

BAT46W

SCHOTTKY RECTIFIERS



VOLTAGE: 100 Volts

CURRENT: 250 mA

Package: SOD-123

Marking And Polarity

FEATURES

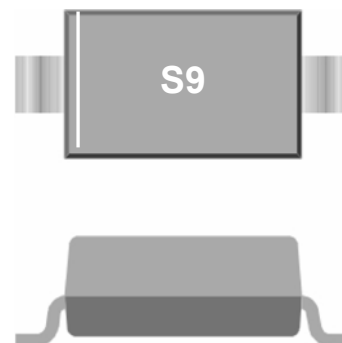
- Plane Schottky Potential Barrier Chip
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Forward Surge Capability For High Reliability
- High Frequency Operation

MECHANICAL DATA

- Package:** Molding Compound Meets UL 94 V-0 Flammability Rating, RoHS-Compliant
- Polarity:** As Marked On Case
- Mounting Position:** Any
- Weight:** App. 0.01 Grams (0.00035 Ounce)

TYPICAL APPLICATIONS

- For Use In High Frequency Inverters, Switching Mode Power Supply
AC/DC Converters, LED Driver Etc. Applications



Remark:

- Mark=S9
- White band denotes cathode

Single Phase, Half Wave, 60Hz, Resistive Or Inductive Load. For Capacitive Load, Derate Current By 20%

Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	BAT46W	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	100	V
Maximum RMS Voltage		V_{RMS}	70	V
Maximum DC Blocking Voltage		V_{DC}	100	V
Maximum Average Forward Rectified Current	@TC= 100 °C	$I_{F(AV)}$	250	mA
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	750	mA
Power dissipation		P_D	200	mW

Electrical Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	Min.	--	Max.	Unit
Instantaneous forward voltage per diode (note1)	Ta=25°C	$I_F = 0.1 \text{ mA}$	--	--	0.25	V
		$I_F = 10 \text{ mA}$	--	--	0.45	
		$I_F = 250 \text{ mA}$	--	--	1.00	
Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1)	Ta=25°C	$V_R = 10 \text{ V}$	--	--	0.80	uA
		$V_R = 50 \text{ V}$	--	--	4.00	
		$V_R = 75 \text{ V}$	--	--	6.00	
Typical Junction Capacitance Per Diode	0.0 V, 1MHz	C_J	--	20	--	pF

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Symbol	BAT46W	Unit
Operating Junction Temperature Range	T_J	-55 to 125	°C
Storage Temperature Range	T_{STD}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	200	°C/W

Notes: 1. Pulse Test: 300 Us Pulse Width, 1% Duty Cycle

2. Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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Typical Characteristics Curves

