

**SOD-123FL Plastic-Encapsulate Diodes****SMF59 SERIES** Zener Diodes**Features**

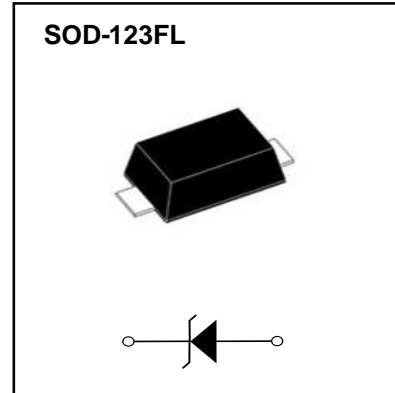
- $P_{tot}$  1.5W
- $V_Z$  3.3V- 200V
- The marking bar indicates the cathode

**Applications**

- Stabilizing Voltage

**Marking**

- SMF59XXA  
XX : From 13 To 57

**Limiting Values(Absolute Maximum Rating)**

Item	Symbol	Unit	Conditions	Max
Power dissipation	$P_d$	W	$T_L=75^\circ\text{C}$	1.5
Zener current	$I_Z$	mA		$P_V / V_Z$
Operation Junction and Storage Temperature Range	$T_J, T_{stg}$	$^\circ\text{C}$		-55 ~ +150

**Electrical Characteristics ( $T_a=25^\circ\text{C}$  Unless otherwise specified)**

Item	Symbol	Unit	Conditions	Max
Thermal resistance	$R_{\theta JA}$	$^\circ\text{C/W}$	Between junction to ambient	170
	$R_{\theta JL}$	$^\circ\text{C/W}$	Between junction to lead	25
Forward voltage	$V_F$	V	$I_F=200\text{mA}$	1.5

