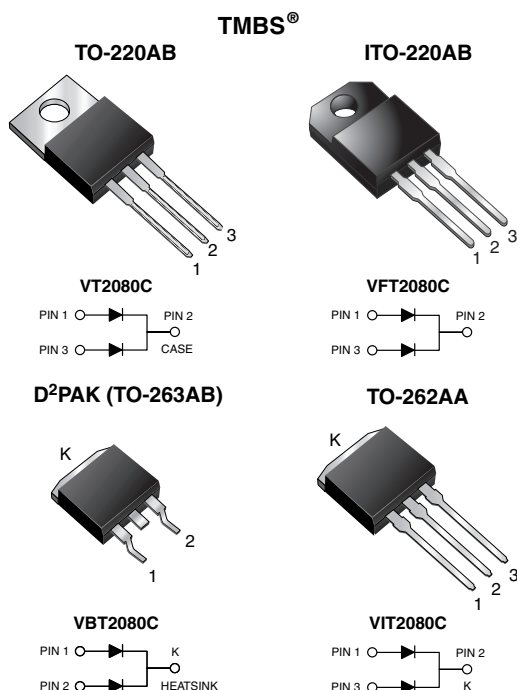


## Dual Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.52 \text{ V}$  at  $I_F = 5 \text{ A}$



### LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

| PRIMARY CHARACTERISTICS       |   |
|-------------------------------|---|
| $I_{F(AV)}$                   | 2 x 10 A  |
| $V_{RRM}$                     | 80 V  |
| $I_{FSM}$                     | 100 A   |
| $V_F$ at $I_F = 10 \text{ A}$ | 0.60 V  |
| $T_J$ max.                    | 150 °C  |
| Package                       | TO-220AB, ITO-220AB, D2PAK (TO-263AB), TO-262AA |
| Circuit configuration         | Common cathode                                  |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)  |                                   |             |          |          |          |      |
|--|-----------------------------------|-------------|----------|----------|----------|------|
| PARAMETER  | SYMBOL                            | VT2080C     | VFT2080C | VBT2080C | VIT2080C | UNIT |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>                  | 80          |          |          |          | V    |
| Maximum average forward rectified current (fig. 1)   | per device                        | 20          |          |          |          | A    |
|  | per diode                         | 10          |          |          |          |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode             | I <sub>FSM</sub>                  | 100         |          |          |          | A    |
| Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 60 mH per diode                           | E <sub>AS</sub>                   | 110         |          |          |          | mJ   |
| Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz, T <sub>J</sub> = 38 °C ± 2 °C per diode | I <sub>RRM</sub>                  | 1.0         |          |          |          | A    |
| Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min                                   | V <sub>AC</sub>                   | 1500        |          |          |          | V    |
| Operating junction and storage temperature range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 |          |          |          | °C   |

### 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

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

| PARAMETER                               | TEST CONDITIONS       |                         | SYMBOL                        | TYP. | MAX. | UNIT |
|---|-----------------------|-------------------------|-------------------------------|------|------|------|
| Instantaneous forward voltage per diode | I <sub>F</sub> = 5 A  | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.57 | -    | V    |
|   | I <sub>F</sub> = 10 A |                         |                               | 0.67 | 0.81 |      |
|   | I <sub>F</sub> = 5 A  | T <sub>A</sub> = 125 °C |                               | 0.52 | -    |      |
|   | I <sub>F</sub> = 10 A |                         |                               | 0.60 | 0.70 |      |
| Reverse current per diode               | V <sub>R</sub> = 80 V | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 20   | 600  | μA   |
|   |                       | T <sub>A</sub> = 125 °C |                               | 10   | 20   | mA   |

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  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          | VT2080C | VFT2080C | VBT2080C | VIT2080C | UNIT                 |
|----------------------------|------------|-----------------|---------|----------|----------|----------|----------------------|
| Typical thermal resistance | per diode  | $R_{\theta JC}$ | 3.0     | 6.0      | 3.0      | 3.0      | $^{\circ}\text{C/W}$ |
|                            | per device |                 | 2.0     | 5.0      | 2.0      | 2.0      |                      |

