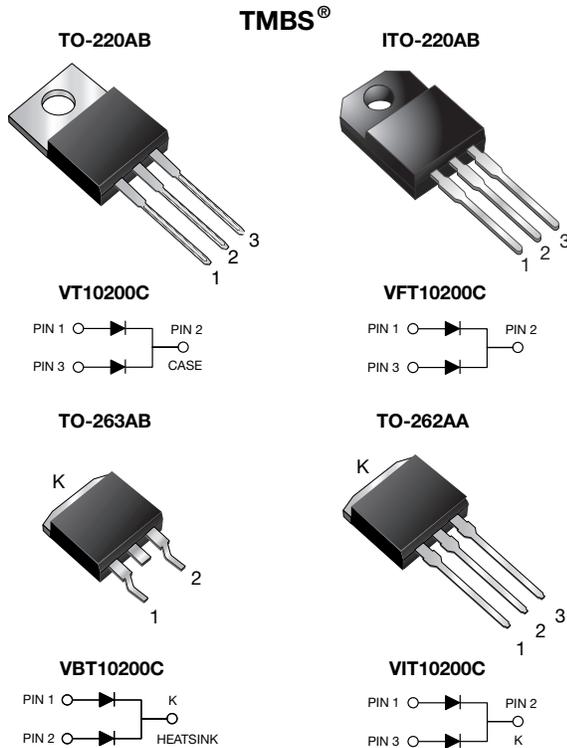




## Trench MOS Barrier Schottky Rectifier

Ultra Low VF = 0.58 V at IF = 2.5 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 dip 275 °C max. 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 5.0 A
$V_{RRM}$	200 V
$I_{FSM}$	80 A
$V_F$ at $I_F = 5.0$ A	0.65 V
$T_J$ max.	150 °C
Package	TO-220AB, ITO-220AB, TO-263AB, TO-262AA
Diode variations	Common cathode

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	VT10200C	VFT10200C	VBT10200C	VIT10200C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$		200			V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	10.0			A
		per diode	5.0			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$		80			A
Non-repetitive avalanche energy at $T_J = 25$ °C, $L = 60$ mH per diode	$E_{AS}$		30			mJ
Peak repetitive reverse current at $t_p = 2$ $\mu$ s, 1 kHz, $T_J = 38$ °C $\pm$ 2 °C per diode	$I_{RRM}$		0.5			A
Voltage rate of change (rated $V_R$ )	dV/dt		10 000			V/ $\mu$ s
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1$ min	$V_{AC}$		1500			V
Operating junction and storage temperature range	$T_J, T_{STG}$		-40 to +150			°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	$I_R = 1.0\text{ mA}$	$T_A = 25\text{ }^\circ\text{C}$	$V_{BR}$	200 (minimum)	-	V
Instantaneous forward voltage per diode	$I_F = 2.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.81	-	V
	$I_F = 5.0\text{ A}$			1.10	1.60	
	$I_F = 2.5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.58	-	
	$I_F = 5.0\text{ A}$			0.65	0.73	
Reverse current per diode	$V_R = 180\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	1.7	-	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		1.8	-	mA
	$V_R = 200\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		-	150	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		2.5	10	mA

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	SYMBOL	VT10200C	VFT10200C	VBT10200C	VIT10200C	UNIT
Typical thermal resistance	per diode	3.5	7.0	3.5	3.5	$^\circ\text{C/W}$
	per device	2.5	5.5	2.5	2.5	

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT10200C-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VFT10200C-E3/4W	1.72	4W	50/tube	Tube
TO-263AB	VBT10200C-E3/4W	1.37	4W	50/tube	Tube
TO-263AB	VBT10200C-E3/8W	1.37	8W	800/reel	Tape and reel
TO-262AA	VIT10200C-E3/4W	1.44	4W	50/tube	Tube



