

## FEATURES

- | High Current Capability
- | Low Forward Voltage Drop
- | Extremely Fast Switching Speed



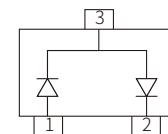
SOT-23



Marking

## MECHANICAL DATA

- | SOT-23 Small Outline Plastic Package
- | Epoxy UL: 94V-0
- | Mounting Position: Any



Schematic Symbol

## APPROVALS

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

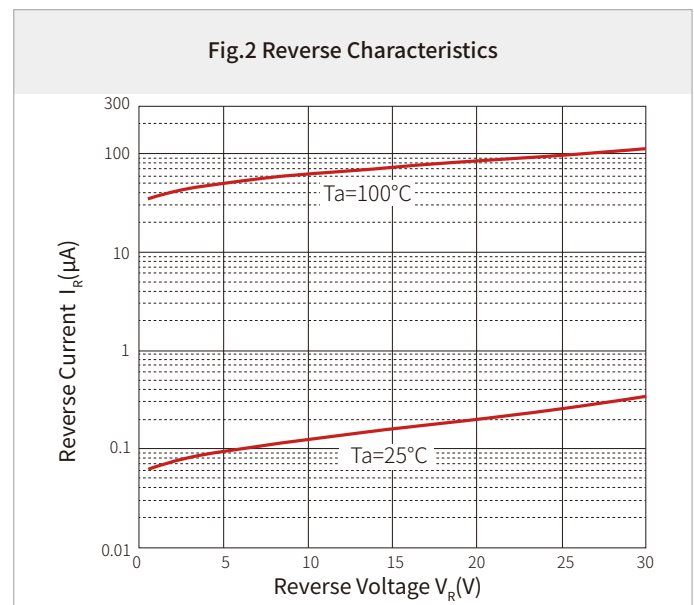
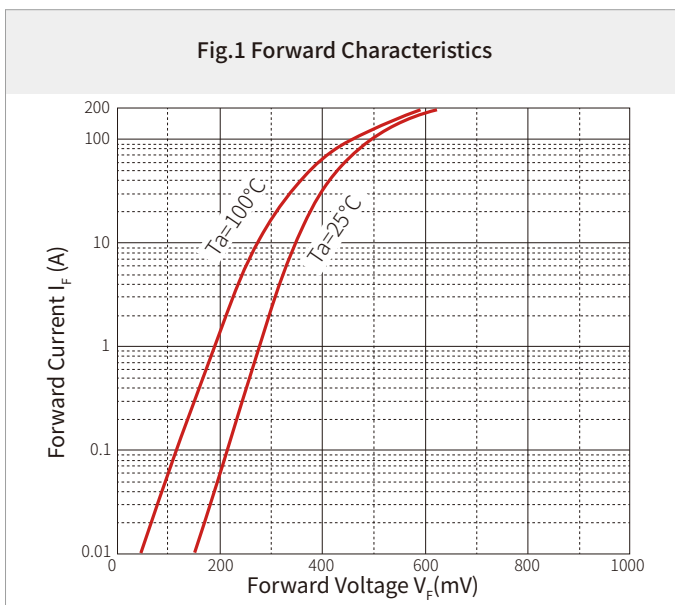
## MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ )

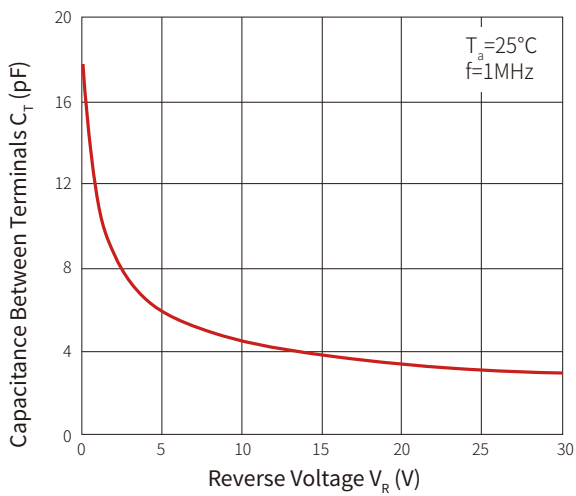
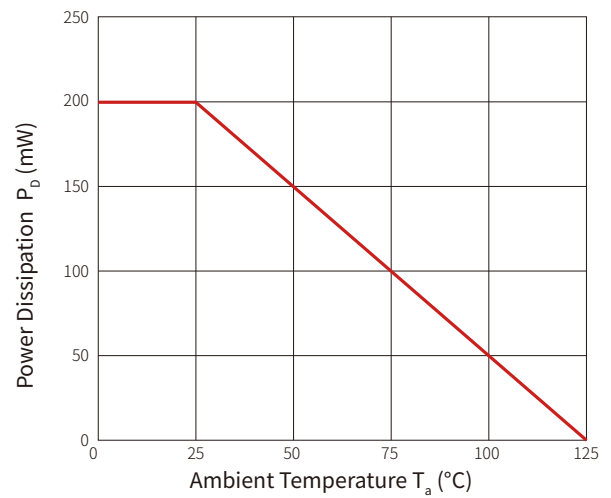
Parameter	Symbol	Value	Unit
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	30	V
Maximum RMS Voltage	$V_{RMS}$	21	V
Maximum DC Blocking Voltage	$V_{DC}$	30	V
Maximum Average Forward Rectified Current	$I_{FM}$	200	mA
Peak Forward Surge Current 8.3ms Single Half Sine-wave	$I_{FSM}$	600	mA
Typical Thermal Resistance	$R_{\theta JA}$	500	$^{\circ}\text{C}/\text{W}$
Power Dissipation	$P_D$	200	mW
Junction Temperature	$T_J$	125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-50~+150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=0.1\text{mA}$			0.24	V
		$I_F=1.0\text{mA}$			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	$\mu\text{A}$
Type Junction Capacitance	$C_j$	$V_R=1\text{V}, f=1\text{MHz}$			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

