



# SOD-123FL Plastic-Encapsulate Diodes

## ES1AL THRU ES1JL Super Fast Recovery Rectifier Diodes

### Features

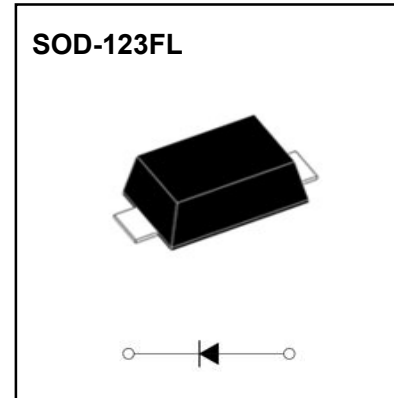
- $I_{F(AV)}$  1A
- $V_{RRM}$  50V-600V
- High surge current capability
- Polarity: Color band denotes cathode

### Applications

- Rectifier

### Marking

- ES1AL-ES1DL : ESL
- ES1EL-ES1GL : ESM
- ES1JL : ESH



### Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Test Conditions	ES1						
				AL	BL	CL	DL	EL	GL	JL
Repetitive Peak Reverse Voltage	$V_{RRM}$	V		50	100	150	200	300	400	600
Maximum RMS Voltage	$V_{RMS}$	V		35	70	105	140	210	280	420
Average Forward Current	$I_{F(AV)}$	A	60Hz Half-sine wave, Resistance load	1.0						
Surge(Non-repetitive)Forward Current	$I_{FSM}$	A	60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$	30						
Operation Junction and Storage Temperature Range	$T_J, T_{STG}$	$^\circ\text{C}$		-55 ~ +150						

### Electrical Characteristics (T=25 °C Unless otherwise specified )

Item	Symbol	Unit	Test Condition	ES1						
				AL	BL	CL	DL	EL	GL	JL
Peak Forward Voltage	$V_F$	V	$I_F=1.0\text{A}$	0.95			1.25		1.70	
Maximum reverse recovery time	$t_{rr}$	ns	$I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$	35						
Peak Reverse Current	$I_{RRM1}$	$\mu\text{A}$	$V_{RM}=V_{RRM}$	$T_a=25^\circ\text{C}$		5				
	$I_{RRM2}$			$T_a=125^\circ\text{C}$		50				
Thermal Resistance(Typical)	$R_{\theta J-A}$	$^\circ\text{C/W}$	Between junction and ambient		75					
	$R_{\theta J-L}$		Between junction and terminal		15.7					
Typical Junction Capacitance	$C_J$	pF	Measured at 1MHz and applied reverse voltage of 4.0V D.C.		14			12		10

### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on FR4 PCB double sided copper mini pad

