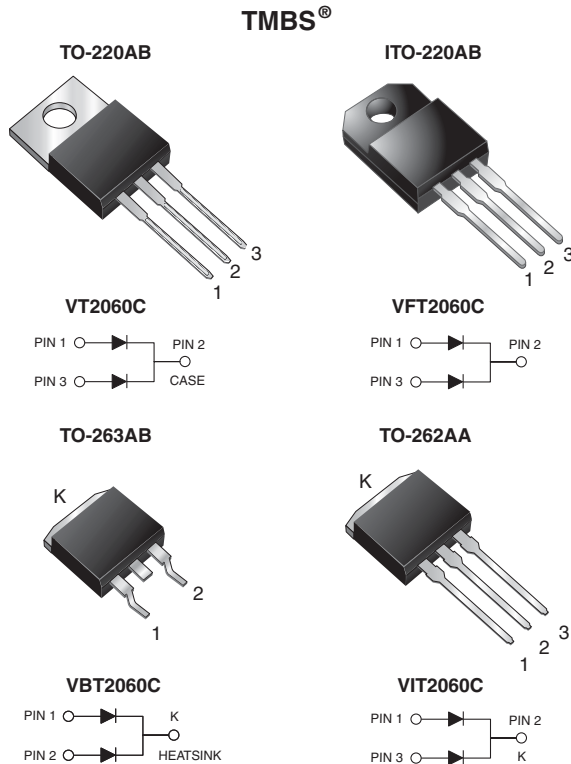




Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.40\text{ V}$ 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 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 10 A
V_{RRM}	60 V
I_{FSM}	150 A
V_F at $I_F = 10\text{ A}$	0.52 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	VT2060C	VFT2060C	VBT2060C	VIT2060C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	60				V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device			20	A
		per diode			10	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	150				
Non-repetitive avalanche energy at $T_J = 25\text{ °C}$, $L = 60\text{ mH}$ per diode	E_{AS}	120				mJ
Peak repetitive reverse current at $t_p = 2\text{ }\mu\text{s}$, 1 kHz, $T_J = 38\text{ °C} \pm 2\text{ °C}$	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				°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}	60 (minimum)	-	V
Instantaneous forward voltage per diode ⁽¹⁾	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	0.49	-	V
	$I_F = 10\text{ A}$			0.57	0.65	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.40	-	
	$I_F = 10\text{ A}$			0.52	0.59	
Reverse current per diode ⁽²⁾	$V_R = 60\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	I_R	-	850	μA
		$T_A = 125\text{ }^\circ\text{C}$		14	40	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	VT2060C	VFT2060C	VBT2060C	VIT2060C	UNIT
Typical thermal resistance	per diode	$R_{\theta JC}$	3.0	6.0	3.2	3.0	$^\circ\text{C/W}$
	per device		1.8	4.8	1.9	1.8	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	VT2060C-E3/4W	1.88	4W	50/tube	Tube
ITO-220AB	VFT2060C-E3/4W	1.76	4W	50/tube	Tube
TO-263AB	VBT2060C-E3/4W	1.39	4W	50/tube	Tube
TO-263AB	VBT2060CE3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VIT2060C-E3/4W	1.45	4W	50/tube	Tube

