

## FEATURES

- | High Current Capability
- | Low Forward Voltage Drop
- | Extremely Fast Switching Speed
- | Meet AEC-Q101 Requirements



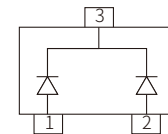
SOT-23



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
Average Rectified Forward Current	$I_{F(AV)}$	200	mA
Peak Forward Surge Current 8.3ms Single Half Sine-wave	$I_{FSM}$	600	mA
Typical Thermal Resistance	$R_{\theta JA}$	430	$^{\circ}\text{C}/\text{W}$
Power Dissipation	$P_D$	290	mW
Junction Temperature	$T_J$	-40~+150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-50~+150	$^{\circ}\text{C}$

## ELECTRICAL CHARACTERISTICS(T<sub>A</sub>=25°C )

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =0.1mA			0.24	V
		I <sub>F</sub> =1.0mA			0.32	V
		I <sub>F</sub> =10mA			0.40	V
		I <sub>F</sub> =30mA			0.50	V
		I <sub>F</sub> =100mA			0.8	V
Reverse Breakdown Voltage	V <sub>(BR)</sub>	I <sub>R</sub> =10μA	30			V
Reverse Leakage Current	I <sub>R</sub>	V <sub>R</sub> =25V			2	μA
Type Junction Capacitance	C <sub>j</sub>	V <sub>R</sub> =1V, f=1MHz			10	pF
Reverse Recovery Time	T <sub>RR</sub>	I <sub>F</sub> =I <sub>R</sub> =10mA, R <sub>L</sub> =100Ω I <sub>RR</sub> =1.0mA			5	nS

## CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

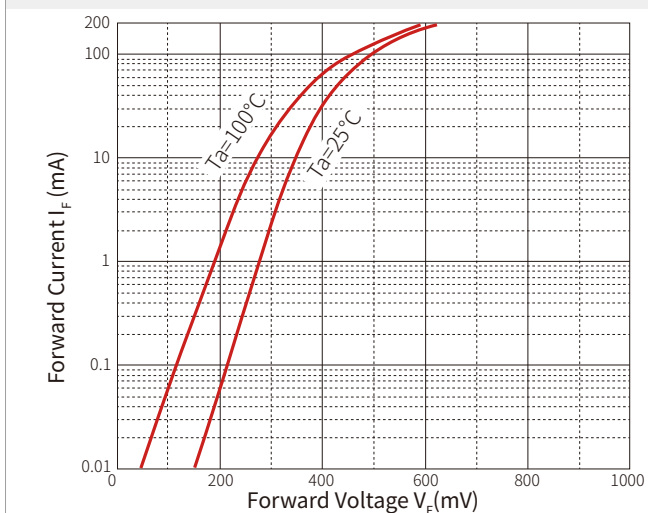
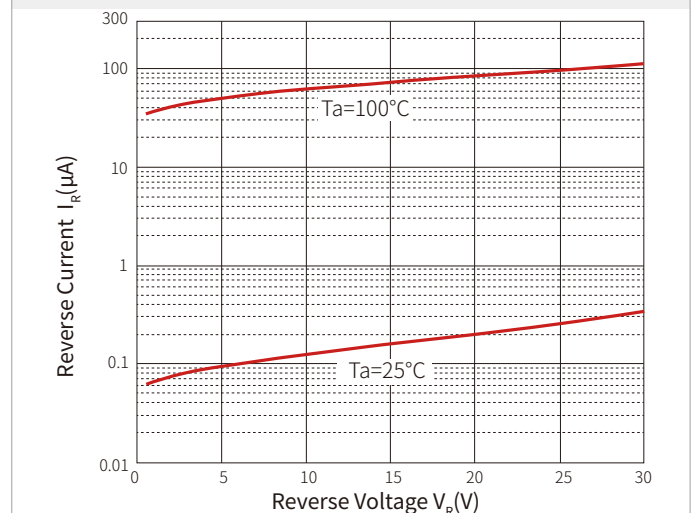
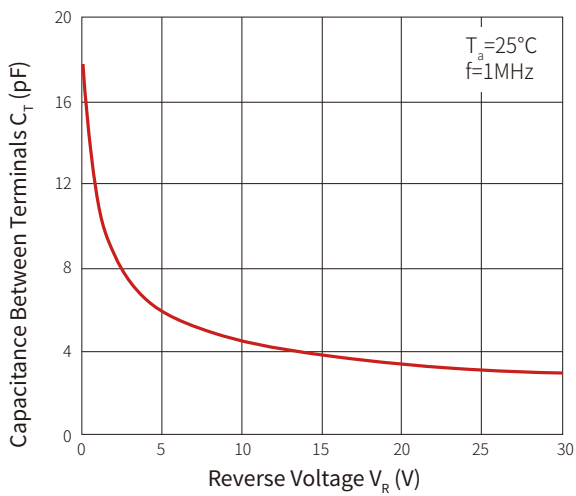


