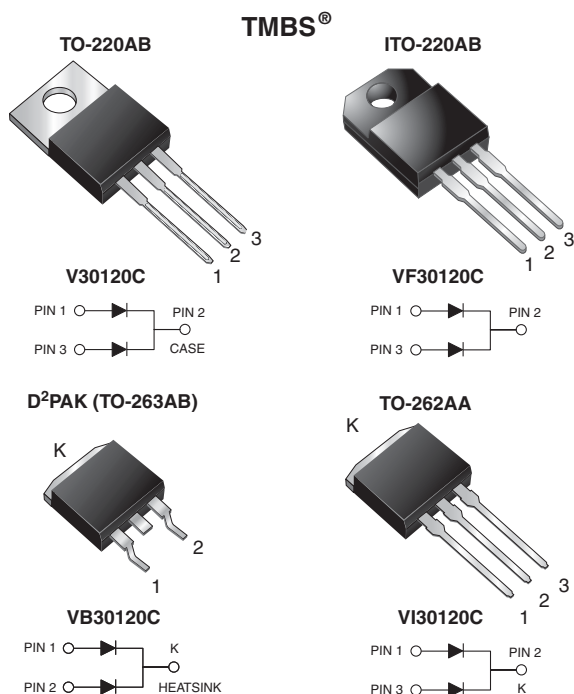




Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.50\text{ V}$ at $I_F = 5\text{ A}$



DESIGN SUPPORT TOOLS



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PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 15 A
V_{RRM}	120 V
I_{FSM}	150 A
V_F at $I_F = 15\text{ A}$	0.68 V
T_J max.	150 °C
Package	TO-220AB, ITO-220AB, D ² PAK (TO-263AB), TO-262AA
Circuit configuration	Common cathode

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

PARAMETER	SYMBOL	V30120C	VF30120C	VB30120C	VI30120C	UNIT
Max. repetitive peak reverse voltage	V _{RRM}	120				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}	150				A
Non-repetitive avalanche energy at T _J = 25 °C, L = 60 mH per diode	E _{AS}	130				mJ
Peak repetitive reverse current at t _p = 2 μs, 1 kHz, T _J = 38 °C ± 2 °C per diode	I _{RRM}	0.5				A
Voltage rate of change (rated V _R)	dV/dt	10 000				V/μs
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}	-40 to +150				°C

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, D²PAK (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.



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}	120 (min.)	-	V
Instantaneous forward voltage per diode ⁽¹⁾	I _F = 5 A	T _A = 25 °C	V _F	0.56	-	V
	I _F = 7.5 A			0.71	-	
	I _F = 15 A			0.86	0.97	
	I _F = 5 A	T _A = 125 °C		0.50	-	
	I _F = 7.5 A			0.60	-	
	I _F = 15 A			0.68	0.76	
Reverse current per diode ⁽²⁾	V _R = 90 V	T _A = 25 °C	I _R	11	-	μA
		T _A = 125 °C		8	-	mA
	V _R = 120 V	T _A = 25 °C		-	800	μA
		T _A = 125 °C		17	50	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	V30120C	VF30120C	VB30120C	VI30120C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.2	4.5	2.2	2.2	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V30120C-E3/4W	1.89	4W	50/tube	Tube
ITO-220AB	VF30120C-E3/4W	1.75	4W	50/tube	Tube
TO-263AB	VB30120C-E3/4W	1.38	4W	50/tube	Tube
TO-263AB	VB30120C-E3/8W	1.38	8W	800/reel	Tape and reel
TO-262AA	VI30120C-E3/4W	1.46	4W	50/tube	Tube

