

SMF47 Series Zener Diode

Description

SMF47xxA Series Zener Diodes are excellent voltage stabilization devices.

The Series is designed specifically for Voltage stabilization, Voltage regulation, and so on.



SOD-123F

Features

- Excellent clamping capability
- Low leakage current
- Low capacitance
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- Fast response time:
typically less than 1.0ps from 0 Volts to VBR min

Mechanical Characteristics

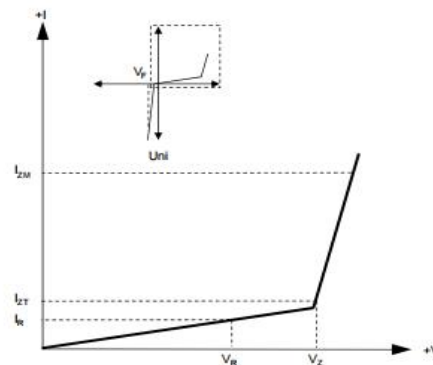
- Package: SOD-123F plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

Applications

- Voltage stabilization
- Voltage regulation

Electrical Parameters

Parameter	Definition
P_D	Power Dissipation
I_{ZM}	Maximum Zener Current
V_F	Maximum Forward Voltage
V_Z	Zener Voltage
I_R	Maximum Reverse Current
V_R	Maximum Reverse Voltage



Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOD-123F	Tape/Reel, 13" reel	10000	EIA-481-1
	Tape/Reel, 7" reel	3000	EIA-481-1

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Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Units	Remarks
Power Dissipation	P_D	1	W	(Note1)
Maximum Forward Voltage	V_F	1.2	V	(Note2)
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	100	°C/W	
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	220	°C/W	
Operating Temperature Range	T_J	-55 to 150	°C	
Storage Temperature Range	T_{STG}	-55 to 150	°C	

Notes1: $T_L = 50\text{ °C}$

Notes2: $I_F = 200\text{ mA}$

Electrical Characteristics (TA=25°C unless otherwise noted)

Type Number	Marking Code	Zener Voltage			Test Current	Maximum Zener Impedance			Maximum Reverse Current		Maximum Zener Current
		$V_Z @ I_{ZT}$				I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$	
		Nom (V)	Min (V)	Max (V)	mA	Ω	Ω	mA	μA	V	mA
SMF4733A	733A	5.1	4.8	5.4	49	7	550	1	10	1	178
SMF4734A	734A	5.6	5.3	5.9	45	5	600	1	10	2	162
SMF4735A	735A	6.2	5.8	6.6	41	2	700	1	10	3	146
SMF4736A	736A	6.8	6.4	7.2	37	3.5	700	1	50	4	133
SMF4737A	737A	7.5	7.1	7.9	34	4	700	0.5	50	5	121
SMF4738A	738A	8.2	7.7	8.7	31	4.5	700	0.5	50	6	110
SMF4739A	739A	9.1	8.6	9.6	28	5	700	0.5	50	7	100
SMF4740A	740A	10	9.5	10.5	25	7	700	0.25	50	7.6	91
SMF4741A	741A	11	10.4	11.6	23	8	700	0.25	50	8.4	83
SMF4742A	742A	12	11.4	12.6	21	9	700	0.25	5	9.1	76
SMF4743A	743A	13	12.3	13.7	19	10	700	0.25	5	9.9	69
SMF4744A	744A	15	14.2	15.8	17	14	700	0.25	5	11.4	61
SMF4745A	745A	16	15.2	16.8	15.5	16	700	0.25	5	12.2	57
SMF4746A	746A	18	17.1	18.9	14	20	750	0.25	5	13.7	50
SMF4747A	747A	20	19	21	12.5	22	750	0.25	5	15.2	45
SMF4748A	748A	22	20.9	23.1	11.5	23	750	0.25	5	16.7	41
SMF4749A	749A	24	22.8	25.2	10.5	25	750	0.25	5	18.2	38
SMF4750A	750A	27	25.6	28.4	9.5	35	750	0.25	5	20.6	34
SMF4751A	751A	30	28.5	31.5	8.5	40	1000	0.25	5	22.8	30
SMF4752A	752A	33	31.3	34.7	7.5	45	1000	0.25	5	25.1	27
SMF4753A	753A	36	34.2	37.8	7	50	1000	0.25	5	27.4	25
SMF4754A	754A	39	37	41	6.5	60	1000	0.25	5	29.7	23
SMF4755A	755A	43	40.8	45.2	6	70	1500	0.25	5	32.7	22
SMF4756A	756A	47	44.6	49.4	5.5	80	1500	0.25	5	35.8	19
SMF4757A	757A	51	48.4	53.6	5	95	1500	0.25	5	38.8	18
SMF4758A	758A	56	53.2	58.8	4.5	110	2000	0.25	5	42.6	16
SMF4759A	759A	62	58.9	65.1	4	125	2000	0.25	5	47.1	14
SMF4760A	760A	68	64.6	71.4	3.7	150	2000	0.25	5	51.7	13
SMF4761A	761A	75	71.2	78.8	3.3	175	2000	0.25	5	56	12
SMF4762A	762A	82	77.9	86.1	3	200	3000	0.25	5	62.2	11
SMF4763A	763A	91	86.4	95.6	2.8	250	3000	0.25	5	69.2	10
SMF4764A	764A	100	95	105	2.5	350	3000	0.25	5	76	9

