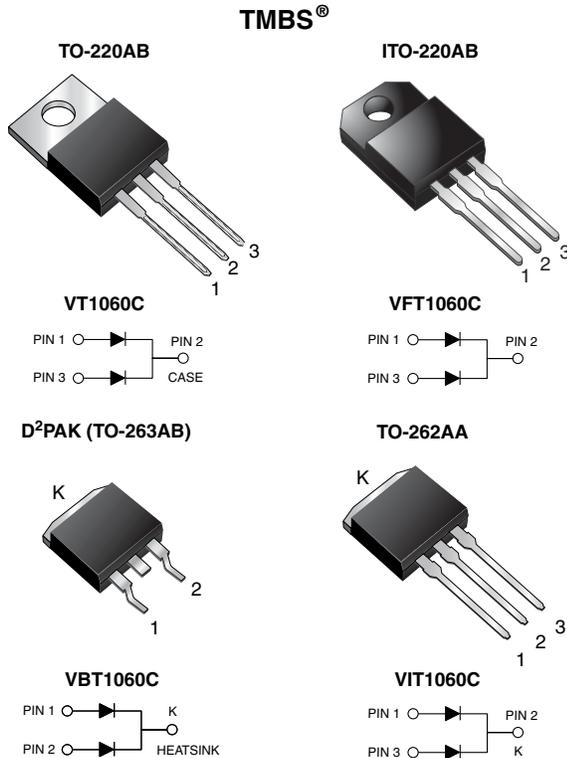


## Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.39\text{ V}$  at  $I_F = 2.5\text{ A}$



### 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 D²PAK (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](http://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, D²PAK (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

### LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS       |   |
|-------------------------------|---|
| $I_{F(AV)}$                   | 2 x 5 A   |
| $V_{RRM}$                     | 60 V  |
| $I_{FSM}$                     | 100 A   |
| $V_F$ at $I_F = 5.0\text{ A}$ | 0.50 V  |
| $T_J$ max.                    | 150 °C  |
| Package                       | TO-220AB, ITO-220AB, D²PAK (TO-263AB), TO-262AA |
| Circuit configuration         | Common cathode                                  |



| <b>MAXIMUM RATINGS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)   |  |             |          |          |          |                  |
|---|--|-------------|----------|----------|----------|------------------|
| PARAMETER   | SYMBOL                                 | VT1060C     | VFT1060C | VBT1060C | VIT1060C | UNIT             |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$                              | 60          |          |          |          | V                |
| Maximum average forward rectified current (fig. 1)  | per device<br>$I_{F(AV)}$<br>per diode | 10          |          |          |          | A                |
|   |  | 5           |          |          |          |                  |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode  | $I_{FSM}$                              | 100         |          |          |          |                  |
| Non-repetitive avalanche energy at $T_J = 25\text{ }^\circ\text{C}$ , $L = 60\text{ mH}$  | $E_{AS}$                               | 65          |          |          |          | mJ               |
| Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$ , 1 kHz, $T_J = 38\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ | $I_{RRM}$                              | 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 |          |          |          | $^\circ\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                      |                                   |        |      |      |               |
|--|----------------------|-----------------------------------|--------|------|------|---------------|
| PARAMETER  | TEST CONDITIONS      |                                   | SYMBOL | TYP. | MAX. | UNIT          |
| Instantaneous forward voltage per diode <sup>(1)</sup>                                       | $I_F = 2.5\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$  | $V_F$  | 0.49 | -    | V             |
|  | $I_F = 5.0\text{ A}$ |                                   |        | 0.58 | 0.70 |               |
|  | $I_F = 2.5\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ |        | 0.39 | -    |               |
|  | $I_F = 5.0\text{ A}$ |                                   |        | 0.50 | 0.60 |               |
| Reverse current per diode <sup>(2)</sup>   | $V_R = 60\text{ V}$  | $T_A = 25\text{ }^\circ\text{C}$  | $I_R$  | -    | 700  | $\mu\text{A}$ |
|  |                      | $T_A = 125\text{ }^\circ\text{C}$ |        | 6.9  | 25   | mA            |

