

## FEATURES

- | High breakdown voltage

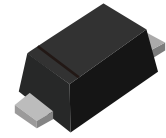
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- | Low turn-on voltage

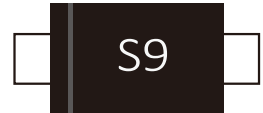
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- | Guard ring construction for transient protection

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SOD-523



Marking



Schematic Symbol

## MECHANICAL DATA

- | SOD-523 Small Outline Plastic Package

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- | Polarity: Color band denotes cathode end

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- | Mounting Position: Any

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## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## MAXIMUM RATINGS (T<sub>A</sub> = 25°C )

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	100	V
Working peak reverse voltage	V <sub>RWM</sub>	100	V
Forward continuous current	I <sub>F</sub>	150	mA
Repetitive peak forward current (Note 1) @ tp < 1.0s, Duty Cycle < 50%	I <sub>FRM</sub>	350	mA
Non-repetitive Peak Forward surge current @ t = 8.3ms	I <sub>FSM</sub>	750	mA
Power Dissipation	P <sub>D</sub>	150	mW
Thermal resistance junction to ambient air	R <sub>θJA</sub>	667	°C/W
Operating junction temperature	T <sub>J</sub>	-40+125	°C
Storage temperature range	T <sub>STG</sub>	-50+150	°C

## ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reverse voltage leakage current	$I_R$	$V_{R1}=1.5\text{V}$			0.3	$\mu\text{A}$
		$V_{R2}=10\text{V}$			0.5	
		$V_{R3}=50\text{V}$			1	
		$V_{R4}=75\text{V}$			2	
Reverse breakdown voltage(Note 2)	$V_R$	$I_R=100\mu\text{A}$	100			V
Forward voltage(Note 2)	$V_F$	$I_{F1}=0.1\text{mA}$			0.25	V
		$I_{F2}=10\text{mA}$			0.45	
		$I_{F3}=250\text{mA}$			1	
Diode capacitance	$C_T$	$V_R=0\text{V}, f=1\text{MHz}$		20		pF
		$V_R=1\text{V}, f=1\text{MHz}$		12		

Notes: 1. Part mounted on FR-4 board with recommended pad layout.  
 2. Short duration pulse test used to minimize self-heating effect

## CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

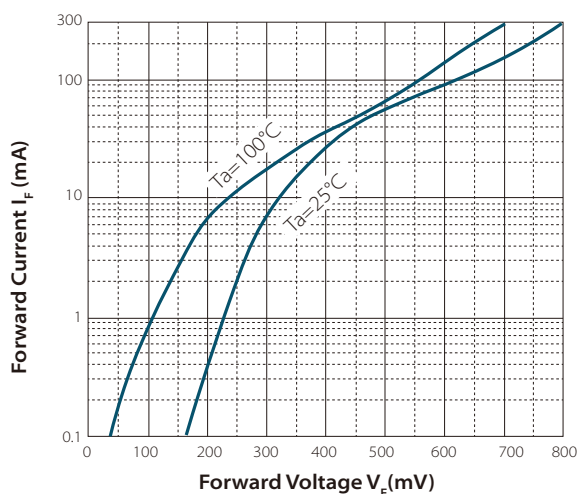
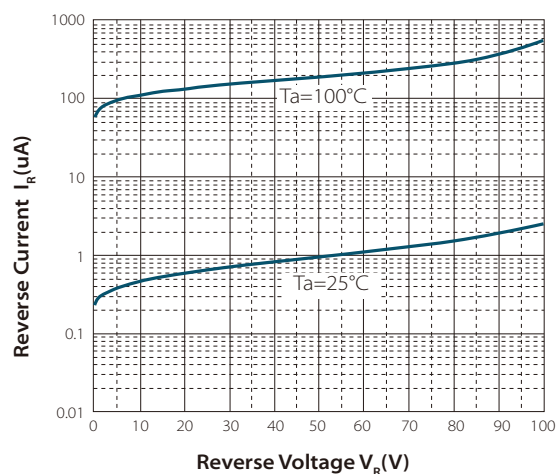
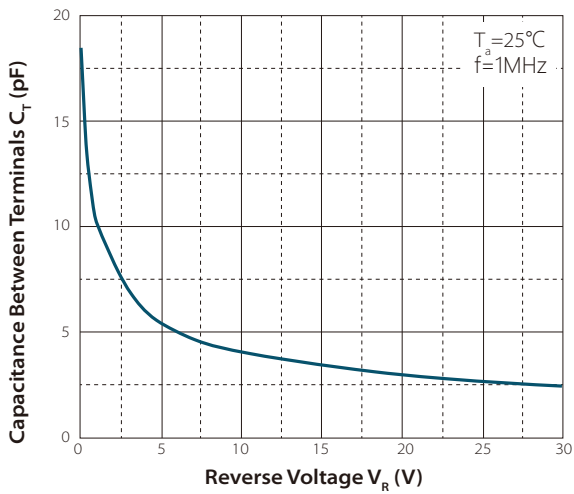
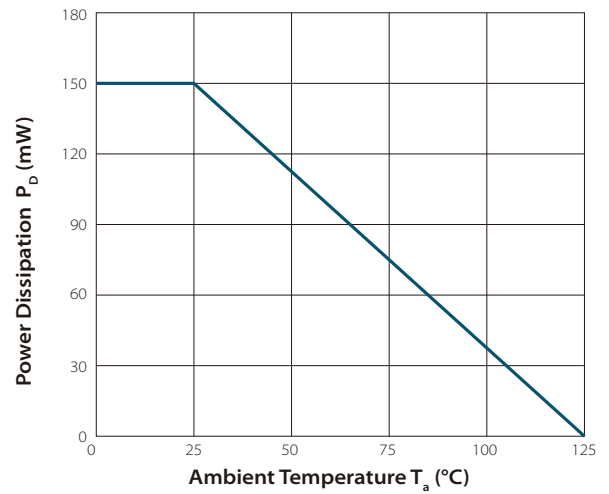


