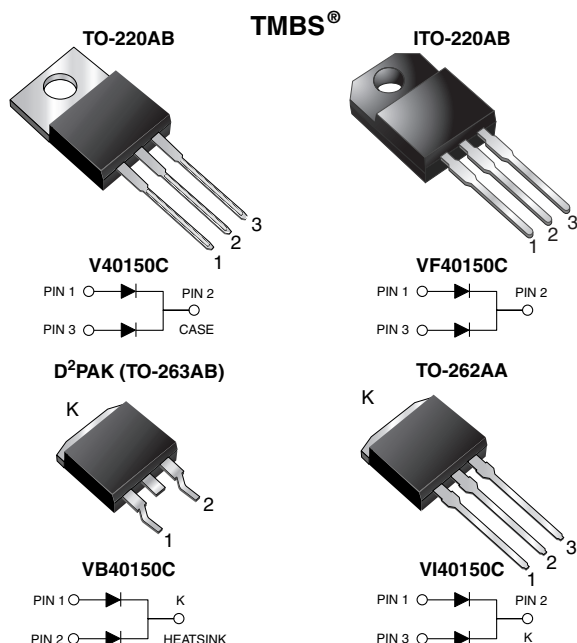




## Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.55 \text{ V}$  at  $I_F = 5 \text{ A}$



### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 20 A
$V_{RRM}$	150 V
$I_{FSM}$	160 A
$V_F$ at $I_F = 20 \text{ A}$	0.75 V
$T_J$ max.	150 °C
Package	TO-220AB, ITO-220AB, D²PAK (TO-263AB), TO-262AA
Circuit configuration	Common cathode

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER		SYMBOL	V40150C	VF40150C	VB40150C	VI40150C	UNIT
Max. repetitive peak reverse voltage		V <sub>RRM</sub>	150				V
Max. average forward rectified current (fig. 1)	per device	I <sub>F(AV)</sub>	40				A
	per diode	I <sub>F(AV)</sub>	20				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I <sub>FSM</sub>	160				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>	0.5				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>	-55 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 D²PAK (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, 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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	TYP	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	150 (min.)	-	V
Instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub>	0.69	-	V
	I <sub>F</sub> = 10 A			0.84	-	
	I <sub>F</sub> = 20 A			1.15	1.43	
	I <sub>F</sub> = 5 A	T <sub>A</sub> = 125 °C		0.55	-	
	I <sub>F</sub> = 10 A			0.64	-	
	I <sub>F</sub> = 20 A			0.75	0.82	
Reverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 100 V	T <sub>A</sub> = 25 °C	I <sub>R</sub>	2	-	μA
		T <sub>A</sub> = 125 °C		2.5	-	mA
	V <sub>R</sub> = 150 V	T <sub>A</sub> = 25 °C		-	250	μA
		T <sub>A</sub> = 125 °C		5	25	mA

**Notes**<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	V40150C	VF40150C	VB40150C	VI40150C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	1.8	4	1.8	1.8	$^{\circ}\text{C/W}$

**ORDERING INFORMATION** (Example)

PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	V40150C-E3/4W	1.89	4W	50/tube	Tube
ITO-220AB	VF40150C-E3/4W	1.75	4W	50/tube	Tube
D <sup>2</sup> PAK (TO-263AB)	VB40150C-E3/4W	1.39	4W	50/tube	Tube
D <sup>2</sup> PAK (TO-263AB)	VB40150C-E3/8W	1.39	8W	800/reel	Tape and reel
TO-262AA	VI40150C-E3/4W	1.46	4W	50/tube	Tube

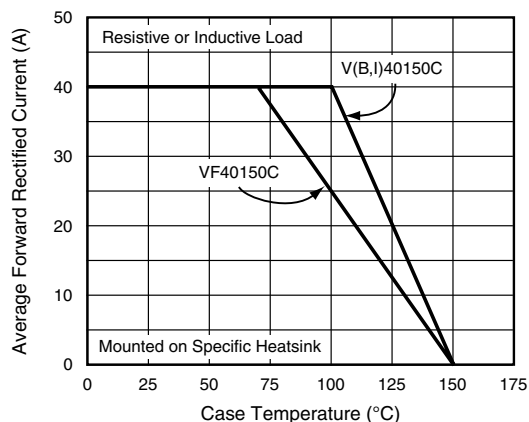
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