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

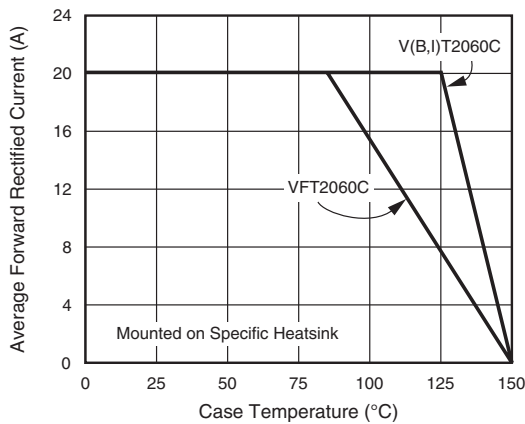


Fig. 1 - Maximum Forward Current Derating Curve

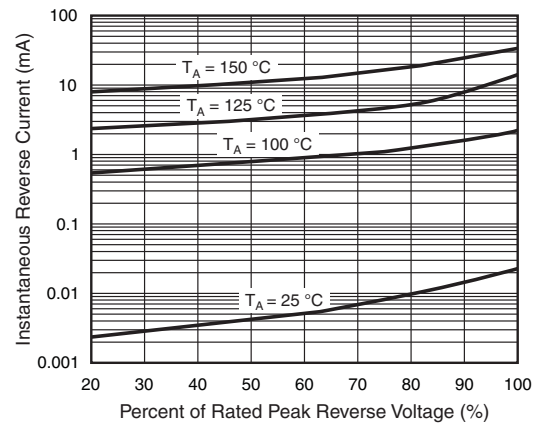


Fig. 4 - Typical Reverse Characteristics Per Diode

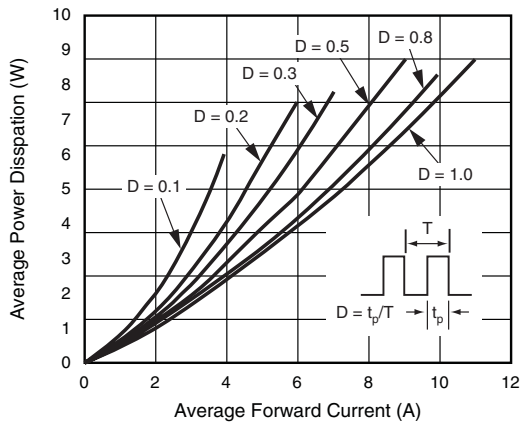


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

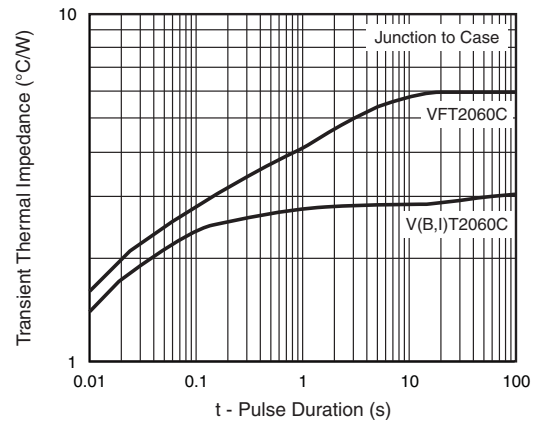


Fig. 5 - Typical Transient Thermal Impedance Per Diode

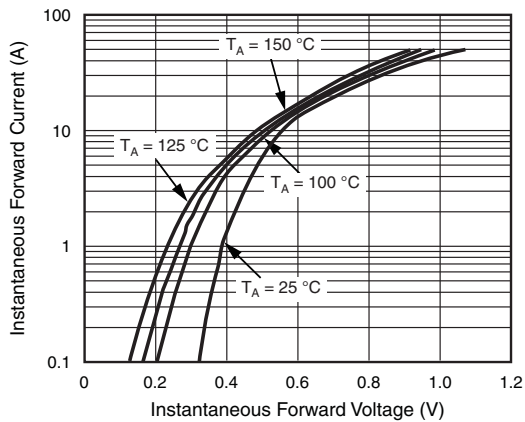


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

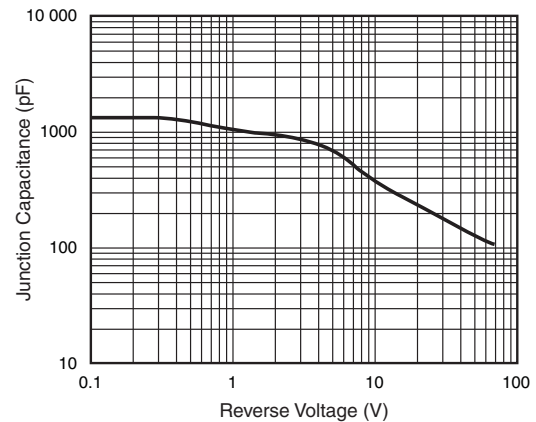
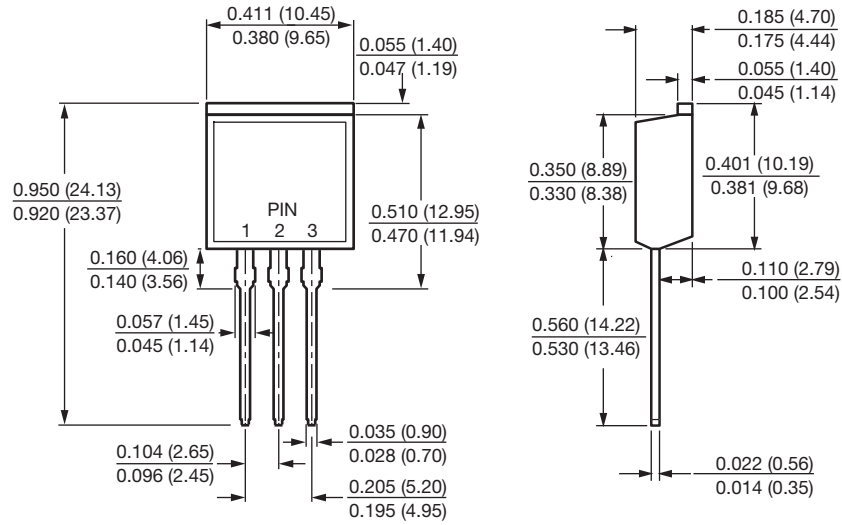


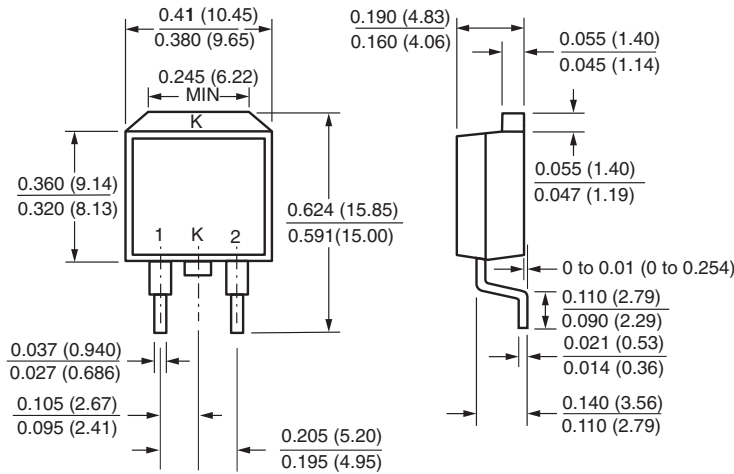
Fig. 6 - Typical Junction Capacitance Per Diode



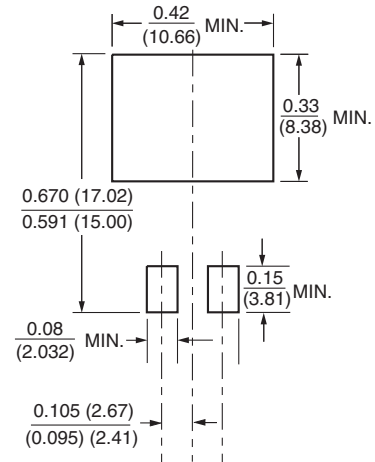
TO-262AA



TO-263AB



Mounting Pad Layout





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