

SSODZ ***A -SH Series

GLASS PASSIVATED JUNCTION Zener voltage regulator diodes

1.0 Watt Steady State

Feature

- * 1 W SOD-123-FL
- * Zener voltage regulator diodes
- * Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- * We declare that the material of product compliance with RoHS requirements.
- * Guarding for over voltage protection
- * High temperature soldering guaranteed: 260°C/10 seconds at terminals
- * IEC61000-4-2 ESD Air Contact $\geq \pm 15KV$
- * MSL: 1

Mechanical Data

Case: JEDEC SOD-123-FL/MINI SMA molded plastic

Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026

Polarity: Color band denoted cathode except Bipolar

Mounting Position: Any

Weight : Approximated 0.0155 gram

1.Electrical Characteristic

Ratings at 25°C ambient temperature unless otherwise specified.

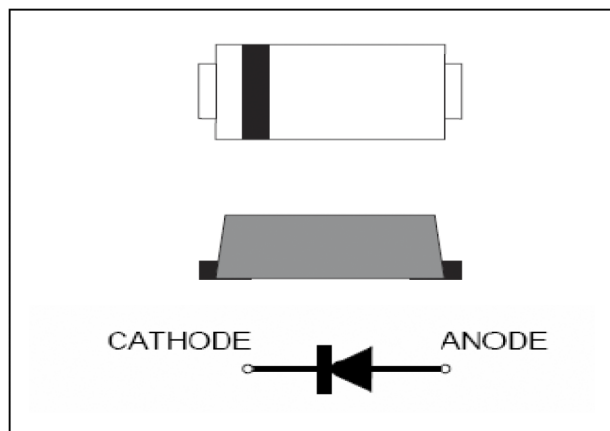
Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

RATING	SYMBOL	VALUE	UNITS
Steady State Power Dissipation at $T_J=75^\circ C$ (Note1)	$P_{M(AV)}$	1.0	Watts
Z-current	I_Z	PV/VZ	mA
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JECED Method) (Note 2)	I_{FSM}	40	Amps
Operating and Storage Temperature Range	T_J, T_{STG}	-50 to +150	$^\circ C$

NOTES:

1. 8.0mm² (.013mm thick) land areas
2. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.



We declare that the material of product is Haloggen free (green epoxy compound)

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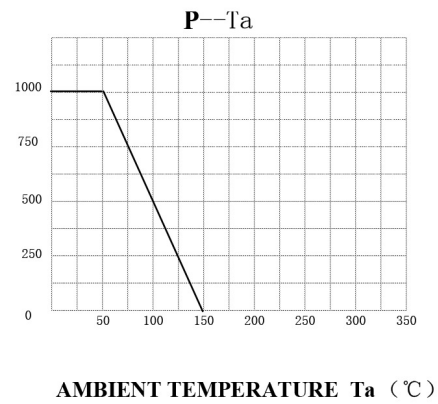
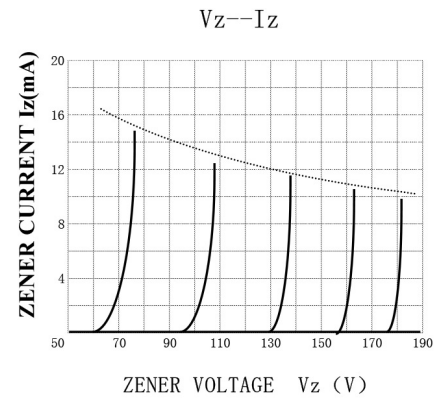
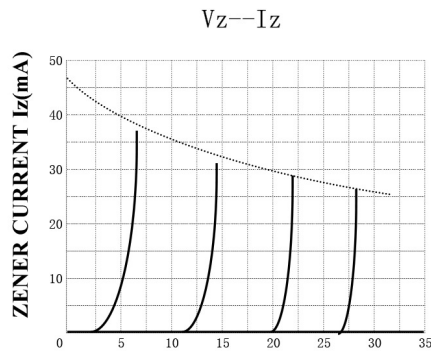
2.Product Characteristic

Vz tolerance : $\pm 5\%$; Tested with pulse $t_p=40\text{ms}$; $T_a=25^\circ\text{C}$ $V_{fmax}=1.2\text{V}$ @ $I_F=200\text{mA}$ $P=1\text{W}$

