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Vishay General Semiconductor

High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



PRIMARY CHARACTERISTICS				
I _{F(AV)}	1.0 A			
V_{RRM}	90 V, 100 V			
I _{FSM}	50 A			
V_{F}	0.62 V			
I _R	1.0 µA			
T _J max.	175 °C			
Package DO-41 (DO-204AL)				
Circuit configuration Single				

FEATURES

- High barrier technology for improved high T_J
- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- Very low leakage current
- · High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in middle voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-41 (DO-204AL)

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:** color band denotes the cathode end

PARAMETER	SYMBOL	SB1H90	SB1H100	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V
Maximum RMS voltage	V _{RMS}	63	70	V
Maximum DC blocking voltage	V _{DC}	90	100	V
Maximum average forward rectified current	I _{F(AV)}	1.0		Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	50		А
Voltage rate of change (rated V _R)	dV/dt	10 000		V/µs
Peak repetitive reverse surge current at $t_p = 2.0 \mu s$, 1 kHz	I _{RRM}	1.0		Α
Maximum operating junction temperature	TJ	175		°C
Storage temperature range	T _{STG}	-55 to	°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SB1H90	SB1H100	UNIT
Maximum instantaneous forward voltage	I _F = 1.0 A	$T_J = 25 ^{\circ}C$	V _F ⁽¹⁾	0.77		
		T _J = 125 °C		0.62		V
	I _F = 2.0 A	T _J = 25 °C		0.	86	V
		T _J = 125 °C		0.	70	
Maximum reverse current at rated V _R		T _J = 25 °C	I _R ⁽²⁾	1	.0	μΑ
		T _J = 125 °C		0	.5	mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	SB1H90	SB1H100	UNIT	
Maximum thermal resistance	R _{0JA} (1)	57		°C/W	
Waximum thematresistance	R ₀ JL (1)	15			

Note

 $^{(1)}\,$ PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SB1H100-E3/54	0.34	54	5500	13" diameter paper tape and reel		
SB1H100-E3/73	0.34	73	3000	Ammo pack packaging		

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

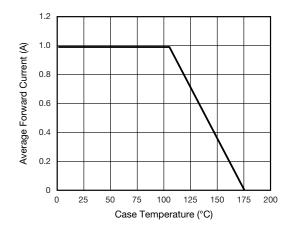


Fig. 1 - Forward Current Derating Curve

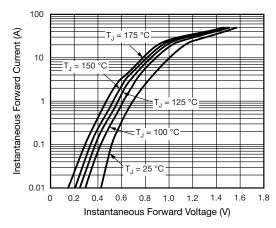


Fig. 2 - Typical Instantaneous Forward Characteristics

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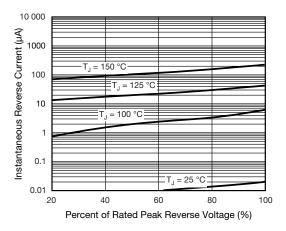


Fig. 3 - Typical Reverse Characteristics

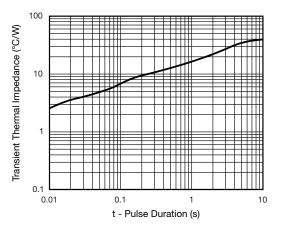


Fig. 5 - Typical Transient Thermal Impedance

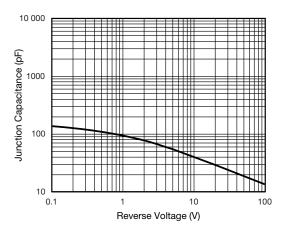
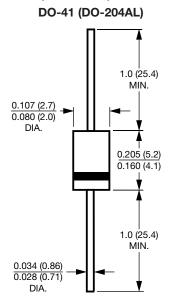


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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