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Rating And Characteristic Curves (TA=25°C unless otherwise noted)

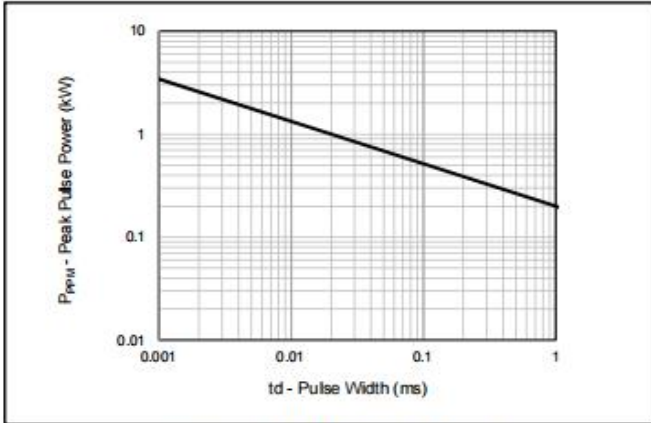


Fig.1 - Peak Pulse Power Rating

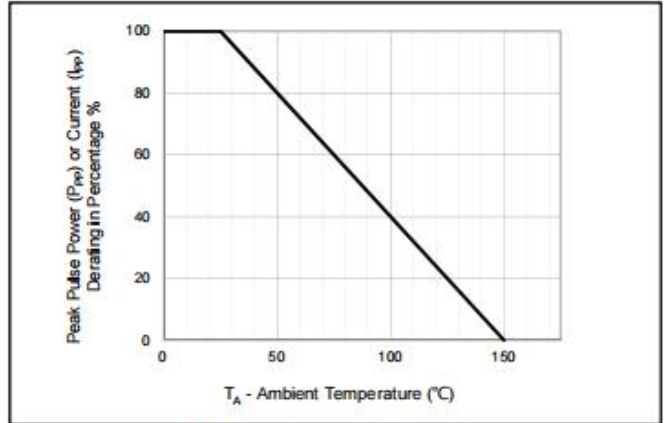


Fig.2 - Pulse Derating Curve

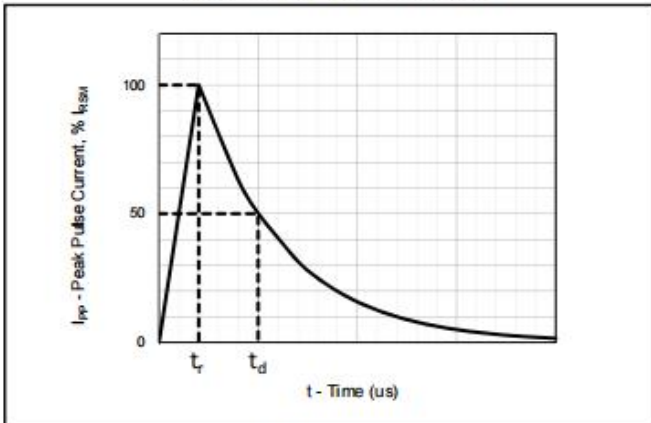


Fig.3 - Pulse Waveform

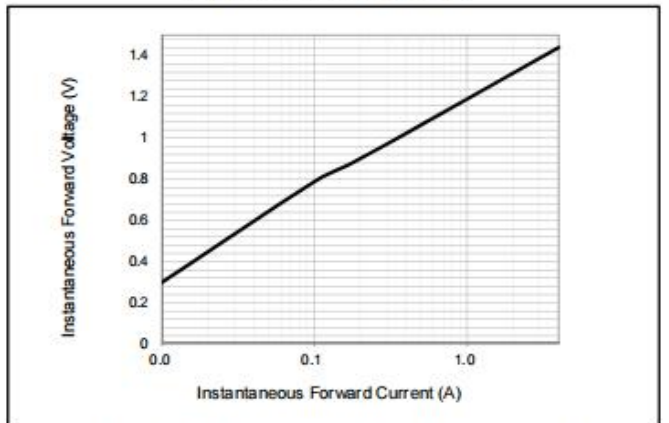


Fig.3 - Typical Instantaneous Forward Characteristics

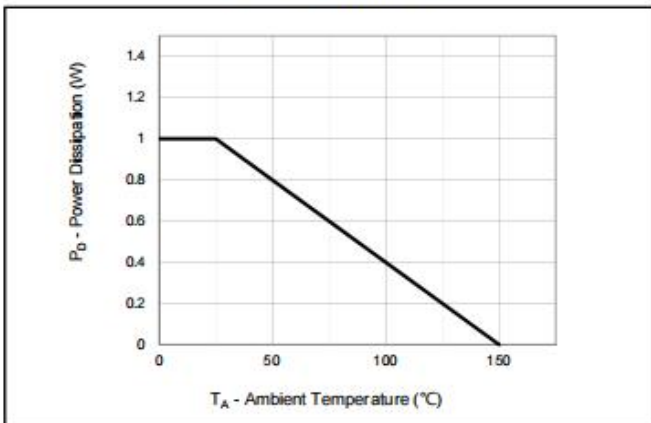


Fig.5 - Power Dissipation Derating Curve

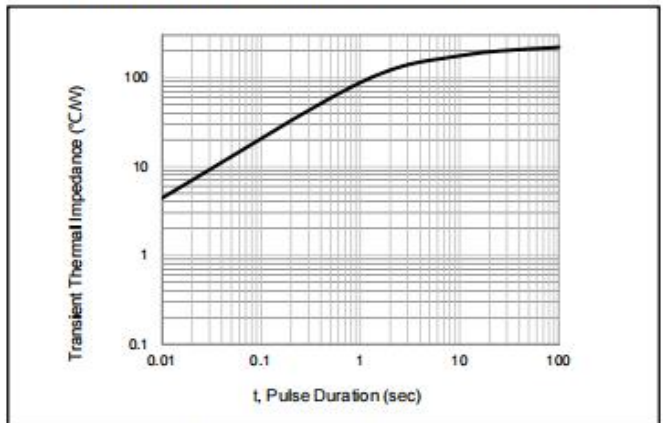
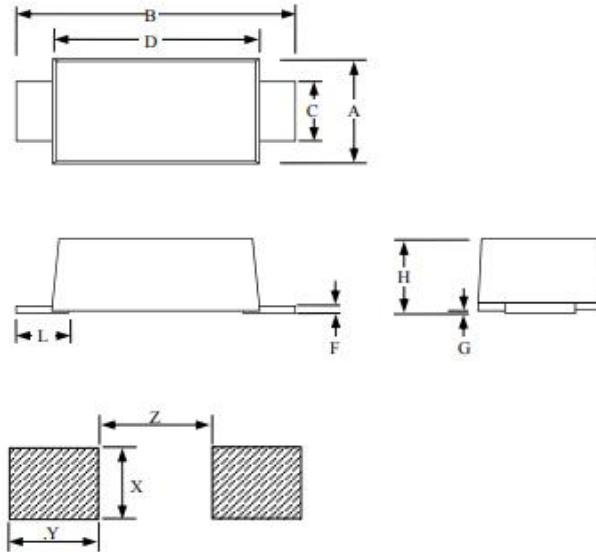


Fig.6 - Typical Transient Thermal Impedance