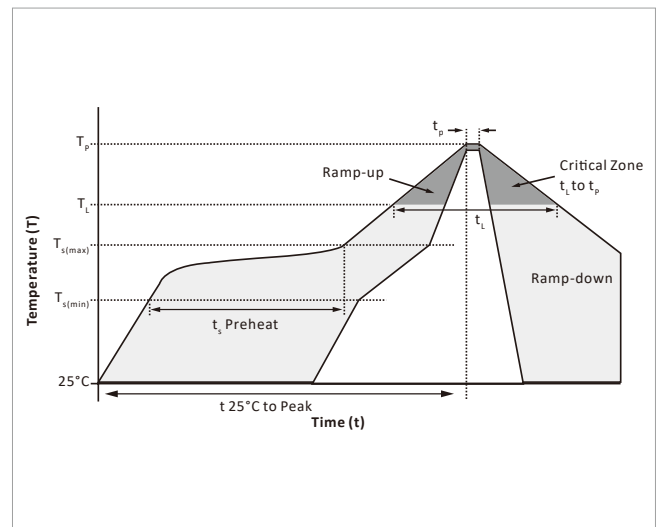
Fig.2 Reverse Characteristics



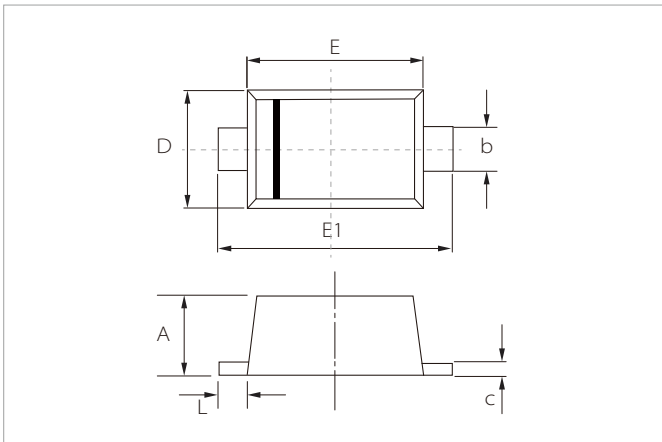
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(\min)}$ )	150 $^\circ\text{C}$
	Temperature Max ( $T_{s(\max)}$ )	200 $^\circ\text{C}$
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3 $^\circ\text{C}/\text{second}$ max
$T_{s(\max)}$ to $T_L$ - Ramp-up Rate		3 $^\circ\text{C}/\text{second}$ max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217 $^\circ\text{C}$
	Time (min to max) ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260 $^\circ\text{C}$
Time within 5 $^\circ\text{C}$ of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6 $^\circ\text{C}/\text{second}$ max
Time 25 $^\circ\text{C}$ to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260 $^\circ\text{C}$

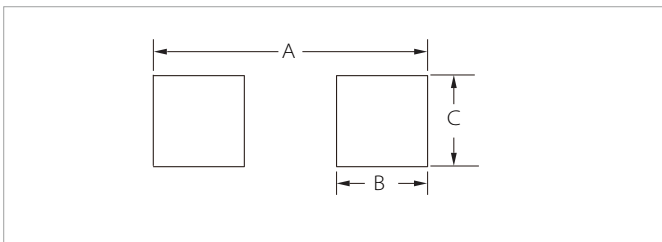


## SOD-523 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.80	0.020	0.031
b	0.25	0.35	0.010	0.014
c	0.07	0.20	0.003	0.008
D	0.70	0.90	0.028	0.035
E	1.10	1.30	0.043	0.051
E1	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
	Min.	Min.
A	2.00	0.0787
B	0.60	0.0236
C	0.70	0.0276

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BAT46X	SOD-523	3000PCS	7"

To find your local partner within Semiwell's website : [www.semiwell.com.cn](http://www.semiwell.com.cn)

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