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

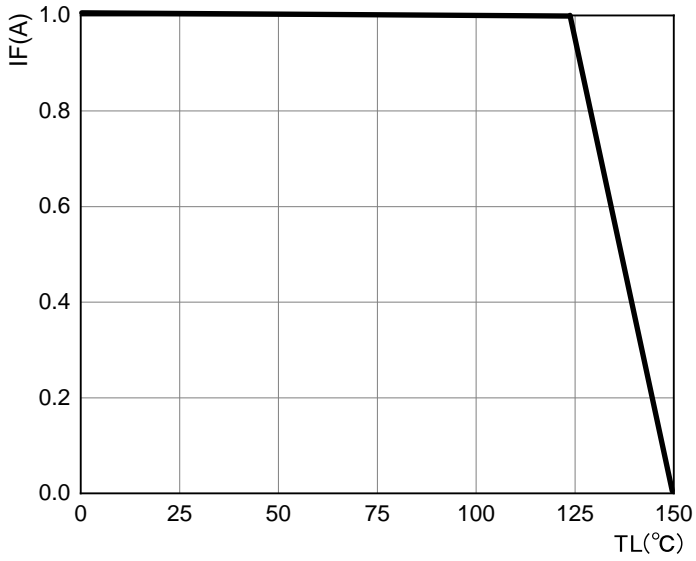
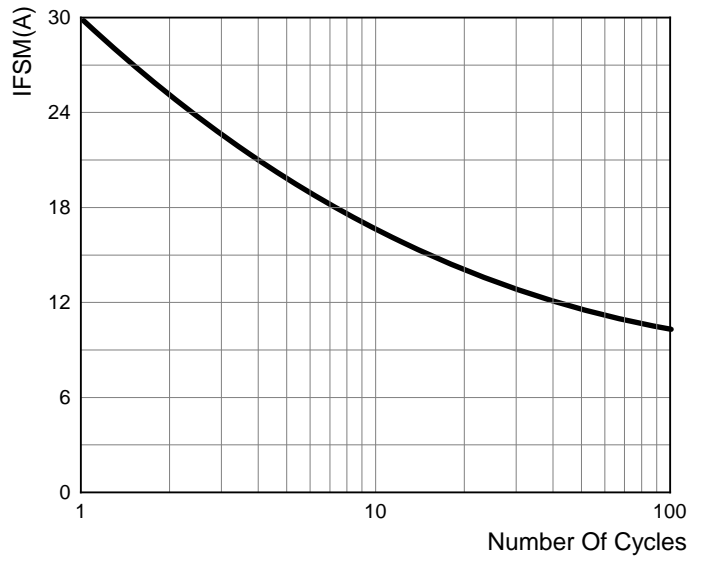
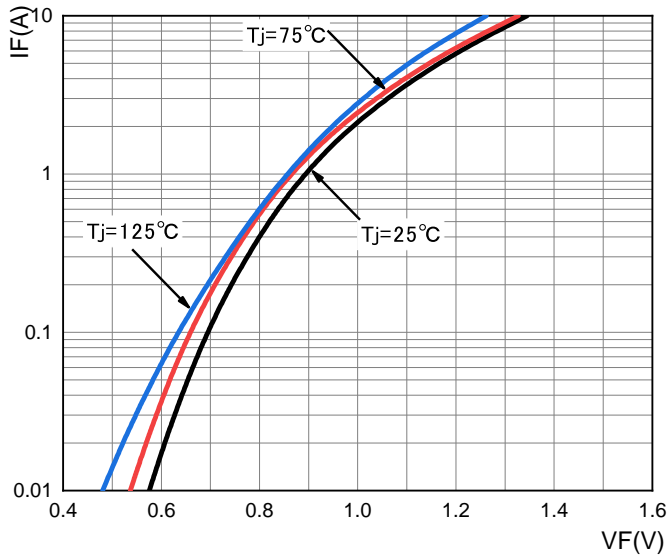


