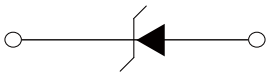
FEATURES

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- Polarity: Color band denotes cathode end
- Epoxy UL: 94V-0
- Mounting Position: Any
- Meet AEC-Q101 Requirements

SOD-123



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS (T_A=25°C)

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	500[1)]	mW
Forward Voltage@I_F=10mA	V_F	0.9[2)]	V
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	340[3)]	°C/W
Thermal Resistance, Junction-to-Lead	$R_{\theta JL}$	150[3)]	°C/W
Storage temperature range	T_S	-65 to +150	°C

Note:

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²
2) Short duration test pulse used to minimize self-heating effect
3) Thermal Resistance measurement obtained via infrared Scan Method
4) f=1KHz

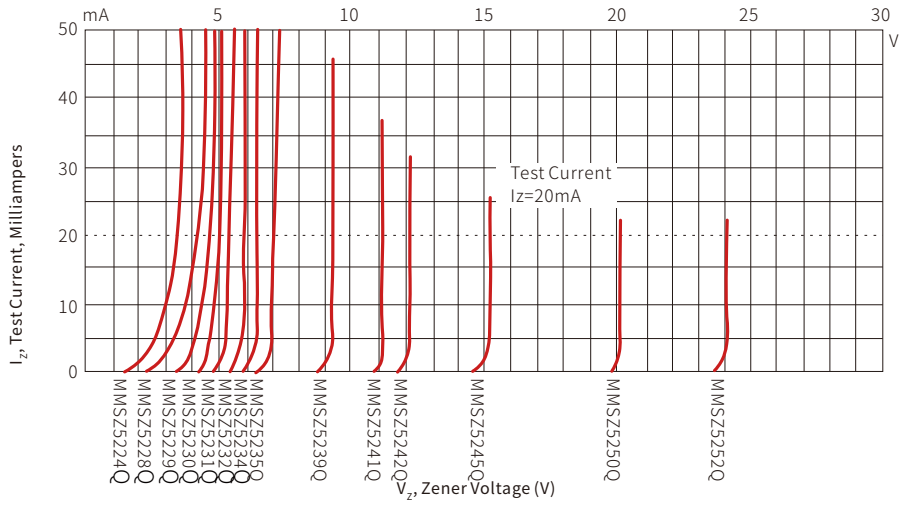
ELECTRICAL CHARACTERISTICS

Part Number	Device Marking Code	Zener Voltage Range			Maximum Zener Impedance			Maximum Reverse Current	
		V_z@I_{ZT}		I_{ZT}	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}	I_{ZK}	I_R	V_R
		Min.(V)	Max.(V)	mA	Max.(Ω)	Max.(Ω)	mA	uA	V
MMSZ5221BQ	C1	2.28	2.52	20	30	1200	0.25	100	1.0
MMSZ5222BQ	C2	2.38	2.63	20	30	1250	0.25	100	1.0
MMSZ5223BQ	C3	2.57	2.84	20	30	1300	0.25	75	1.0
MMSZ5224BQ	C4	2.66	2.94	20	30	1400	0.25	75	1.0
MMSZ5225BQ	C5	2.85	3.15	20	30	1600	0.25	50	1.0
MMSZ5226BQ	G1	3.14	3.47	20	28	1600	0.25	25	1.0
MMSZ5227BQ	G2	3.42	3.78	20	24	1700	0.25	15	1.0
MMSZ5228BQ	G3	3.71	4.10	20	23	1900	0.25	10	1.0
MMSZ5229BQ	G4	4.09	4.52	20	22	2000	0.25	5.0	1.0
MMSZ5230BQ	G5	4.47	4.94	20	19	1900	0.25	5.0	2.0
MMSZ5231BQ	E1	4.85	5.36	20	17	1600	0.25	5.0	2.0
MMSZ5232BQ	E2	5.32	5.88	20	11	1600	0.25	5.0	3.0
MMSZ5233BQ	E3	5.70	6.30	20	7	1600	0.25	5.0	3.5
MMSZ5234BQ	E4	5.89	6.51	20	7	1000	0.25	5.0	4.0
MMSZ5235BQ	E5	6.46	7.14	20	5	750	0.25	3	5.0
MMSZ5236BQ	F1	7.13	7.88	20	6	500	0.25	3	6.0
MMSZ5237BQ	F2	7.79	8.61	20	8	500	0.25	3	6.5
MMSZ5238BQ	F3	8.27	9.14	20	8	600	0.25	3	6.5
MMSZ5239BQ	F4	8.65	9.56	20	10	600	0.25	3	7.0
MMSZ5240BQ	F5	9.50	10.50	20	17	600	0.25	3	8.0
MMSZ5241BQ	H1	10.45	11.55	20	22	600	0.25	2.0	8.4
MMSZ5242BQ	H2	11.40	12.60	20	30	600	0.25	1.0	9.1
MMSZ5243BQ	H3	12.35	13.65	9.5	13	600	0.25	0.5	9.9
MMSZ5244BQ	H4	13.30	14.70	9.0	15	600	0.25	0.1	10
MMSZ5245BQ	H5	14.25	15.75	8.5	16	600	0.25	0.1	11
MMSZ5246BQ	J1	15.20	16.80	7.8	17	600	0.25	0.1	12
MMSZ5247BQ	J2	16.15	17.85	7.5	19	600	0.25	0.1	13
MMSZ5248BQ	J3	17.10	18.90	7.0	21	600	0.25	0.1	14
MMSZ5249BQ	J4	18.05	19.95	6.6	23	600	0.25	0.1	14
MMSZ5250BQ	J5	19.00	21.00	6.2	25	600	0.25	0.1	15
MMSZ5251BQ	K1	20.90	23.10	5.6	29	600	0.25	0.1	17
MMSZ5252BQ	K2	22.80	25.20	5.2	33	600	0.25	0.1	18
MMSZ5253BQ	K3	23.75	26.25	5.0	35	600	0.25	0.1	19

