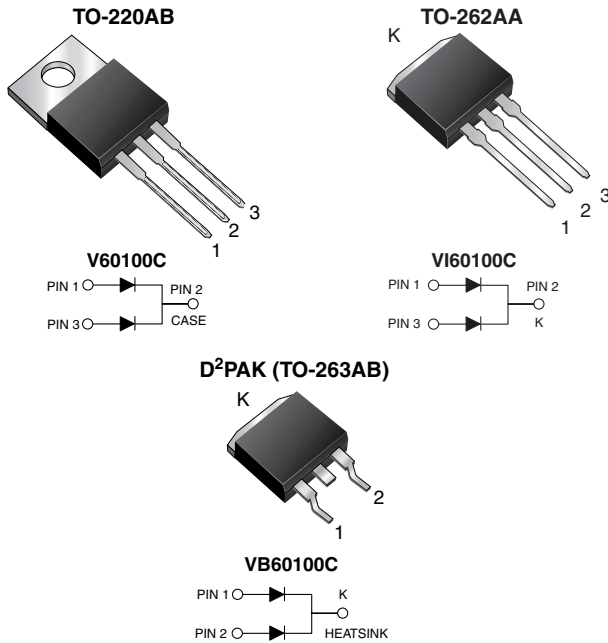


Dual High Voltage TMBS® (Trench MOS Barrier Schottky) Rectifier

 Ultra Low $V_F = 0.36 \text{ V}$ 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 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


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



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

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ 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)	$I_{F(AV)}$	per device	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 $T_J = 25 \text{ °C}$, $L = 140 \text{ mH}$ per diode	E_{AS}		450		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
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 ($T_A = 25\text{ }^\circ\text{C}$ 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}	100 (minimum)	-	V
Instantaneous forward voltage per diode	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.45	-	V
	$I_F = 10\text{ A}$			0.52	-	
	$I_F = 15\text{ A}$			0.58	0.63	
	$I_F = 20\text{ A}$			0.63	-	
	$I_F = 30\text{ A}$			0.73	0.79	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.36	-	
	$I_F = 10\text{ A}$			0.45	-	
	$I_F = 15\text{ A}$			0.53	0.58	
	$I_F = 20\text{ A}$			0.58	-	
	$I_F = 30\text{ A}$			0.66	0.70	
Reverse current at rated V_R per diode	$V_R = 80\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	24	500	μA
		$T_A = 125\text{ }^\circ\text{C}$		13	20	mA
	$V_R = 100\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		65	1000	μA
		$T_A = 125\text{ }^\circ\text{C}$		30	-	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	V60100C	VI60100C	VB60100C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.5	2.5	2.5	$^\circ\text{C/W}$

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 ² PAK (TO-263AB)	VB60100C-E3/4W	1.39	4W	50/tube	Tube
D ² PAK (TO-263AB)	VB60100C-E3/8W	1.39	8W	800/tube	Tape and reel
TO-262AA	VI60100C-E3/P	1.46	P	50/tube	Tube

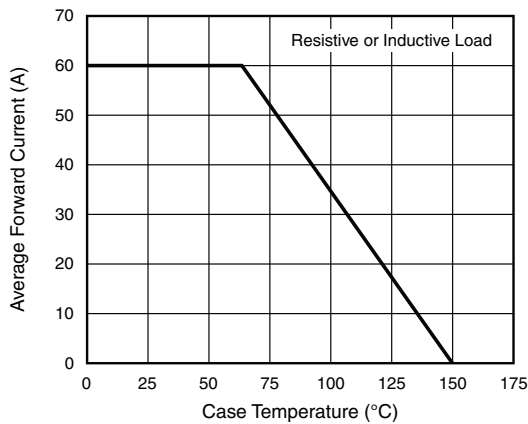
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

