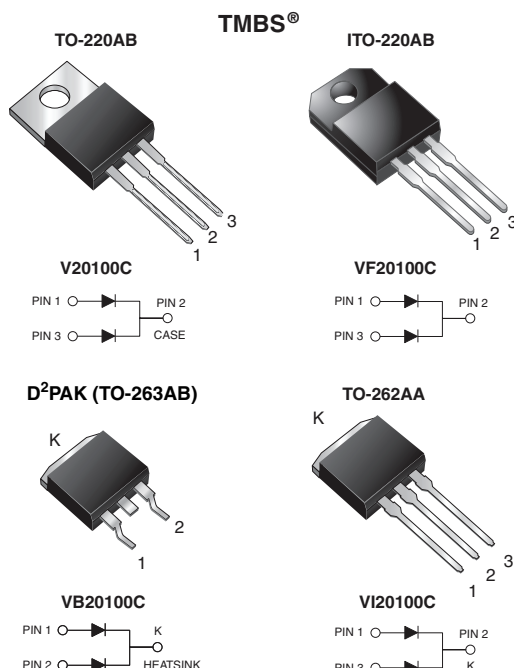




## Dual High Voltage Trench MOS Barrier Schottky Rectifier

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



### LINK TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
$V_{RRM}$	100 V
$I_{FSM}$	150 A
$V_F$ at $I_F = 10\text{ A}$	0.58 V
$T_J$ max.	150 °C
Package	TO-220AB, ITO-220AB, D²PAK (TO-263AB), TO-262AA
Circuit configuration	Common cathode

### FEATURES

- Trench MOS Schottky technology
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for D²PAK (TO-263AB) package)
- Low forward voltage drop, low power losses
- High efficiency operation
- 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/doc299912](http://www.vishay.com/doc299912)



**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 maximum

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	V20100C	VF20100C	VB20100C	VI20100C	UNIT
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	100				V
Maximum average forward rectified current (fig. 1)	per device I <sub>F(AV)</sub> per diode	20				A
		10				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	150				A
Non-repetitive avalanche energy at T <sub>J</sub> = 25 °C, L = 60 mH per diode	E <sub>AS</sub>	150				mJ
Peak repetitive reverse current at t <sub>p</sub> = 2 μs, 1 kHz, T <sub>J</sub> = 38 °C ± 2 °C per diode	I <sub>RRM</sub>	1.0				A
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/μs
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V <sub>AC</sub>	1500				V
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-40 to +150				°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 10 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	105 (minimum)	-	V
Instantaneous forward voltage per diode	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.55	-	V
	I <sub>F</sub> = 10 A			0.65	0.79	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.50	-	
	I <sub>F</sub> = 10 A			0.58	0.68	
				V <sub>R</sub> = 70 V	T <sub>A</sub> = 25 °C	
Reverse current per diode	V <sub>R</sub> = 70 V	T <sub>A</sub> = 125 °C	5.3	-	mA	
		V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C	-	800	μA
	T <sub>A</sub> = 125 °C		12	25	mA	

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	V20100C	VF20100C	VB20100C	VI20100C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.8	5.5	2.8	2.8	$^{\circ}\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V20100C-E3/4W	1.881	4W	50/tube	Tube
ITO-220AB	VF20100C-E3/4W	1.75	4W	50/tube	Tube
D <sup>2</sup> PAK (TO-263AB)	VB20100C-E3/4W	1.39	4W	50/tube	Tube
D <sup>2</sup> PAK (TO-263AB)	VB20100C-E3/8W	1.39	8W	800/tube	Tape and reel
TO-262AA	VI20100C-E3/4W	1.452	4W	50/tube	Tube

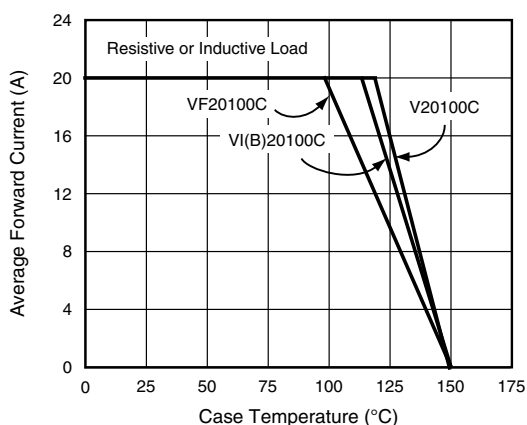
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)**