**ORDERING INFORMATION** (Example)

| PACKAGE                       | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-------------------------------|----------------|-----------------|--------------|---------------|---------------|
| TO-220AB                      | VT2080C-E3/4W  | 1.88            | 4W           | 50/tube       | Tube          |
| ITO-220AB                     | VFT2080C-E3/4W | 1.73            | 4W           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB) | VBT2080C-E3/4W | 1.36            | 4W           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB) | VBT2080C-E3/8W | 1.36            | 8W           | 800/reel      | Tape and reel |
| TO-262AA                      | VIT2080C-E3/4W | 1.44            | 4W           | 50/tube       | Tube          |



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

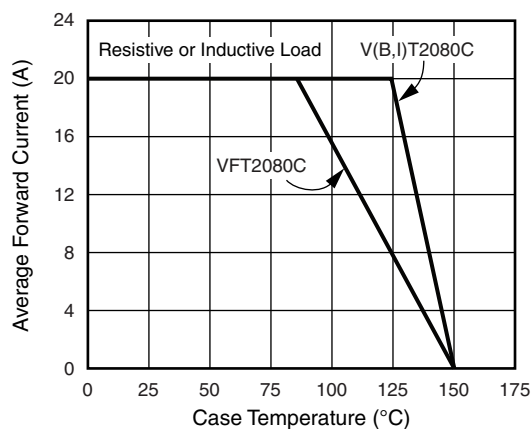


Fig. 1 - Maximum Forward Current Derating Curve

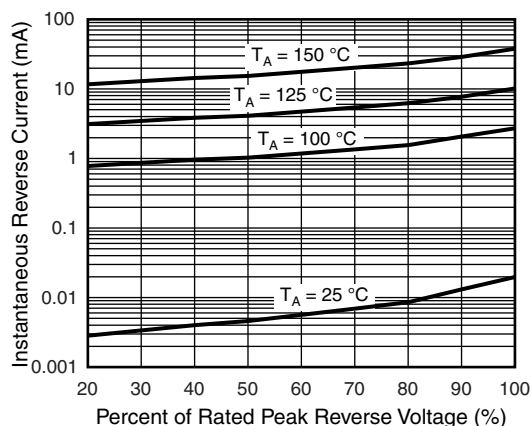


Fig. 4 - Typical Reverse Characteristics Per Diode

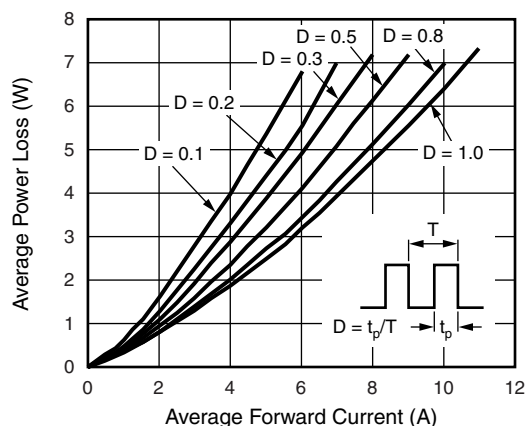


Fig. 2 - Forward Power Loss Characteristics Per Diode

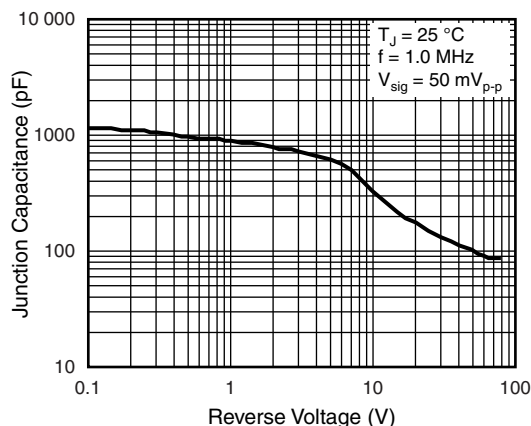


Fig. 5 - Typical Junction Capacitance Per Diode

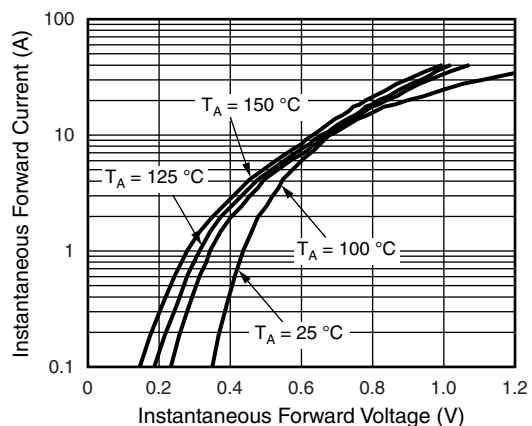


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

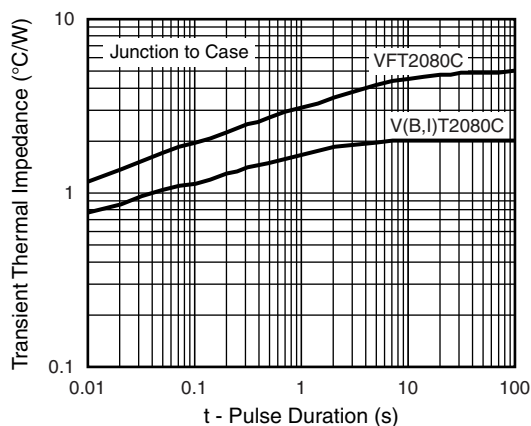
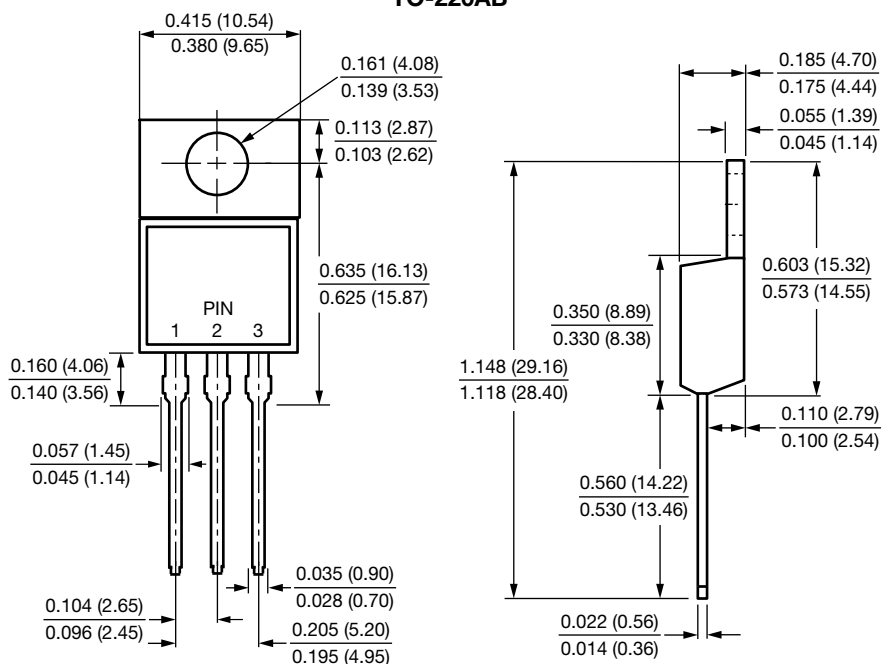


