

## High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-204AL (DO-41)

### 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 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

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 $\mu$ A
$T_J$ max.	175 °C
Package	DO-204AL
Diode variations	Single

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** DO-204AL (DO-41)

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

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

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		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50		A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000		V/ $\mu$ s
Peak repetitive reverse surge current at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		A
Maximum operating junction temperature	$T_J$	175		°C
Storage temperature range	$T_{STG}$	- 55 to + 175		°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	SB1H90	SB1H100	UNIT
Maximum instantaneous forward voltage	$I_F = 1.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	0.77		V
		$T_J = 125\text{ }^\circ\text{C}$	0.62		
	$I_F = 2.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	0.86		
		$T_J = 125\text{ }^\circ\text{C}$	0.70		
Maximum reverse current at rated $V_R$		$T_J = 25\text{ }^\circ\text{C}$	1.0		$\mu\text{A}$
		$T_J = 125\text{ }^\circ\text{C}$	0.5		mA

**Notes**

- (1) Pulse test: 300 ms pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	SB1H90	SB1H100	UNIT
Maximum thermal resistance	$R_{\theta JA}^{(1)}$	57		$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	15		

**Note**

- (1) PCB mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

<b>ORDERING INFORMATION</b> (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**

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

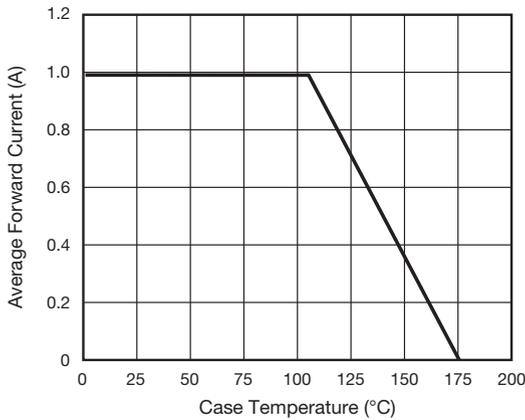


Fig. 1 - Forward Current Derating Curve

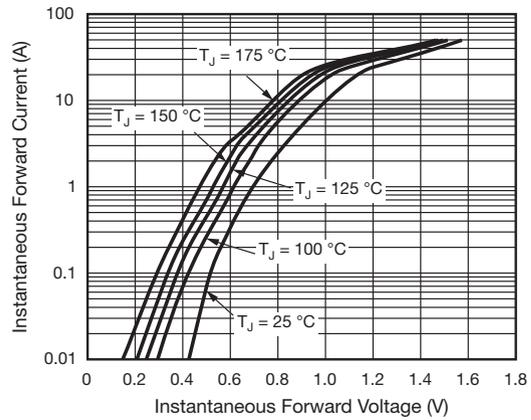


Fig. 2 - Typical Instantaneous Forward Characteristics

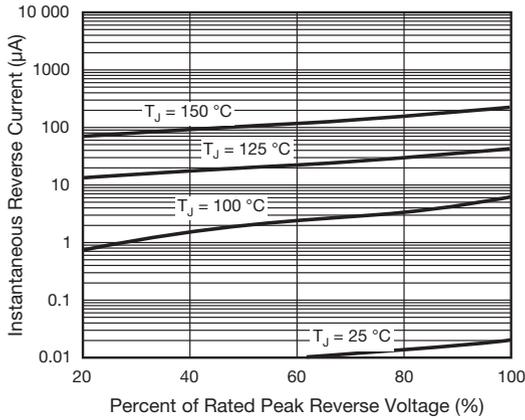


Fig. 3 - Typical Reverse Characteristics

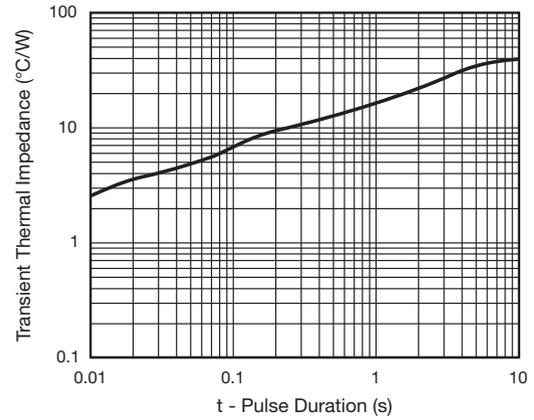


Fig. 5 - Typical Transient Thermal Impedance

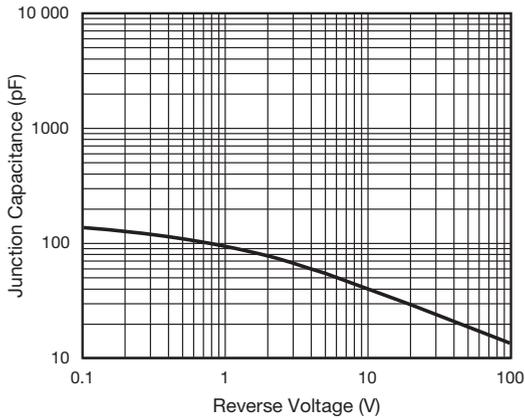
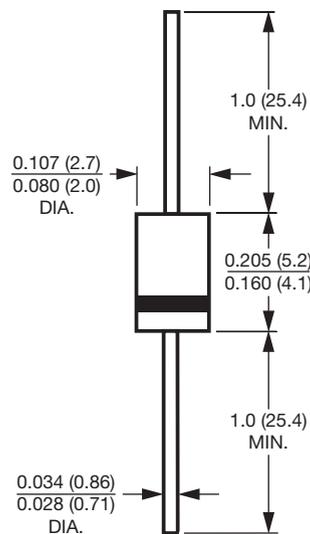


Fig. 4 - Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-204AL (DO-41)**





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