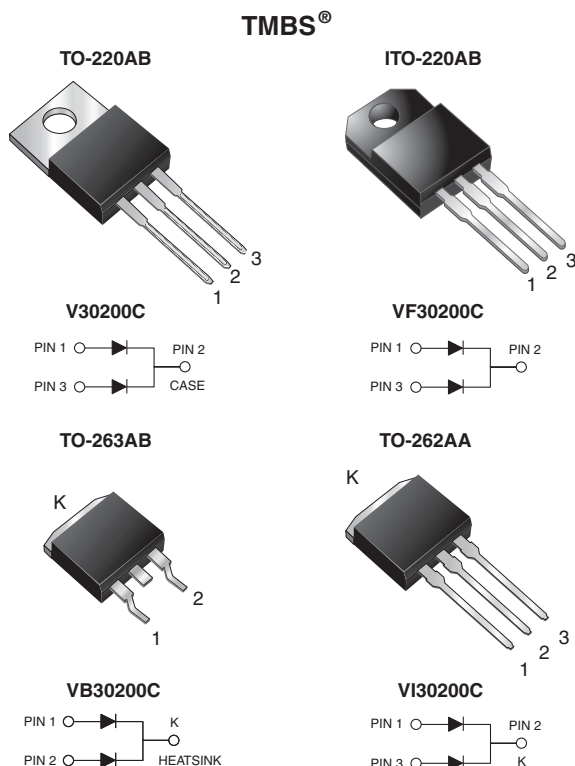


## Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.526 \text{ V}$  at  $I_F = 5 \text{ A}$



### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- 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](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, 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 15 A |
| $V_{RRM}$                     | 200 V    |
| $I_{FSM}$                     | 250 A    |
| $V_F$ at $I_F = 15 \text{ A}$ | 0.648 V  |
| $T_J \text{ max.}$            | 150 °C   |

### MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)

| PARAMETER                                                                                                   | SYMBOL                            | V30200C       | VF30200C | VB30200C | VI30200C | UNIT |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------|----------|----------|----------|------|
| Maximum repetitive peak reverse voltage                                                                     | V <sub>RRM</sub>                  | 200           |          |          |          | V    |
| Maximum average forward rectified current<br>(fig. 1) <div>per device</div> <div>per diode</div>            | I <sub>F(AV)</sub>                | 30            |          |          |          | A    |
|                                                                                                             |                                   | 15            |          |          |          |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode                | I <sub>FSM</sub>                  | 250           |          |          |          | A    |
| Non-repetitive avalanche energy<br>at T <sub>J</sub> = 25 °C, L = 60 mH per diode                           | E <sub>AS</sub>                   | 200           |          |          |          | mJ   |
| Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz,<br>T <sub>J</sub> = 38 °C ± 2 °C per diode | I <sub>RRM</sub>                  | 0.5           |          |          |          | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                                              | dV/dt                             | 10 000        |          |          |          | V/μs |
| Isolation voltage (ITO-220AB only)<br>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> | - 40 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 <sub>R</sub> = 10 mA | T <sub>A</sub> = 25 °C  | V <sub>BR</sub> | 205 min. | -    | V    |
| Instantaneous forward voltage per diode <sup>(1)</sup> | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 25 °C  | V <sub>F</sub>  | 0.691    | -    |      |
|                                                        | I <sub>F</sub> = 10 A  |                         |                 | 0.770    | -    |      |
|                                                        | I <sub>F</sub> = 15 A  |                         |                 | 0.841    | 1.10 |      |
|                                                        | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 125 °C |                 | 0.526    | -    |      |
|                                                        | I <sub>F</sub> = 10 A  |                         |                 | 0.594    | -    |      |
|                                                        | I <sub>F</sub> = 15 A  |                         |                 | 0.648    | 0.72 |      |
| Reverse current per diode <sup>(2)</sup>               | V <sub>R</sub> = 180 V | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 2.4      | -    |      |
|                                                        |                        | T <sub>A</sub> = 125 °C |                 | 3.8      | -    | mA   |
|                                                        | V <sub>R</sub> = 200 V | T <sub>A</sub> = 25 °C  |                 | 5.3      | 160  | μA   |
|                                                        |                        | T <sub>A</sub> = 125 °C |                 | 6.0      | 12   | 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          | V30200C | VF30200C | VB30200C | VI30200C | UNIT                 |
|--------------------------------------|-----------------|---------|----------|----------|----------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}$ | 2.0     | 5.5      | 2.0      | 2.0      | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE   | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------|----------------|-----------------|--------------|---------------|---------------|
| TO-220AB  | V30200C-E3/4W  | 2.248           | 4W           | 50/tube       | Tube          |
| ITO-220AB | VF30200C-E3/4W | 1.75            | 4W           | 50/tube       | Tube          |
| TO-263AB  | VB30200C-E3/4W | 1.39            | 4W           | 50/tube       | Tube          |
| TO-263AB  | VB30200C-E3/8W | 1.39            | 8W           | 800/reel      | Tape and reel |
| TO-262AA  | VI30200C-E3/4W | 1.46            | 4W           | 50/tube       | Tube          |

