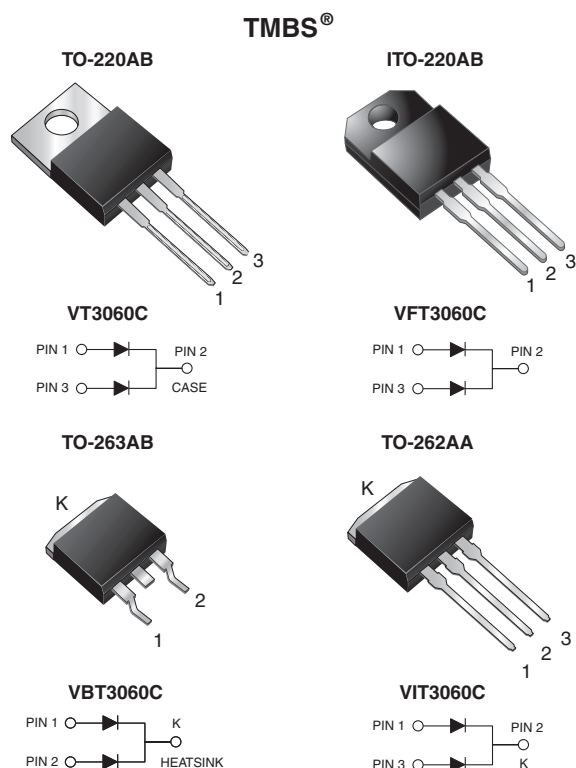




Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.38 \text{ V}$ at $I_F = 5 \text{ A}$



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 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



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency inverters, 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 max.

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	2 x 15 A
V_{RRM}	60 V
I_{FSM}	170 A
V_F at $I_F = 15 \text{ A}$	0.57 V
T_J max.	150 °C
Package	TO-220AB, ITO-220AB, TO-263AB, TO-262AA
Circuit configuration	Common cathode

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

PARAMETER	SYMBOL	VT3060C	VFT3060C	VBT3060C	VIT3060C	UNIT
Max. repetitive peak reverse voltage	V_{RRM}	60				V
Max. average forward rectified current (fig. 1)	$I_{F(AV)}$	30				A
		15				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	170				A
Non-repetitive avalanche energy at $T_J = 25\text{ }^{\circ}\text{C}$, $L = 60\text{ mH}$ per diode	E_{AS}	180				mJ
Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ per diode	I_{RRM}	1.0				A
Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1\text{ min}$	V_{AC}	1500				V
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150				$^{\circ}\text{C}$



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}	60 (min.)	-	V
Instantaneous forward voltage per diode ⁽¹⁾	I _F = 5 A	T _A = 25 °C	V _F	0.47	-	V
	I _F = 7.5 A			0.51	-	
	I _F = 15 A			0.60	0.70	
	I _F = 5 A	T _A = 125 °C		0.38	-	
	I _F = 7.5 A			0.44	-	
	I _F = 15 A			0.57	0.65	
Reverse current per diode ⁽²⁾	V _R = 60 V	T _A = 25 °C	I _R	-	1.2	mA
		T _A = 125 °C		20	45	

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 °C unless otherwise noted)							
PARAMETER		SYMBOL	VT3060C	VFT3060C	VBT3060C	VIT3060C	UNIT
Typical thermal resistance	per diode	R _{θJC}	2.5	6.0	2.5	2.5	°C/W
	per device		1.7	4.8	1.7	1.7	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT3060C-E3/4W	1.89	4W	50/tube	Tube
ITO-220AB	VFT3060C-E3/4W	1.76	4W	50/tube	Tube
TO-263AB	VBT3060C-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VBT3060C-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VIT3060C-E3/4W	1.46	4W	50/tube	Tube



