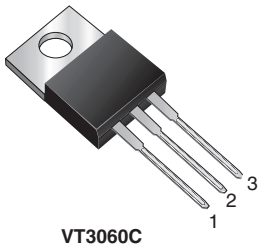
Dual High Voltage Trench MOS Barrier Schottky Rectifier

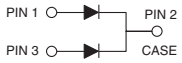
Ultra Low V_F = 0.38 V at I_F = 5 A

TMBS®

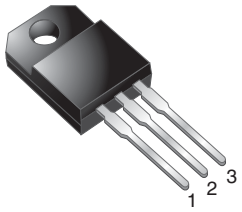
TO-220AB



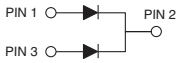
VT3060C



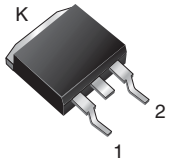
ITO-220AB



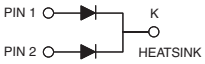
VFT3060C



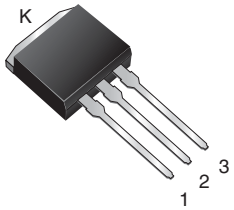
TO-263AB



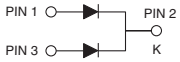
VBT3060C



TO-262AA



VIT3060C



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 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 °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)	per device	$I_{F(AV)}$	30				A
	per diode		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 °C, L = 60 mH per diode		E_{AS}	180				mJ
Peak repetitive reverse current at t_p = 2 µs, 1 kHz, T_J = 38 °C ± 2 °C per diode		IR_{RM}	1.0				A
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}	-55 to +150				°C

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

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 ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)							
PARAMETER		**SYMBOL**	**VT3060C**	**VFT3060C**	**VBT3060C**	**VIT3060C**	**UNIT**
Typical thermal resistance	per diode	$R_{\theta JC}$	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 °C unless otherwise noted)

