150 A |
| V_F at $I_F = 10\text{ A}$ | 0.52 V |
| T_J max. | 150 °C |
| Package | TO-220AB, ITO-220AB, TO-263AB, TO-262AA |
| Circuit configuration | Common cathode |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | |
|---|---------------------------|-------------|----------|----------|----------|------|
| PARAMETER | SYMBOL | VT2060C | VFT2060C | VBT2060C | VIT2060C | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 60 | | | | V |
| Maximum average forward rectified current (fig. 1) | per device $I_{F(AV)}$ | 20 | | | 10 | A |
| | | per diode | | | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 150 | | | | |
| Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$ per diode | E_{AS} | 120 | | | | mJ |
| Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$ | I_{RRM} | 1.0 | | | | A |
| Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1\text{ min}$ | V_{AC} | 1500 | | | | V |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | | | | °C |



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|--|-----------------------|-----------------------------------|----------|--------------|------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | $I_R = 1.0\text{ mA}$ | $T_A = 25\text{ }^\circ\text{C}$ | V_{BR} | 60 (minimum) | - | V |
| Instantaneous forward voltage per diode ⁽¹⁾ | $I_F = 5\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$ | V_F | 0.49 | - | V |
| | $I_F = 10\text{ A}$ | | | 0.57 | 0.65 | |
| | $I_F = 5\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ | | 0.40 | - | |
| | $I_F = 10\text{ A}$ | | | 0.52 | 0.59 | |
| Reverse current per diode ⁽²⁾ | $V_R = 60\text{ V}$ | $T_A = 25\text{ }^\circ\text{C}$ | I_R | - | 850 | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 14 | 40 | mA |

Notes⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | |
|---|------------|-----------------|---------|----------|----------|----------|--------------------|
| PARAMETER | | SYMBOL | VT2060C | VFT2060C | VBT2060C | VIT2060C | UNIT |
| Typical thermal resistance | per diode | $R_{\theta JC}$ | 3.0 | 6.0 | 3.2 | 3.0 | $^\circ\text{C/W}$ |
| | per device | | 1.8 | 4.8 | 1.9 | 1.8 | |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | VT2060C-E3/4W | 1.88 | 4W | 50/tube | Tube |
| ITO-220AB | VFT2060C-E3/4W | 1.76 | 4W | 50/tube | Tube |
| TO-263AB | VBT2060C-E3/4W | 1.39 | 4W | 50/tube | Tube |
| TO-263AB | VBT2060CE3/8W | 1.39 | 8W | 800/reel | Tape and reel |
| TO-262AA | VIT2060C-E3/4W | 1.45 | 4W | 50/tube | Tube |

