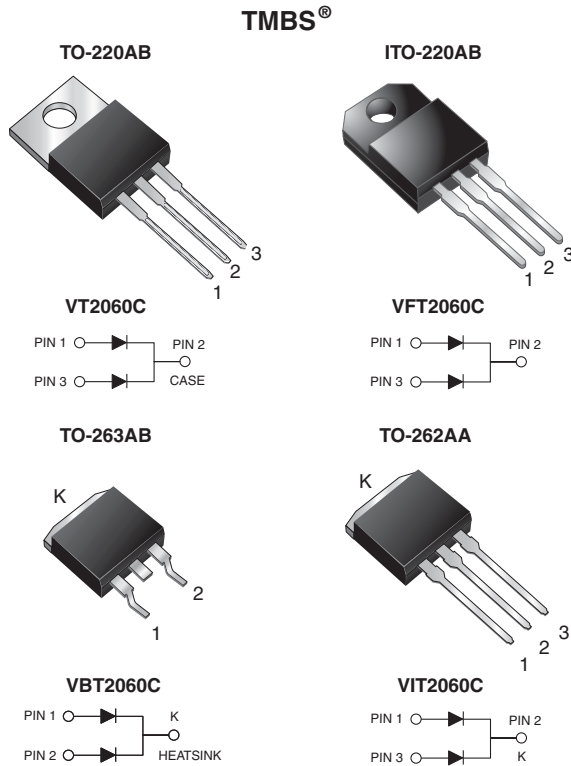


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

 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](http://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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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 <sup>(1)</sup>	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F$	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 <sup>(2)</sup>	$V_R = 60\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	-	850	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		14	40	mA

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 40\text{ ms}$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	

<b>ORDERING INFORMATION</b> (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)