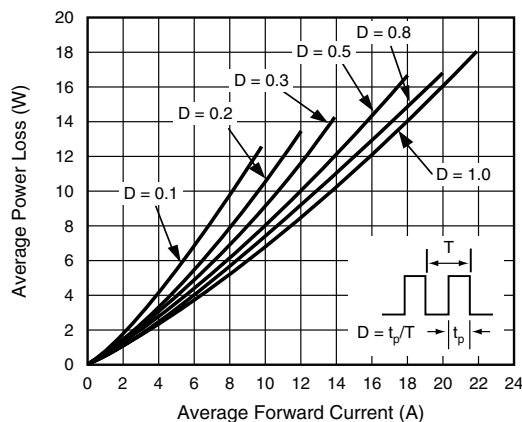


Fig. 2 - Forward Power Loss Characteristics Per Diode

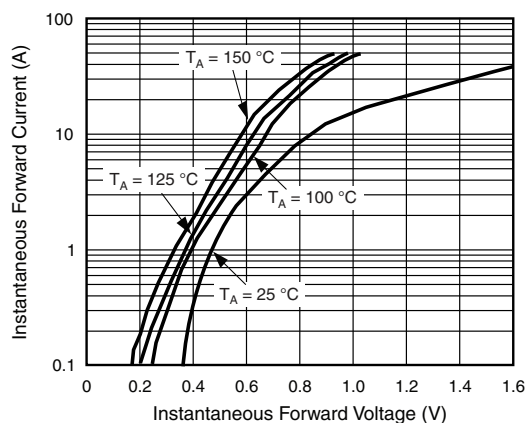


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

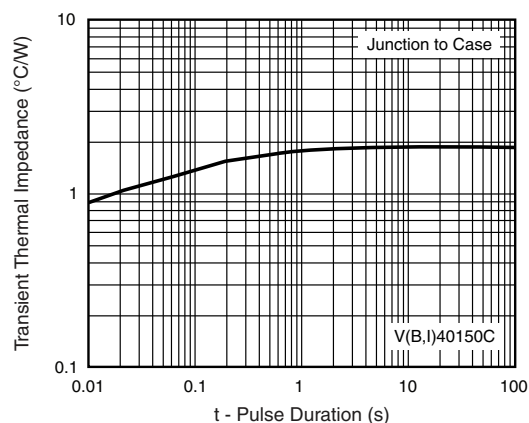


Fig. 6 - Typical Transient Thermal Impedance Per Diode

