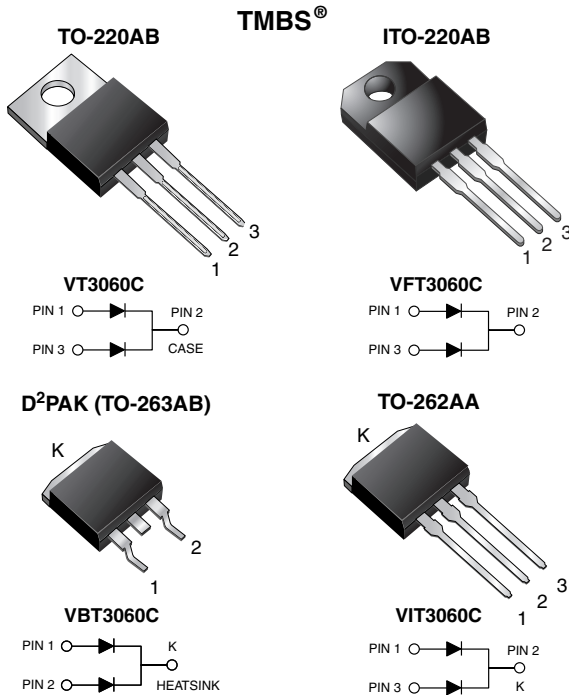


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

 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 D<sup>2</sup>PAK (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 inverters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters and reverse battery protection.

## MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, D<sup>2</sup>PAK (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.

## LINKS TO ADDITIONAL RESOURCES



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, D <sup>2</sup> PAK (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)		per device	30	15		A
			per diode			
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 $T_J = 25 \text{ °C}$ , $L = 60 \text{ mH}$ per diode	$E_{AS}$		180			mJ
Peak repetitive reverse current at $t_p = 2 \text{ } \mu\text{s}$ , 1 kHz, $T_J = 38 \text{ °C} \pm 2 \text{ °C}$ 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			°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 (min.)	-	V
Instantaneous forward voltage per diode <sup>(1)</sup>	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F$	0.47	-	V
	$I_F = 7.5\text{ A}$			0.51	-	
	$I_F = 15\text{ A}$			0.60	0.70	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.38	-	
	$I_F = 7.5\text{ A}$			0.44	-	
	$I_F = 15\text{ A}$			0.57	0.65	
Reverse current per diode <sup>(2)</sup>	$V_R = 60\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	-	1.2	mA
		$T_A = 125\text{ }^\circ\text{C}$		20	45	

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	$^\circ\text{C/W}$
	per device		1.7	4.8	1.7	1.7	

<b>ORDERING INFORMATION</b> (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
D <sup>2</sup> PAK (TO-263AB)	VBT3060C-E3/4W	1.39	4W	50/tube	Tube
D <sup>2</sup> PAK (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 ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