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

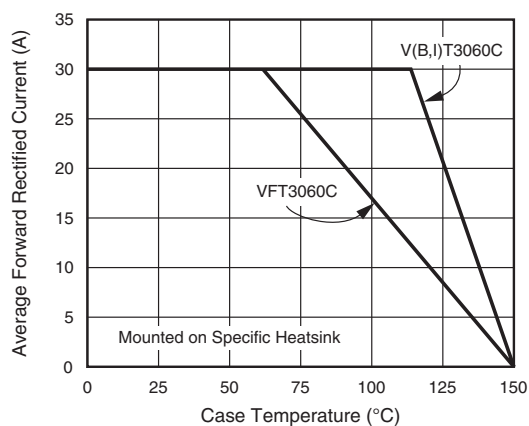


Fig. 1 - Maximum Forward Current Derating Curve

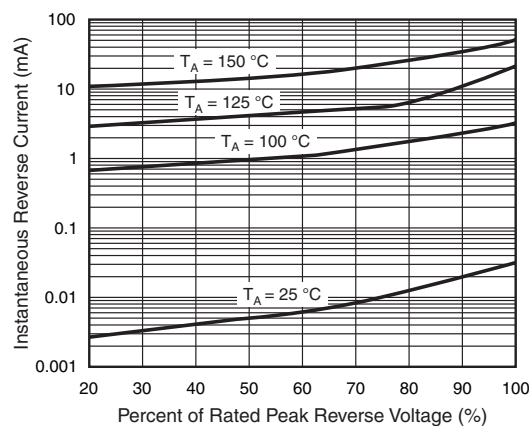


Fig. 4 - Typical Reverse Characteristics Per Diode

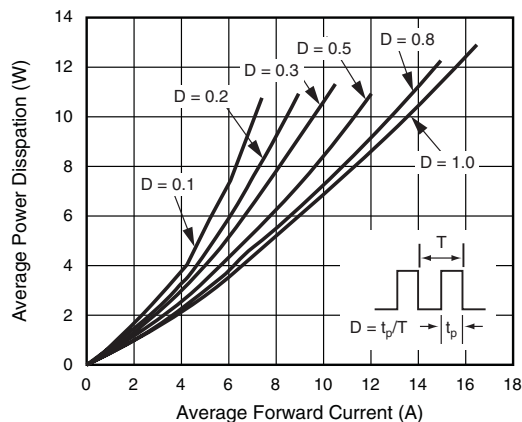