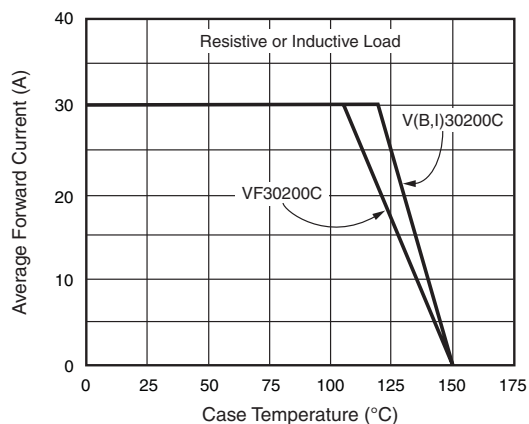
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Derating Curve

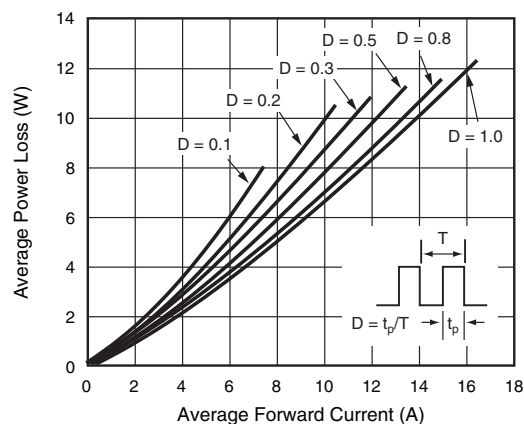


Fig. 2 - Forward Power Loss Characteristics Per Diode

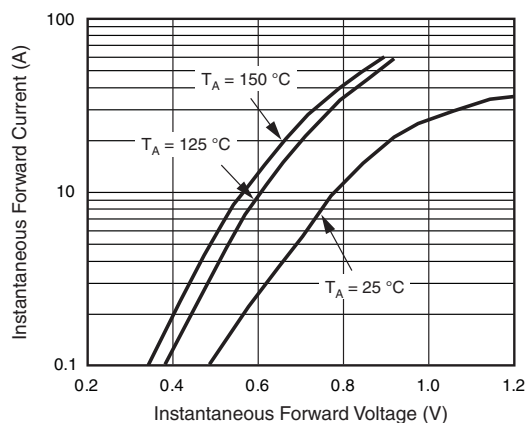


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

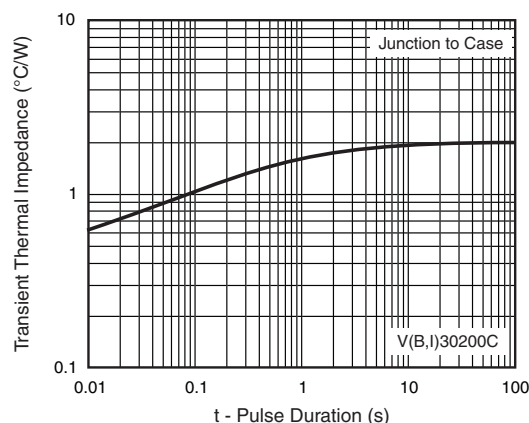


Fig. 6 - Typical Transient Thermal Impedance Per Diode

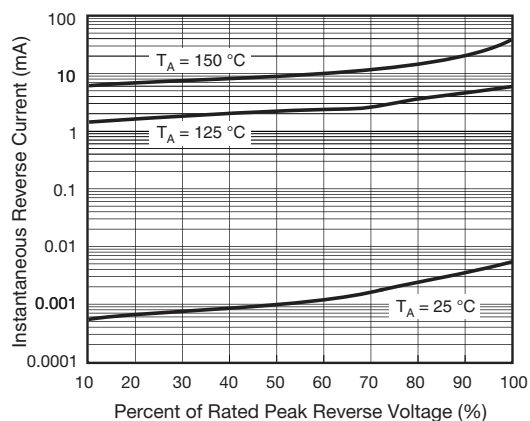


Fig. 4 - Typical Reverse Characteristics Per Diode

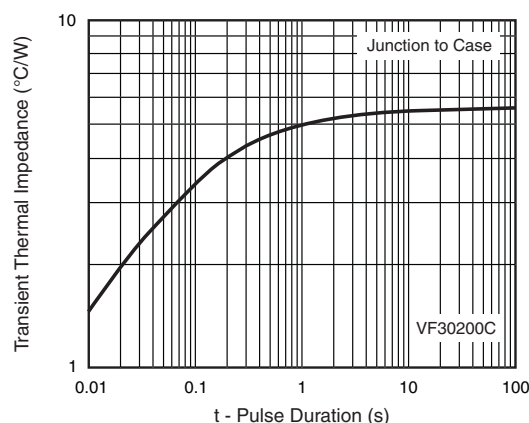