FIG 2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



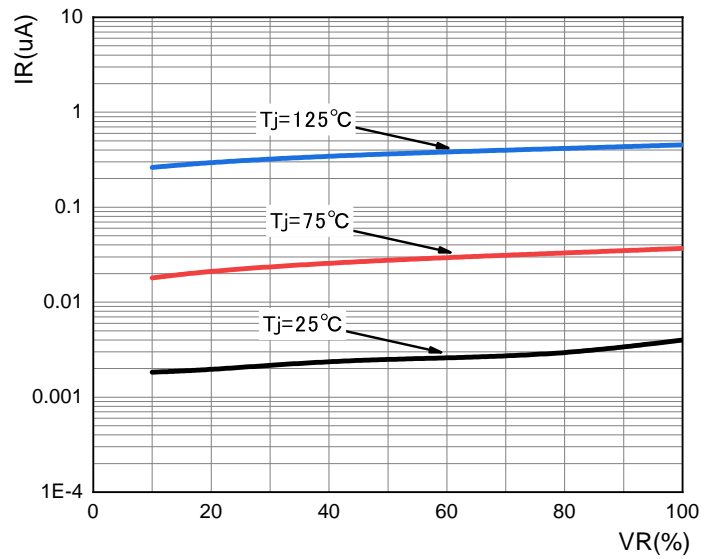
ES1AL-ES1DL

FIG.3 : TYPICAL FORWARD CHARACTERISTICS



ES1AL-ES1DL

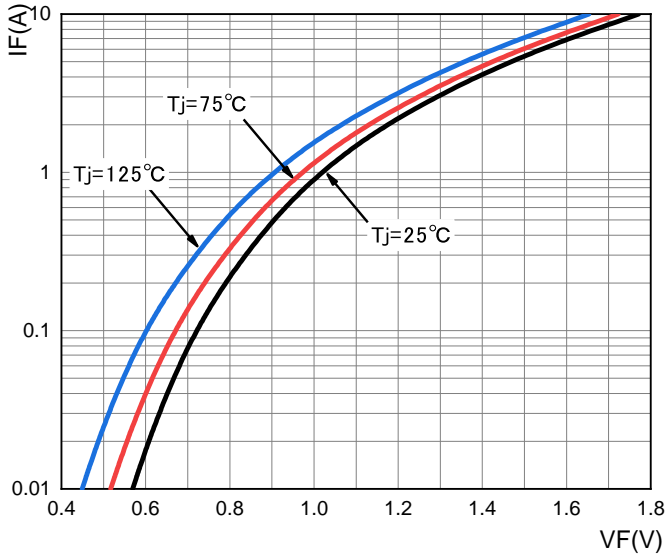
FIG.4 TYPICAL REVERSE CHARACTERISTICS



# Typical Characteristics

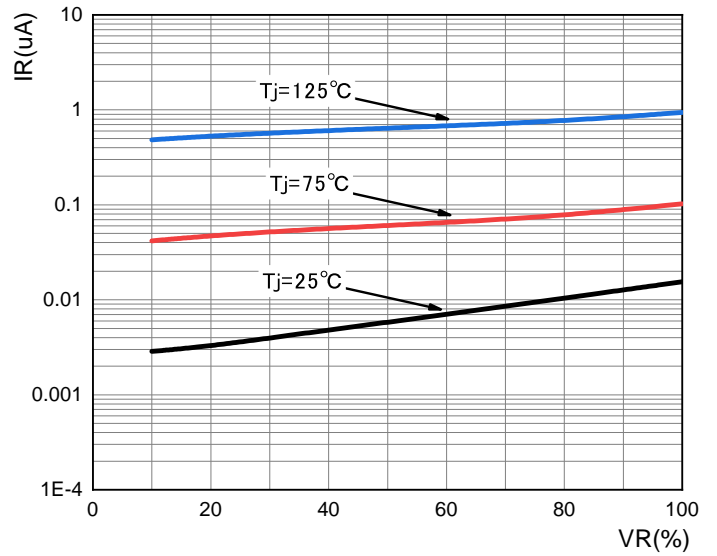
ES1EL-ES1GL

FIG.5 : TYPICAL FORWARD CHARACTERISTICS



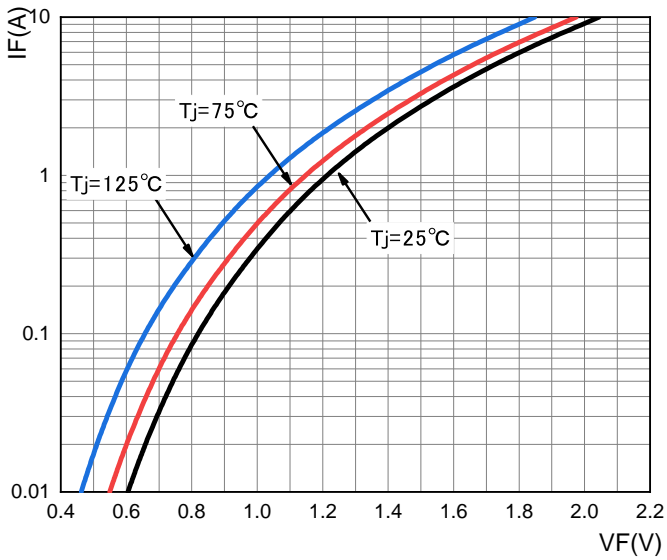
ES1EL-ES1GL

FIG.6 TYPICAL REVERSE CHARACTERISTICS



