

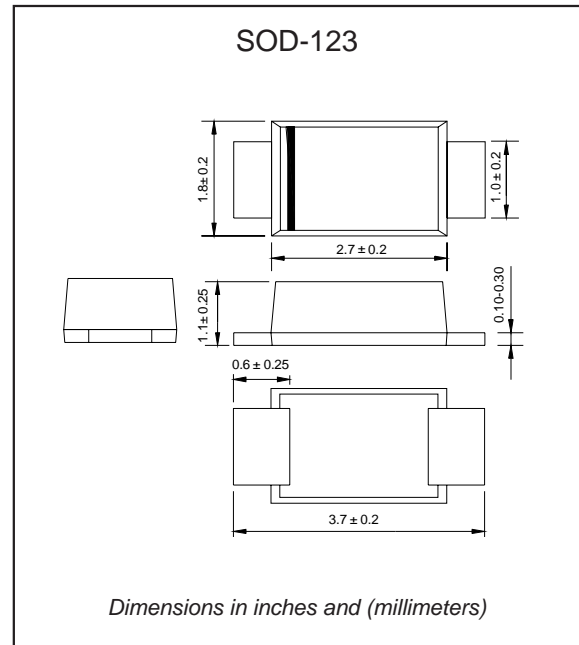
### Features

- ◆ Glass passivated device
- ◆ Ideal for surface mounted applications
- ◆ Low reverse leakage
- ◆ Metallurgically bonded construction
- ◆ High temperature soldering guaranteed:  
250°C/10 seconds, 0.375" (9.5mm) lead length,  
5 lbs. (2.3kg) tension
- ◆ Compliant to RoHS Directive 2011/65/EU
- ◆ Compliant to Halogen-free

### Mechanical data

- ◆ **Case:** JEDEC SOD-123 molded plastic body over passivated chip
- ◆ **Terminals:** Plated axial leads, solderable per MIL-STD-750, Method 2026
- ◆ **Polarity:** Color band denotes cathode end
- ◆ **Mounting Position:** Any

### Package outline



### Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.2	$I_o$			1.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	$I_{FSM}$			30	A
Reverse current	$V_R = V_{RRM} T_A = 25^\circ\text{C}$	$I_R$			5.0	$\mu\text{A}$
	$V_R = V_{RRM} T_A = 100^\circ\text{C}$				100	
Thermal resistance	Junction to ambient NOTE 1	$R_{\theta JA}$		85		$^\circ\text{C/W}$
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	$C_j$		15		pF
Storage temperature		$T_{STG}$	-55		+150	$^\circ\text{C}$

SYMBOLS	$V_{RRM}^{*1}$ (V)	$V_{RMS}^{*2}$ (V)	$V_R^{*3}$ (V)	$V_F^{*4}$ (V)	$t_{rr}^{*5}$ (ns)	Operating temperature $T_J, (^\circ\text{C})$
ES1002FL	200	140	200	0.95	35	-55 to +150

**Note:** 1.P.C.B. mounted with 2.0x2.0" (5.0x5.0cm) copper pad areas  
2. Reverse recovery time test condition,  $I_F=0.5A, I_R=1.0A, I_{RR}=0.25A$

\*1 Repetitive peak reverse voltage

\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage@ $I_F=1.0A$

\*5 Maximum Reverse recovery time, note 2

### Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

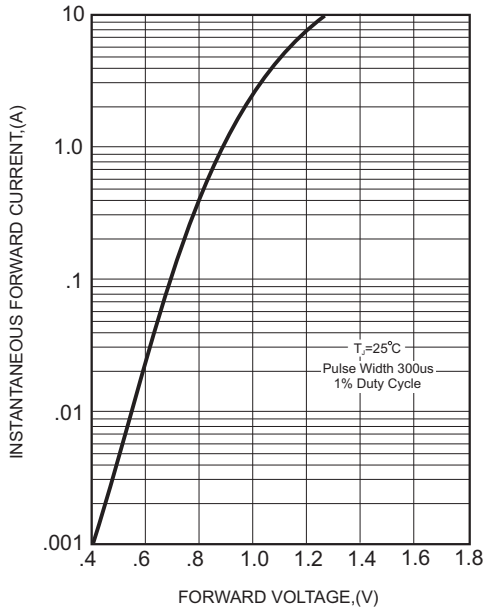


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

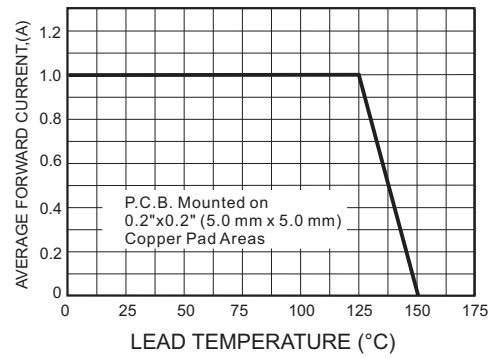
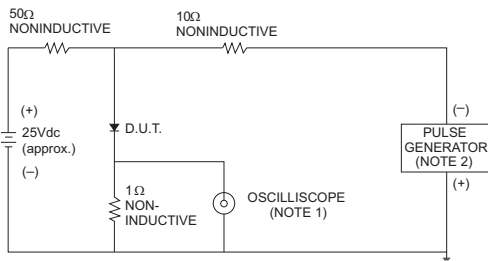


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm.22pF.  
2. Rise Time= 10ns max., Source Impedance= 50 ohms.

