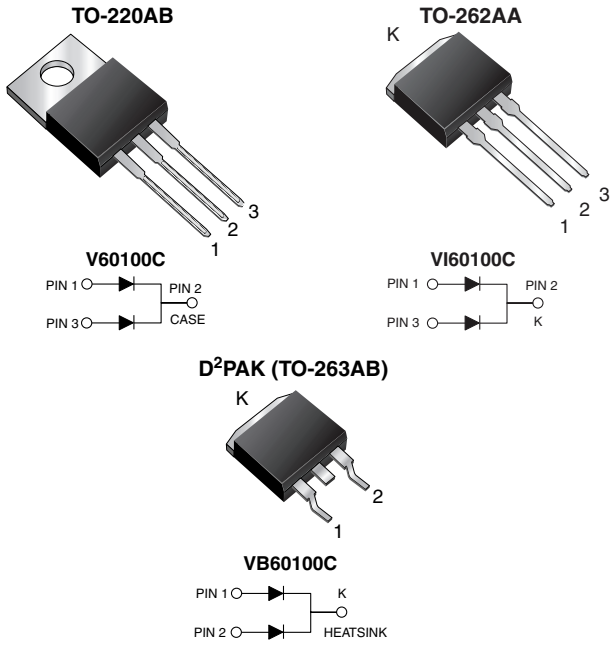
Dual High Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

Ultra Low V_F = 0.36 V at I_F = 5 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 D²PAK (TO-263AB) package)
- Low thermal resistance
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and TO-262AA package)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 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, 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

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 30 A
V_{RRM}	100 V
I_{FSM}	320 A
V_F at I_F = 30 A	0.66 V
T_J max.	150 °C
Package	TO-220AB, TO-262AA, D²PAK (TO-263AB)
Circuit configuration	Common cathode

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	V60100C	VI60100C	VB60100C	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	100			V
Maximum average forward rectified current (fig. 1)	per device	$I_{F(AV)}$	60			A
	per diode		30			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	320			A
Non-repetitive avalanche energy at T_J = 25 °C, L = 140 mH per diode		E_{AS}	450			mJ
Peak repetitive reverse current at t_p = 2 µs, 1 kHz, T_J = 38 °C ± 2 °C per diode		I_{RRM}	1.0			A
Voltage rate of change (rated V_R)		dV/dt	10 000			V/µs
Operating junction and storage temperature range		T_J, T_{STG}	-40 to +150			°C

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}	100 (minimum)	-	V
Instantaneous forward voltage per diode	I_F = 5 A	T_A = 25 °C	V_F (1)	0.45	-	V
	I_F = 10 A			0.52	-	
	I_F = 15 A			0.58	0.63	
	I_F = 20 A			0.63	-	
	I_F = 30 A			0.73	0.79	
	I_F = 5 A	T_A = 125 °C		0.36	-	
	I_F = 10 A			0.45	-	
	I_F = 15 A			0.53	0.58	
	I_F = 20 A			0.58	-	
	I_F = 30 A			0.66	0.70	
Reverse current at rated V_R per diode	V_R = 80 V	T_A = 25 °C	I_R (2)	24	500	µA
		T_A = 125 °C		13	20	mA
	V_R = 100 V	T_A = 25 °C		65	1000	µA
		T_A = 125 °C		30	-	mA

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**V60100C**	**VI60100C**	**VB60100C**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	2.5	2.5	2.5	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	V60100C-E3/4W	1.89	4W	50/tube	Tube
D^2PAK (TO-263AB)	VB60100C-E3/4W	1.39	4W	50/tube	Tube
D^2PAK (TO-263AB)	VB60100C-E3/8W	1.39	8W	800/tube	Tape and reel
TO-262AA	VI60100C-E3/P	1.46	P	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

