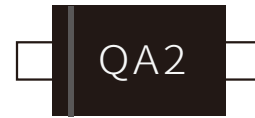


## FEATURES

- | Fast Switching Device (TRR <4.0 nS)
- | Power Dissipation of 400mW
- | High Stability and High Reliability
- | Low reverse leakage
- | Meet AEC-Q101 Requirements



SOD-123



Marking



Schematic Symbol

## MECHANICAL DATA

- | Encapsulation: SOD-123 Small Outline Plastic Package
- | Polarity: Color band denotes cathode end
- | Mounting Position: Any

## 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	
Reverse Voltage	$V_R$	75	V	
Peak Reverse Voltage	$V_{RM}$	100	V	
Average Rectified Output Current	$I_O$	150	mA	
Non-Repetitive Peak Forward Surge Current	$I_{FSM}$	$t=1.0\mu\text{s}$	2.0	A
		$t=1.0\text{s}$	1.0	A
Power Dissipation	$P_{tot}$	400	mW	
Non-repetitive Peak Forward Current	$I_{FM}$	300	mA	
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	450	$^{\circ}\text{C}/\text{W}$	
Operating junction temperature range	$T_J$	150	$^{\circ}\text{C}$	
Storage temperature range	$T_{STG}$	-55 to 150	$^{\circ}\text{C}$	

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=10\text{mA}$			1.0	V
Reverse Leakage Current	$I_R$	$V_R=20\text{V}$			25	nA
		$V_R=75\text{V}$			5	$\mu\text{A}$
		$V_R=20\text{V}, T_J=150^\circ\text{C}$			50	$\mu\text{A}$
Capacitance	$C_{\text{tot}}$	$V_F=V_R=0\text{V}$			4	pF
Reverse Recovery Time	$t_{\text{rr}}$	$I_F=10\text{mA}, V_R=6.0\text{V}, I_R=1\text{mA}, R_L=100\Omega$			4	ns
Voltage Rise when Switching On tested	$V_{\text{fr}}$	$t_p=0.1\mu\text{s}$ $f_p=5\text{to}100\text{kHz}$ Time<30ns			2.5	V
Total Capacitance	$C_T$	$V_R=0\text{V}, f=1\text{MHz}$			5.0	pF

## CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

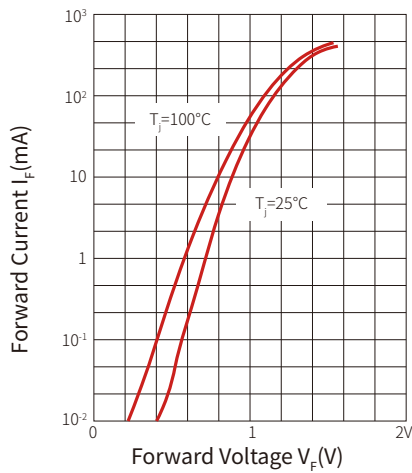
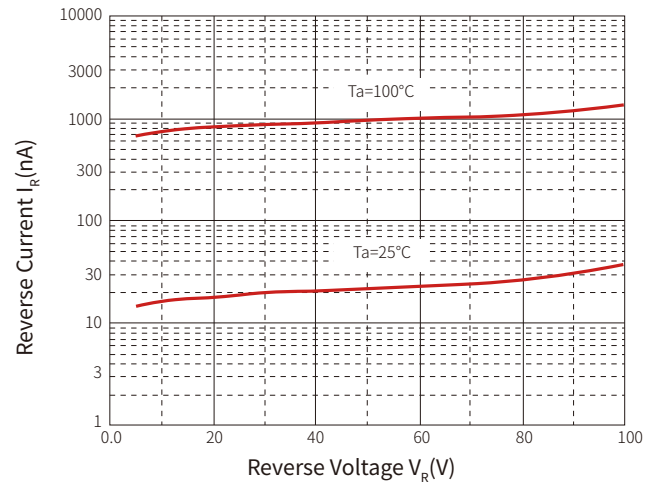
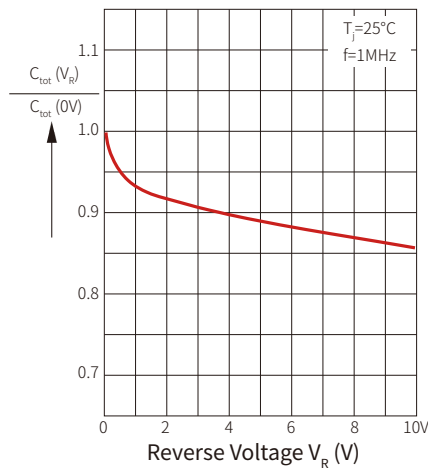
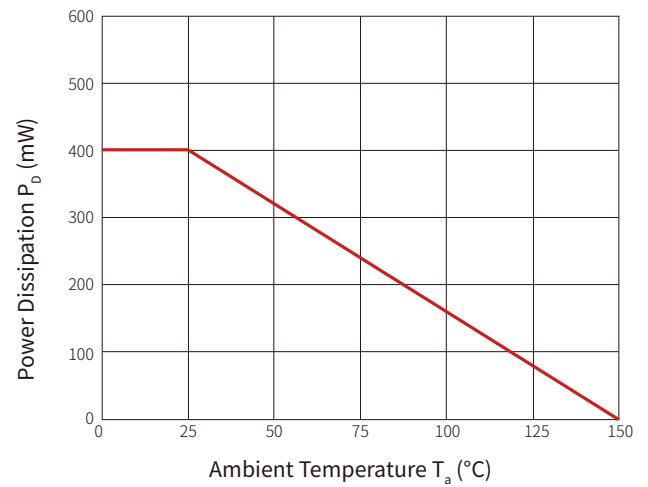