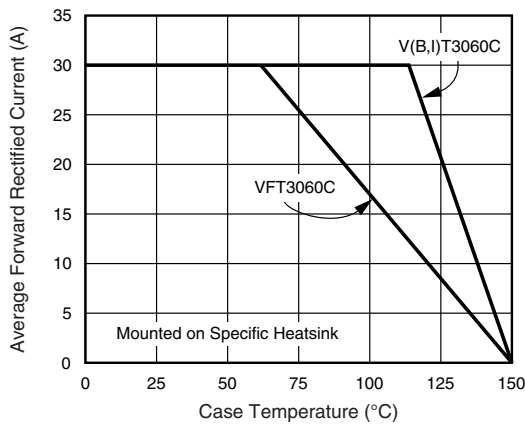


Fig. 1 - Maximum Forward Current Derating Curve

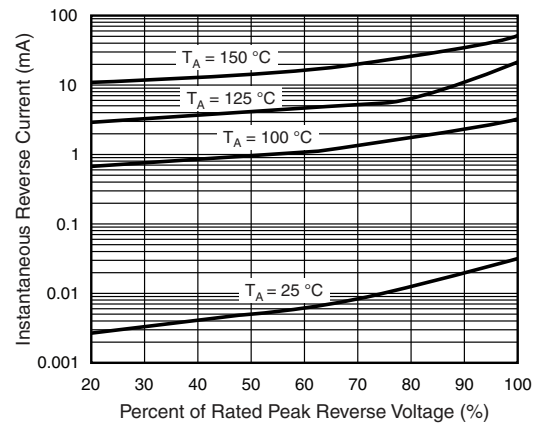


Fig. 4 - Typical Reverse Characteristics Per Diode

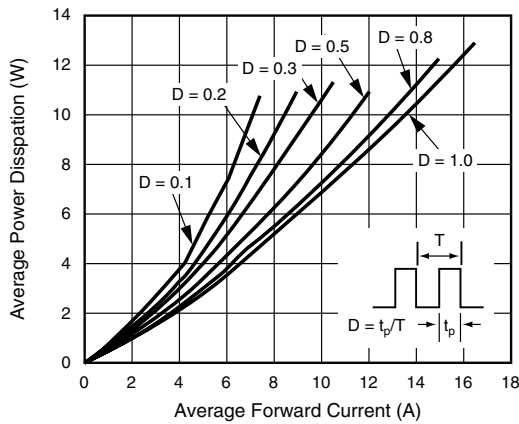


Fig. 2 - Forward Power Dissipation Characteristics Per Diode

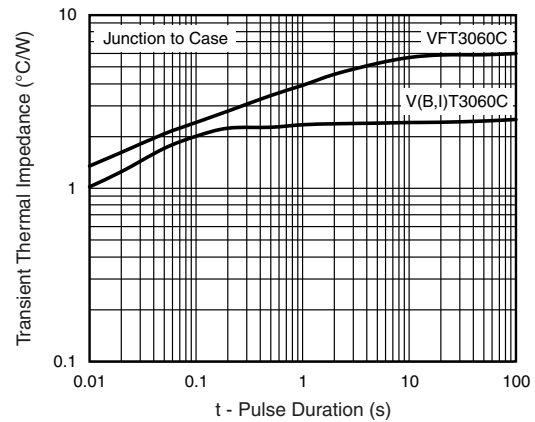


Fig. 5 - Typical Transient Thermal Impedance Per Diode

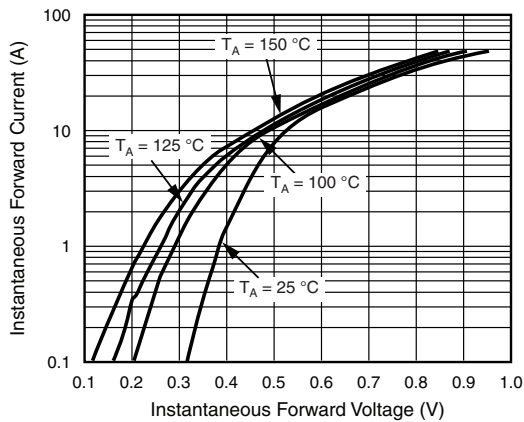


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

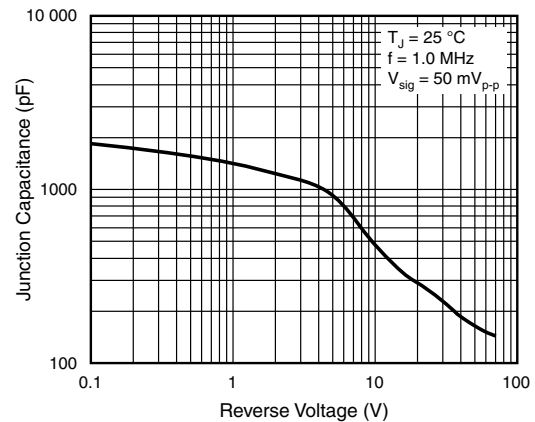
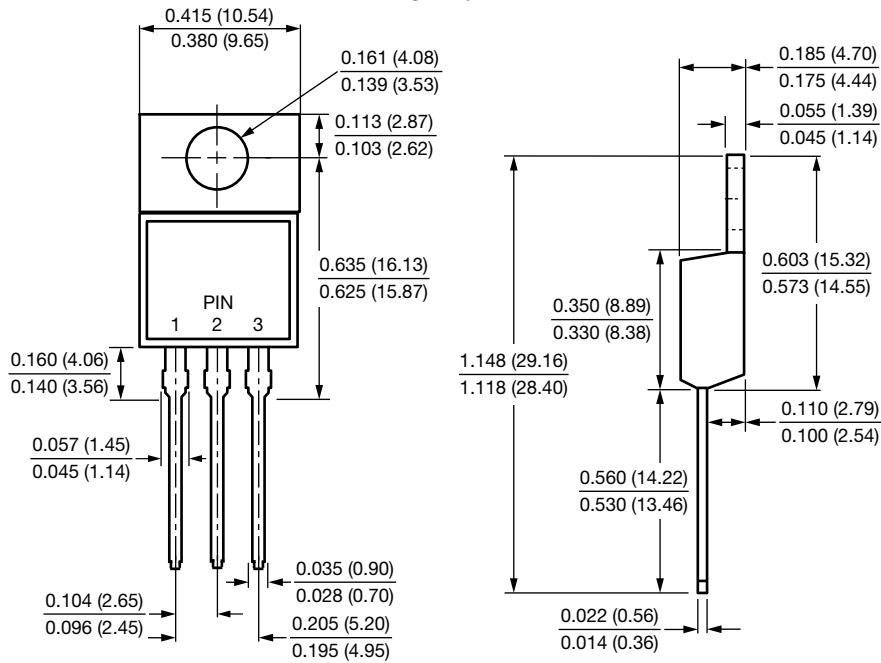