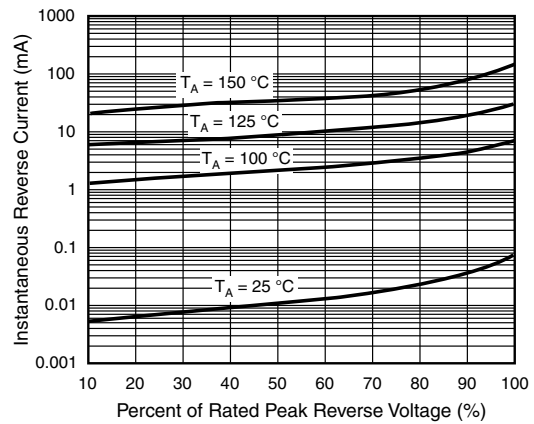


Fig. 4 - Typical Reverse Characteristics Per Diode

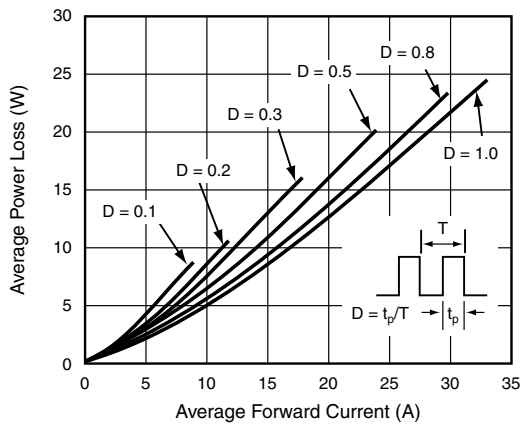


Fig. 2 - Forward Power Loss Characteristics Per Diode

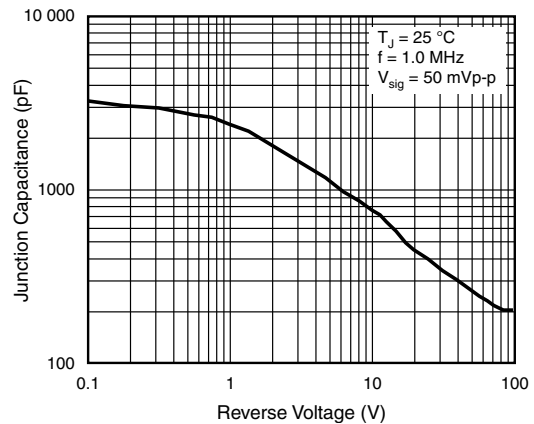


Fig. 5 - Typical Junction Capacitance Per Diode

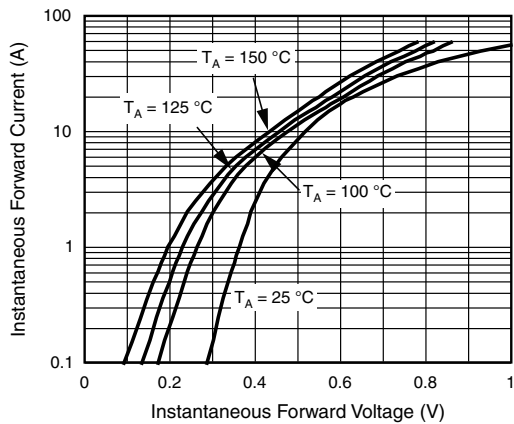


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

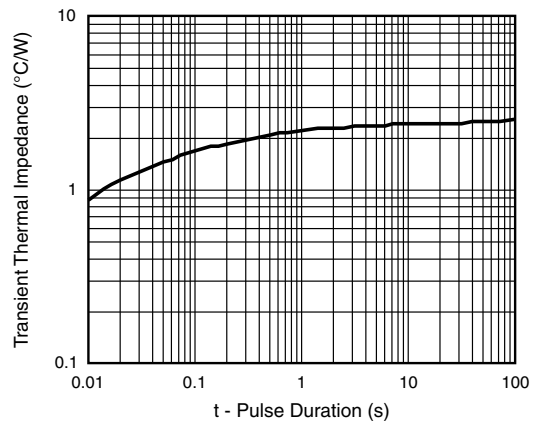
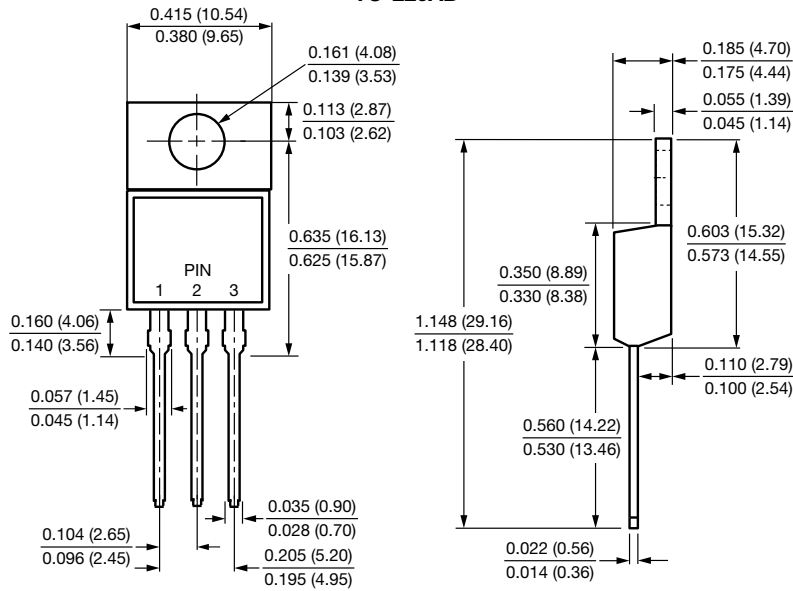