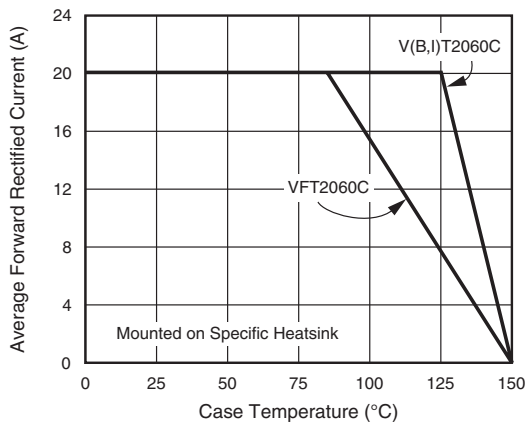


Fig. 1 - Maximum Forward Current Derating Curve

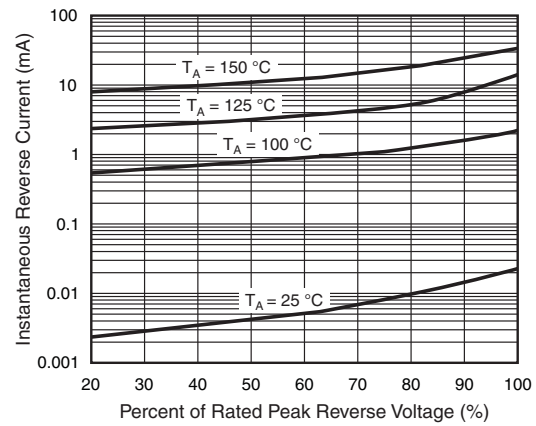


Fig. 4 - Typical Reverse Characteristics Per Diode

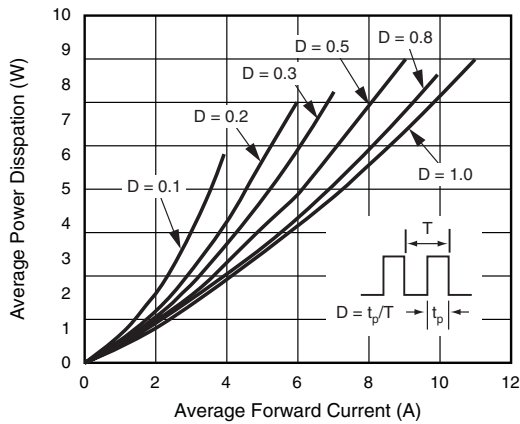


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

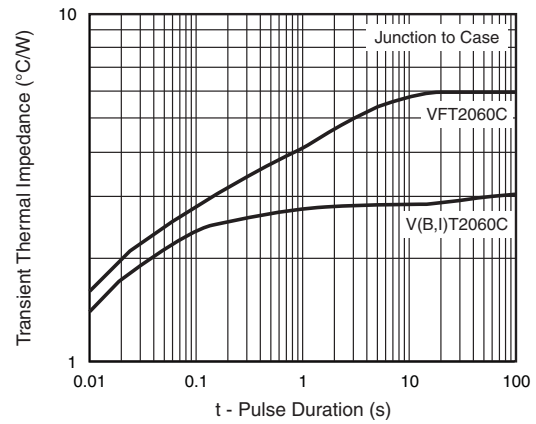


Fig. 5 - Typical Transient Thermal Impedance Per Diode

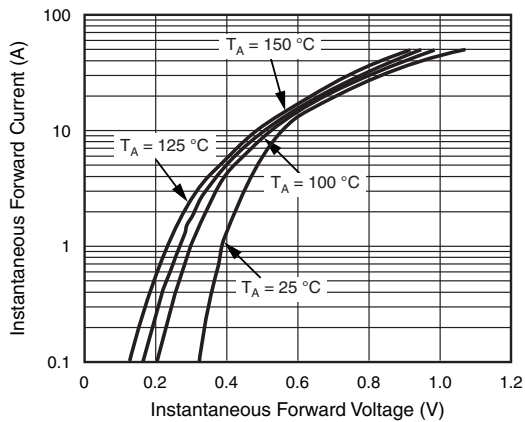


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

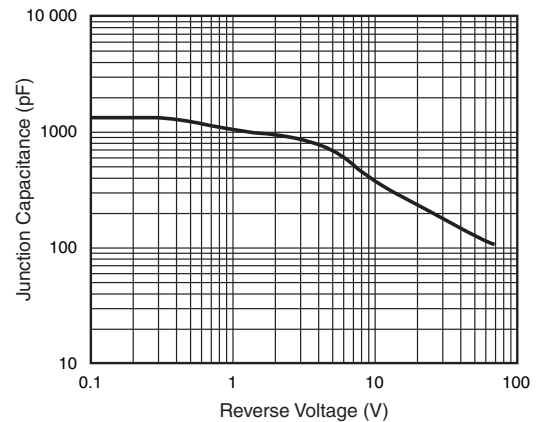
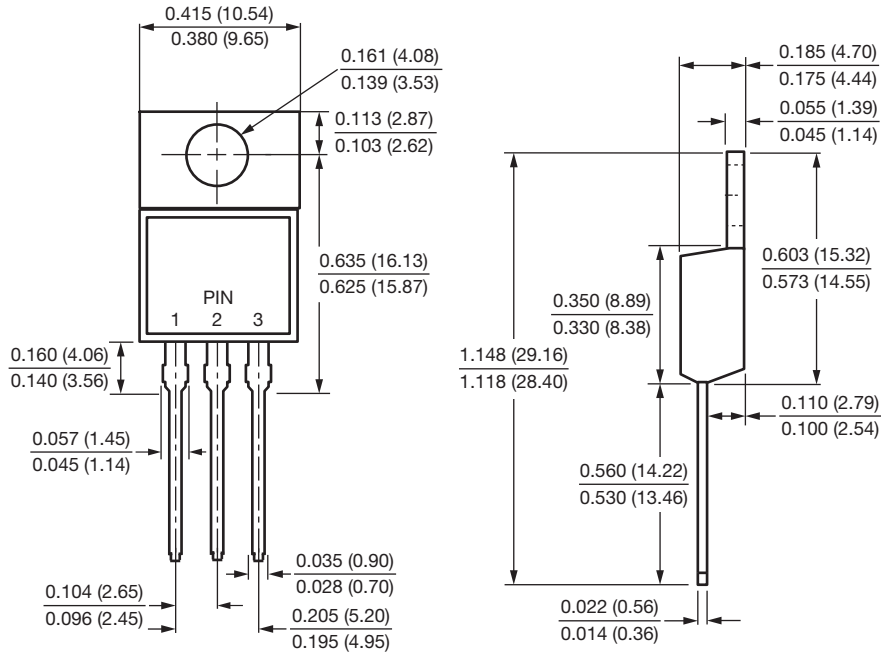