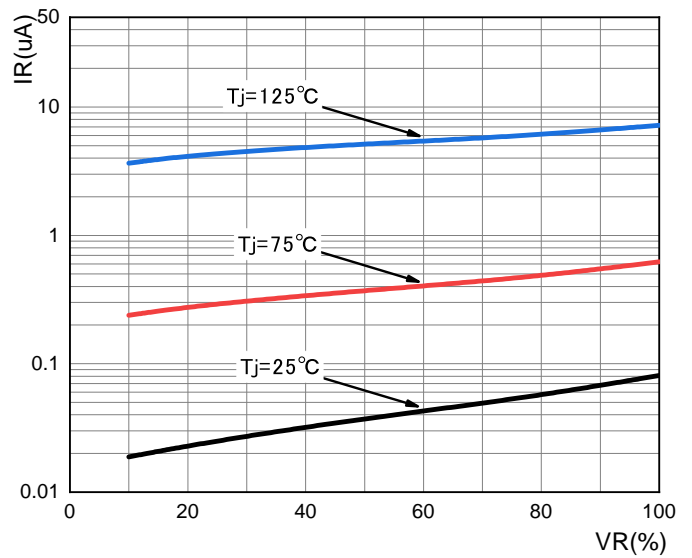
ES1JL

FIG.7 : TYPICAL FORWARD CHARACTERISTICS



ES1JL

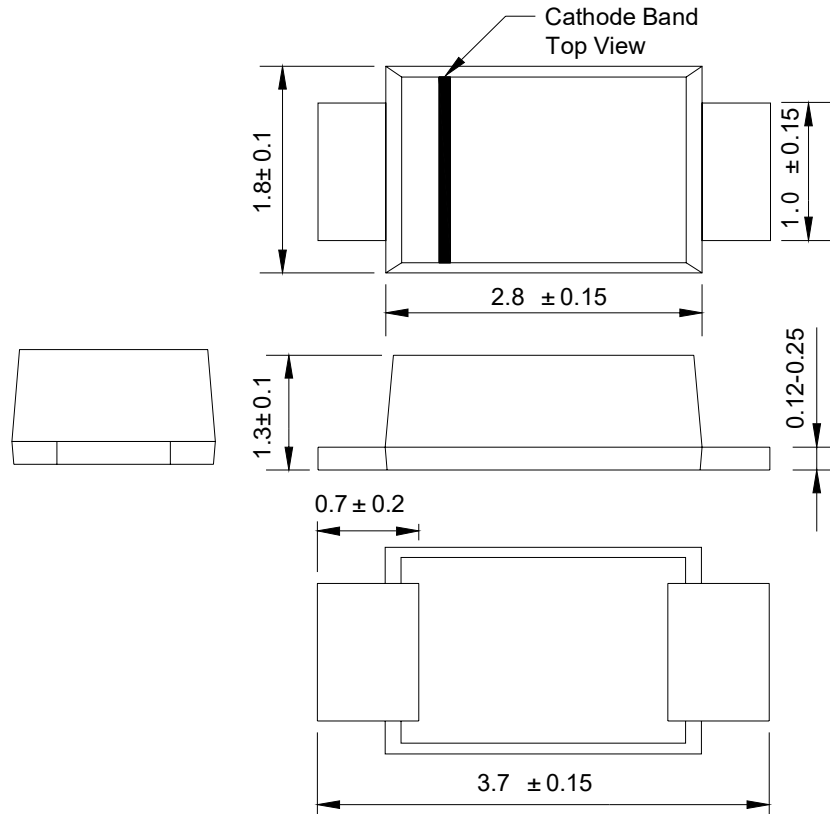
FIG.8 TYPICAL REVERSE CHARACTERISTICS



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## SOD-123FL Package Outline Dimensions

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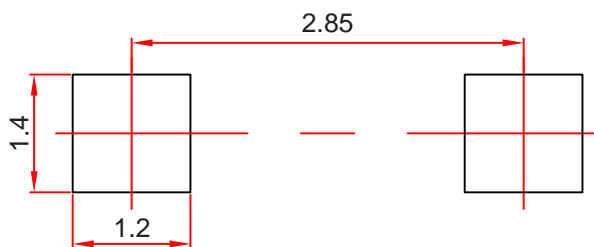


Dimensions in millimeters

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## SOD-123FL Suggested Pad Layout