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

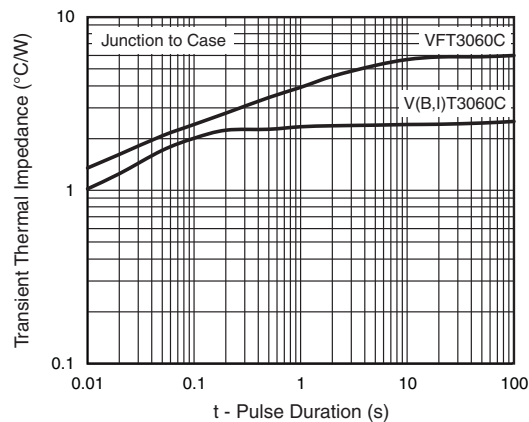


Fig. 5 - Typical Transient Thermal Impedance Per Diode

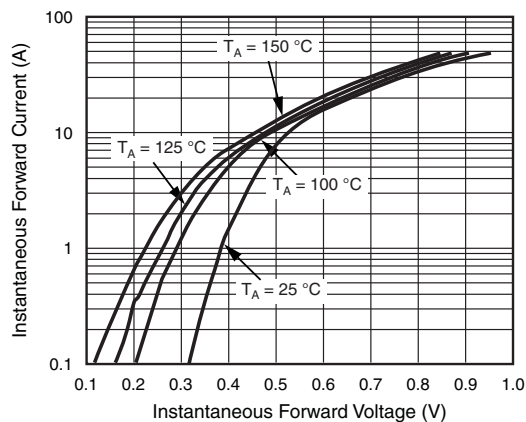


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

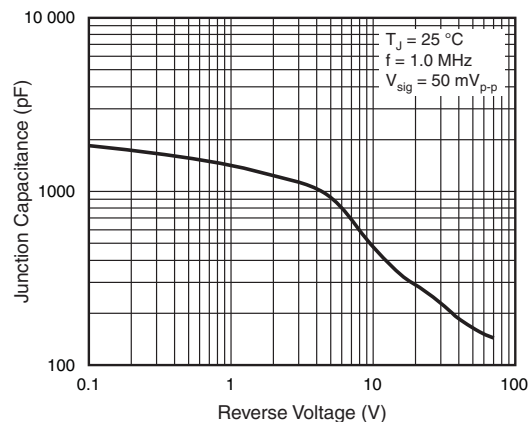
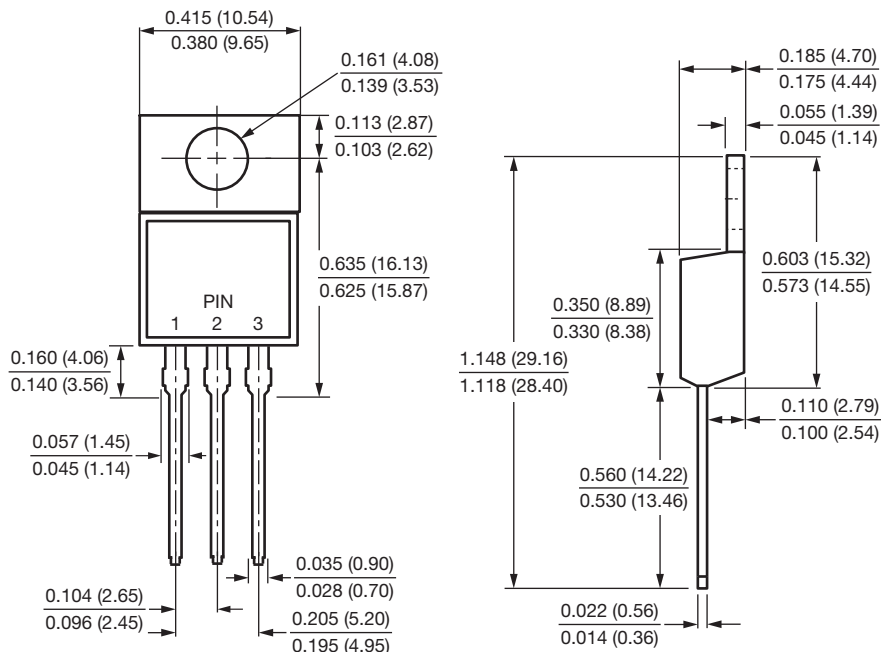