**Notes**<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ 

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |  |         |          |          |          |                    |
|---|--|---------|----------|----------|----------|--------------------|
| PARAMETER   | SYMBOL                                     | VT1060C | VFT1060C | VBT1060C | VIT1060C | UNIT               |
| Typical thermal resistance  | per diode<br>$R_{\theta JC}$<br>per device | 3.5     | 6.5      | 3.5      | 3.5      | $^\circ\text{C/W}$ |
|   |  | 2.5     | 5.0      | 2.5      | 2.5      |                    |

| <b>ORDERING INFORMATION</b> (Example) |                |                 |              |               |               |
|---------------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                              | VT1060C-E3/4W  | 1.87            | 4W           | 50/tube       | Tube          |
| ITO-220AB                             | VFT1060C-E3/4W | 1.75            | 4W           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB)         | VBT1060C-E3/4W | 1.39            | 4W           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB)         | VBT1060CE3/8W  | 1.39            | 8W           | 800/reel      | Tape and reel |
| TO-262AA                              | VIT1060C-E3/4W | 1.45            | 4W           | 50/tube       | Tube          |

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

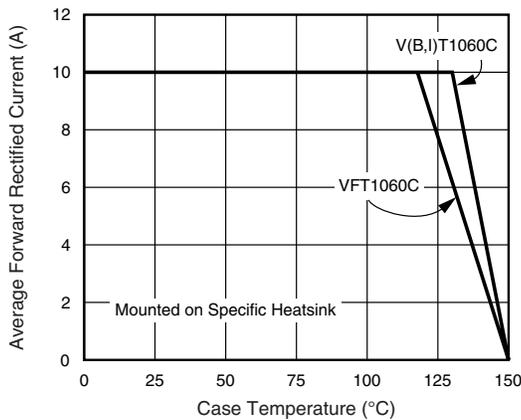


Fig. 1 - Maximum Forward Current Derating Curve

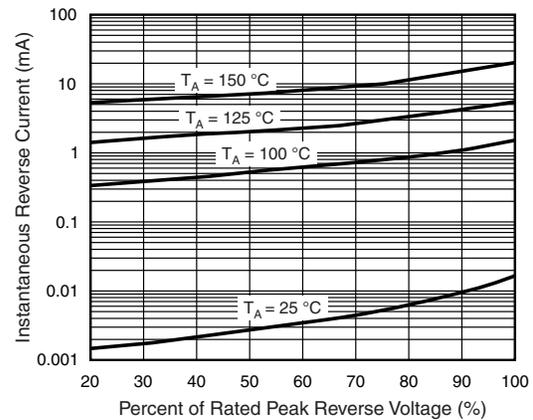


Fig. 4 - Typical Reverse Characteristics Per Diode

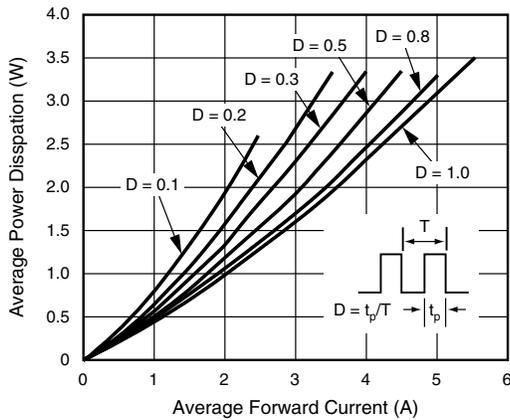


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

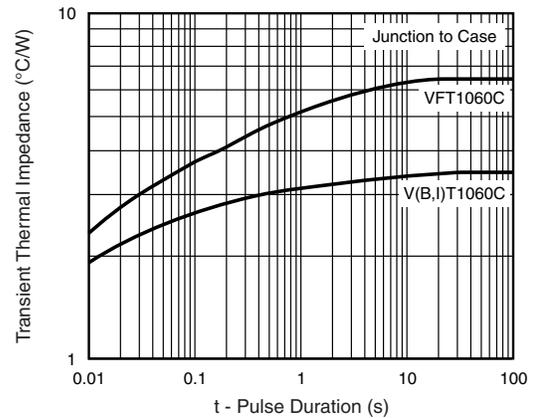


Fig. 5 - Typical Transient Thermal Impedance Per Diode

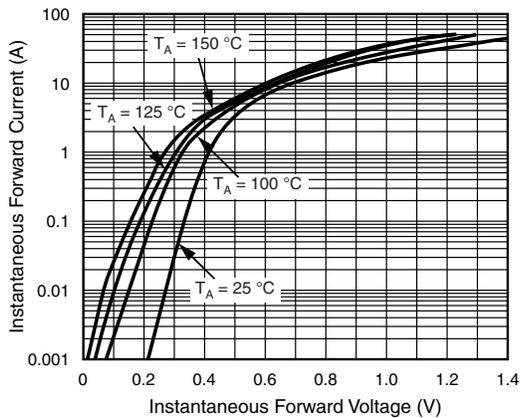


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

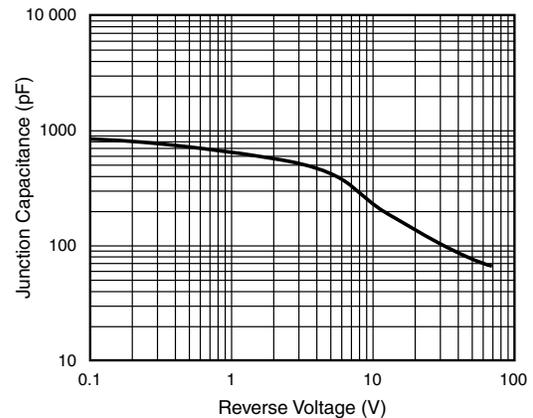
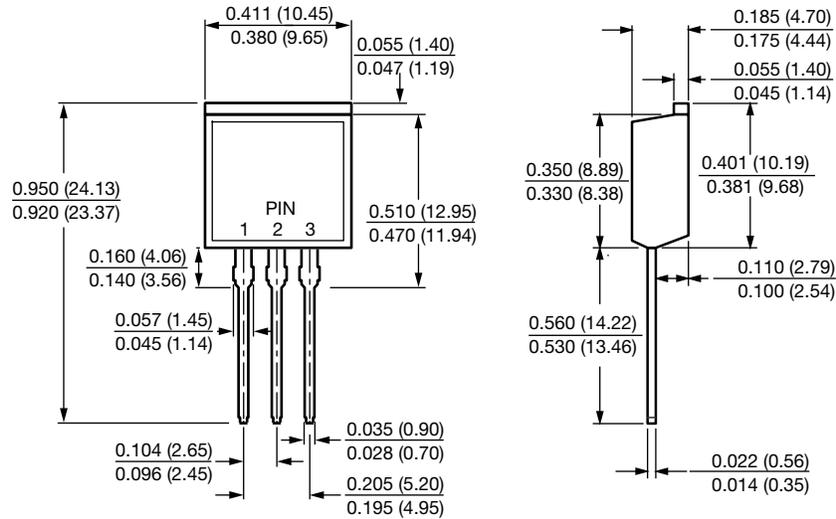


Fig. 6 - Typical Junction Capacitance Per Diode

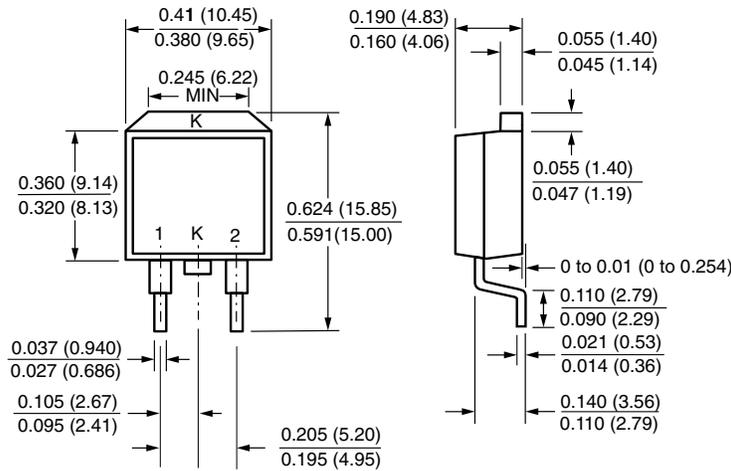




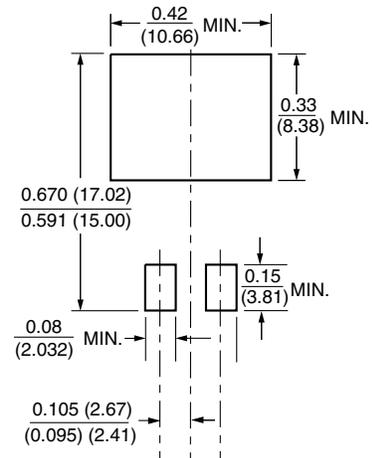
### TO-262AA



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



### Mounting Pad Layout





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