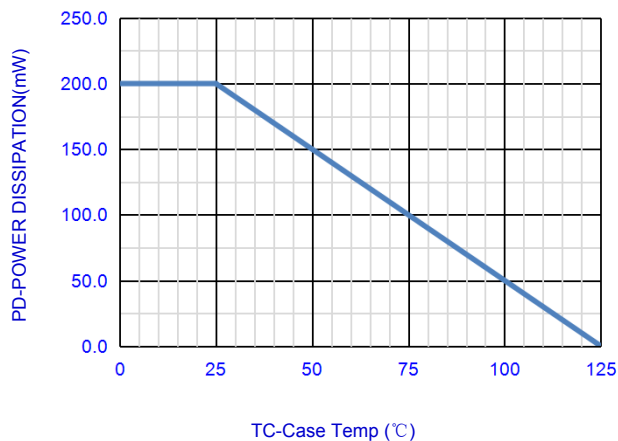


Fig.1-POWER DERATING CURVE

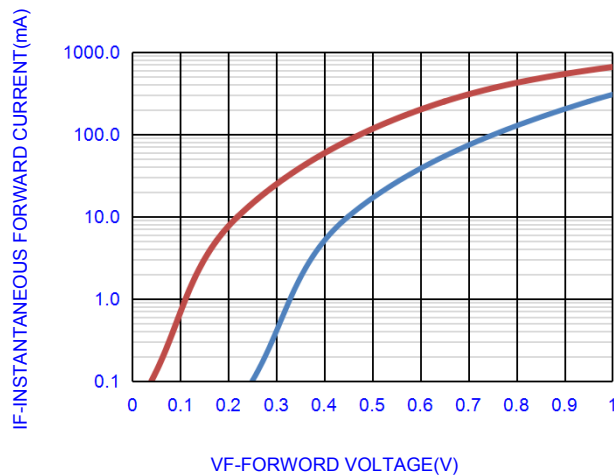


Fig.2- TYPICAL INSTANTANEOUS FORWARD

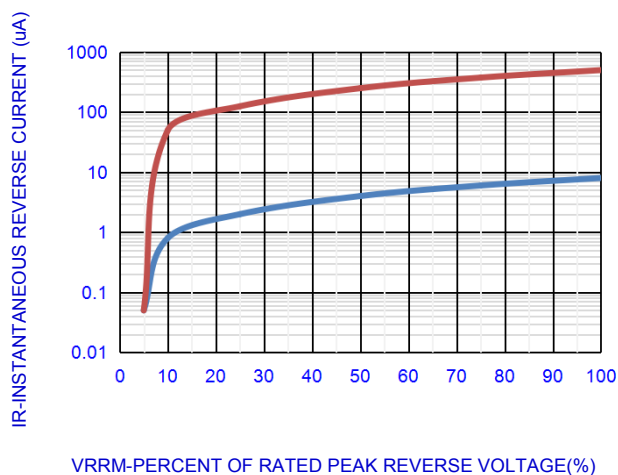


Fig.3- TYPICAL REVERSE CHARACTERISTICS

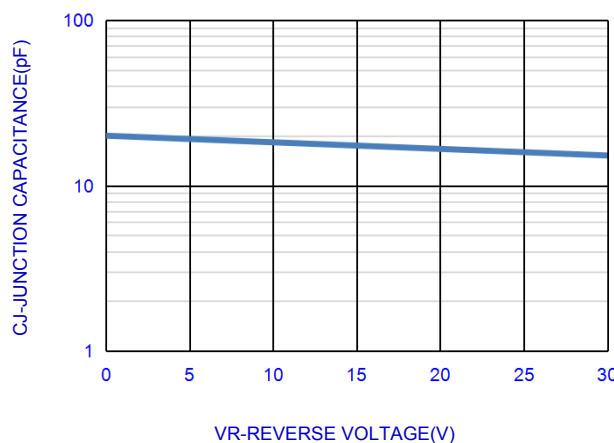


Fig.4- TYPICAL JUNCTION CAPACITANCE

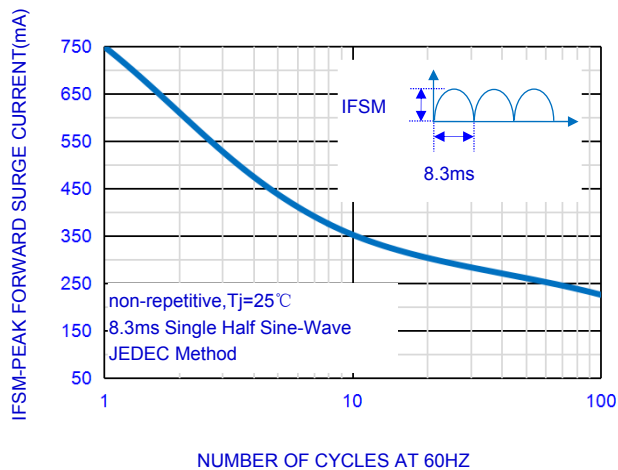


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

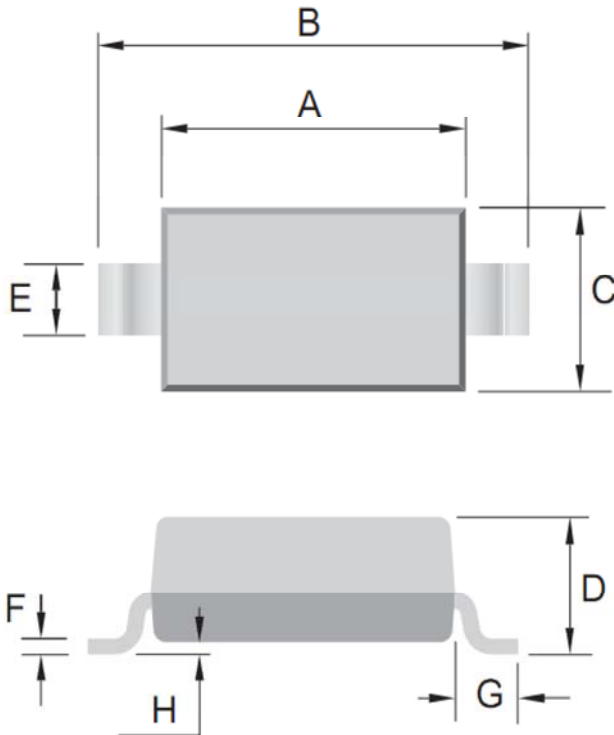
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OUTLINE DRAWINGS

SOD-123

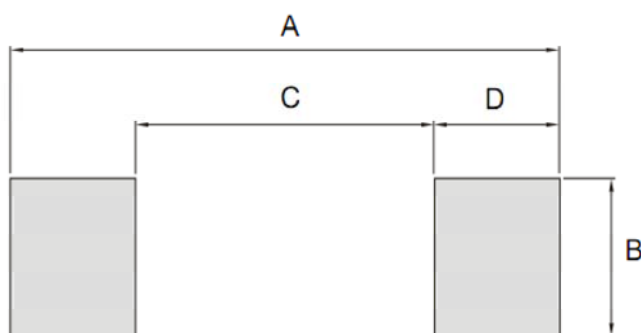


OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.500	-	2.800	0.098	-	0.110
B	3.550	-	3.900	0.140	-	0.154
C	1.400	-	1.800	0.055	-	0.071
