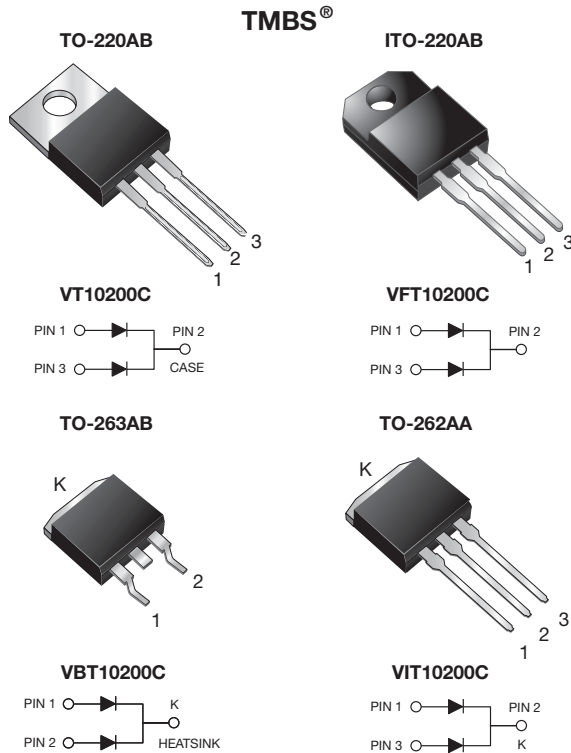




Trench MOS Barrier Schottky Rectifier

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



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 $t_p = 2$ μ 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/ μ 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	



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}	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	-	μA
		$T_A = 125\text{ }^\circ\text{C}$		1.8	-	mA
	$V_R = 200\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		-	150	μA
		$T_A = 125\text{ }^\circ\text{C}$		2.5	10	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	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	

ORDERING INFORMATION (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 °C unless otherwise noted)