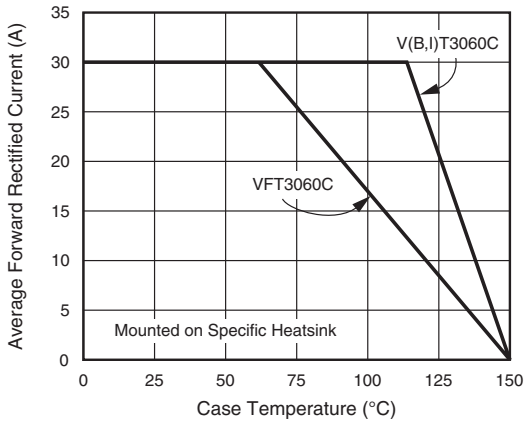


Fig. 1 - Maximum Forward Current Derating Curve

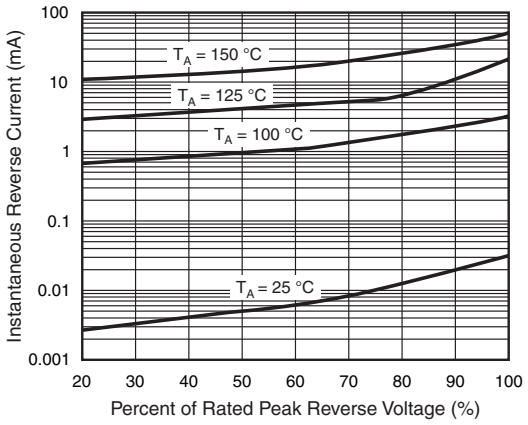


Fig. 4 - Typical Reverse Characteristics Per Diode

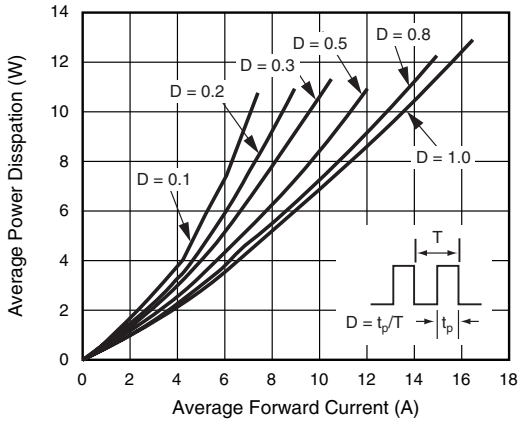


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

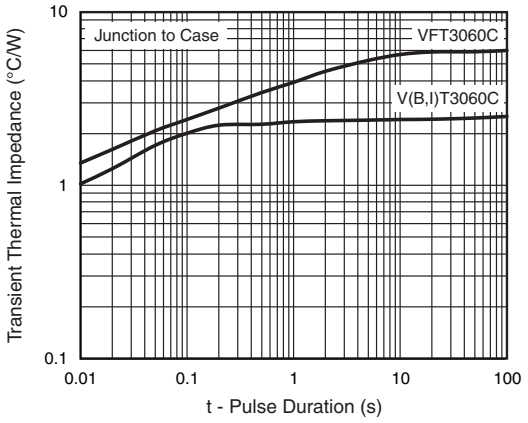


Fig. 5 - Typical Transient Thermal Impedance Per Diode

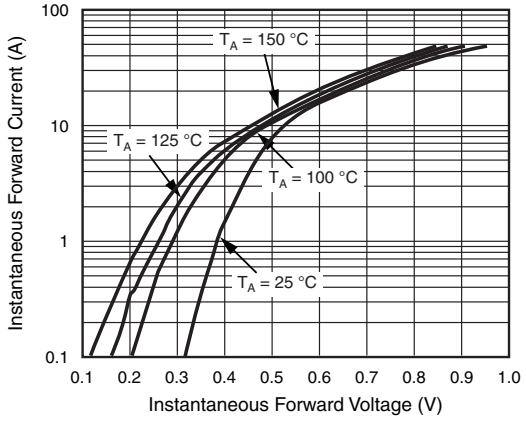


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

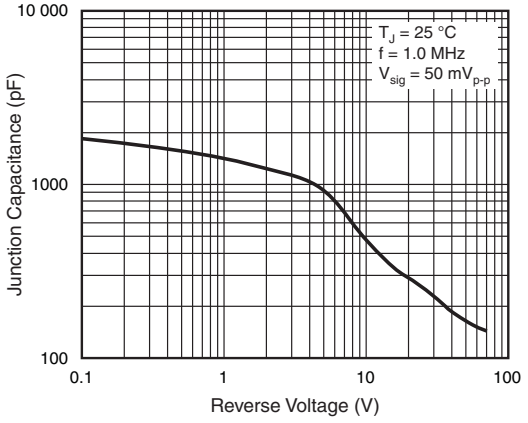
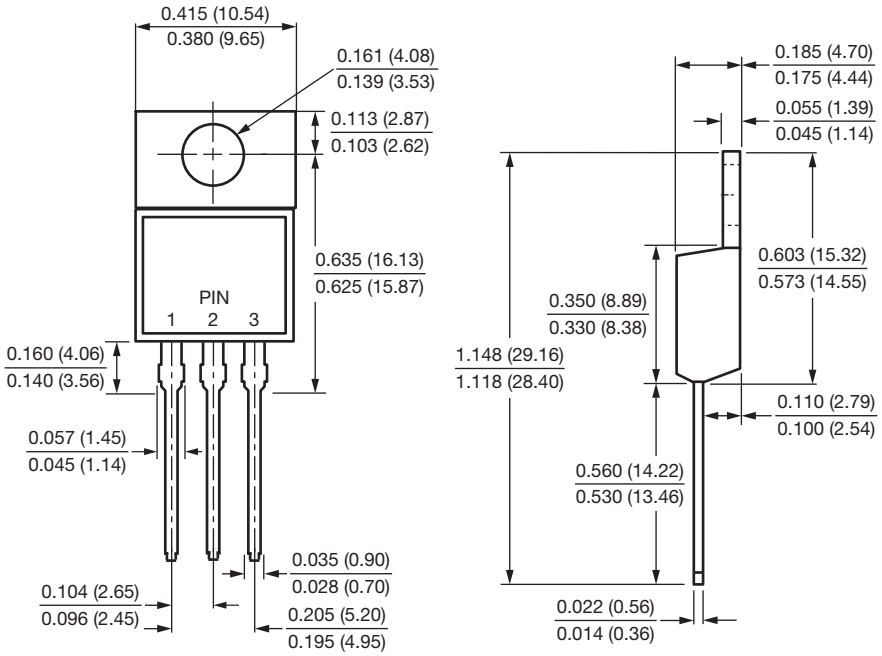