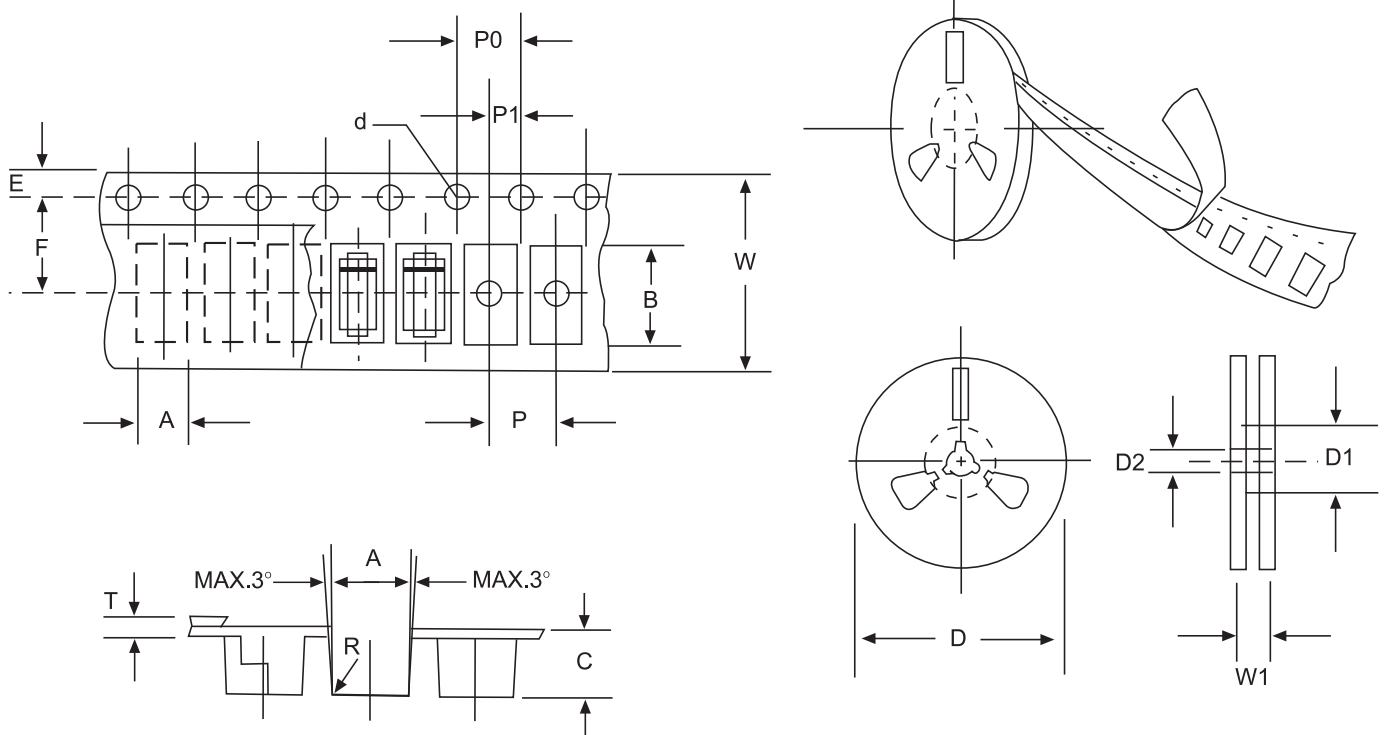
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**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

# Reel Taping Specifications For Surface Mount Devices–SOD-123FL



**FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING**

ITEM	SYMBOL	SOD-123FLmm(inch)
Carrier width	A	2.05±0.1(0.081±0.004)
Carrier length	B	3.95±0.1(0.156±0.004)
Carrier depth	C	1.45±0.1(0.057±0.004)
Sprocket hole	d	1.55±0.05(0.061±0.002)
Reel outside diameter	D	178±2.0(7.0±0.079)
Reel inner diameter	D1	54±1.0(2.13±0.039)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Sprocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	3.50±0.1(0.138±0.002)
Punch hole pitch	P	4.0±0.1(0.157±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Total tape thickness	T	0.21±0.25(0.008±0.010)
Tape width	W	8.0±0.2(0.315±0.008)
Reel width	W1	10.0±2.0(0.394±0.079)

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.