Fig. 6 - Typical Junction Capacitance Per Diode

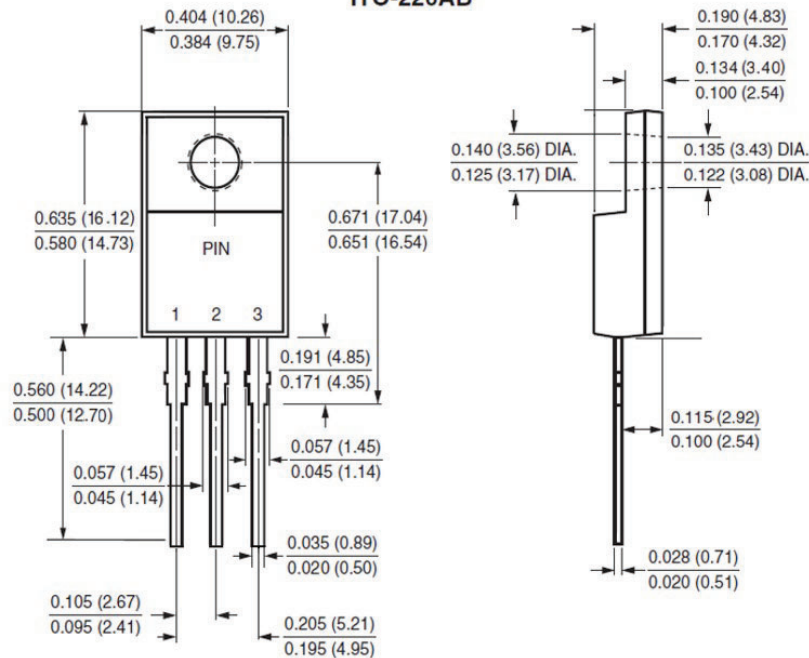


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

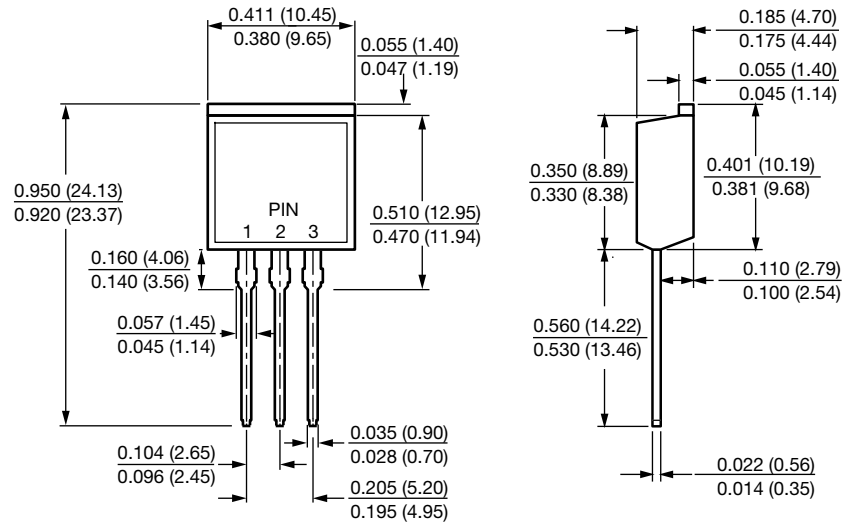


ITO-220AB

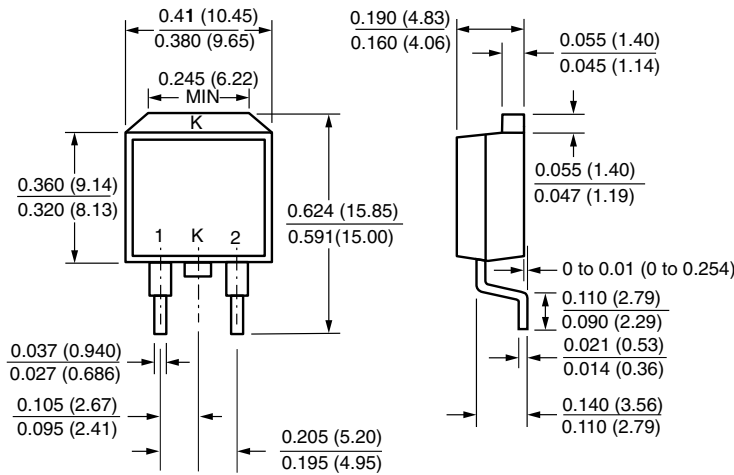




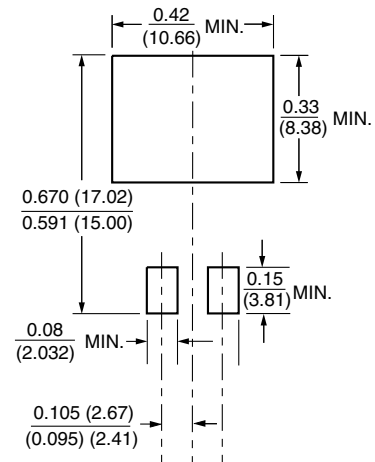
TO-262AA



D<sup>2</sup>PAK (TO-263AB)



Mounting Pad Layout





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