Type	Device marking code	Zener	Current	A and B Sufflx only			Leakage Current		Surge current	Maximum Regulator Current2)
		Voltage	I _{zt}	Z _{zt} @ I _{zt}	Z _{zk} @ I _{zk}	Z _{zk} @ I _{zk}	I _R	V _R	IR @Tamb = 25 °C	I _{ZM} @ Tamb =50 ° C
		<u>V_Z@I_{Zt}</u>								
		Volts	mA	Ohms	Ohms	m A	uA Max	Volts	mA	mA
SSODZ5.1A-SH	Z5.1	5.1	49	7	550	1	100	1.0	890	178
SSODZ5.6A-SH	Z5.6	5.6	45	5	600			2.0	810	164
SSODZ6.2A-SH	Z6.2	6.2	41	2	700			3.0	730	146
SSODZ6.8A-SH	Z6.8	6.8	37	4	1300			4	660	133
SSODZ7.5A-SH	Z7.5	7.5	34	4.5	1300	0.5		5	605	121
SSODZ8.2A-SH	Z8.2	8.2	31	5.5	1300	0.5		6	550	110
SSODZ9.1A-SH	Z9.1	9.1	28	6	1300	0.5		7	500	100
SSODZ10A-SH	Z10	10	25	7	1300	0.25	20	7.6	454	91
SSODZ11A-SH	Z11	11	23	8	1300			8.4	414	83
SSODZ12A-SH	Z12	12	21	9	1300			9.1	380	76
SSODZ13A-SH	Z13	13	19	10	1300			9.9	344	69
SSODZ15A-SH	Z15	15	17	14	1300			11.4	304	61
SSODZ16A-SH	Z16	16	15.5	16	1300			12.2	285	57
SSODZ18A-SH	Z18	18	14	20	1300			13.7	250	50
SSODZ20A-SH	Z20	20	12.5	22	1300			15.2	225	45
SSODZ22A-SH	Z22	22	11.5	23	1300			16.7	205	41
SSODZ24A-SH	Z24	24	10.5	25	1300			18.2	190	38
SSODZ27A-SH	Z27	27	9.5	35	1300			20.6	170	34
SSODZ30A-SH	Z30	30	8.5	40	1500			22.8	150	30
SSODZ33A-SH	Z33	33	7.5	45	1500		5	25.1	135	27
SSODZ36A-SH	Z36	36	7	50	1500			27.4	125	25
SSODZ39A-SH	Z39	39	6.5	60	1500			29.7	115	23
SSODZ43A-SH	Z43	43	6	70	2500			32.7	110	22
SSODZ47A-SH	Z47	47	5.5	80	2500			35.8	95	19
SSODZ51A-SH	Z51	51	5	95	2500			38.8	90	18
SSODZ56A-SH	Z56	56	4.5	110	2500			42.6	80	16
SSODZ62A-SH	Z62	62	4	125	2500			47.1	70	14
SSODZ68A-SH	Z68	68	3.7	150	2500			51.7	65	13
SSODZ75A-SH	Z75	75	3.3	175	2500			56	60	12
SSODZ82A-SH	Z82	82	3	200	3000			62.2	55	11
SSODZ91A-SH	Z91	91	2.8	250	3000			69.2	50	10
SSODZ100A-SH	Z100	100	2.5	350	3000			76	45	9
SSODZ110A-SH	Z110	110	2	550	5000			83	42	8
SSODZ120A-SH	Z120	120	1.5	750	5500			90	38	7
SSODZ130A-SH	Z130	130	1	900	6000			98	34	6
SSODZ150A-SH	Z150	150	1	1200	6500			113	30	6
SSODZ160A-SH	Z160	160	1	1350	7000			120	28	6
SSODZ180A-SH	Z180	180	1	1650	8500			135	25	5
SSODZ200A-SH	Z200	200	1	1950	10000			150	23	4

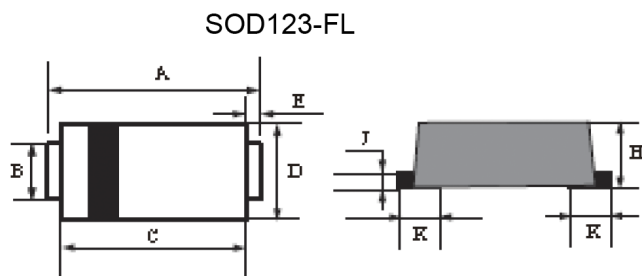
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3.Characteristic Curves



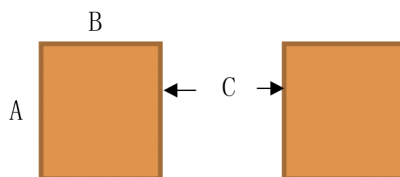
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3. dimension:



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	3.5	3.9	0.138	0.159
B	0.75	0.95	0.029	0.037
C	2.6	3.0	0.103	0.119
D	1.6	2.0	0.063	0.079
E	0.45Typ		0.018Typ	
H	0.9	1.2	0.036	0.047
J	0.12	0.22	0.005	0.009
K	0.8Typ		0.032Typ	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD123-FL	0.044(1.10)	0.040(1.00)	0.079(2.00)

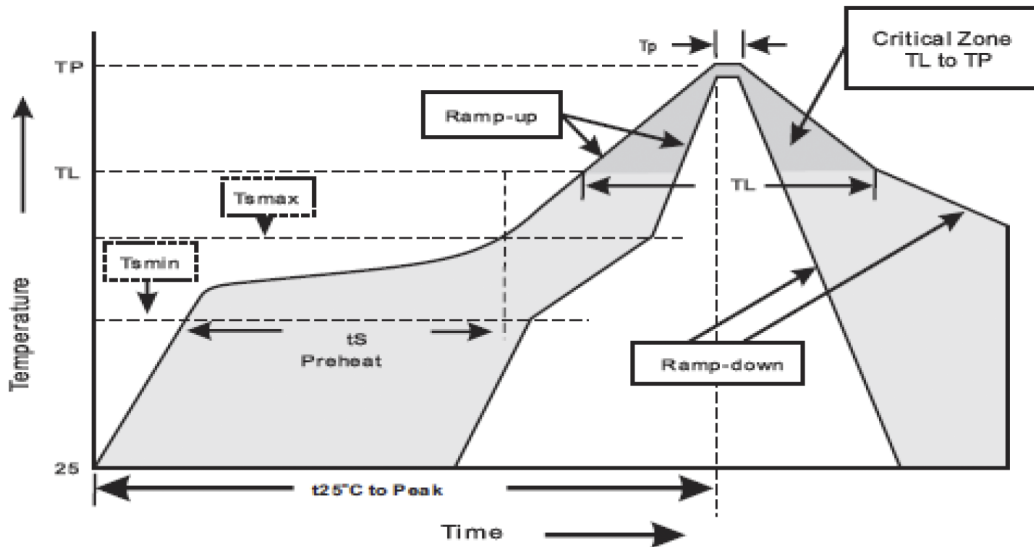
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Reel packing

PACKAGE	REEL SIZE	REEL (PCS)	COMPONENT SPACING (mm)	BOX (pcs)	INNER BOX (mm)	REEL DIA. (mm)	CARTON SIZE (mm)	CARTON (PCS)	APPOX. GROSS WEIGHT (kg)
SOD123-FL	7"	3,000	4.0	30,000	183*183*123	178	382*262*387	240,000	8.7

5.Suggested thermal profile for soldering process

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



3. Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat - Temperature Min(T_{smin}) - Temperature Max(T_{smax}) - Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L - Ramp-up Rate	<3sec
Time maintained above: - Temperature (T_L) - Time(t_L)	217°C 60~260sec
Peak Temperature(T_P)	255 -0/+5°C
Time within 5°C of actual Peak Temperature(T_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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6.High reliability test capabilities

Item Test	Condition	Reference
Solder Resistance	at 260±5°C for 10±2sec immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031
Solderability	at 245±5°C for 5 sec	MIL-STD-202F METHOD-208
High Temperature Reverse Bias	V _R =80% rate at T _j =150°C for 168hrs	MIL-STD-750D METHOD-1038
Forward Operation Life	Rated average rectifier current T _A =25°C for 500hrs	MIL-STD-750D METHOD-1027
Intermittent Operation Life	T _A =25°C , I _F =I _O On state:power on for 5 min. Off state:power off for 5 min. on and off for 500 cycles	MIL-STD-750D METHOD-1036
Pressure Cooker	15P _{SIG} at T _A =121°C for 4hrs	JESD22-A102
Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. Total 10 cycles	MIL-STD-750D METHOD-1051
Thermal Shock	0°C for 5min. Rise to 100°C for 5min. Total 10 cycles	MIL-STD-750D METHOD-1056
Forward Surge	8.3ms single half sine-wave superimposed on rated load,one surge	MIL-STD-750D METHOD-4066-2
Humidity	at T _A =85°C , RH=85% for 1000hrs	MIL-STD-750D METHOD-1021
High Temperature Storage Life	at 175°C for 1000hrs	MIL-STD-750D METHOD-1031