Fig. 6 - Typical Junction Capacitance Per Diode

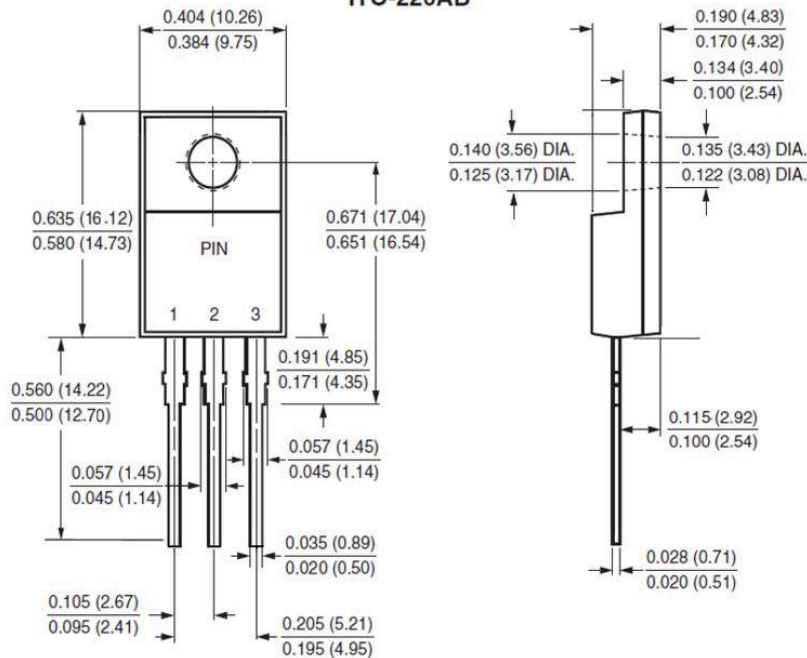


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

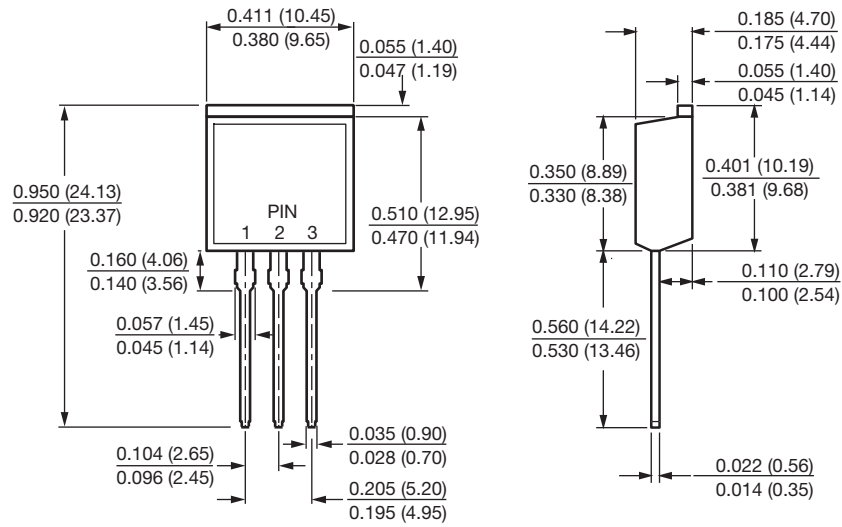


ITO-220AB

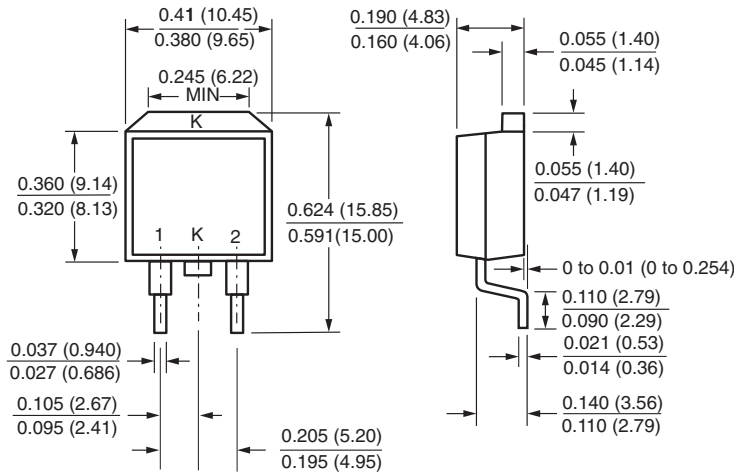




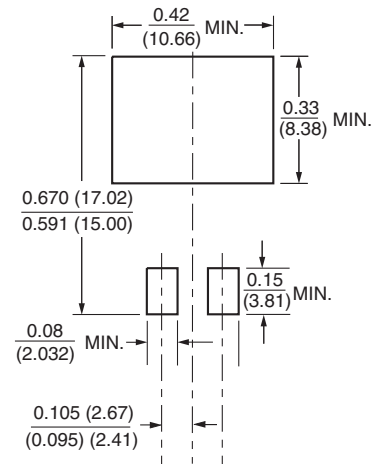
TO-262AA



TO-263AB



Mounting Pad Layout





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