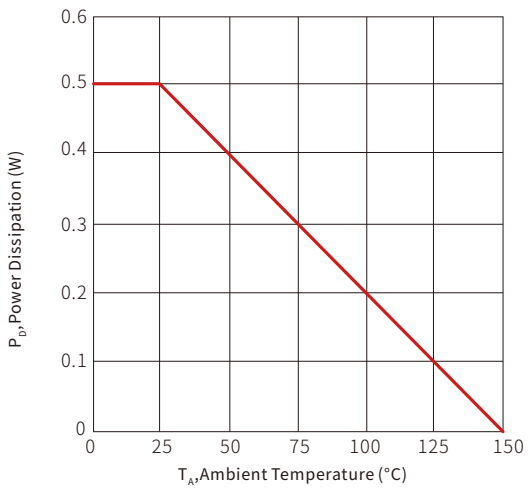
Part Number	Device Marking Code	Zener Voltage Range			Maximum Zener Impedance			Maximum Reverse Current	
		V_Z@I_{ZT}		I_{ZT}	Z_{ZT}@I_{ZT}	Z_{ZK}@I_{ZK}	I_{ZK}	I_R	V_R
		Min.(V)	Max.(V)	mA	Max.(Ω)	Max.(Ω)	mA	uA	V
MMSZ5254BQ	K4	25.65	28.35	5.0	41	600	0.25	0.1	21
MMSZ5255BQ	K5	26.60	29.40	4.5	44	600	0.25	0.1	21
MMSZ5256BQ	M1	28.50	31.50	4.2	49	600	0.25	0.1	23
MMSZ5257BQ	M2	31.35	34.65	3.8	58	700	0.25	0.1	25
MMSZ5258BQ	M3	34.20	37.80	3.4	70	700	0.25	0.1	27
MMSZ5259BQ	M4	37.05	40.95	3.2	80	800	0.25	0.1	30
MMSZ5260BQ	M5	40.85	45.15	3.0	93	900	0.25	0.1	33
MMSZ5261BQ	N1	44.65	49.35	2.7	105	1000	0.25	0.1	36
MMSZ5262BQ	N2	48.45	53.55	2.5	125	1100	0.25	0.1	39
MMSZ5263BQ	N3	53.20	58.80	2.2	150	1300	0.25	0.1	43
MMSZ5264BQ	N4	57.00	63.00	2.1	170	1400	0.25	0.1	46
MMSZ5265BQ	N5	58.90	65.10	2.0	185	1400	0.25	0.1	47
MMSZ5266BQ	P1	64.60	71.40	1.8	230	1600	0.25	0.1	52
MMSZ5267BQ	P2	71.25	78.75	1.7	270	1700	0.25	0.1	56

CHARACTERISTIC CURVES

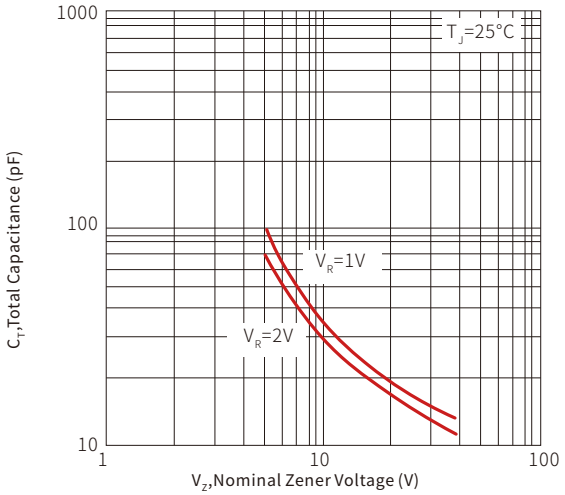
Breakdown characteristics



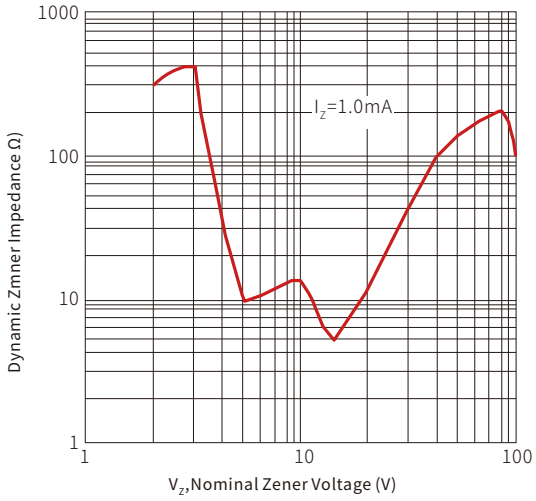
Power Dissipation vs Ambient Temperature



