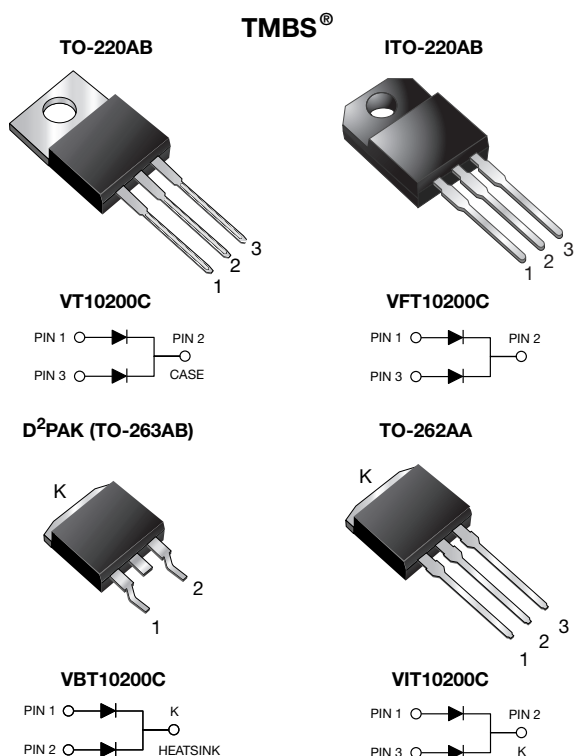




Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.58\text{ V}$ 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 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, 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 5.0 A
V_{RRM}	200 V
I_{FSM}	80 A
V_F at $I_F = 5.0\text{ A}$	0.65 V
T_J max.	150 °C
Package	TO-220AB, ITO-220AB, D ² PAK (TO-263AB), TO-262AA
Circuit configuration	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) <div>per device</div> <div>per diode</div>	I _{F(AV)}	10.0				A
		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 μs, 1 kHz, T _J = 38 °C ± 2 °C per diode	I _{RRM}	0.5				A
Voltage rate of change (rated V _R)	dV/dt	10 000				V/μs
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 °C unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I _R = 1.0 mA	T _A = 25 °C	V _{BR}	200 (min.)	-	V
Instantaneous forward voltage per diode	I _F = 2.5 A	T _A = 25 °C	V _F ⁽¹⁾	0.81	-	V
	I _F = 5.0 A			1.10	1.60	
	I _F = 2.5 A	T _A = 125 °C		0.58	-	
	I _F = 5.0 A			0.65	0.73	
Reverse current per diode	V _R = 180 V	T _A = 25 °C	I _R ⁽²⁾	1.7	-	μA
		T _A = 125 °C		1.8	-	mA
	V _R = 200 V	T _A = 25 °C		-	150	μA
		T _A = 125 °C		2.5	10	mA

Notes

⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽²⁾ Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	VT10200C	VFT10200C	VBT10200C	VIT10200C	UNIT
Typical thermal resistance	R _{θJC}	3.5	7.0	3.5	3.5	°C/W
		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
D ² PAK (TO-263AB)	VBT10200C-E3/4W	1.37	4W	50/tube	Tube
D ² PAK (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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