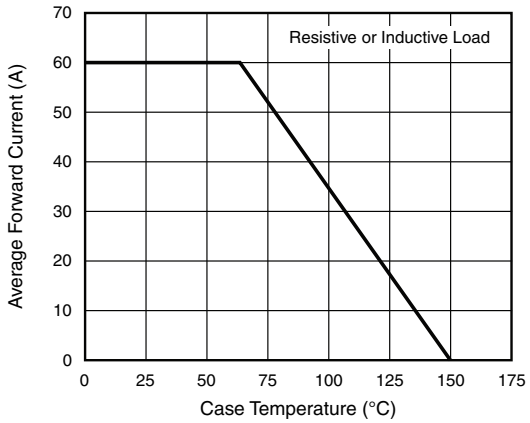


Fig. 1 - Forward Current Derating Curve

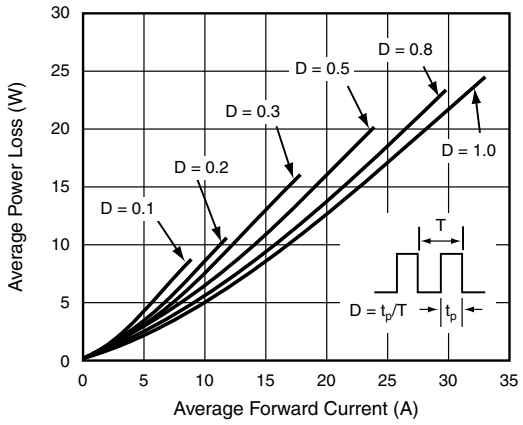


Fig. 2 - Forward Power Loss Characteristics
Per Diode

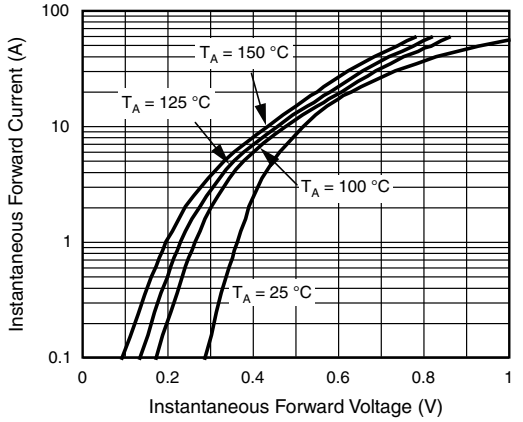


Fig. 3 - Typical Instantaneous Forward Characteristics
Per Diode

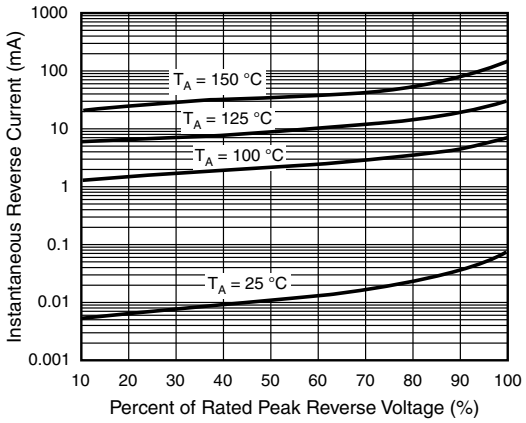


Fig. 4 - Typical Reverse Characteristics
Per Diode

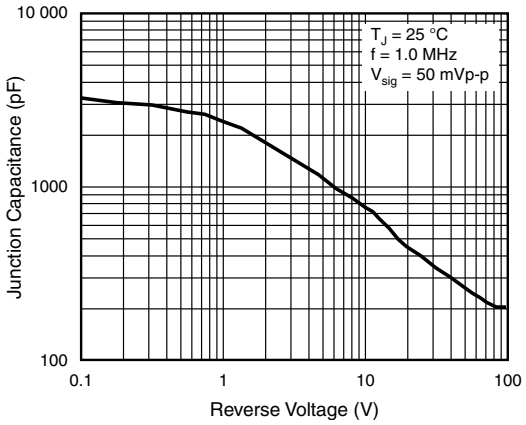


Fig. 5 - Typical Junction Capacitance
Per Diode

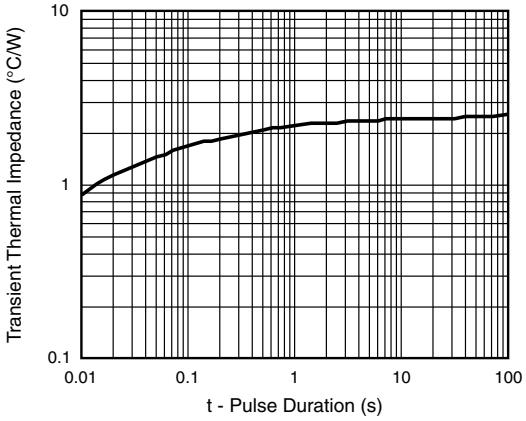
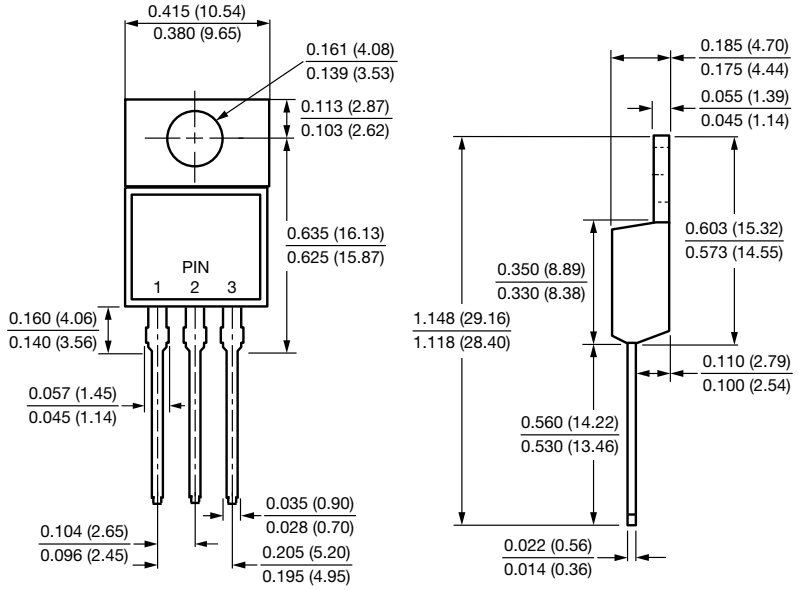