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

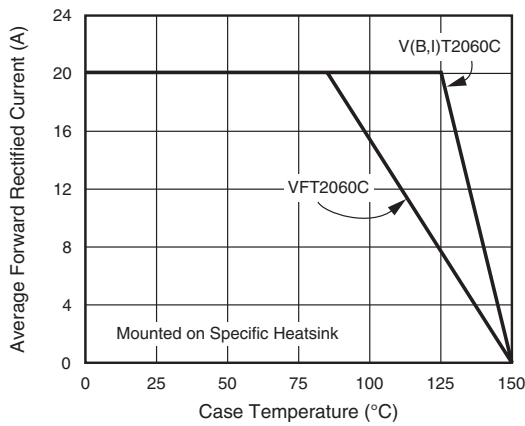


Fig. 1 - Maximum Forward Current Derating Curve

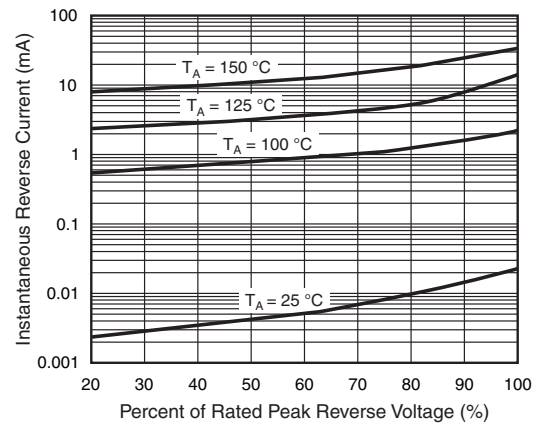


Fig. 4 - Typical Reverse Characteristics Per Diode

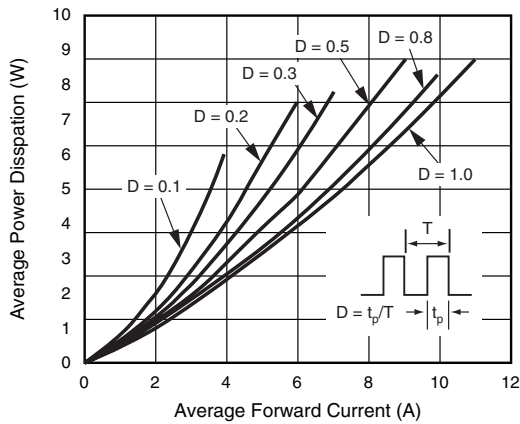


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

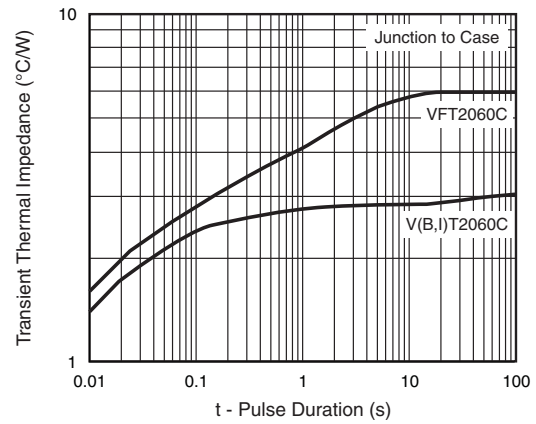


Fig. 5 - Typical Transient Thermal Impedance Per Diode

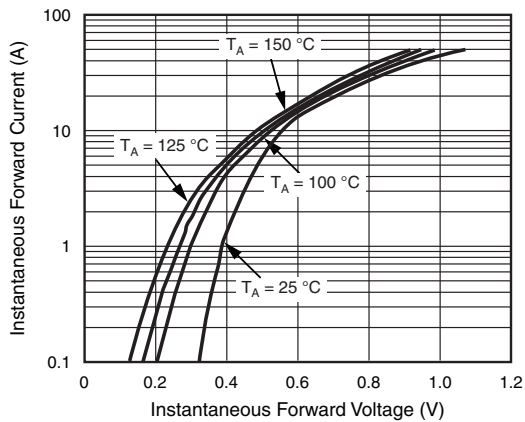


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

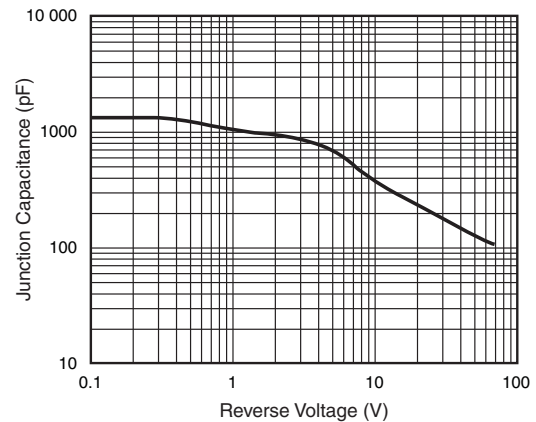
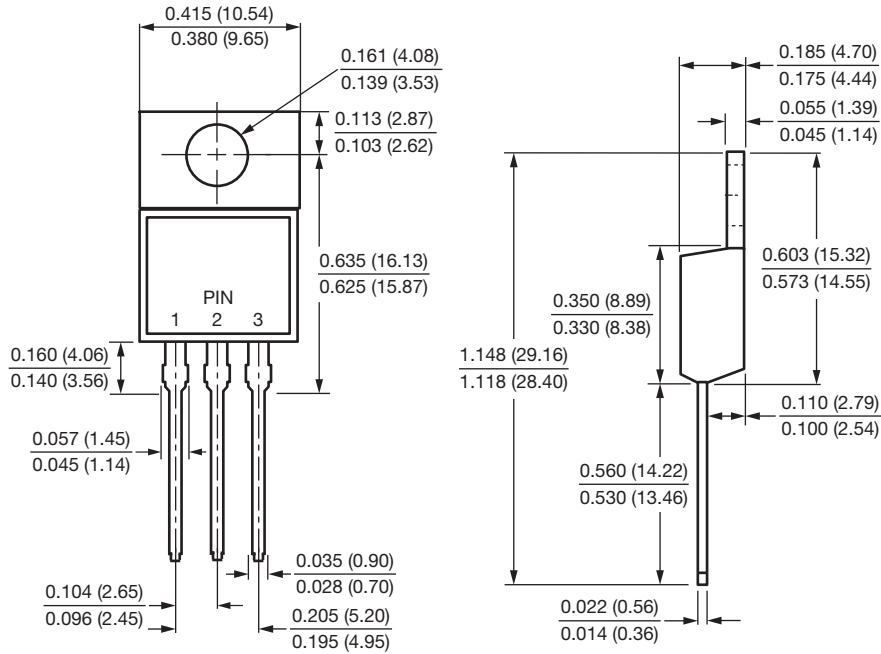