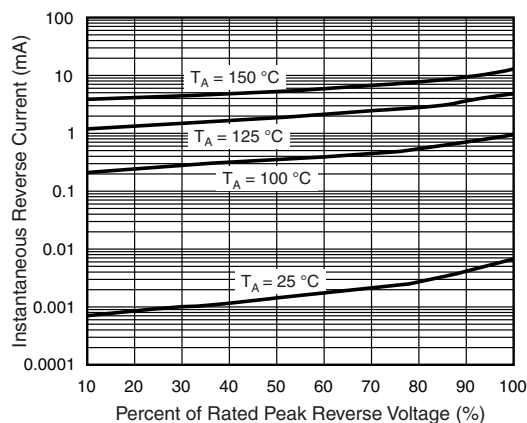


Fig. 4 - Typical Reverse Characteristics Per Diode

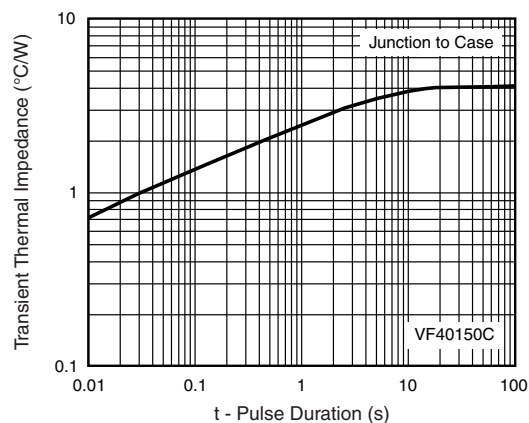


Fig. 7 - Typical Transient Thermal Impedance Per Diode

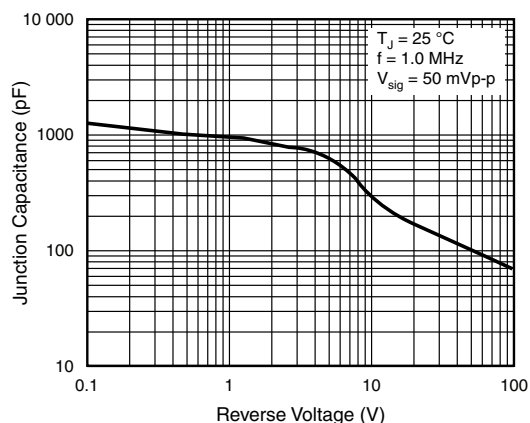
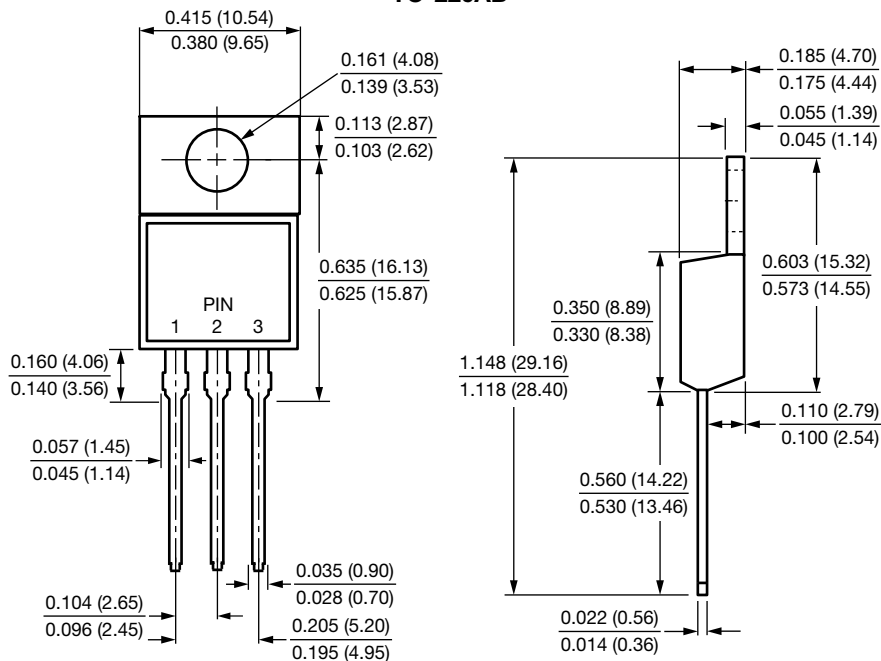