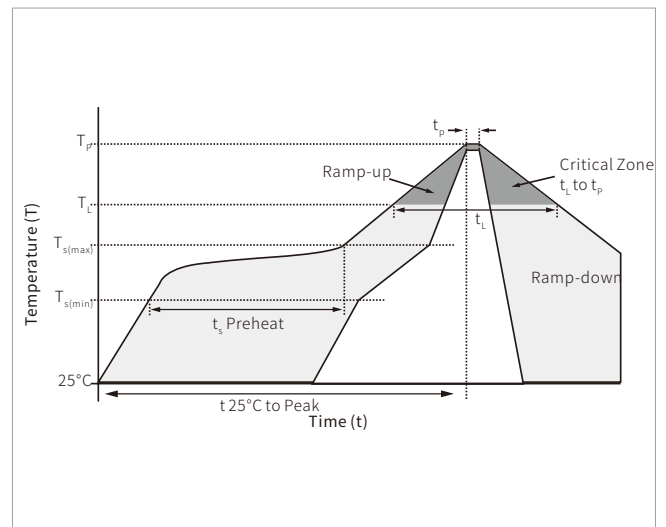
## CHARACTERISTIC CURVES



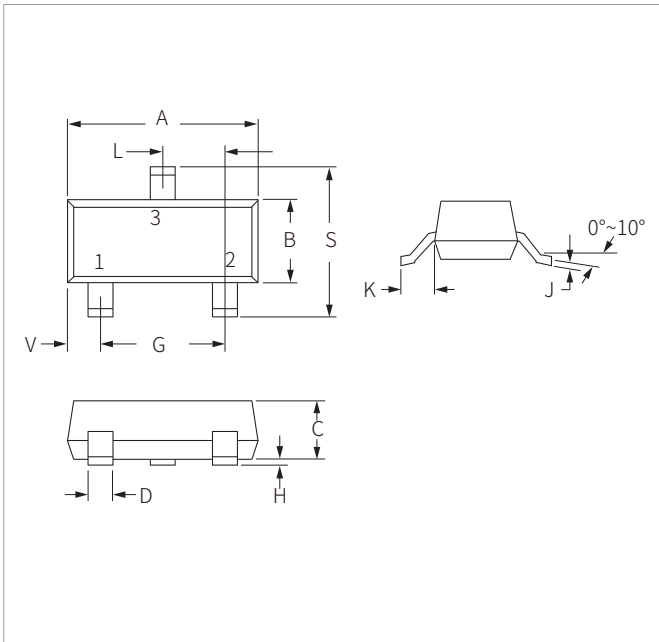
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

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

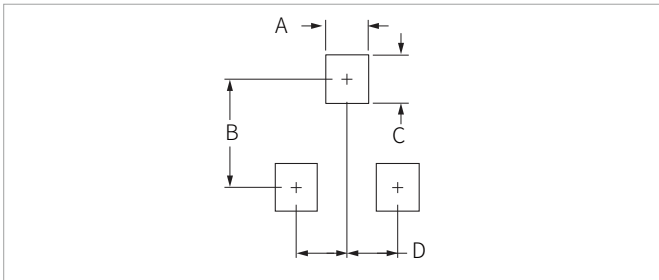


## SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
BAT54S	SOT-23	3000PCS	7"

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