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

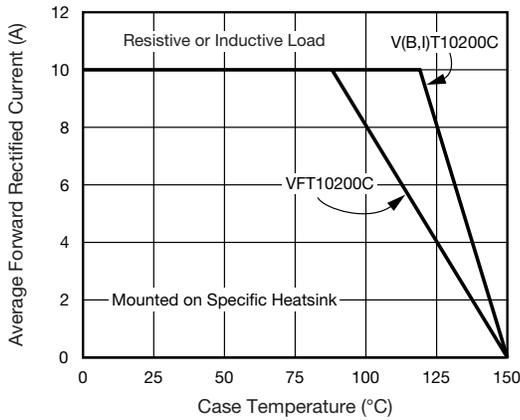


Fig. 1 - Maximum Forward Current Derating Curve

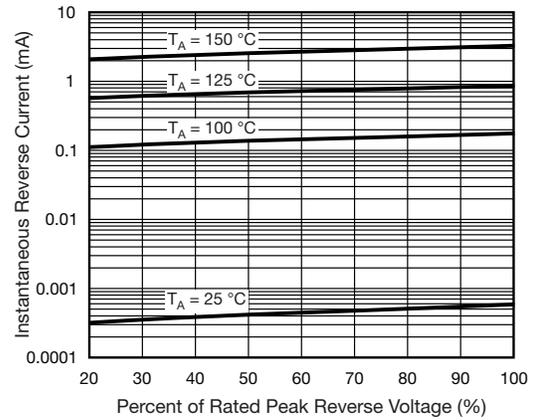


Fig. 4 - Typical Reverse Characteristics Per Diode

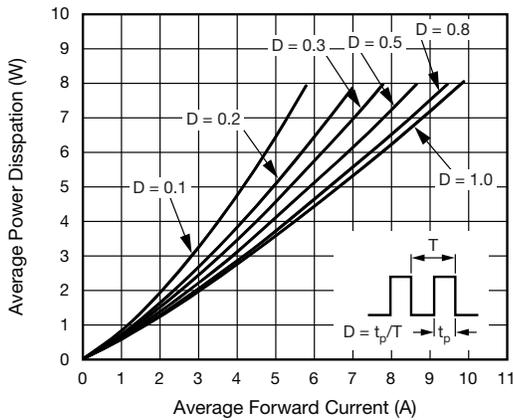


Fig. 2 - Forward Power Loss Characteristics Per Device

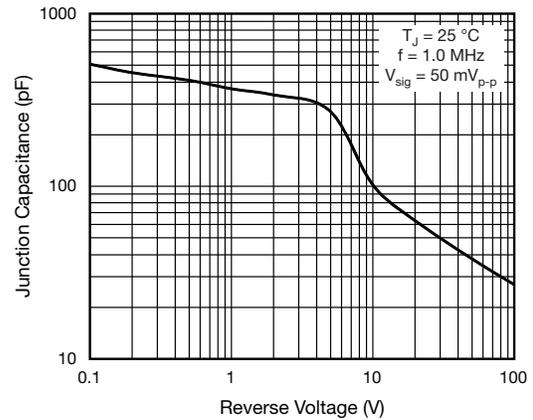


Fig. 5 - Typical Junction Capacitance Per Diode

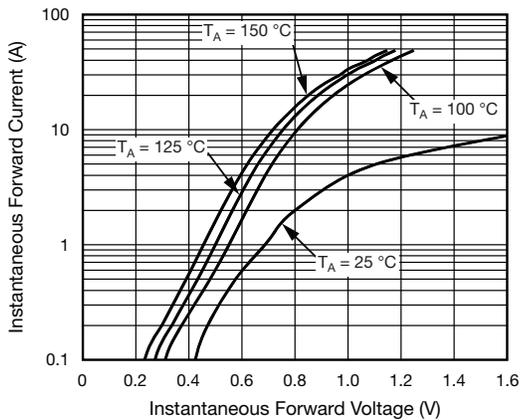


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

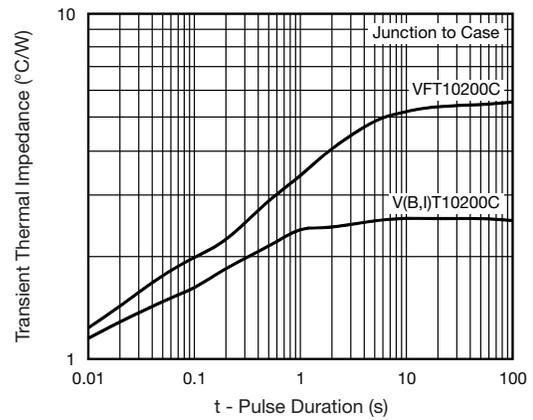
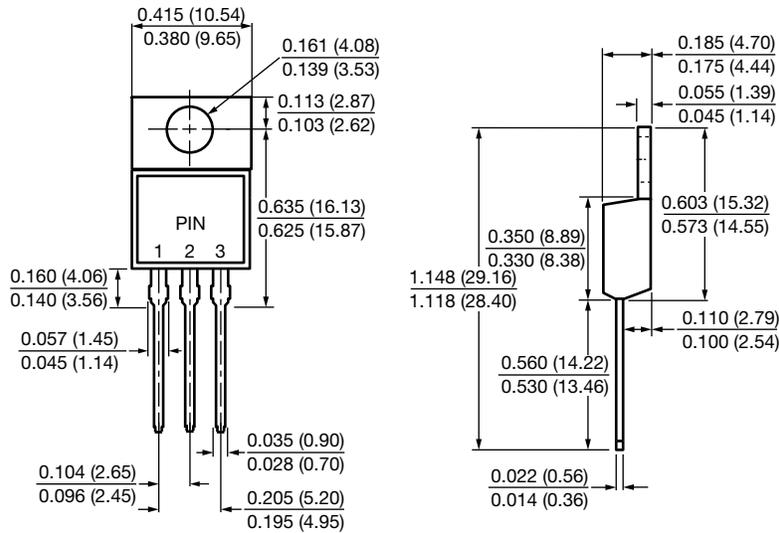