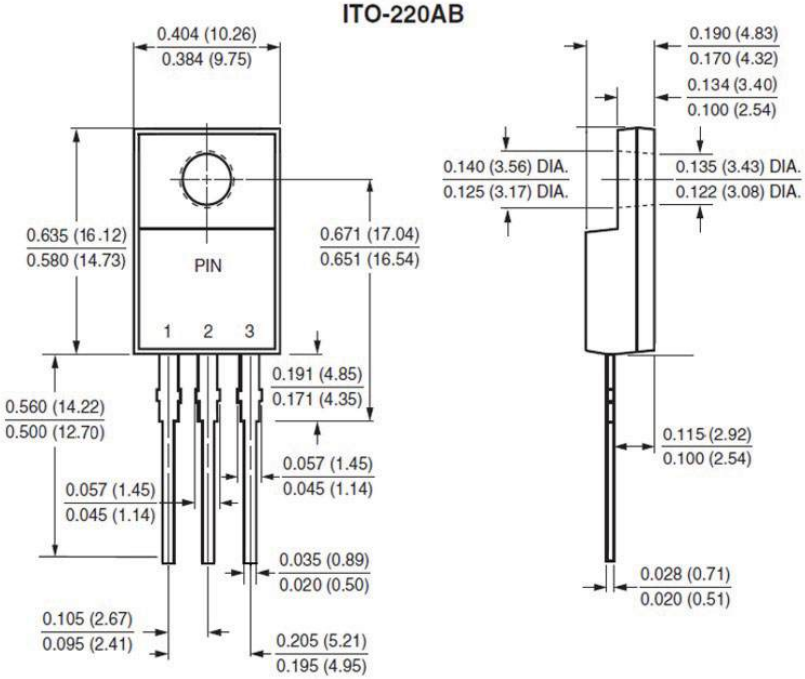
Fig. 6 - Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

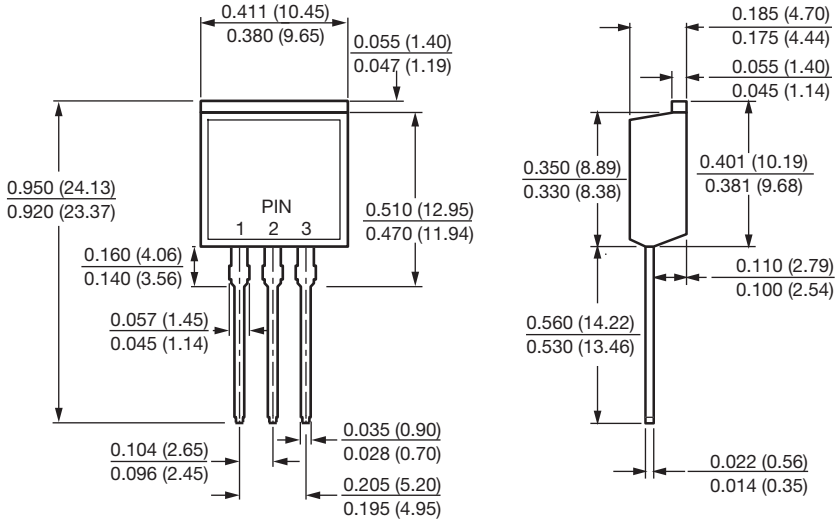
TO-220AB



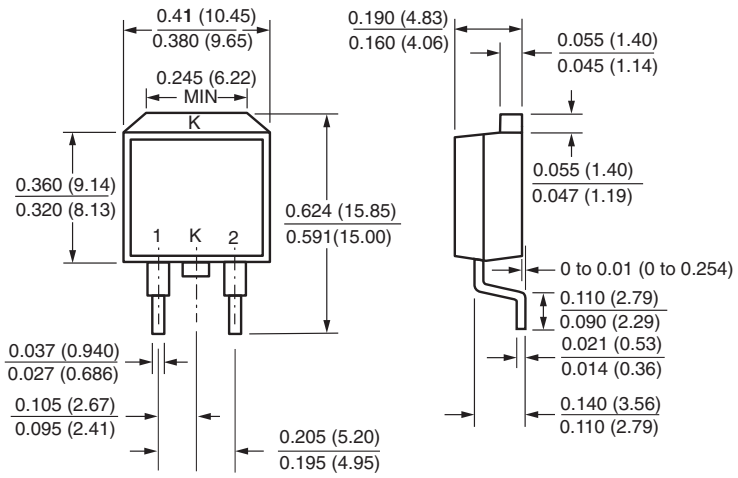
ITO-220AB



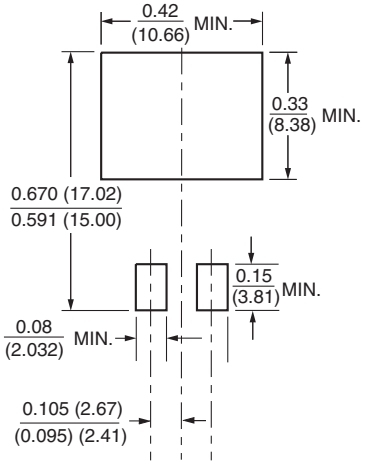
TO-262AA



TO-263AB



Mounting Pad Layout



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