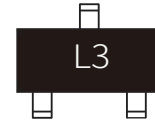


## FEATURES

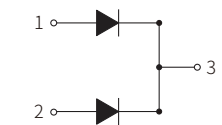
- | Low Forward Voltage Drop
- | Fast Switching
- | Pn Junction Guard Ring For Transient And ESD Protection



SOT-523



Marking



Schematic Symbol

## MECHANICAL DATA

- | SOT-523 Small Outline Plastic Package
- | Epoxy UL: 94V-0
- | Mounting Position: Any

## APPROVALS

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

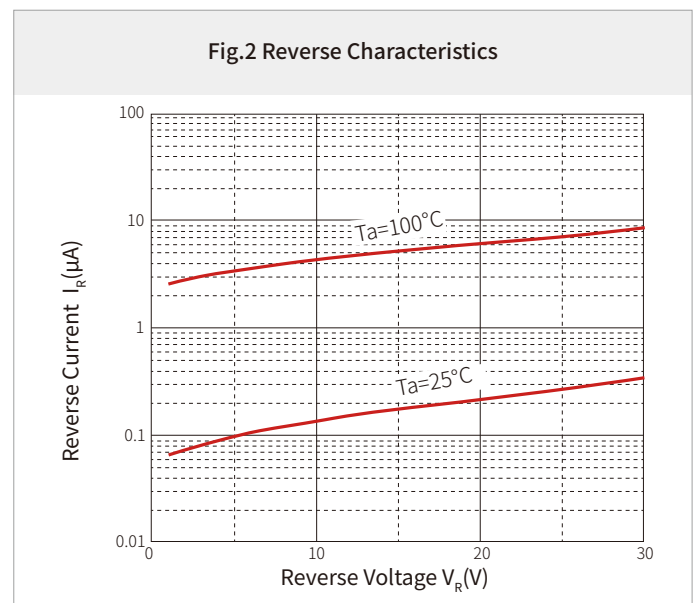
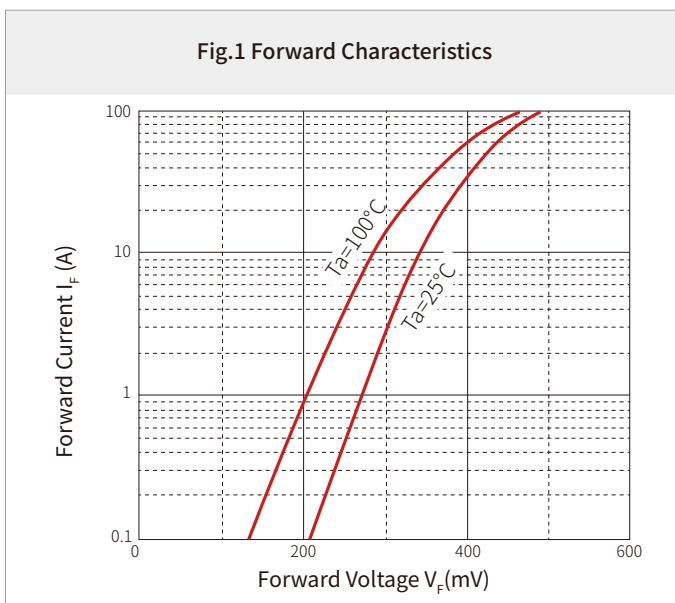
## MAXIMUM RATINGS (T<sub>A</sub>=25°C)