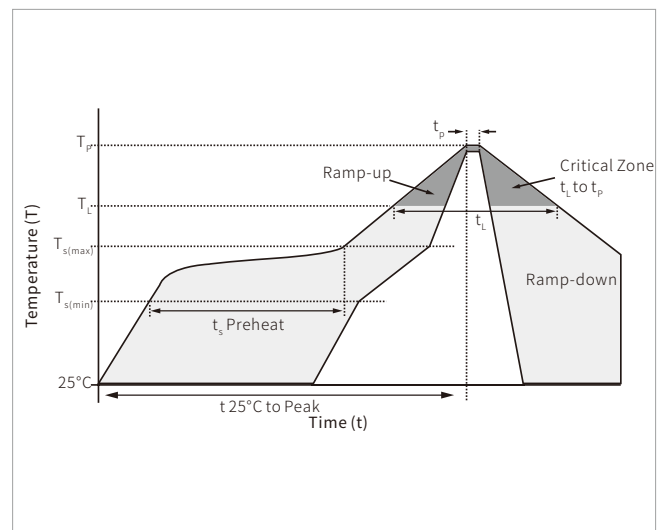
Fig.2 Reverse Characteristics



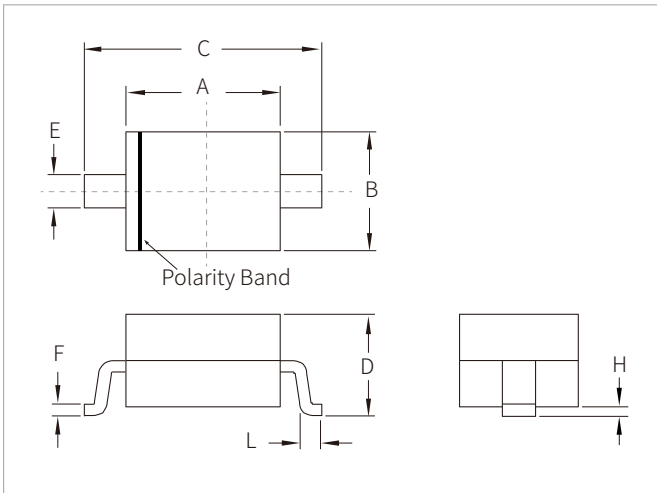
**Fig.3 Capacitance Characteristics**

**Fig.4 Power Derating Curve**


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°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

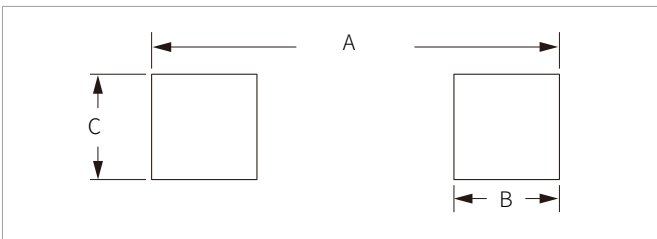


## SOD-123 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	2.80	0.102	0.110
B	1.50	1.70	0.059	0.067
C	3.55	3.85	0.140	0.152
D	1.05	1.25	0.041	0.049
E	0.45	0.65	0.018	0.026
F	0.08	0.15	0.003	0.006
H	0.00	0.10	0.000	0.004
L	0.25	0.45	0.010	0.018

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	3.19	3.29	0.126	0.130
B	0.75	0.85	0.030	0.033
C	0.95	1.05	0.037	0.041

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
1N4148WQ	SOD-123	3000PCS	7"

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