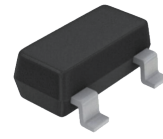
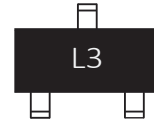


## FEATURES

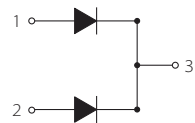
- | Low Forward Voltage Drop
- | Fast Switching
- | PN Junction Guard Ring for Transient and ESD Protection



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

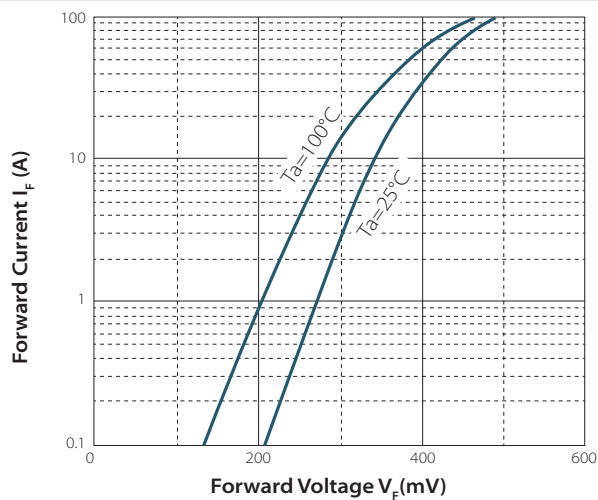
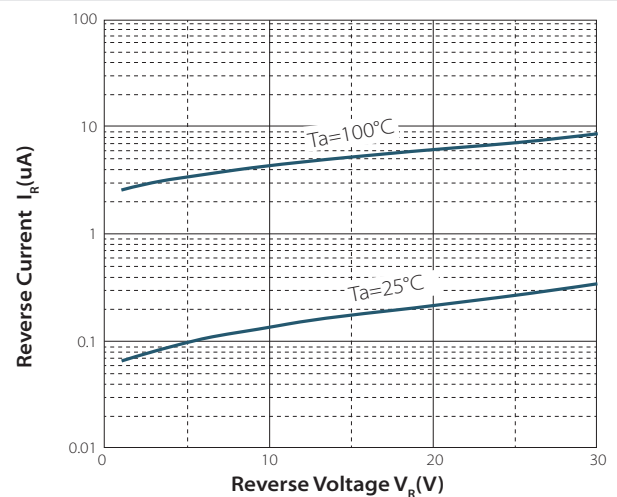
## MAXIMUM RATINGS (T<sub>A</sub> = 25°C )

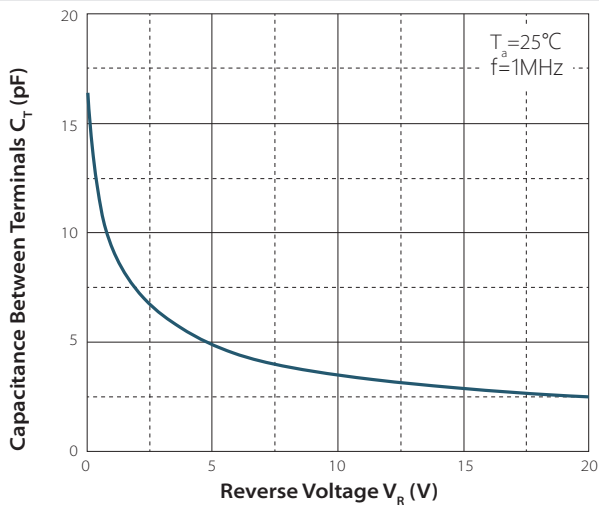
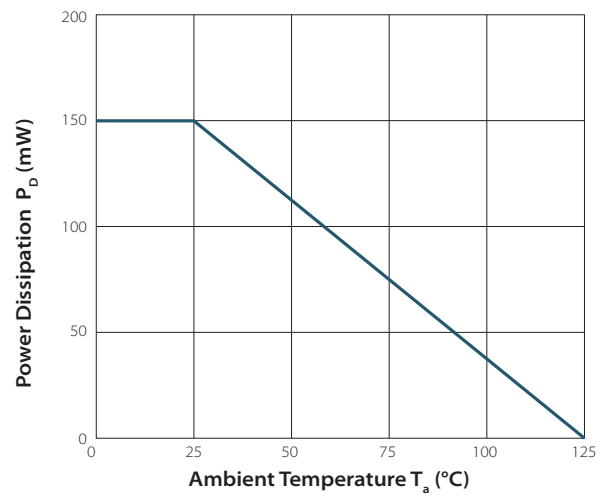
Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>	30	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Power Dissipation	P <sub>d</sub>	150	mW
Operating junction temperature	T <sub>J</sub>	125	°C
Storage temperature range	T <sub>S</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	Ctot	$V_R=1\text{V}, f=1\text{MHz}$			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