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

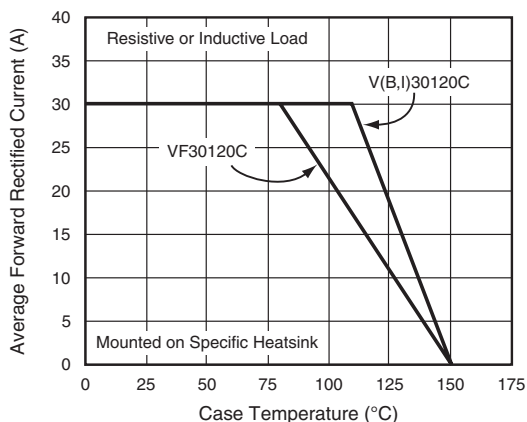


Fig. 1 - Maximum Forward Current Derating Curve

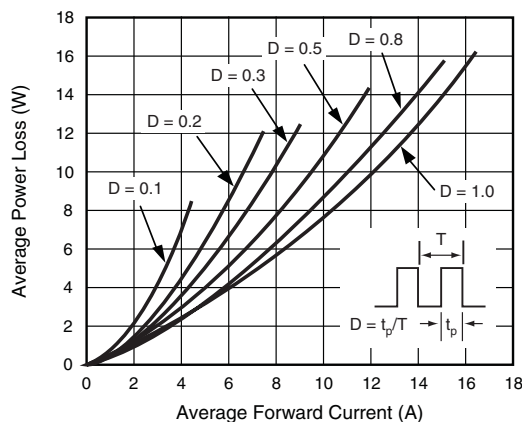


Fig. 2 - Forward Power Loss Characteristics Per Diode

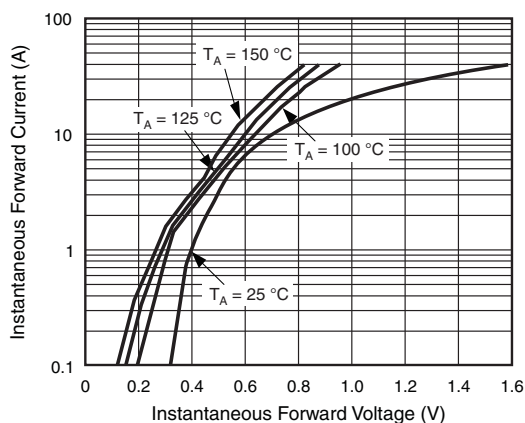


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