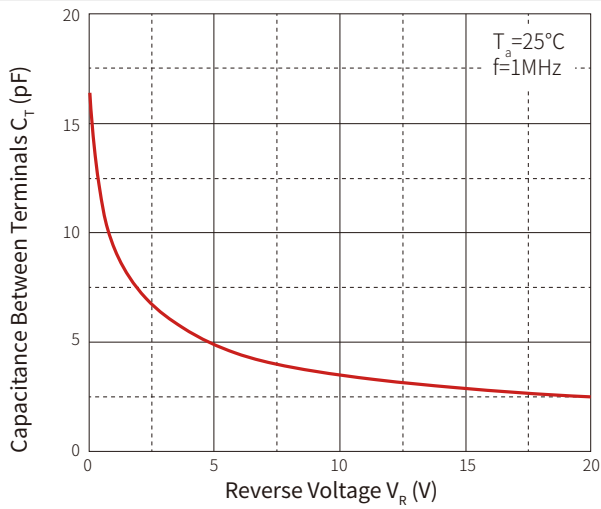
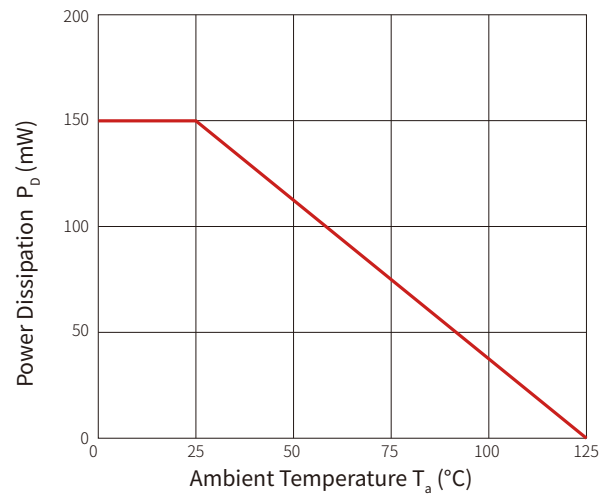
Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>	30	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Power Dissipation	P <sub>d</sub>	150	mW
Operating Junction Temperature	T <sub>J</sub>	125	°C
Storage Temperature Range	T <sub>S</sub>	-55 to +150	°C
Average Rectified Output Current	I <sub>O</sub>	600	mA
Repetitive Peak Forward Surge Current @t=8.3ms	I <sub>FSM</sub>	300	mA
Peak Forward Surge Current @tp=1s; δ≤0.5	I <sub>FRM</sub>	2.0	A
Thermal Resistance From Junction to Ambient	R <sub>θJA</sub>	600	°C/W

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=1\text{mA}$			0.32	V
		$I_F=10\text{mA}$			0.40	V
		$I_F=30\text{mA}$			0.50	V
		$I_F=100\text{mA}$			1.00	V
Reverse Breakdown Voltage	$V_{(BR)}$	$I_R=100\mu\text{A}$	30			V
Reverse Leakage Current	$I_R$	$V_R=25\text{V}$			2	$\mu\text{A}$
Total Capacitance	$C_{\text{tot}}$	$V_R=1\text{V}, f=1\text{MHz}$			10	pF
Reverse Recovery Time	$T_{RR}$	$I_F=I_R=10\text{mA}, R_L=100\Omega$ $I_{RR}=0.1 \times I_R$			5	nS