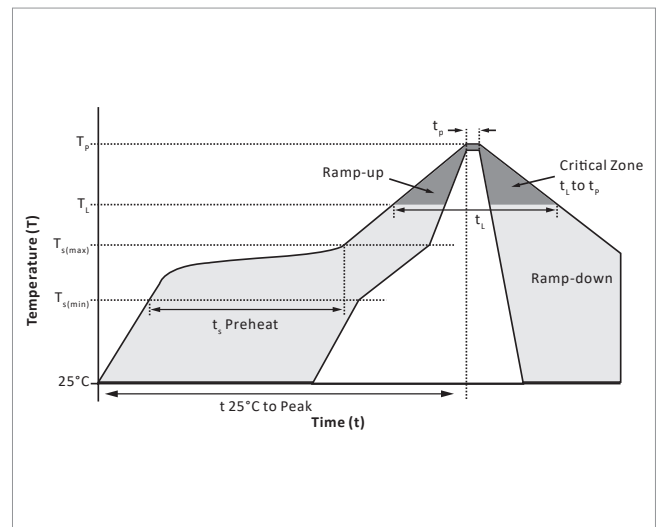
## CHARACTERISTIC CURVES

**Fig.1 Forward Characteristics**

**Fig.2 Reverse Characteristics**


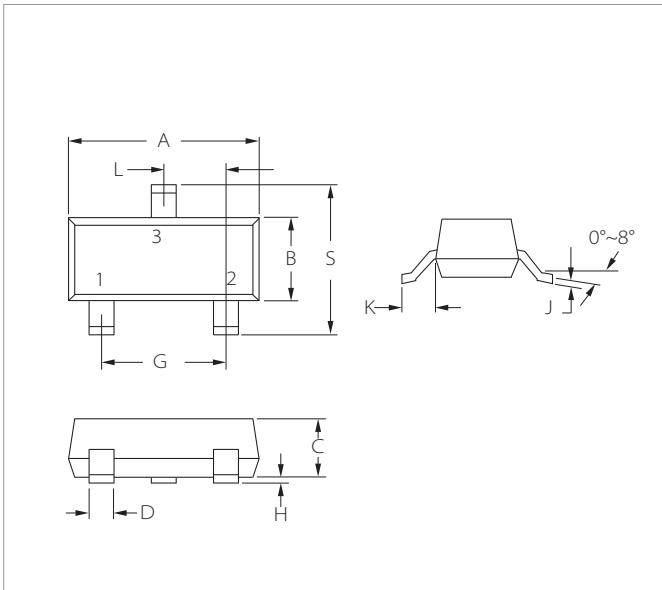
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

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

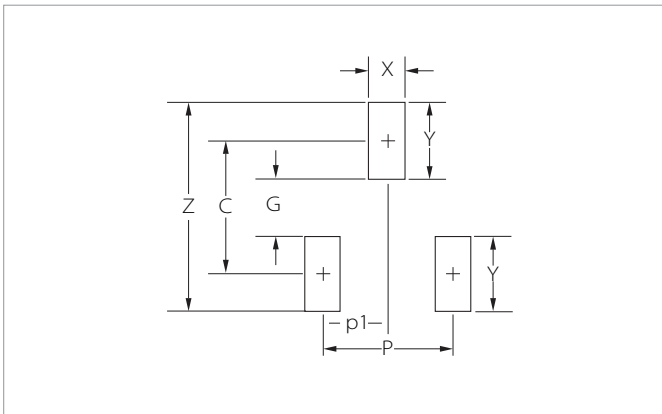


## SOT-523 PACKAGE INFORMATION



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"

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

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