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

Part Number	Nominal Zener Voltage @ $I_T$			$I_{ZT}$ (mA)	Maximum Zener Impedance			Maximum Reverse Leakage Current		Maximum DC Zener Current
	$V_{Z\text{AVE}}$ (V)	$V_{Z\text{MIN}}$ (V)	$V_{Z\text{MAX}}$ (V)		$Z_{ZT\text{MAX}}^{(1)}$ @ $I_{ZT}$	$Z_{ZK\text{MAX}}^{(1)}$ @ $I_{ZK}$	$I_{ZK}$ (mA)	$I_R$ ( $\mu\text{A}$ )@ $V_R$	$V_R$ (V)	
SMF5913A	3.3	3.135	3.465	113.6	10	500.0	1.00	100.0	1.0	274.0
SMF5914A	3.6	3.42	3.78	104.2	9.0	500.0	1.00	75.0	1.0	251.0
SMF5915A	3.9	3.71	4.10	96.1	7.5	500.0	1.00	25.0	1.0	232.0
SMF5916A	4.3	4.09	4.52	87.2	6.0	500.0	1.00	5.0	1.0	210.0
SMF5917A	4.7	4.47	4.94	79.8	5.0	500.0	1.00	5.0	1.5	192.0
SMF5918A	5.1	4.85	5.36	73.5	4.0	350.0	1.00	5.0	2.0	177.0
SMF5919A	5.6	5.32	5.88	66.9	2.0	250.0	1.00	5.0	3.0	161.0
SMF5920A	6.2	5.89	6.51	60.5	2.0	200.0	1.00	2.5	4.0	146.0
SMF5921A	6.8	6.46	7.14	55.1	2.5	200.0	1.00	2.5	5.2	133.0
SMF5922A	7.5	7.13	7.88	50.0	3.0	400.0	0.50	2.5	6.0	121.0
SMF5923A	8.2	7.79	8.61	45.7	3.5	400.0	0.50	2.5	6.5	110.0
SMF5924A	9.1	8.65	9.56	41.2	4.0	500.0	0.50	2.5	7.0	100.0
SMF5925A	10.0	9.50	10.50	37.5	4.5	500.0	0.25	2.5	8.0	91.0
SMF5926A	11.0	10.45	11.55	34.1	5.5	550.0	0.25	0.5	8.4	83.0
SMF5927A	12.0	11.40	12.60	31.2	6.5	550.0	0.25	0.5	9.1	76.0
SMF5928A	13.0	12.35	13.65	28.8	7.0	550.0	0.25	0.5	9.9	69.0
SMF5929A	15.0	14.25	15.75	25.0	9.0	600.0	0.25	0.5	11.4	61.0
SMF5930A	16.0	15.20	16.80	23.4	10.0	600.0	0.25	0.5	12.2	57.0
SMF5931A	18.0	17.10	18.90	20.8	12.0	650.0	0.25	0.5	13.7	50.0
SMF5932A	20.0	19.00	21.00	18.7	14.0	650.0	0.25	0.5	15.2	45.0
SMF5933A	22.0	20.90	23.10	17.0	17.5	650.0	0.25	0.5	16.7	41.0
SMF5934A	24.0	22.80	25.20	15.6	19.0	700.0	0.25	0.5	18.2	38.0
SMF5935A	27.0	25.65	28.35	13.9	23.0	700.0	0.25	0.5	20.6	34.0
SMF5936A	30.0	28.50	31.50	12.5	26.0	750.0	0.25	0.5	22.8	30.0
SMF5937A	33.0	31.35	34.65	11.4	33.0	800.0	0.25	0.5	25.1	27.0
SMF5938A	36.0	34.20	37.80	10.4	38.0	850.0	0.25	0.5	27.4	25.0
SMF5939A	39.0	37.05	40.95	9.6	45.0	900.0	0.25	0.5	29.7	23.0
SMF5940A	43.0	40.85	45.15	8.7	53.0	950.0	0.25	0.5	32.7	22.0
SMF5941A	47.0	44.65	49.35	8.0	67.0	1000.0	0.25	0.5	35.8	19.0
SMF5942A	51.0	48.45	53.55	7.3	70.0	1100.0	0.25	0.5	38.8	18.0
SMF5943A	56.0	53.20	58.80	6.7	86.0	1300.0	0.25	0.5	42.6	16.0
SMF5944A	62.0	58.90	65.10	6.0	100.0	1500.0	0.25	0.5	47.1	14.0
SMF5945A	68.0	64.60	71.40	5.5	120.0	1700.0	0.25	0.5	51.7	13.0
SMF5946A	75.0	71.25	78.75	5.0	140.0	2000.0	0.25	0.5	56.0	12.0
SMF5947A	82.0	77.90	86.10	4.6	160.0	2500.0	0.25	0.5	62.2	11.0
SMF5948A	91.0	86.45	95.55	4.1	200.0	3000.0	0.25	0.5	69.2	10.0
SMF5949A	100.0	95.00	105.00	3.7	250.0	3100.0	0.25	0.5	76.0	9.0
SMF5950A	110.0	104.50	115.50	3.4	300.0	4000.0	0.25	0.5	83.6	8.6
SMF5951A	120.0	114.00	126.00	3.1	380.0	4500.0	0.25	0.5	91.2	7.8
SMF5952A	130.0	123.50	136.50	2.9	450.0	5000.0	0.25	0.5	98.8	7.0
SMF5953A	150.0	142.50	157.50	2.5	600.0	6000.0	0.25	0.5	114.0	6.4
SMF5954A	160.0	152.00	168.00	2.3	700.0	6500.0	0.25	0.5	121.6	5.8
SMF5955A	180.0	171.00	189.00	2.1	900.0	7000.0	0.25	0.5	136.8	5.2
SMF5956A	200.0	190.00	210.00	1.9	1200.0	8000.0	0.25	0.5	152.0	4.7

### Notes :

- (1) The type number listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$
- (2) The reverse surge current is a non-repetitive, 8.3ms pulse width square wave or equivalent sine-wave superimposed on IZT per method.