Fig. 5 - Typical Junction Capacitance

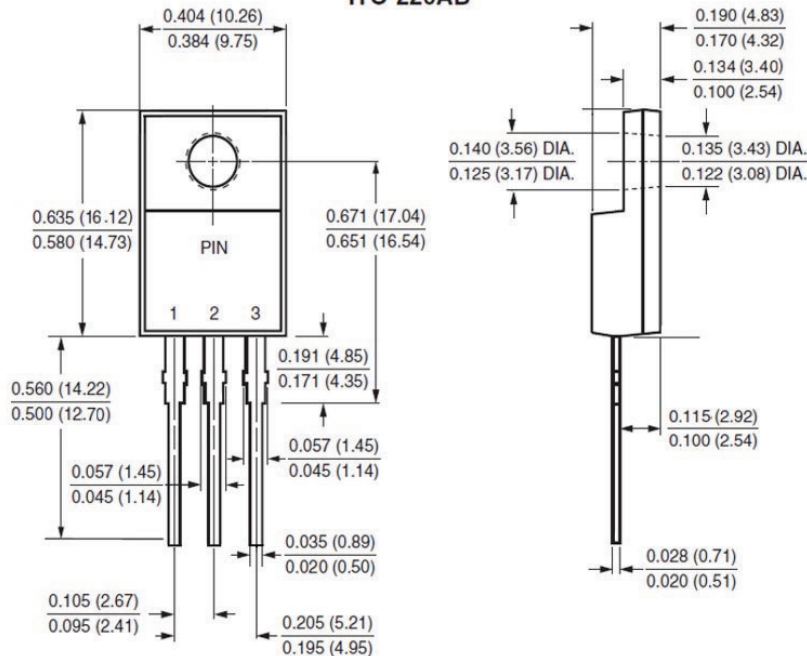


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB

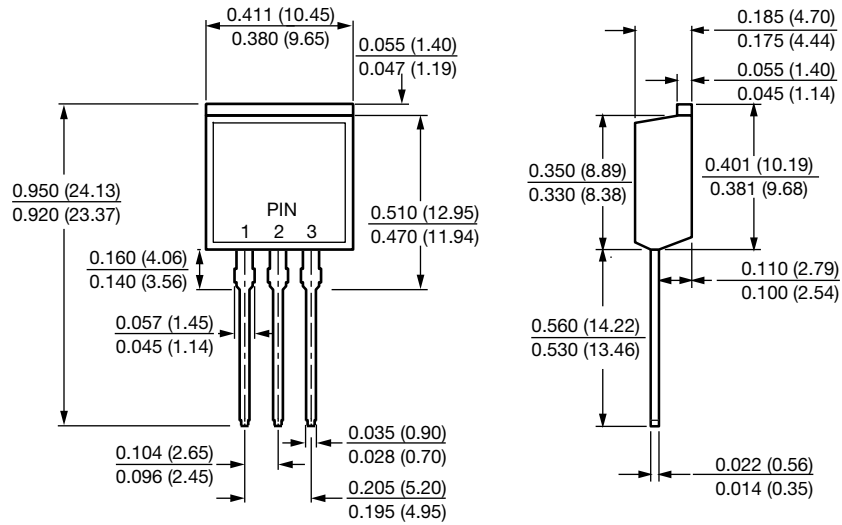


### ITO-220AB

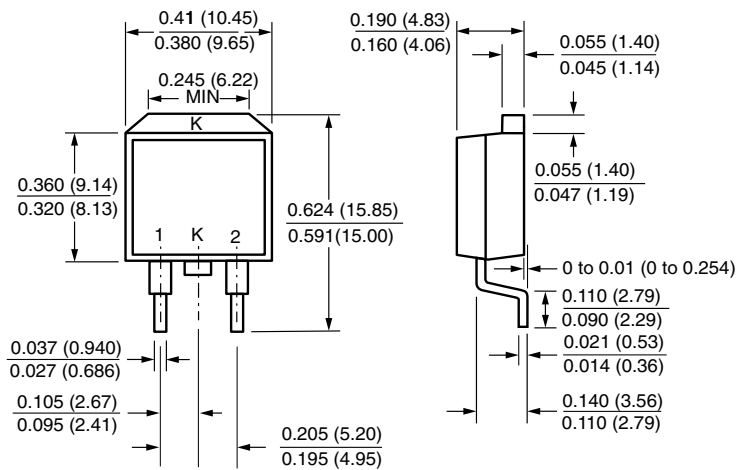




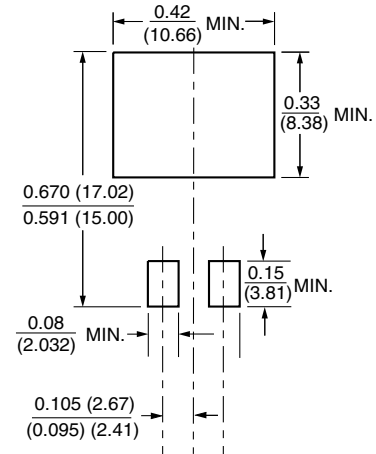
## TO-262AA



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



## Mounting Pad Layout





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