Fig. 1 - Maximum Forward Current Derating Curve

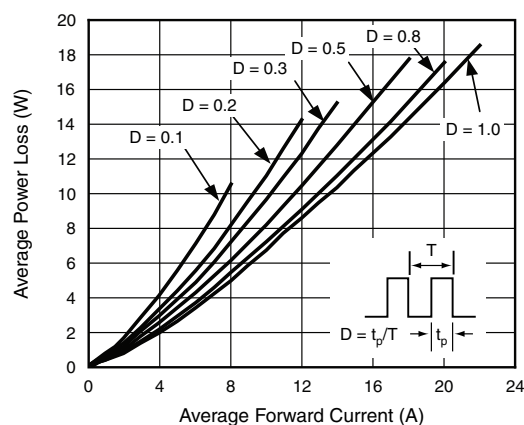


Fig. 2 - Forward Power Loss Characteristics Per Diode

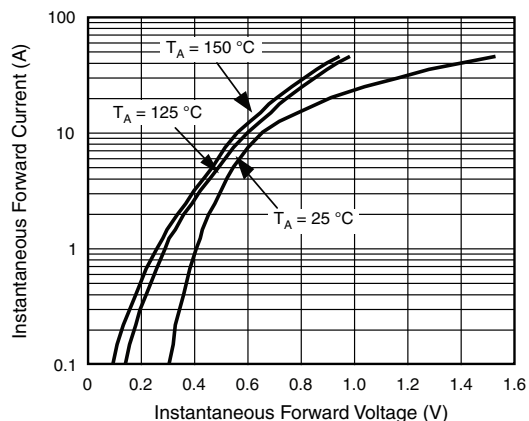


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

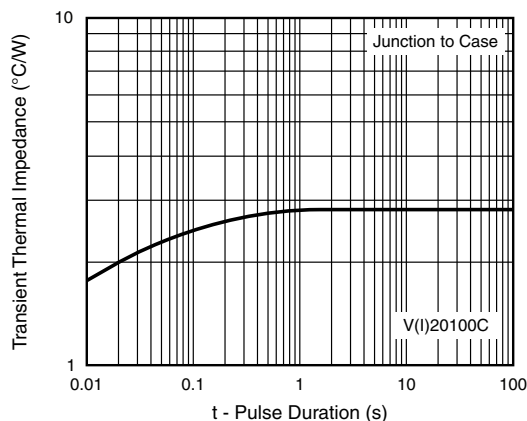