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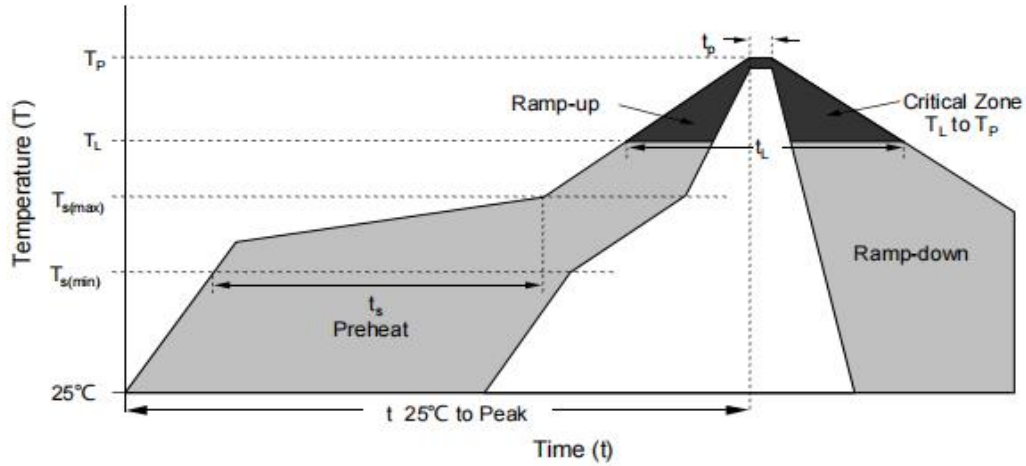
Package Dimensions



SOD-123F						
Dimension	Inches			Millimeters		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.059		0.079	1.5		2
B	0.134		0.154	3.4		3.9
C	0.028		0.047	0.7		1.2
D	0.098		0.114	2.5		2.9
F	0.002		0.01	0.05		0.26
G	-		0.004	-		0.1
H	0.037		0.053	0.95		1.15
L	0.014		0.035	0.35		0.9
X		0.055			1.4	
Y		0.051			1.3	
Z		0.063			1.6	

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Soldering Parameters



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	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 (t_l)	60 – 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C