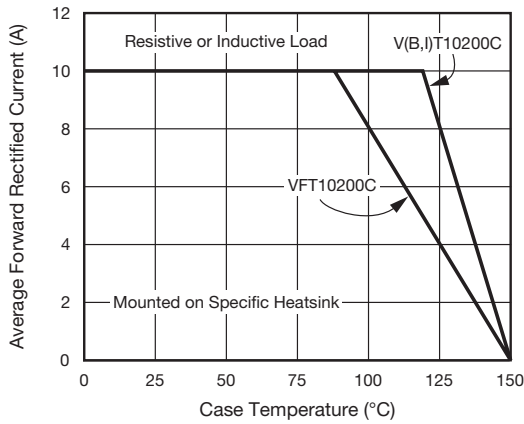


Fig. 1 - Maximum Forward Current Derating Curve

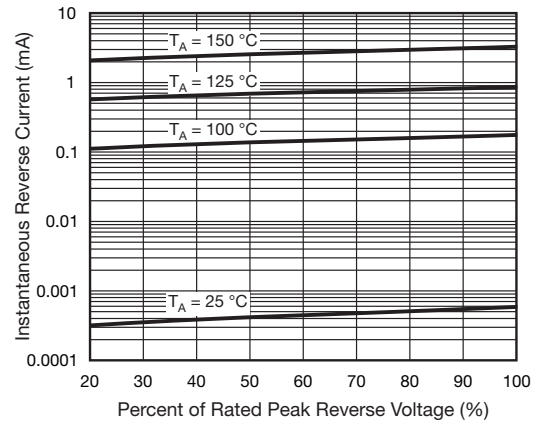


Fig. 4 - Typical Reverse Characteristics Per Diode

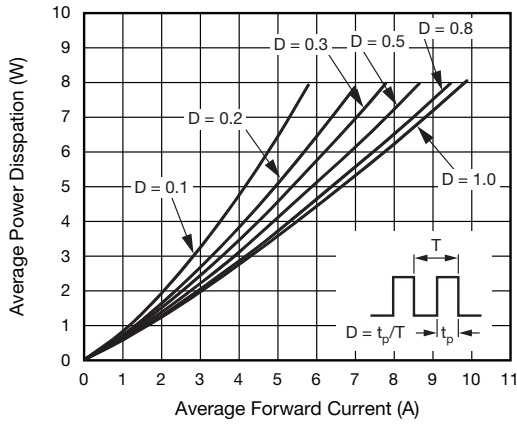


Fig. 2 - Forward Power Loss Characteristics Per Device

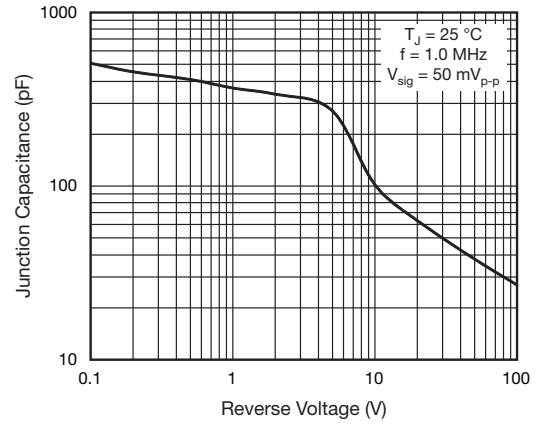


Fig. 5 - Typical Junction Capacitance Per Diode

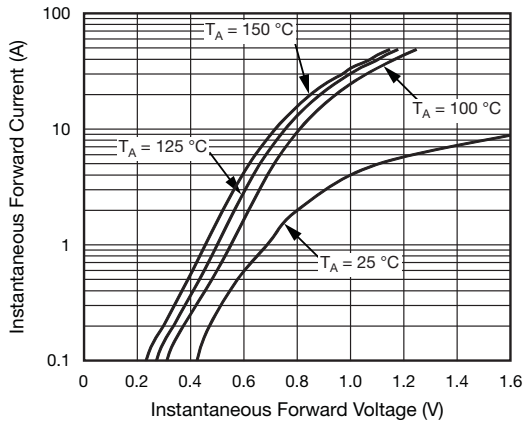


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

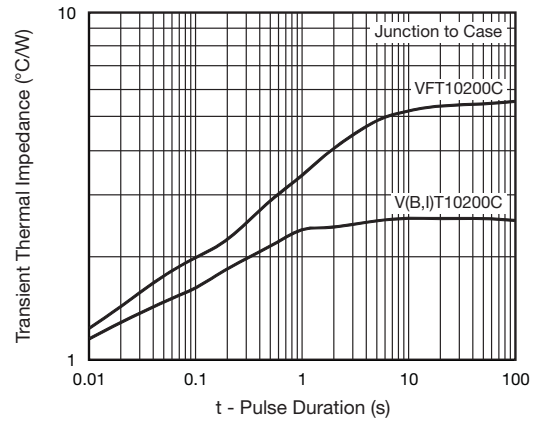
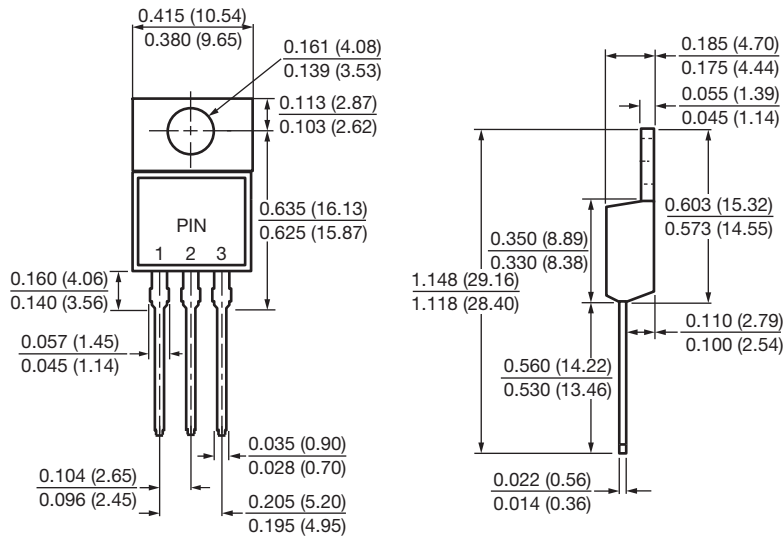