Fig. 6 - Typical Transient Thermal Impedance Per Diode

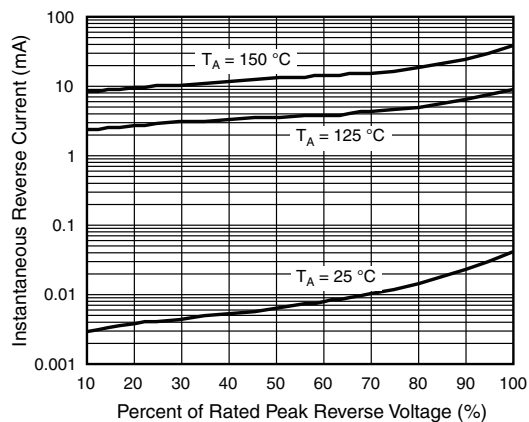


Fig. 4 - Typical Reverse Characteristics Per Diode

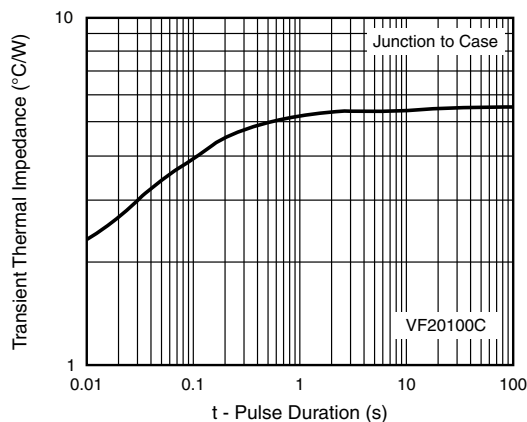


Fig. 7 - Typical Transient Thermal Impedance Per Diode

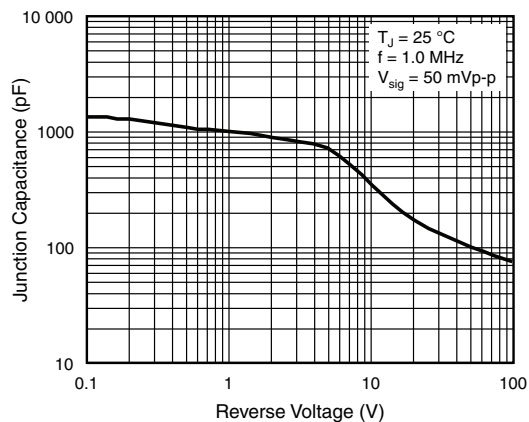
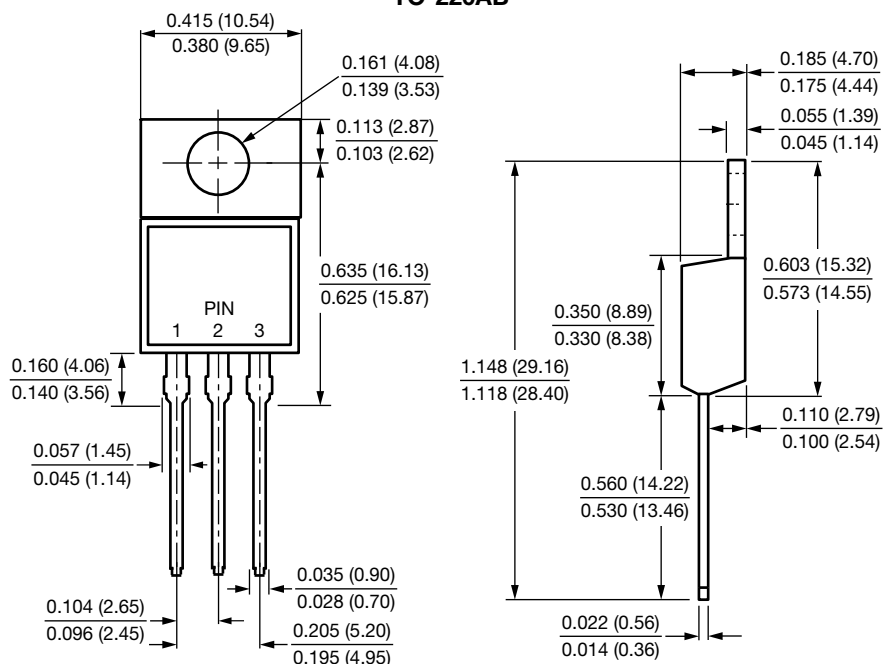


