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V41103C

Vishay General Semiconductor

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
- HALOGEN • Solder bath temperature 275 °C maximum, 10 s, FREE per JESD 22-B106
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

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

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

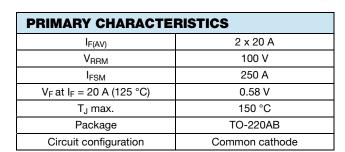
Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	V41103C	UNIT	
Maximum repetitive peak reverse voltage		V _{RRM}	100	V	
Maximum average forward rectified current (fig. 1)	per device		40	^	
	per diode	IF(AV)	20	— A	
Peak forward surge current 8.3 ms single half sine-way on rated load per diode	e superimposed	I _{FSM}	250	A	
Operating junction temperature range		T _J ⁽¹⁾	-40 to +150		
Storage temperature range		T _{STG}	-55 to +150		

Note

⁽¹⁾ The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D/dT_J < 1/R_{0,JA}$







RoHS COMPLIANT



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ELECTRICAL CHARACTERISTICS ($T_J = 25 \text{ °C}$ unless otherwise noted)						
PARAMETER	TEST CO	NDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode	I _F = 5 A	T _J = 25 °C	V _F ⁽¹⁾	0.45	-	- V
	I _F = 10 A			0.52	-	
	I _F = 20 A			0.63	0.70	
	I _F = 5 A	T _J = 125 °C		0.36	-	
	I _F = 10 A			0.46	-	
	I _F = 20 A			0.58	0.63	
Reverse current at rated V _R per diode	V 70.V	T _J = 25 °C	_R (2)	0.02	-	mA
	V _R = 70 V	T _J = 125 °C		11	-	
	$V_{R} = 100 V \qquad \begin{array}{c} T_{J} = 25 \ ^{\circ}C \\ T_{J} = 125 \ ^{\circ}C \end{array} \qquad \begin{array}{c} - \\ 26 \end{array}$	T _J = 25 °C		-	1.9	
		26	45	1		
Typical junction capacitance	4 V, 1MHz		CJ	2500	-	pF

Notes

 $^{(2)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

⁽³⁾ Pulse test: Pulse width \leq 5 ms

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	V41103C	UNIT		
Typical thermal resistance per device	R _{θJC} ⁽¹⁾	1.0	°C/W		

Note

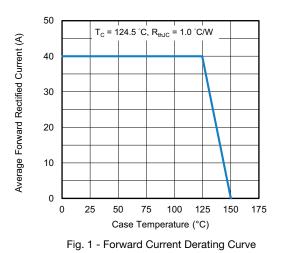
⁽⁴⁾ Thermal resistance junction-to-case to follow JEDEC[®] 51-14 transient dual interface test method (TDIM)

OERDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
V41103C-M3/P	1.88	Р	50/tube	Tube		



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



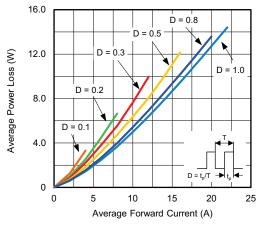


Fig. 2 - Forward Power Loss Characteristics Per Diode

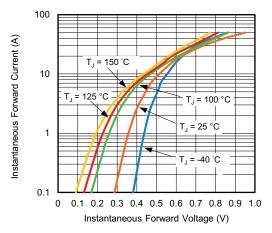


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

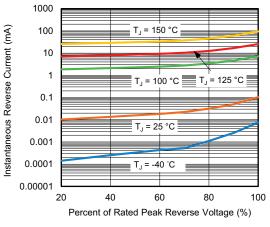


Fig. 4 - Typical Reverse Characteristics Per Diode

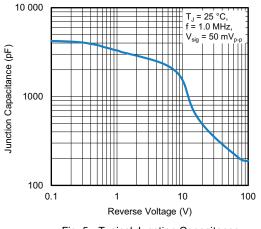
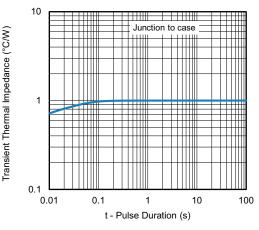


Fig. 5 - Typical Junction Capacitance



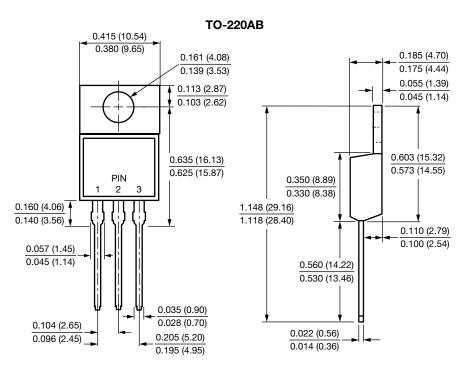


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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