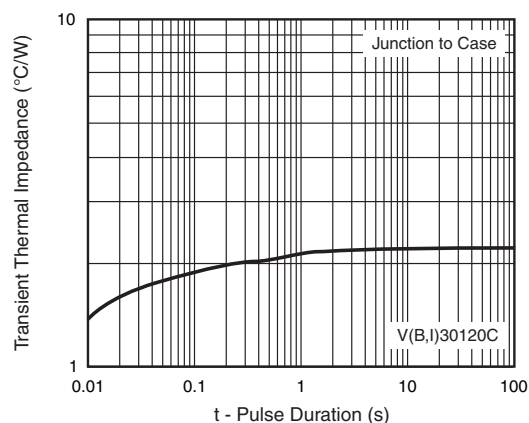


Fig. 6 - Typical Transient Thermal Impedance Per Diode

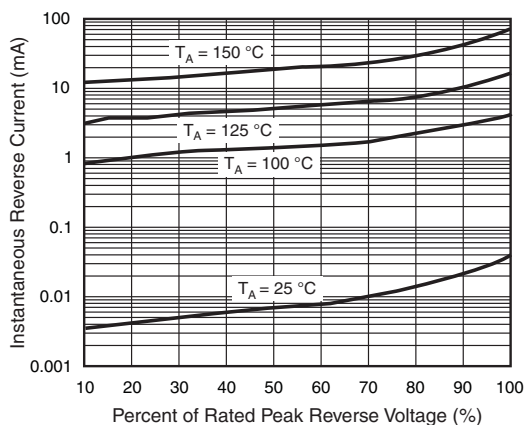


Fig. 4 - Typical Reverse Characteristics Per Diode

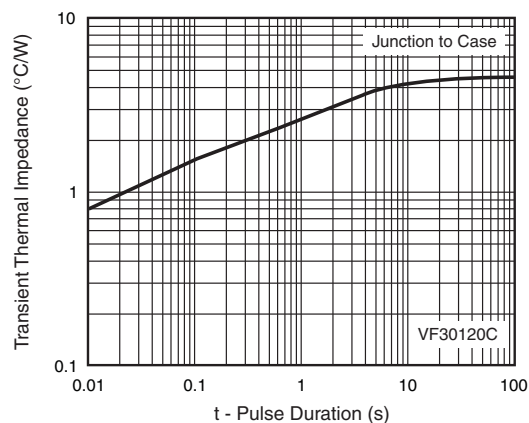


Fig. 7 - Typical Transient Thermal Impedance Per Diode

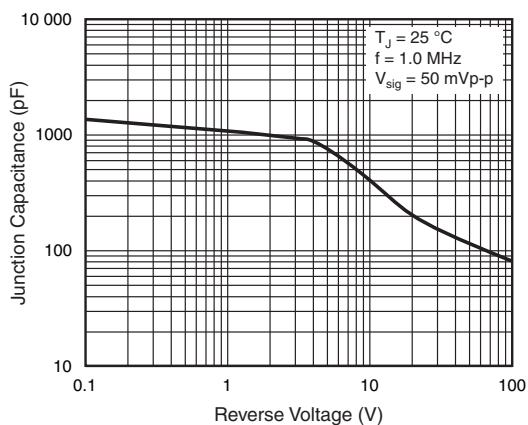
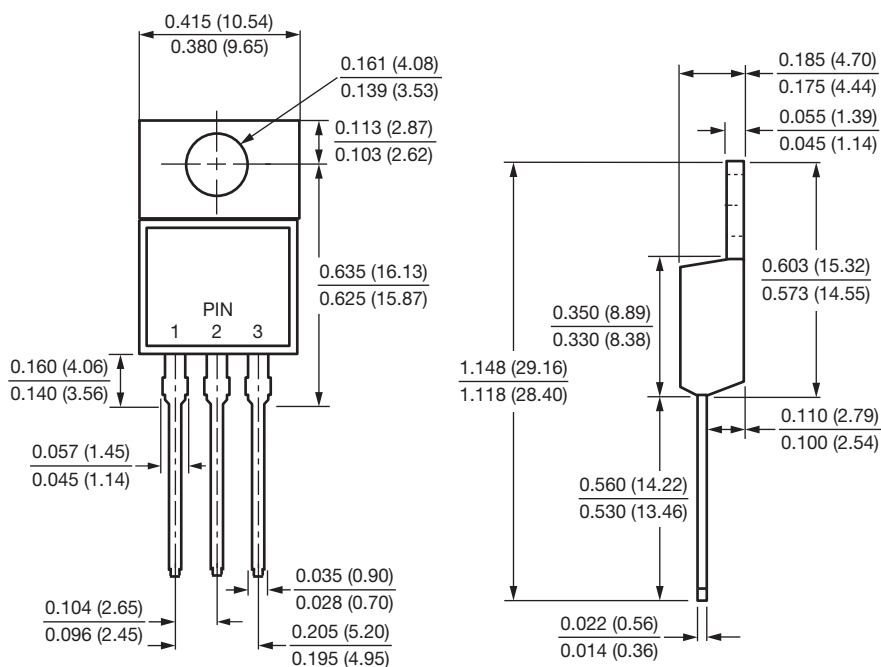