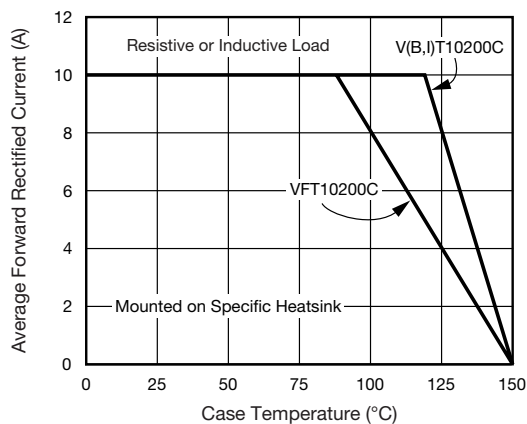


Fig. 1 - Maximum Forward Current Derating Curve

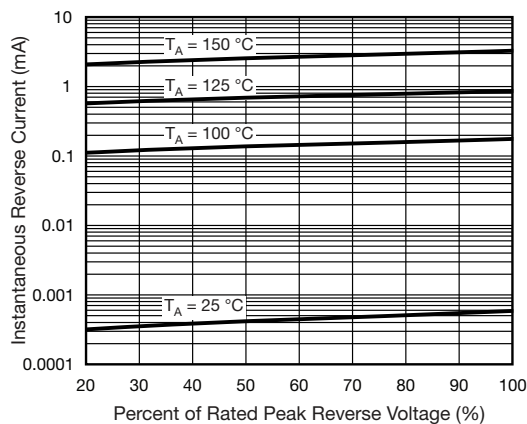


Fig. 4 - Typical Reverse Characteristics Per Diode

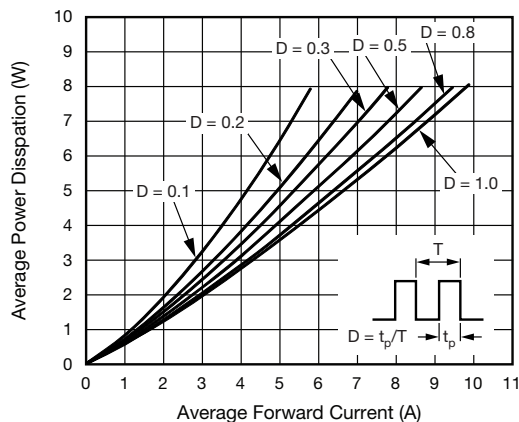


Fig. 2 - Forward Power Loss Characteristics Per Device

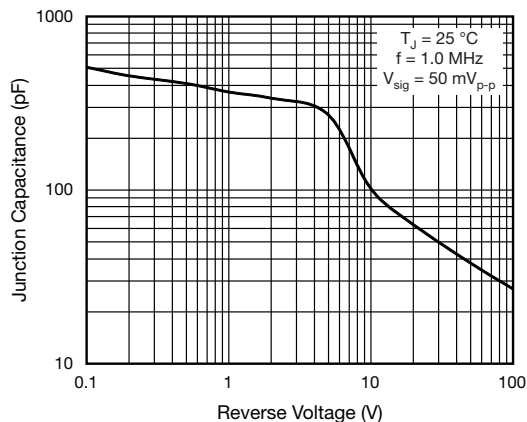


Fig. 5 - Typical Junction Capacitance Per Diode

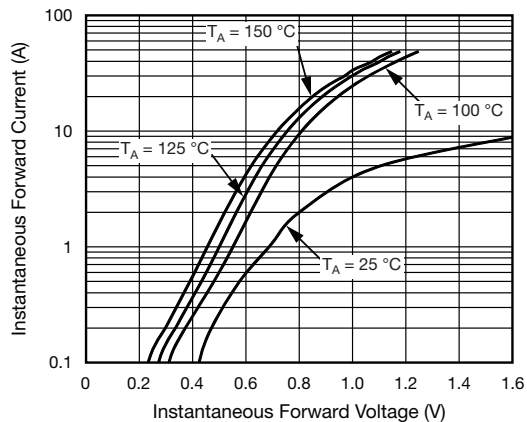


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

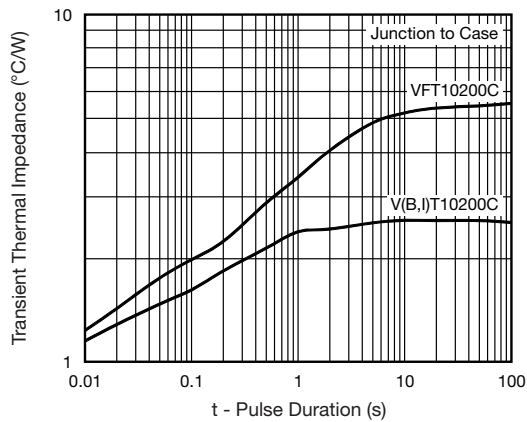
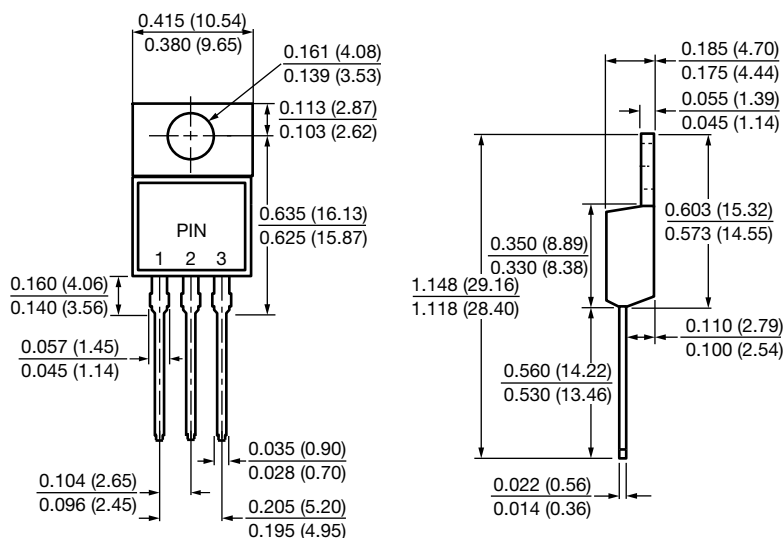