Fig. 6 - Typical Transient Thermal Impedance Per Device

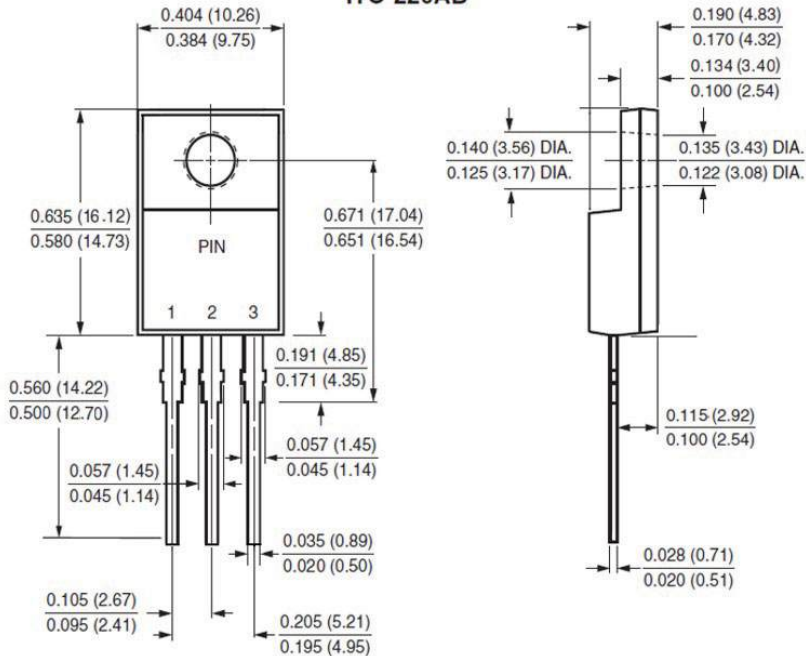


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

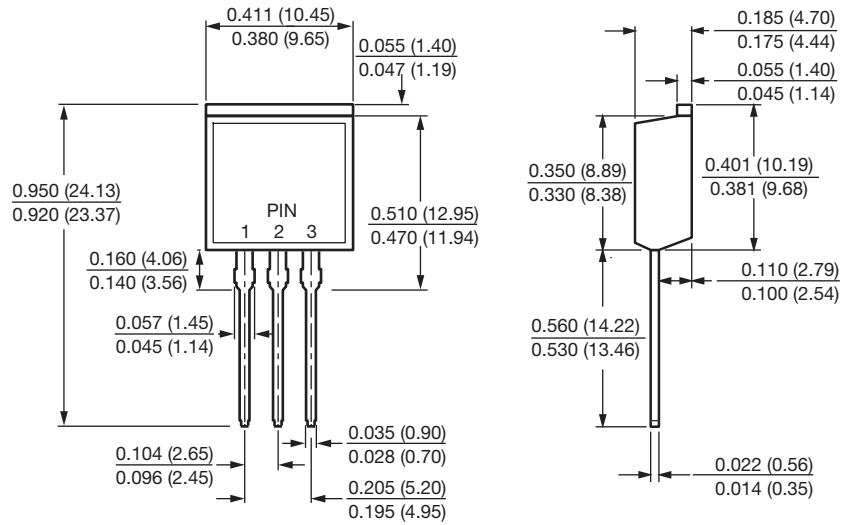


ITO-220AB

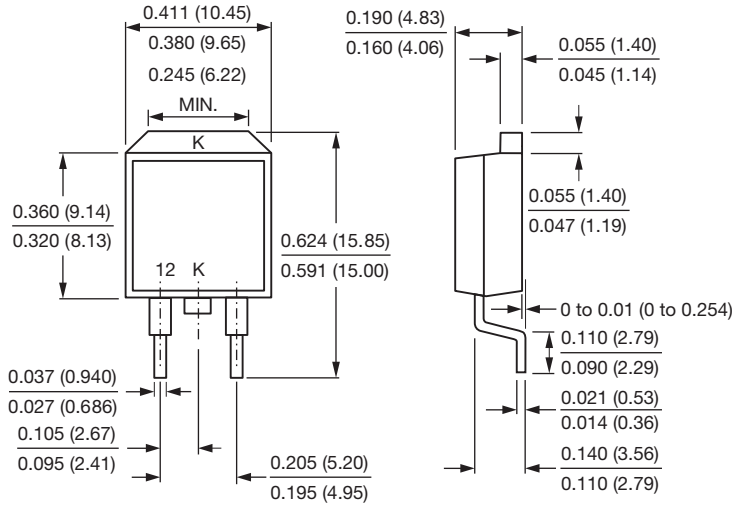




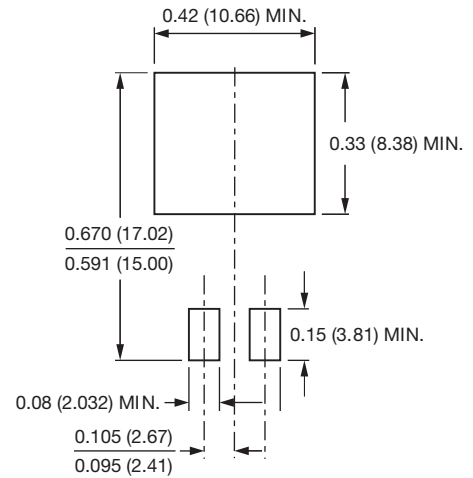
TO-262AA



TO-263AB



Mounting Pad Layout





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