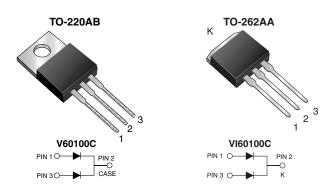


Vishay General Semiconductor

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

Ultra Low $V_F = 0.36 \text{ V}$ at $I_F = 5 \text{ A}$





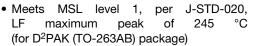
LINKS TO ADDITIONAL RESOURCES



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

FEATURES

- Trench MOS Schottky technology
- · Low forward voltage drop, low power losses
- · High efficiency operation





RoHS COMPLIANT

- 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 <u>www.vishav.com/doc?99912</u>

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

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	1	60		Α		
Maximum average forward rectified current (fig. 1)	per diode	I _{F(AV)}	30				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I _{FSM}	320		Α		
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 μ s, 1 kHz, T_J = 38 °C \pm 2 °C per diode		I _{RRM}	I _{RRM} 1.0			Α	
Voltage rate of change (rated V _R)			10 000		V/µs		
Operating junction and storage temperature range		T _J , T _{STG}		-40 to +150		°C	



V60100C-E3, VI60100C-E3, VB60100C-E3

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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	-		
	$I_F = 30 \text{ A}$			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 _B = 80 V	T _A = 25 °C	I _R ⁽²⁾	24	500	μA	
	v _R = 60 v	T _A = 125 °C		13	20	mA	
	V _P = 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 \leq 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 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	Р	50/tube	Tube		

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

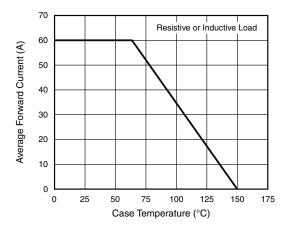


Fig. 1 - Forward Current Derating Curve

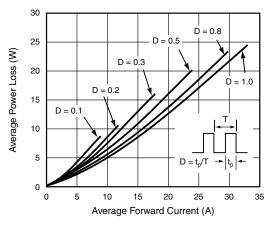


Fig. 2 - Forward Power Loss Characteristics Per Diode

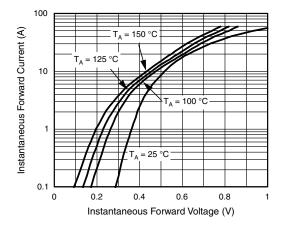


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

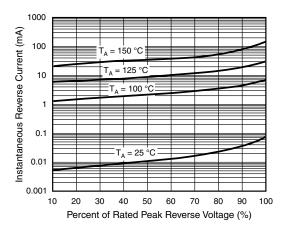


Fig. 4 - Typical Reverse Characteristics Per Diode

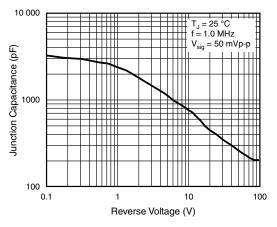


Fig. 5 - Typical Junction Capacitance Per Diode

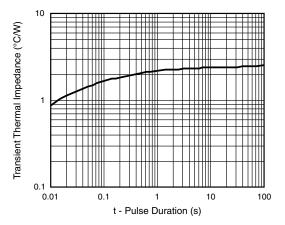
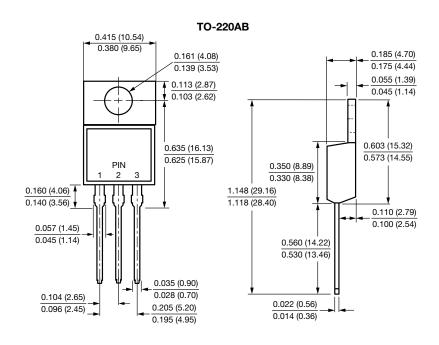


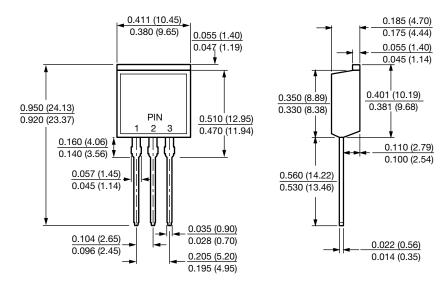
Fig. 6 - Typical Transient Thermal Impedance Per Diode

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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



TO-262AA

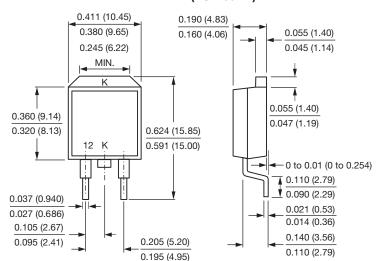




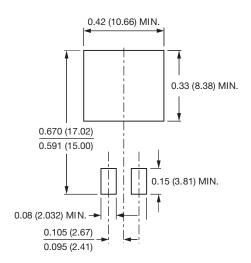
V60100C-E3, VI60100C-E3, VB60100C-E3

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D²PAK (TO-263AB)



Mounting Pad Layout





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