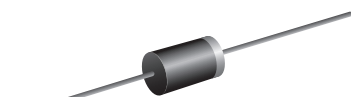


# High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-41 (DO-204AL)

## 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-41 (DO-204AL)
Circuit configuration	Single

## 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

## 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

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

PARAMETER	TEST CONDITIONS		SYMBOL	SB1H90	SB1H100	UNIT
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.77		V
		T <sub>J</sub> = 125 °C		0.62		
	I <sub>F</sub> = 2.0 A	T <sub>J</sub> = 25 °C		0.86		
		T <sub>J</sub> = 125 °C		0.70		
Maximum reverse current at rated V <sub>R</sub>		T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	1.0		μA
		T <sub>J</sub> = 125 °C		0.5		mA

**Notes**

(1) Pulse test: 300 ms 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	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

**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

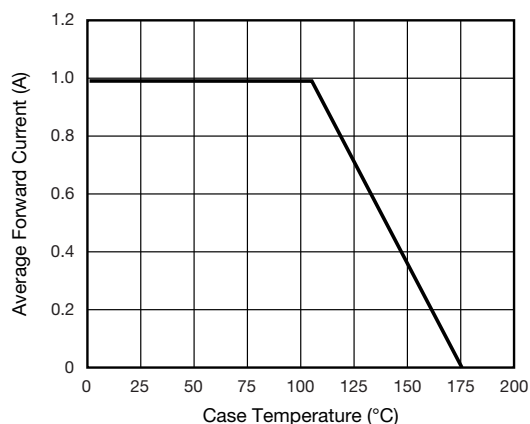
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

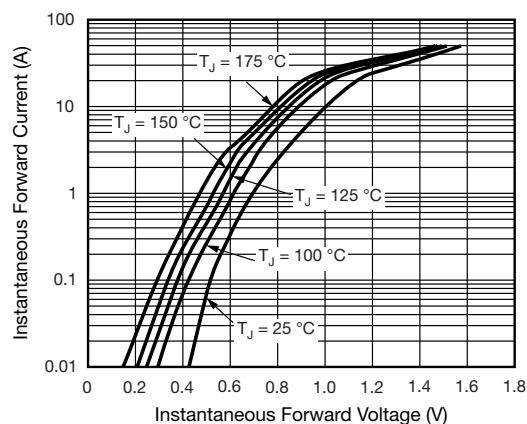


Fig. 2 - Typical Instantaneous Forward Characteristics

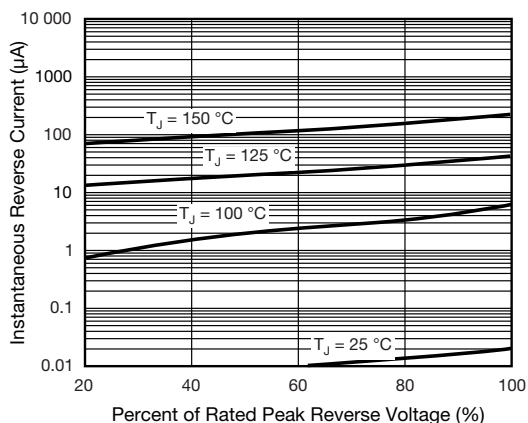


Fig. 3 - Typical Reverse Characteristics

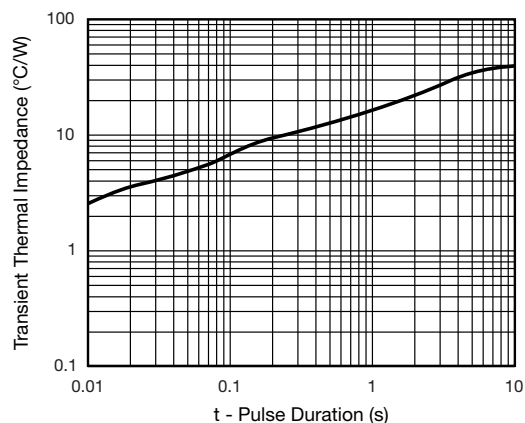


Fig. 5 - Typical Transient Thermal Impedance

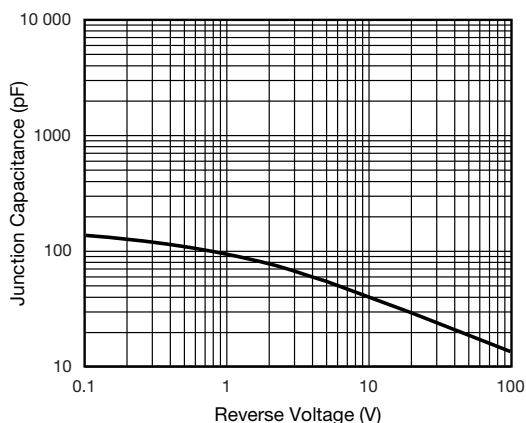
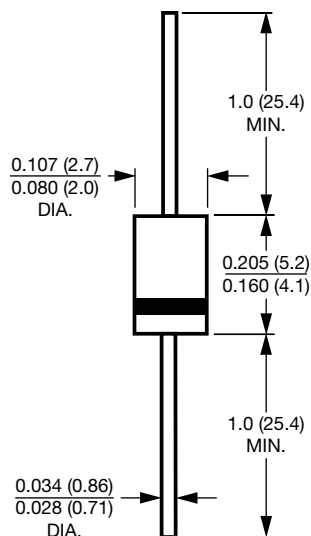


Fig. 4 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-41 (DO-204AL)





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