Fig. 6 - Typical Transient Thermal Impedance Per Device

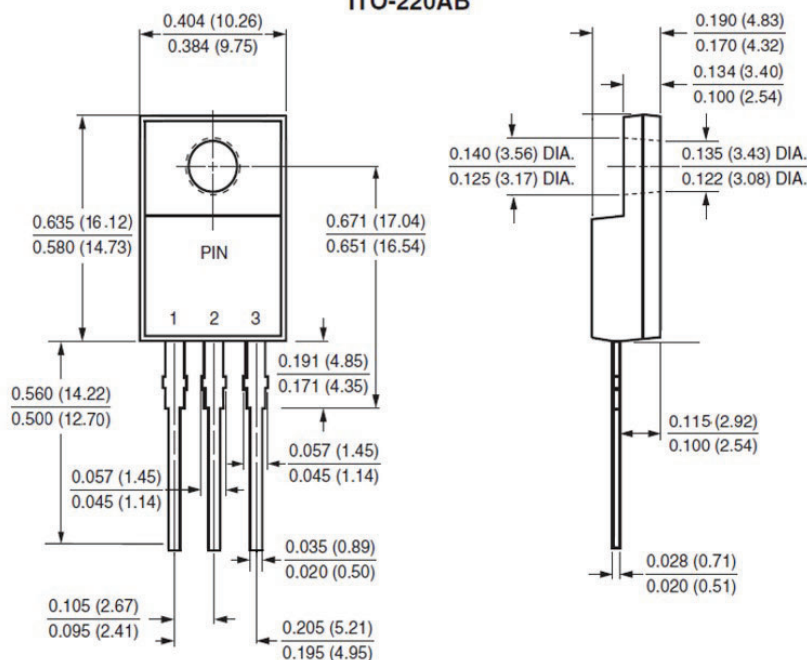


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

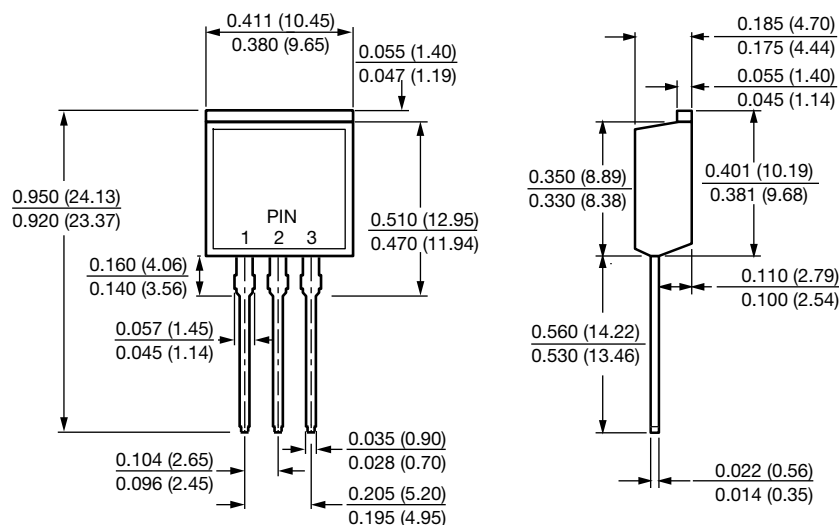


ITO-220AB

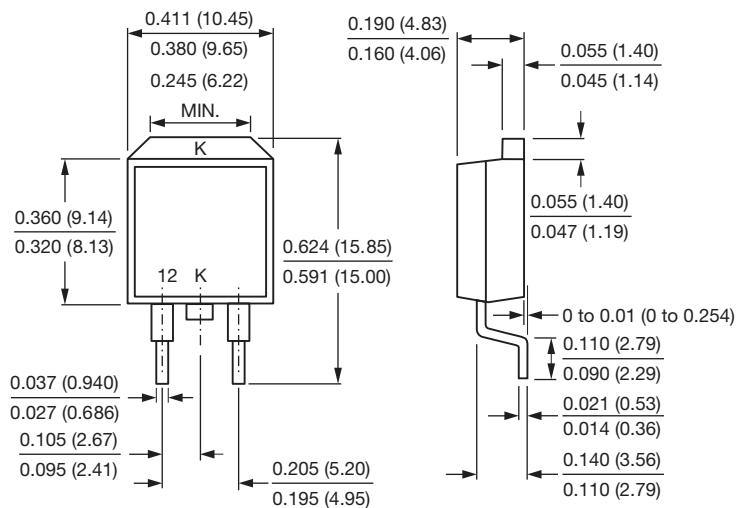




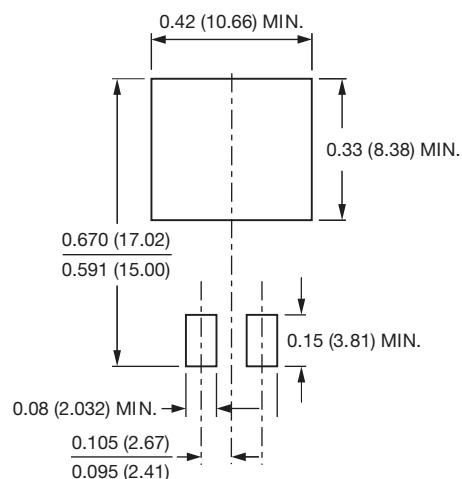
TO-262AA



D²PAK (TO-263AB)



Mounting Pad Layout





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