Fig. 5 - Typical Junction Capacitance Per Diode

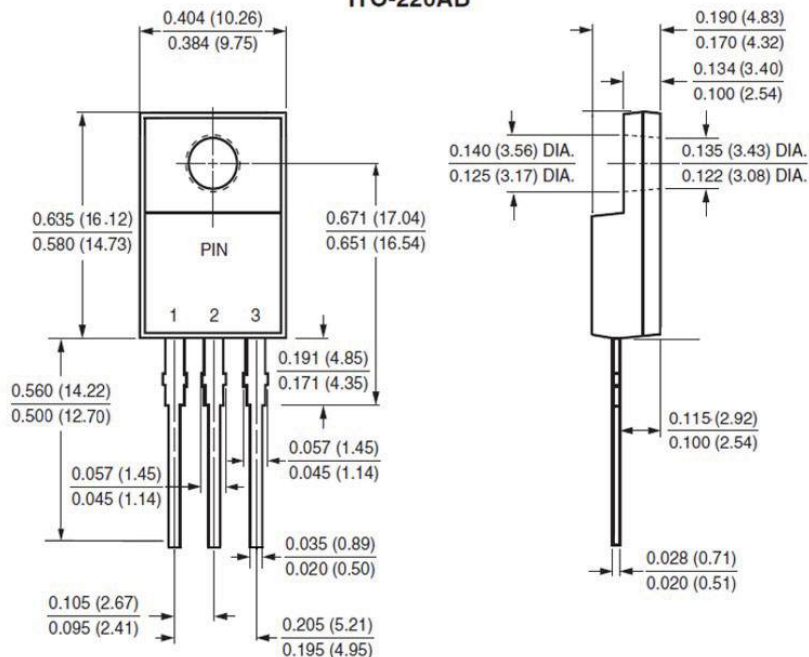


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

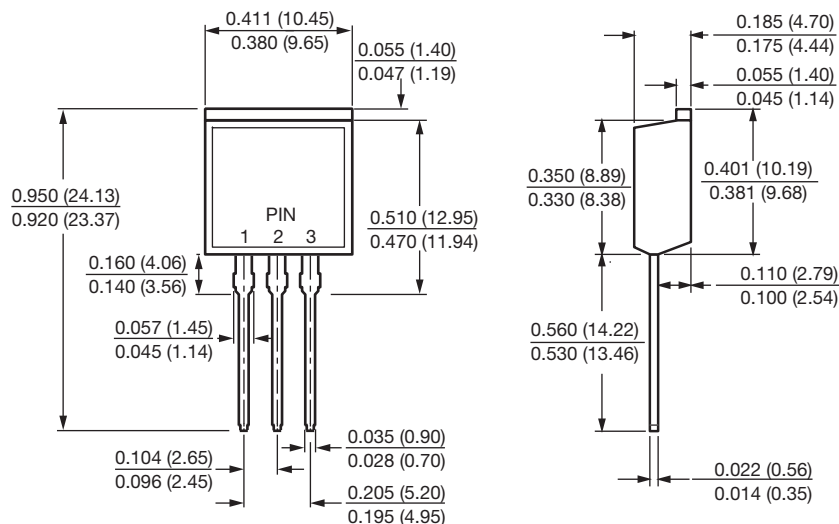
TO-220AB



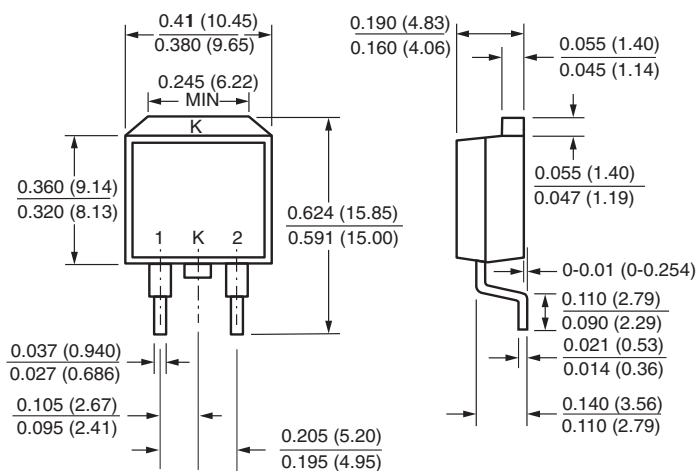
ITO-220AB



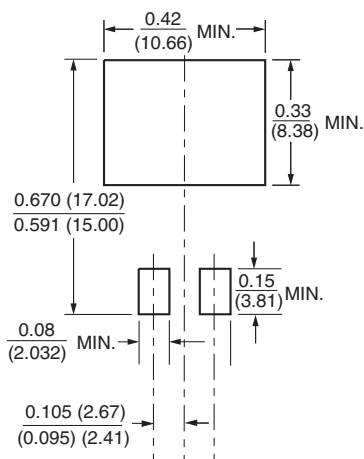
TO-262AA



D²PAK (TO-263AB)



Mounting Pad Layout





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