Fig. 6 - Typical Junction Capacitance Per Diode

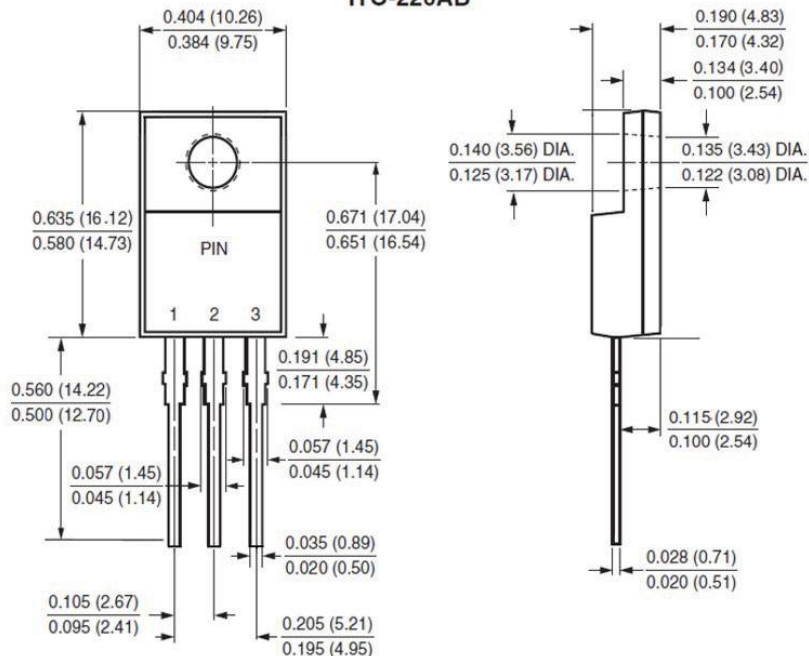


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

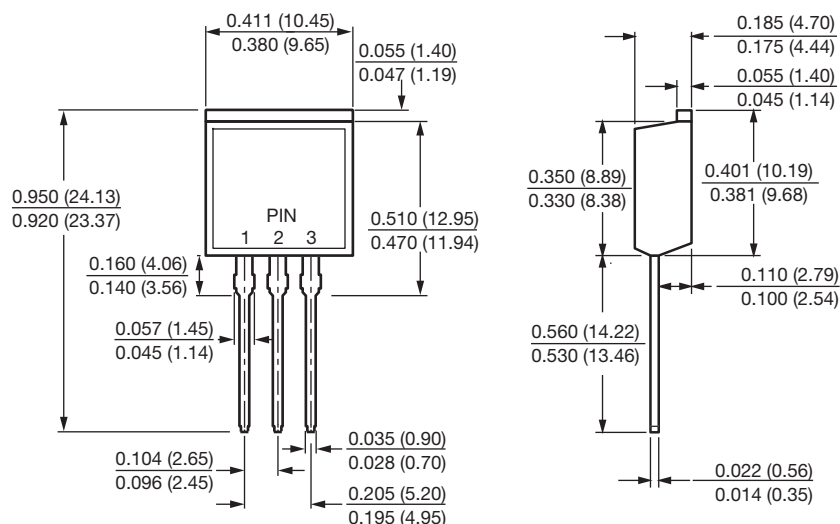
TO-220AB



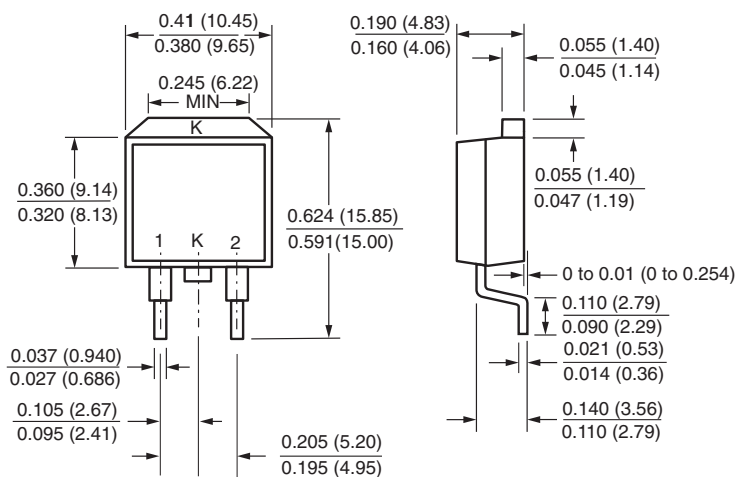
ITO-220AB



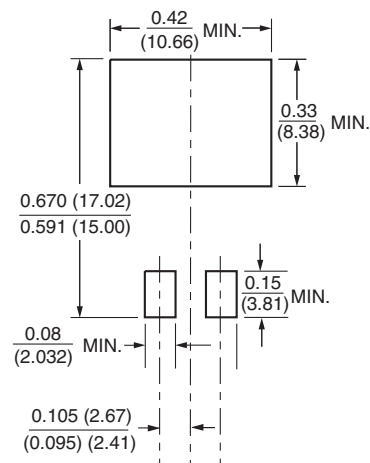
TO-262AA



TO-263AB



Mounting Pad Layout





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