

SOD-123

### FEATURES

- | High breakdown voltage
- | Low turn-on voltage
- | Guard ring construction for transient protection



MARKING: S9

### Maximum Ratings @ $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Limit	Unit
Peak repetitive peak reverse voltage	$V_{RRM}$	100	V
Working peak reverse voltage	$V_{RWM}$		
Forward continuous current	$I_F$	150	mA
Repetitive peak forward current (Note 1) @ $t_p < 1.0\text{s}$ , Duty Cycle < 50%	$I_{FRM}$	350	mA
Non-repetitive Peak Forward surge current @ $t = 8.3\text{ms}$	$I_{FSM}$	750	mA
Power dissipation	$P_D$	500	mW
Thermal resistance junction to ambient air	$R_{\theta JA}$	200	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	$T_j$	-40 ~ +125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

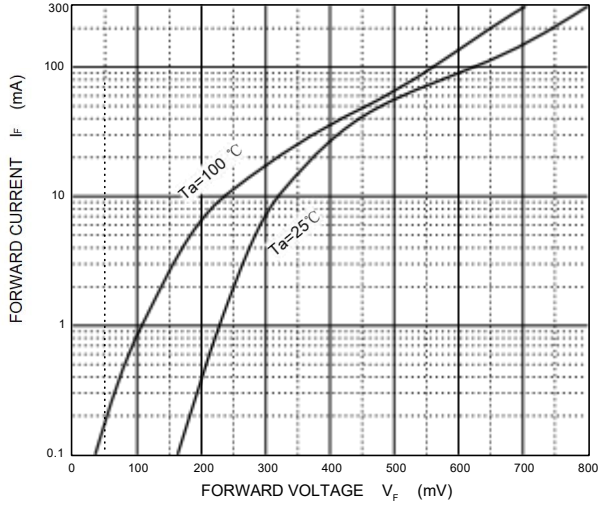
### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Reverse breakdown voltage (Note2, 3)	$V_R$	$I_R=100\mu\text{A}$	100			V	
Reverse voltage leakage current (Note 2, 3)	$I_R$	$V_{R1}=1.5\text{V}$			0.3	$\mu\text{A}$	
		$V_{R2}=10\text{V}$			0.5		
		$V_{R3}=50\text{V}$			1		
		$V_{R4}=75\text{V}$			2		
	$I_R$ $T_j=60^{\circ}\text{C}$	$V_{R1}=1.5\text{V}$				12	$\mu\text{A}$
		$V_{R2}=10\text{V}$				20	
		$V_{R3}=50\text{V}$				44	
		$V_{R4}=75\text{V}$				80	
Forward voltage (Note2, 3)	$V_F$	$I_{F1}=0.1\text{mA}$			0.25	V	
		$I_{F2}=10\text{mA}$			0.45		
		$I_{F3}=250\text{mA}$			1		
Diode capacitance	$C_T$	$V_R=0, f=1\text{MHz}$		20		pF	
		$V_R=1\text{V}, f=1\text{MHz}$		12			

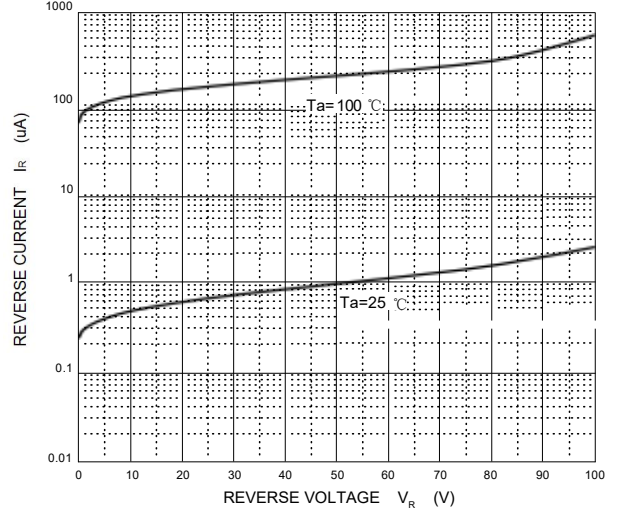
- Notes: 1. Part mounted on FR-4 board with recommended pad layout.  
 2. Short duration pulse test used to minimize self-heating effect.  
 3. pulsed $t_p \leq 300 \mu\text{s}$ ;  $\delta \leq 0.02$ .