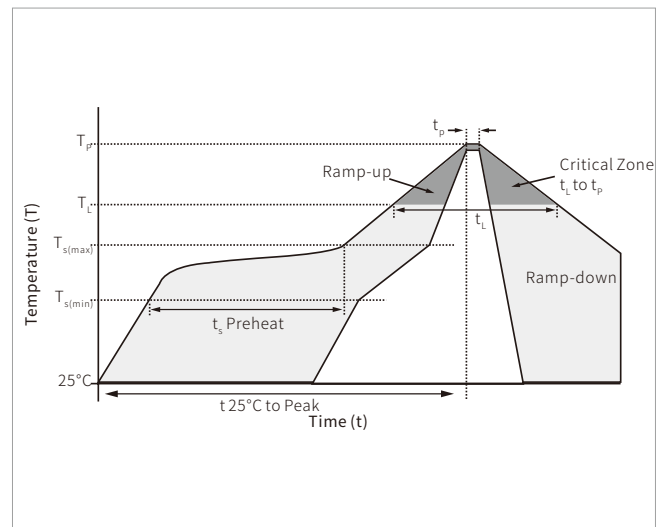
Fig.2 Reverse Characteristics



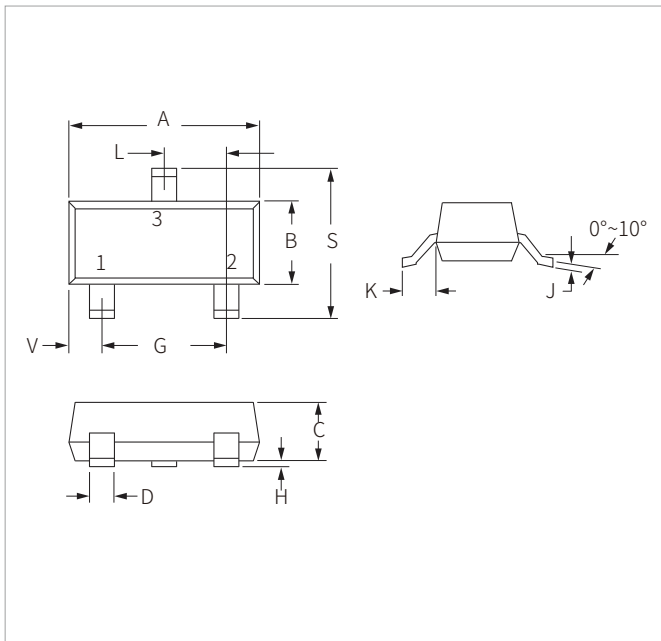
**Fig.3 Capacitance Characteristics**


## SOLDERING PARAMETERS

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

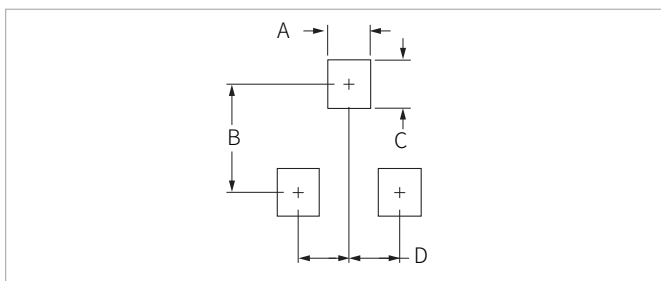


## SOT-23 PACKAGE INFORMATION



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
BAT54CQ	SOT-23	3000PCS	7"

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