D	0.950	-	1.350	0.037	-	0.053
E	0.450	-	0.700	0.018	-	0.028
F	-	-	0.200	-	-	0.008
G	0.400	-	-	0.016	-	-
H	-	-	0.120	-	-	0.005

OUTLINE DRAWINGS

SOD-123



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.040	-	-	0.159	-
B	-	1.000	-	-	0.039	-
C	-	2.440	-	-	0.096	-
D	-	0.800	-	-	0.031	-

PACKING INFORMATION

Package Code	Package Method	Inner Box Size L×W×H(mm)	Quantity (Pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (Pcs/Carton)
SOD-123	T/R	210×210×203	45000	455×455×240	180000

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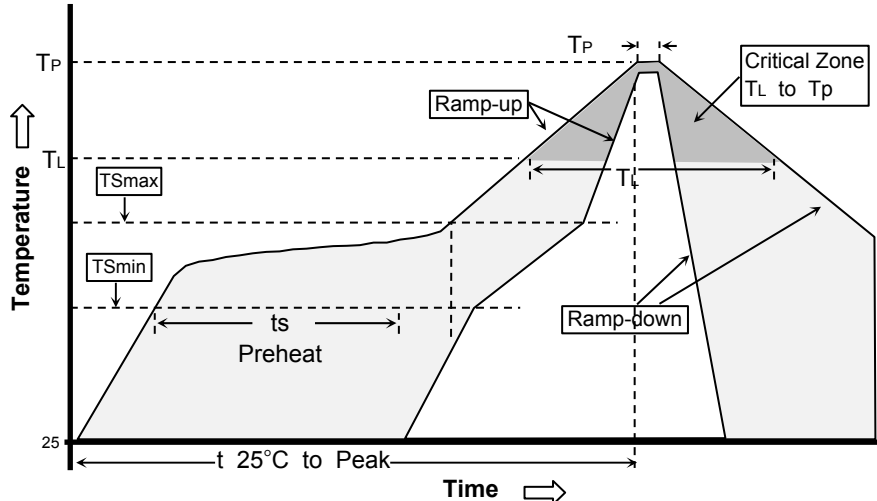
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.



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