Fig. 5 - Typical Junction Capacitance Per Diode

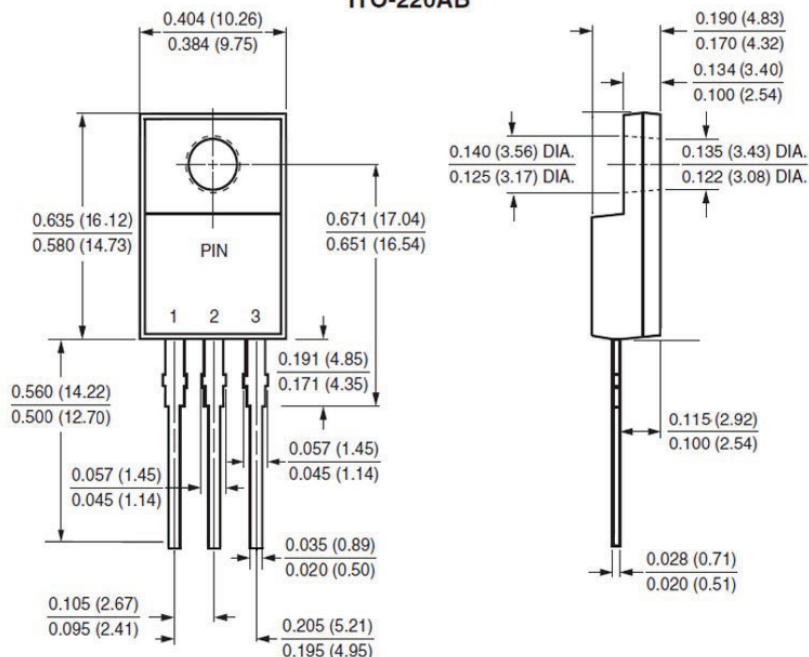


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-220AB**

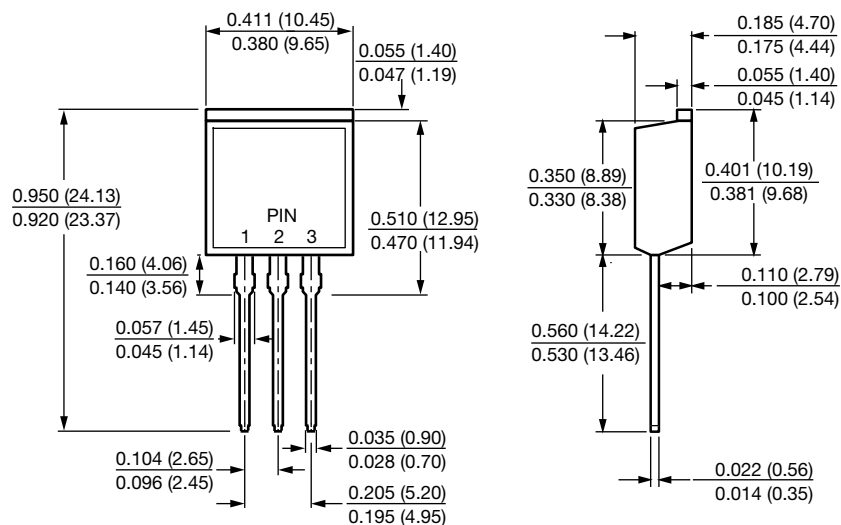


**ITO-220AB**

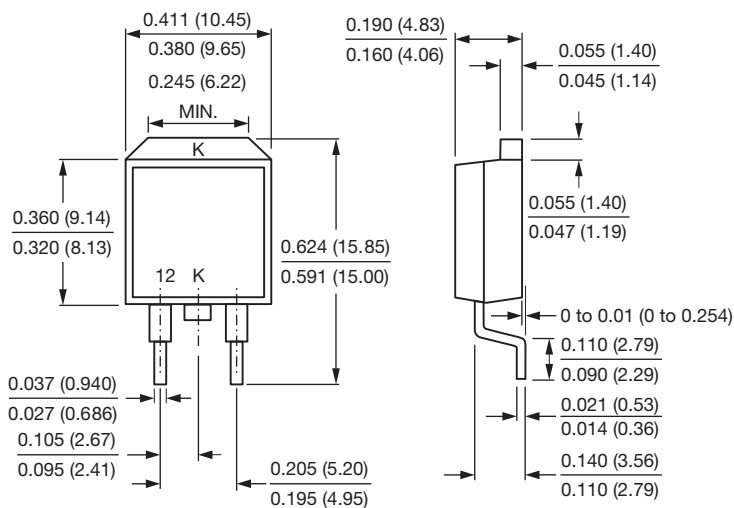




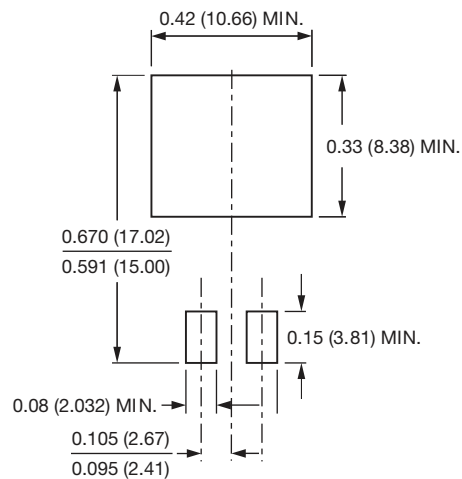
## TO-262AA



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



## Mounting Pad Layout





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