Fig. 6 - Typical Transient Thermal Impedance Per Diode

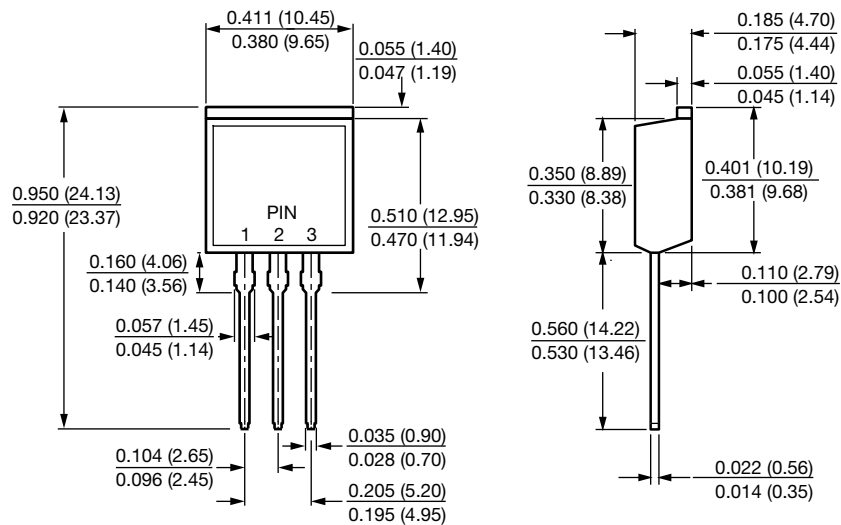


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB

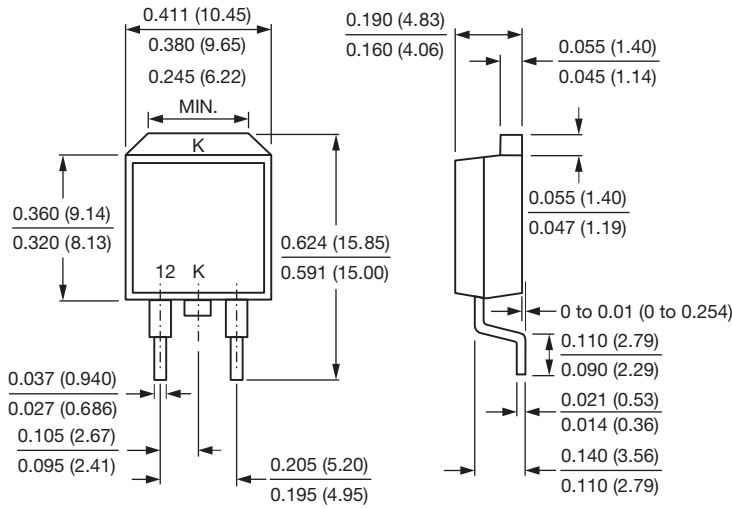


TO-262AA

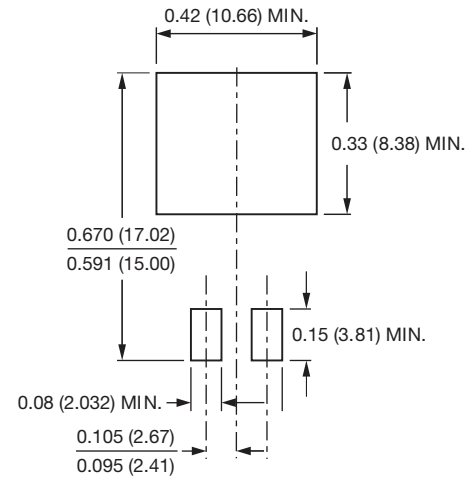




D²PAK (TO-263AB)



Mounting Pad Layout





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