Fig. 6 - Typical Transient Thermal Impedance Per Device

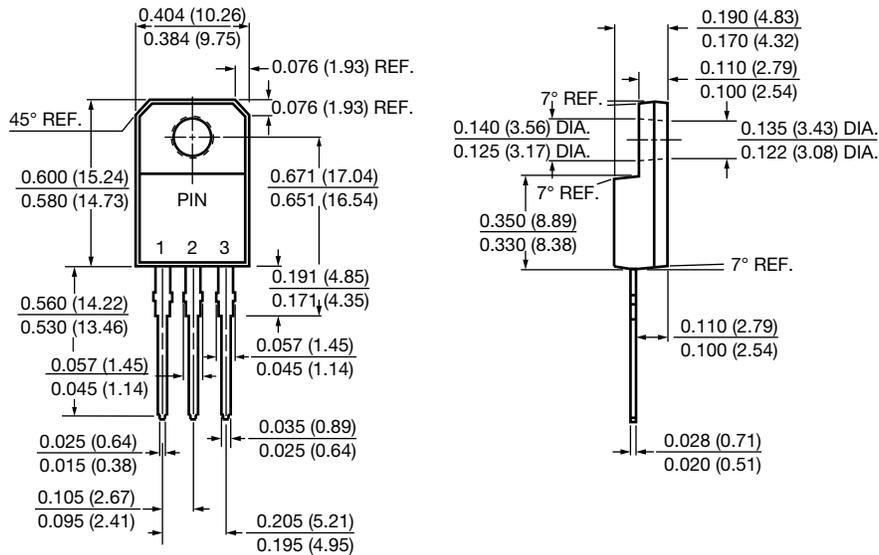


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

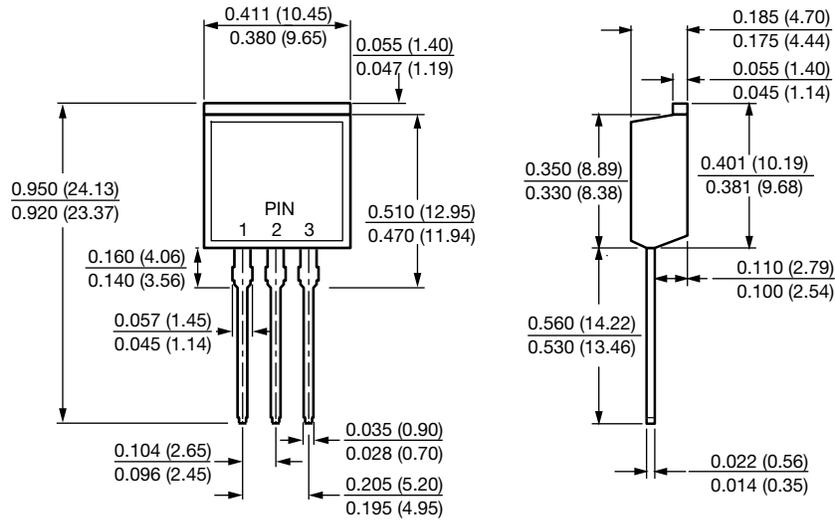


ITO-220AB

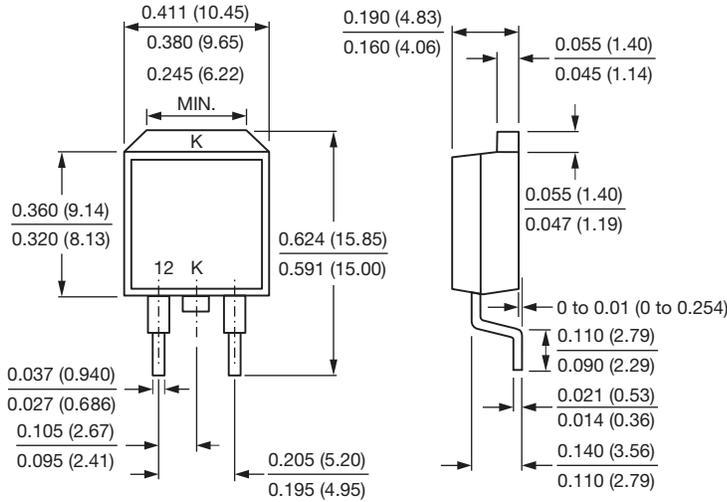




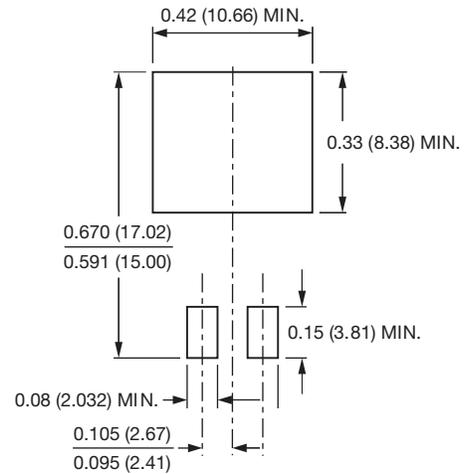
TO-262AA



TO-263AB



Mounting Pad Layout





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