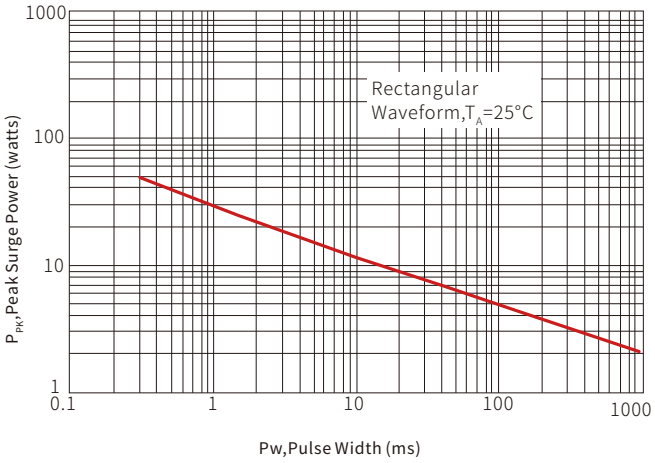
Total Capacitance vs Nominal Zener Voltage



Zener Voltage ns.Zener Impedence

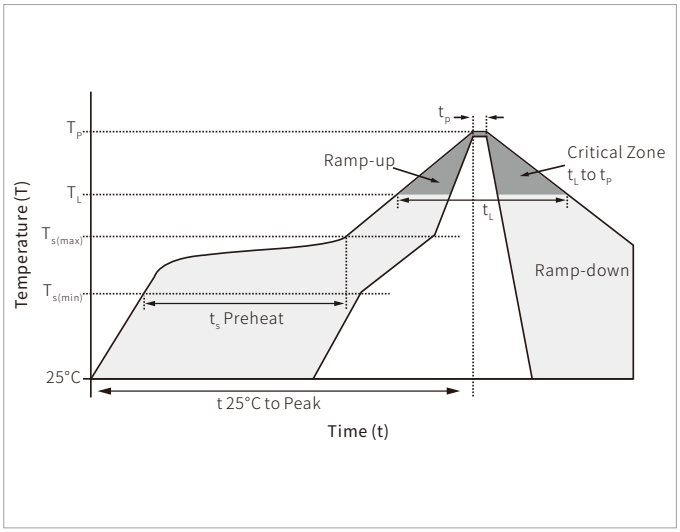


Maximum Nonreptitive Surge Power

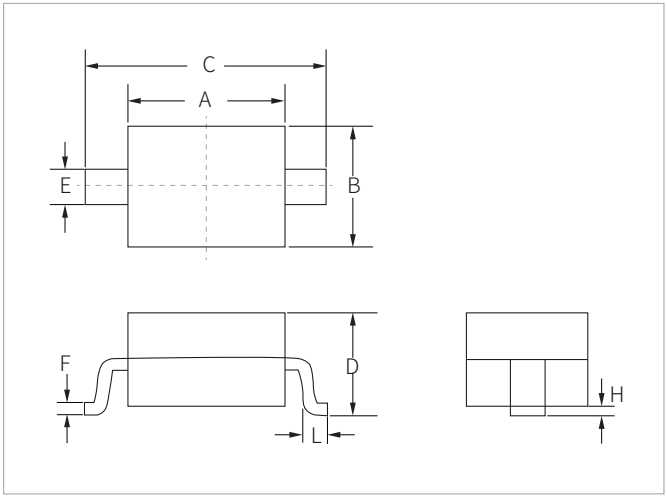


SOLDERING PARAMETERS

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

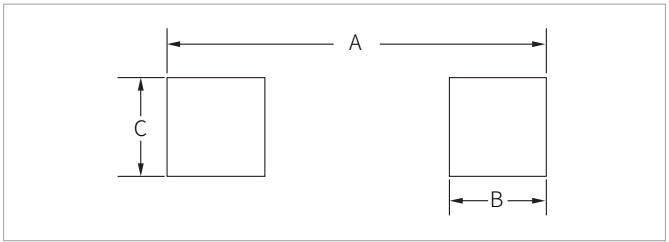


SOD-123 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	2.80	0.102	0.110
B	1.50	1.70	0.059	0.067
C	3.55	3.85	0.140	0.152
D	1.05	1.25	0.041	0.049
E	0.45	0.65	0.018	0.026
F	0.08	0.15	0.003	0.006
H	0.00	0.10	0.000	0.004
L	0.25	0.45	0.010	0.018

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.00	4.30	0.157	0.169
B	0.75	0.85	0.030	0.033
C	0.95	1.05	0.037	0.041

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
MMSE5221BQ-MMSZ5267BQ	SOD-123	3000PCS	7”

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code
Website
Wechat

To find your local partner within Semiware' s global website: www.semiware.com