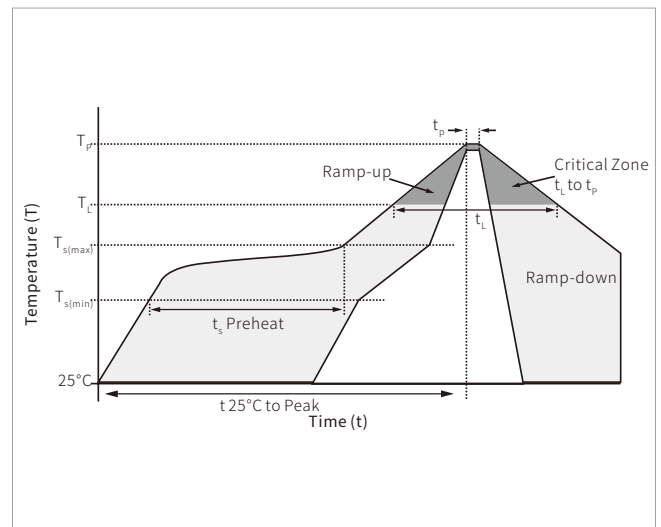
## CHARACTERISTIC CURVES



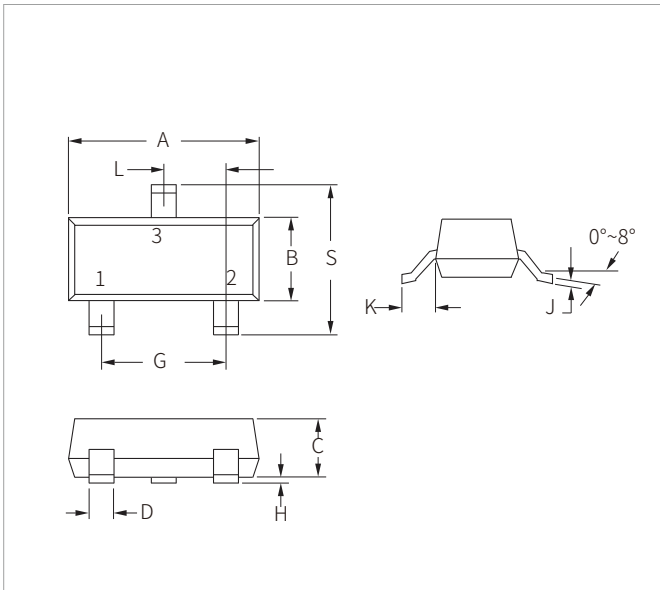
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(\text{min})}$ )	150 $^\circ\text{C}$
	Temperature Max ( $T_{s(\text{max})}$ )	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
$T_{s(\text{max})}$ 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 $^\circ\text{C}$

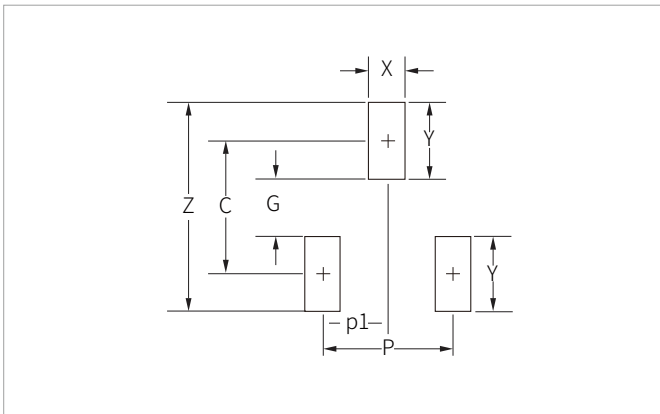


## SOT-523 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.70	0.059	0.067
B	0.75	0.85	0.029	0.033
C	0.60	0.80	0.023	0.031
D	0.15	0.30	0.005	0.012
G	1.00BSC		0.039BSC	
H	0.00	0.10	0.000	0.004
J	0.10	0.20	0.004	0.008
K	(0.22)		(0.009)	
L	0.50BSC		0.020BSC	
S	1.45	1.75	0.057	0.069

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
C	(1.40)	(0.055)
P	1.00	0.039
p1	0.50	0.020
G	0.60	0.024
X	0.40	0.016
Y	0.80	0.031
Z	2.20	0.087

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BAT54CT	SOT-523	3000PCS	7"

**Headquarters**

No.3387 Shendu Road  
Pujiang I&E Park  
Minhang Shanghai China  
201000

**Hotline**

400-021-5756

**Web**

<https://www.semiware.com>

**Sales Center**

Tel: 86-21-3463-7458  
Email: [sales18@semiware.com](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

**By QR Code**

Website



Wechat

To find your local partner within Semiware's global website: [www.semiware.com](http://www.semiware.com)

© 2022 Semiware Semiconductor Inc.

The content of this document has been carefully checked and understood. However, neither Semiware nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiware does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiware. Latest publications and a complete disclaimer can be downloaded from the Semiware website. All trademarks recognized.