Fig. 7 - Typical Transient Thermal Impedance Per Diode

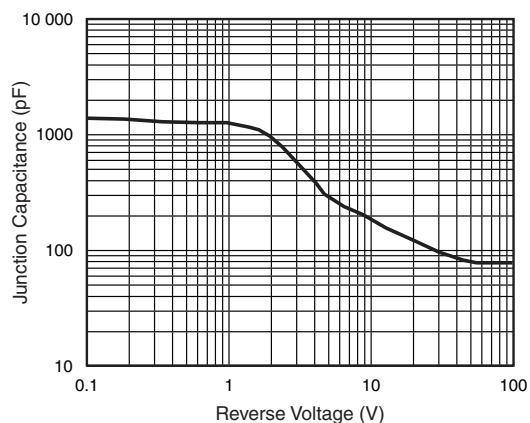
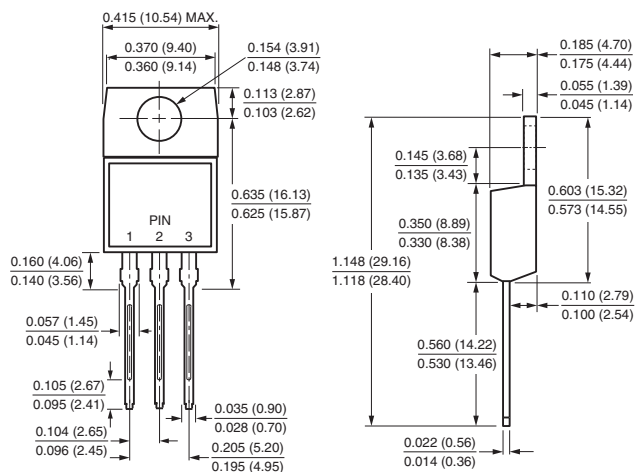


Fig. 5 - Typical Junction Capacitance Per Diode

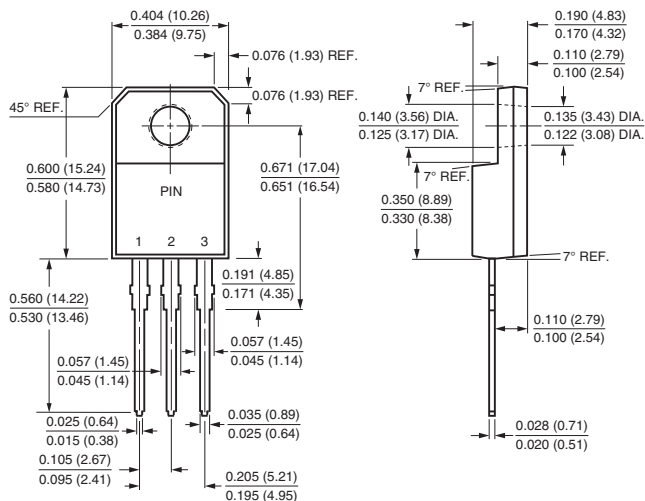


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

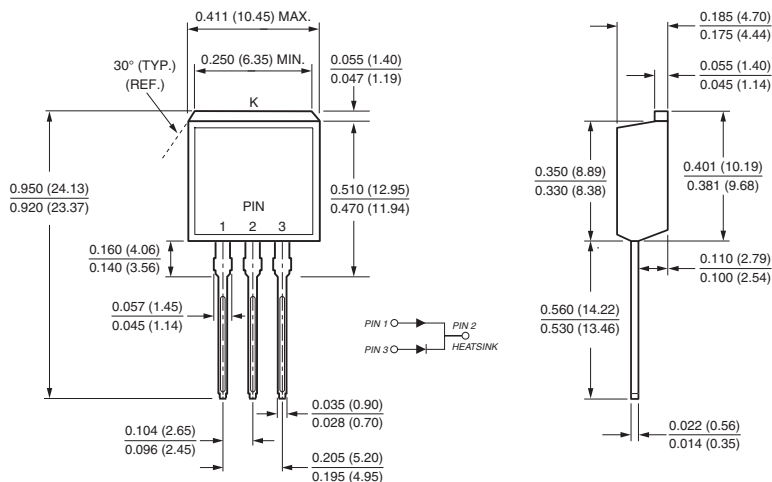
TO-220AB



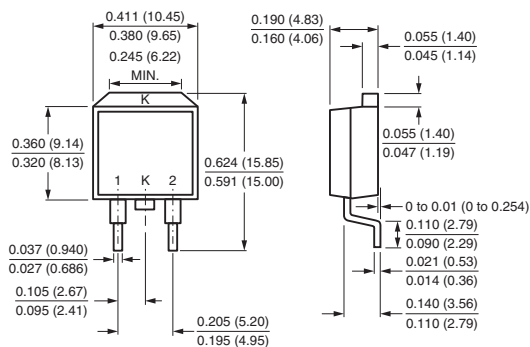
ITO-220AB



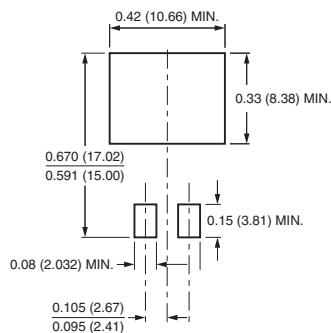
TO-262AA



TO-263AB



Mounting Pad Layout





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