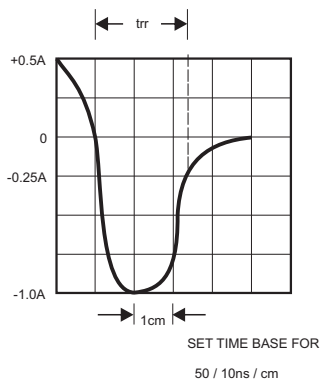


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

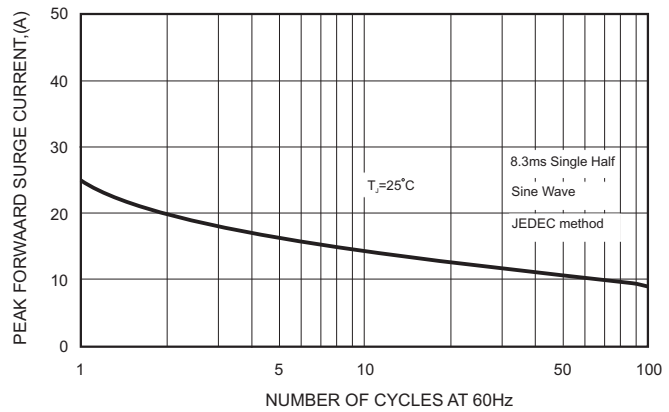
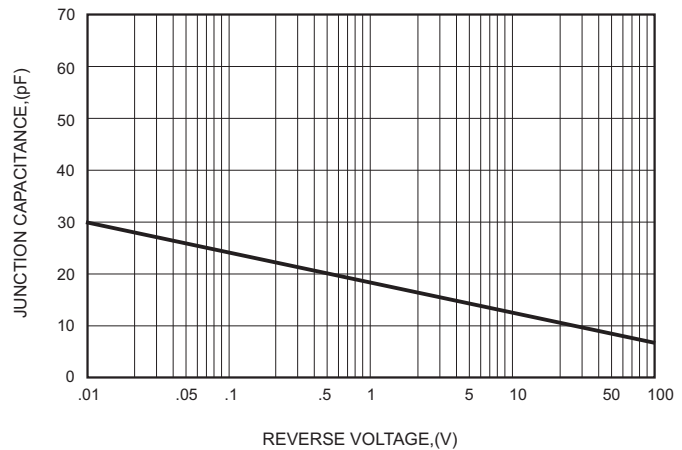
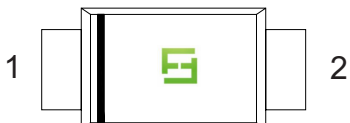



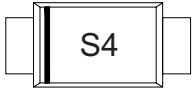
FIG.5-TYPICAL JUNCTION CAPACITANCE



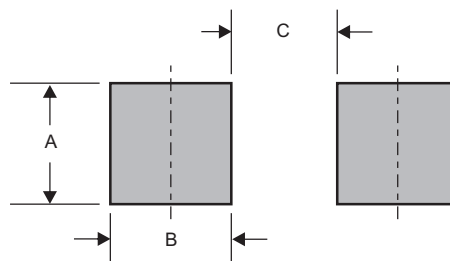
## Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

## Marking

Type number	Marking code
ES1002FL	

## Suggested solder pad layout

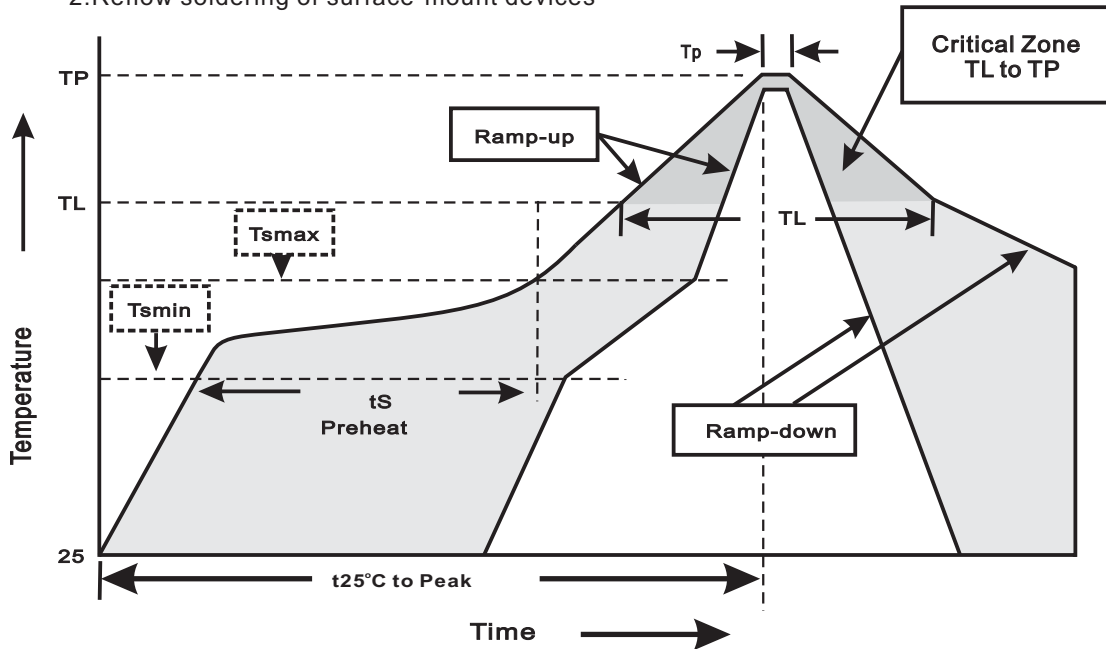


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123	0.075 (1.90)	0.055 (1.40)	0.075 (1.90)

**Suggested thermal profiles for soldering processes**

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(TL to TP)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 60~260sec
Peak Temperature(TP)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(tp)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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