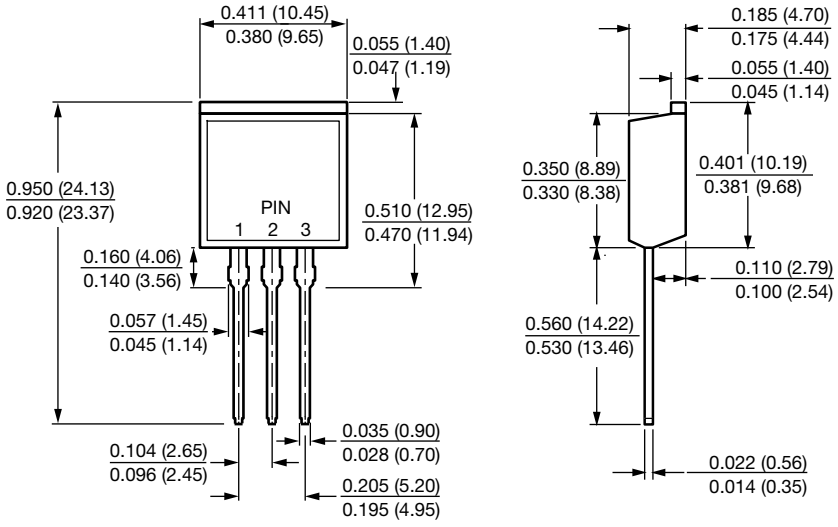
Fig. 6 - Typical Transient Thermal Impedance
Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

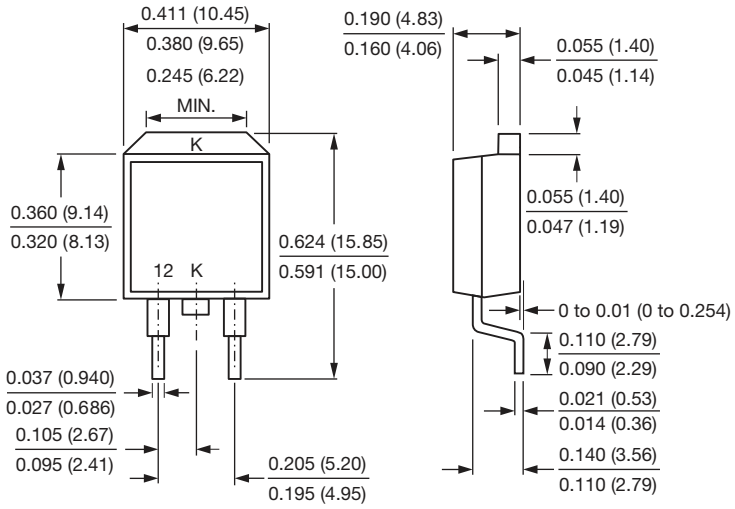
TO-220AB



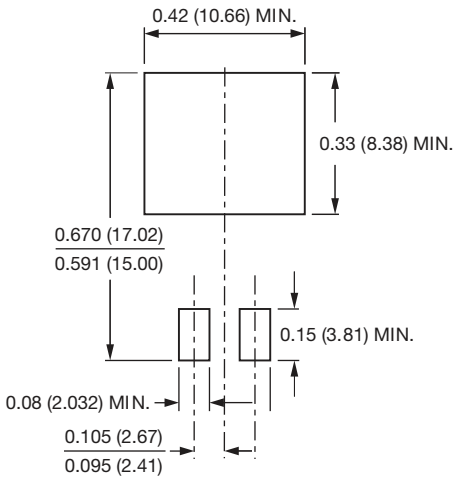
TO-262AA



D^2PAK (TO-263AB)



Mounting Pad Layout



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