# Typical Characteristics

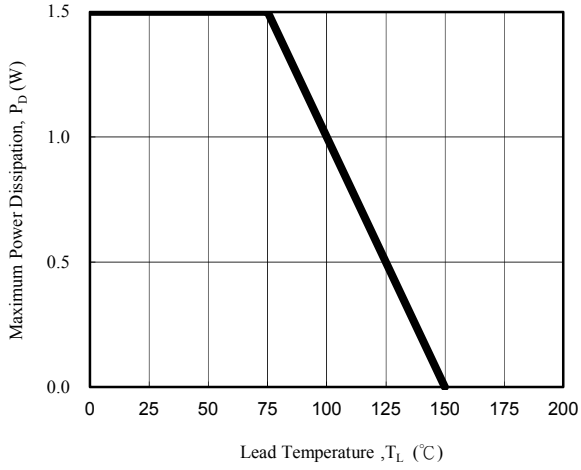


Fig. 1 - Power Temperature Derating Curve

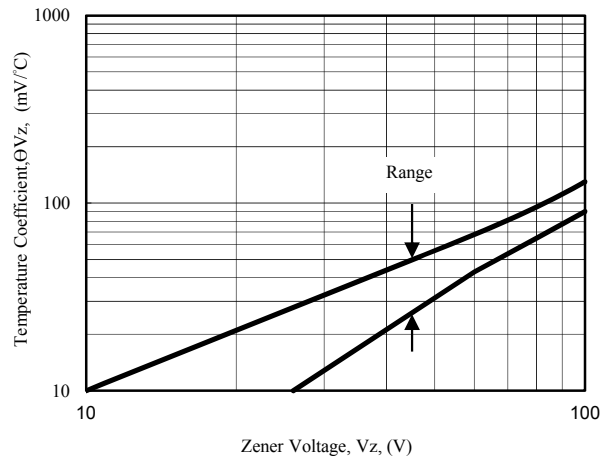


Fig. 2 - Temperature Coefficients v.s. Zener Voltage

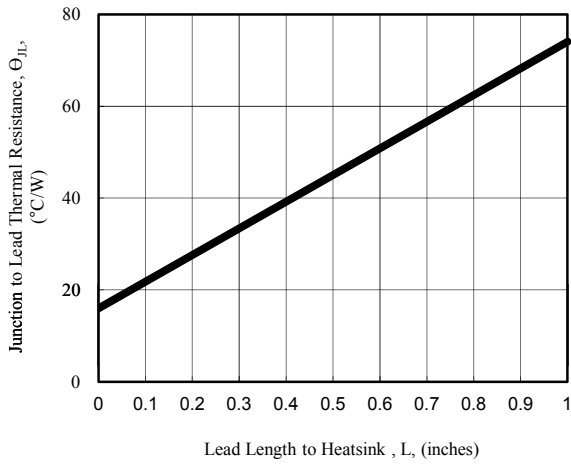


Fig. 3 - Typical Thermal Resistance v.s. Lead Length

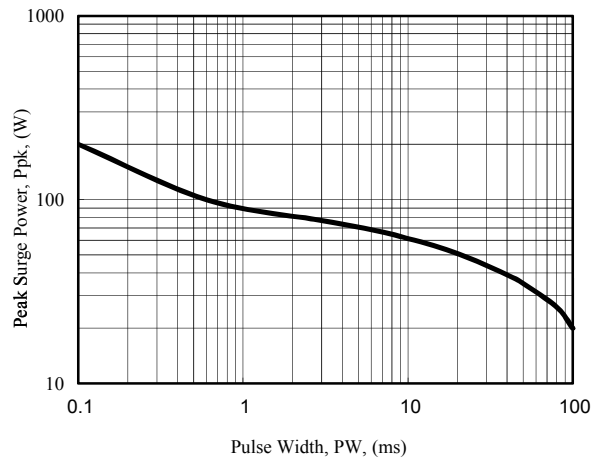


Fig. 4 - Maximum Surge Power

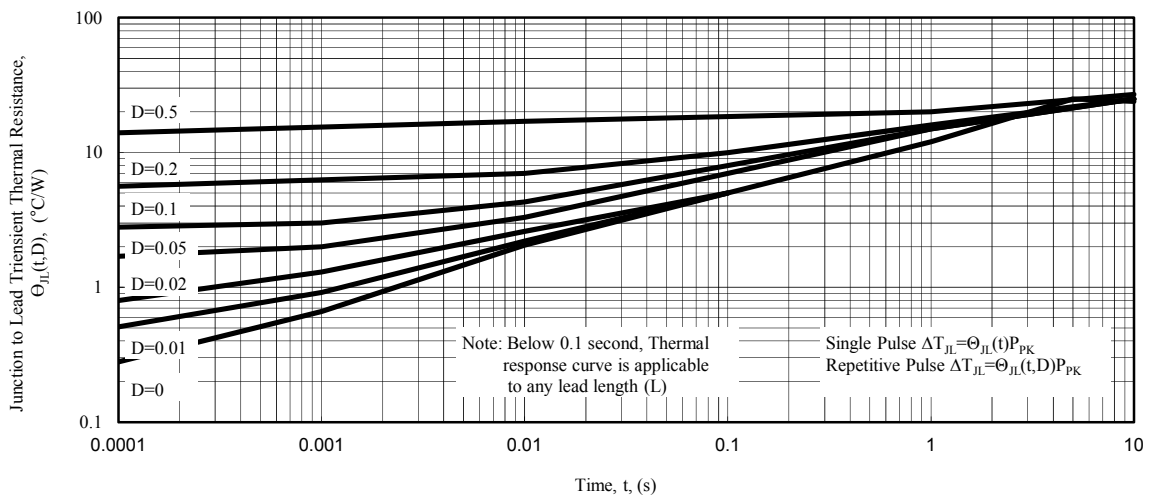
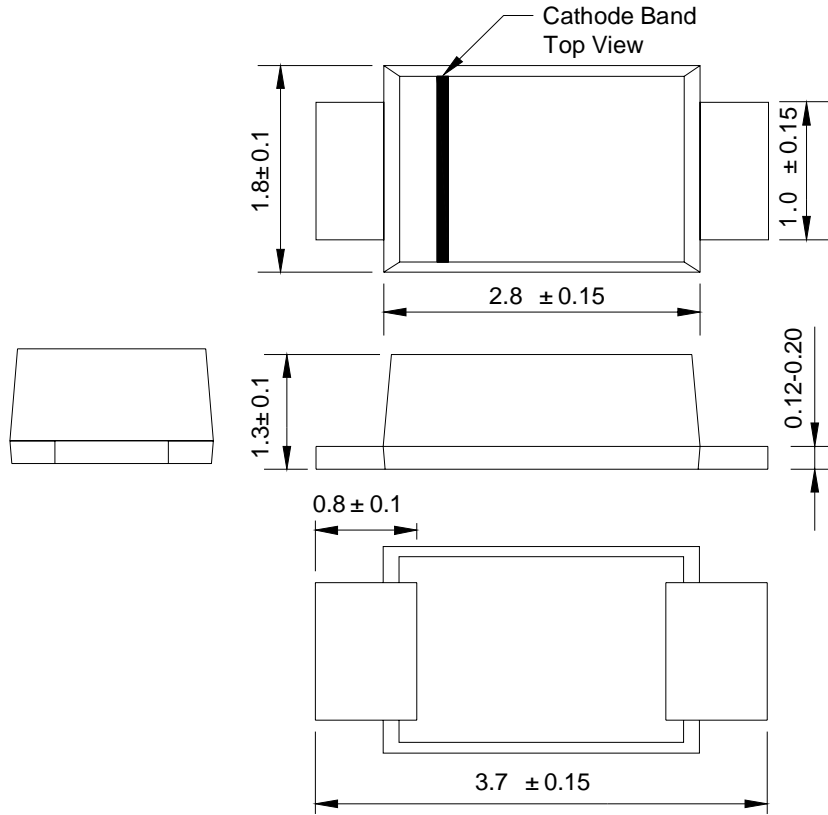


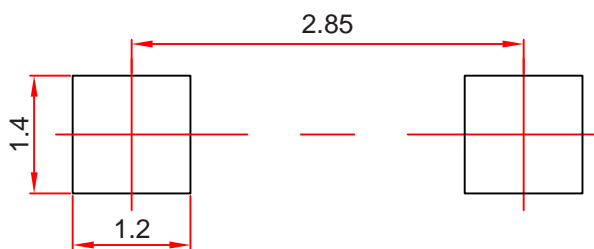
Fig. 5 - Typical Thermal Response L, Lead Length=3/8inch

## SOD-123FL Package Outline Dimensions



Dimensions in millimeters

## SOD-123FL Suggested Pad Layout



### Note:

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

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# 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)
Totall 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.

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