Fig. 6 - Typical Transient Thermal Impedance Per Device

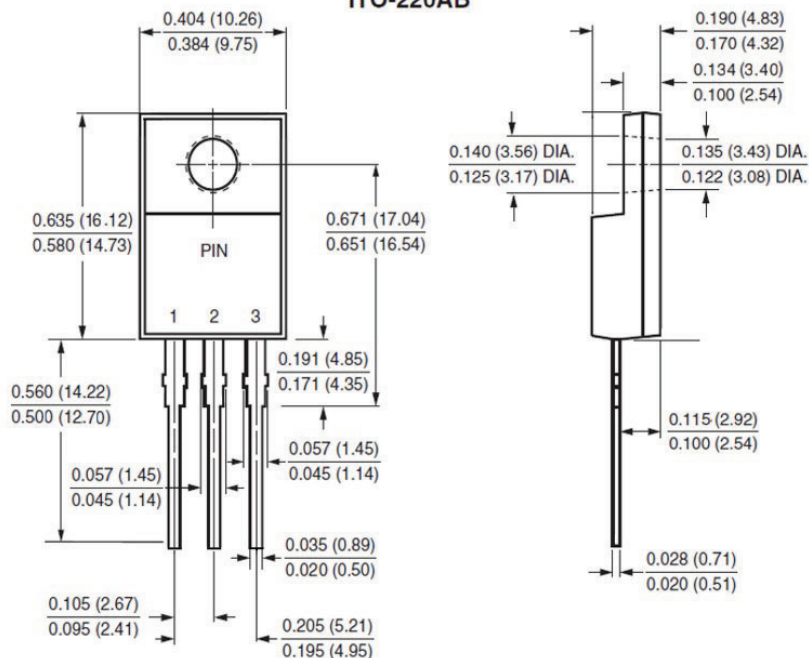


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB

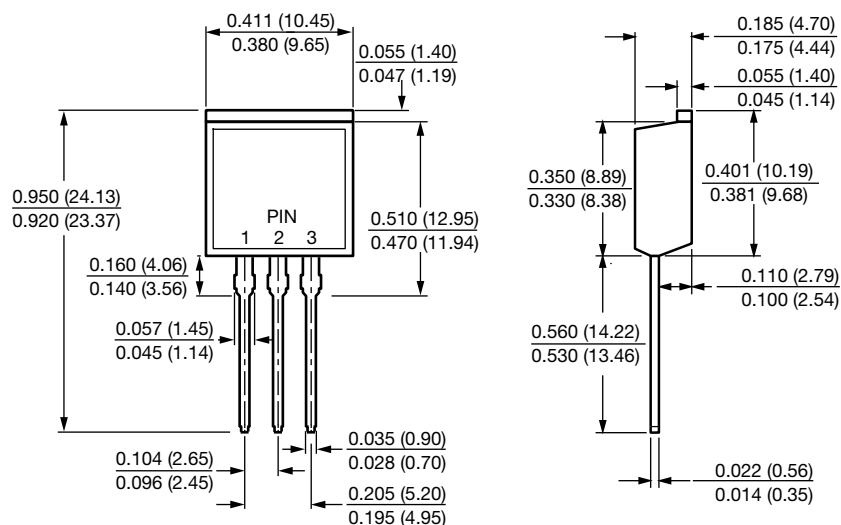


### ITO-220AB

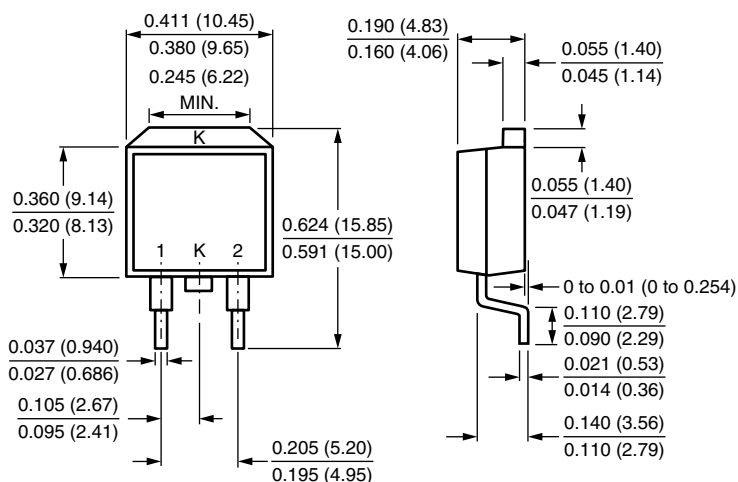




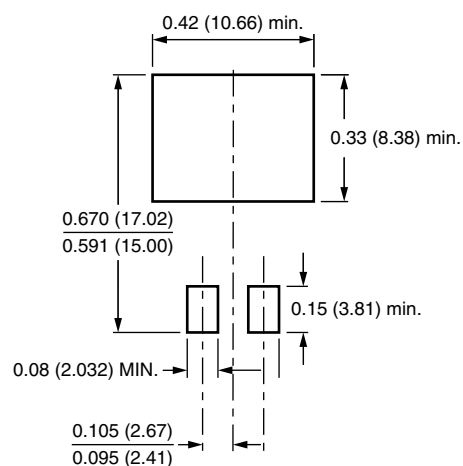
## TO-262AA



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



## Mounting Pad Layout





## Disclaimer

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