Fig. 6 - Typical Junction Capacitance Per Diode

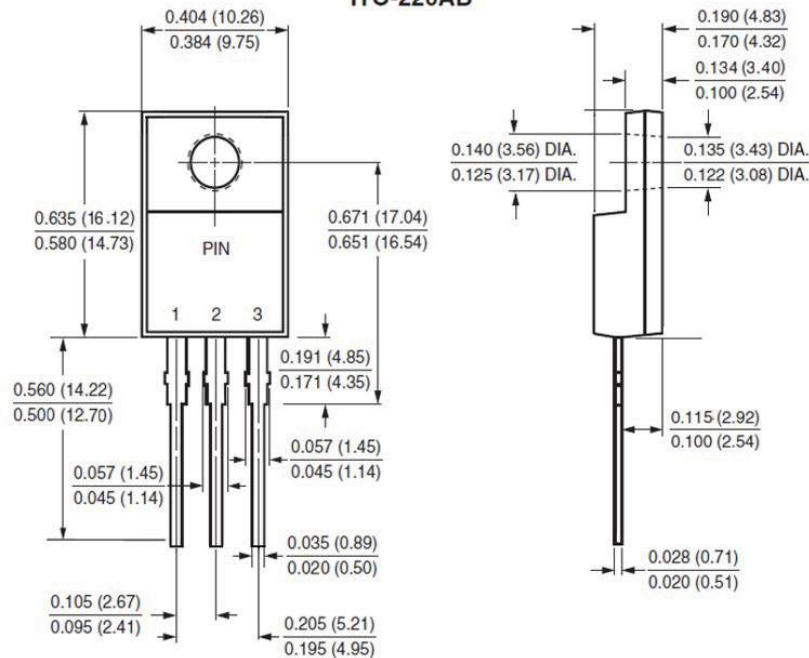


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

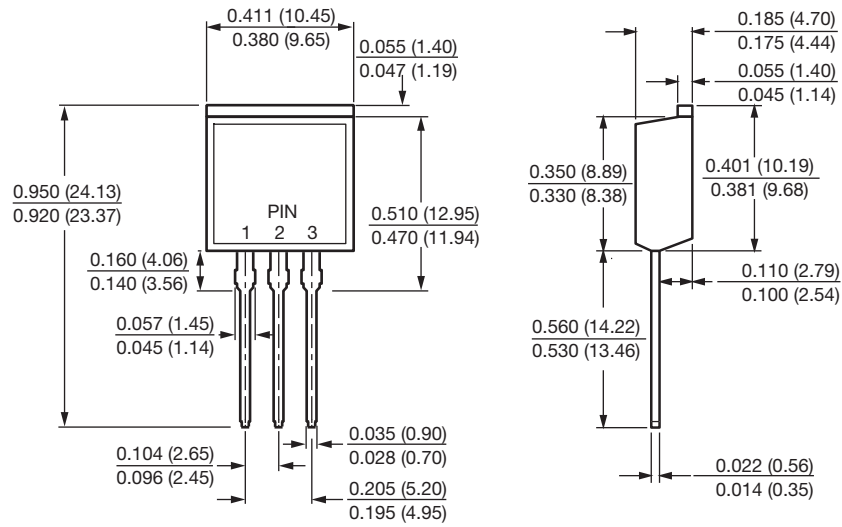


ITO-220AB

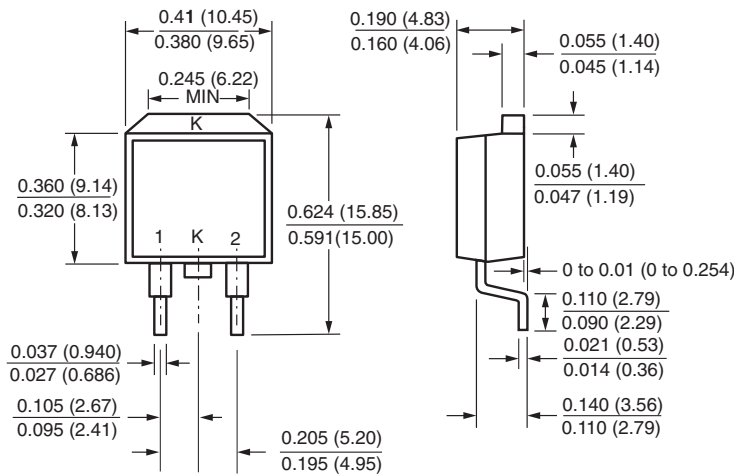




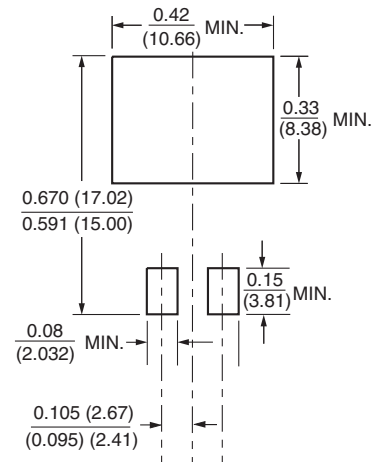
TO-262AA



TO-263AB



Mounting Pad Layout





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