**Typical Characteristics**

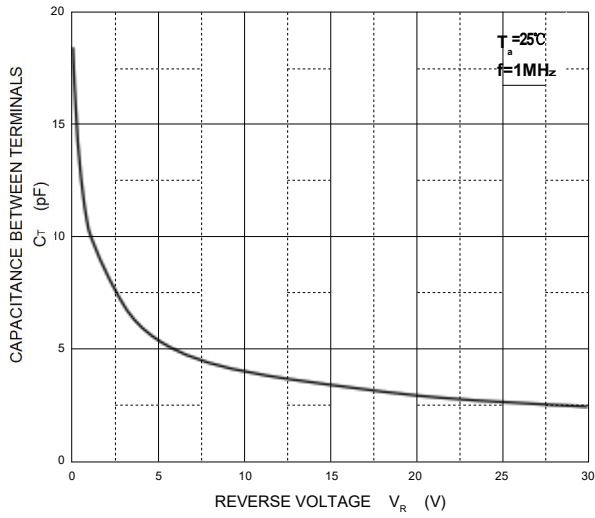
**Forward Characteristics**



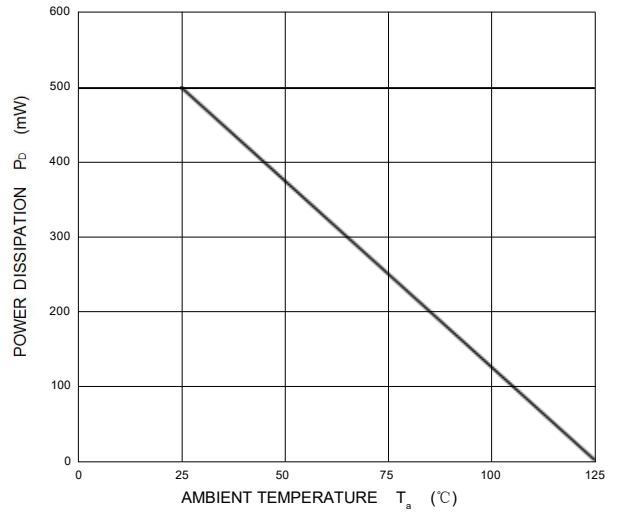
**Reverse Characteristics**



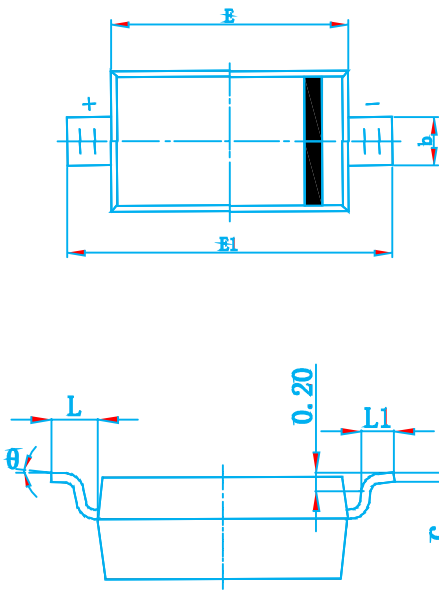
**Capacitance Characteristics**



**Power Derating Curve**

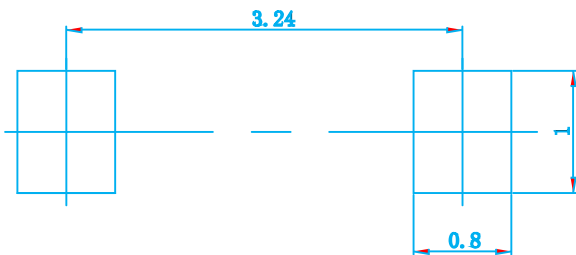


**SOD-123 Package Outline Dimensions**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.450	0.650	0.018	0.026
c	0.080	0.150	0.003	0.006
D	1.500	1.700	0.059	0.067
E	2.600	2.800	0.102	0.110
E1	3.550	3.850	0.140	0.152
L	0.500 REF		0.020 REF	
L1	0.250	0.450	0.010	0.018
theta	0° - 8°		0° - 8°	

**SOD-123 Suggested Pad Layout**



**Note:**  
 1. Controlling dimension: in millimeters.  
 2. General tolerance: ± 0.05mm.  
 3. The pad layout is for reference purposes only.