

Zener Voltage Regulators 500mW Surface Mount Zener Diodes

Three complete series of Zener diodes are offered in the convenient, surface mount plastic SOD-123 package. These devices provide a convenient alternative to the leadless 34-package style.

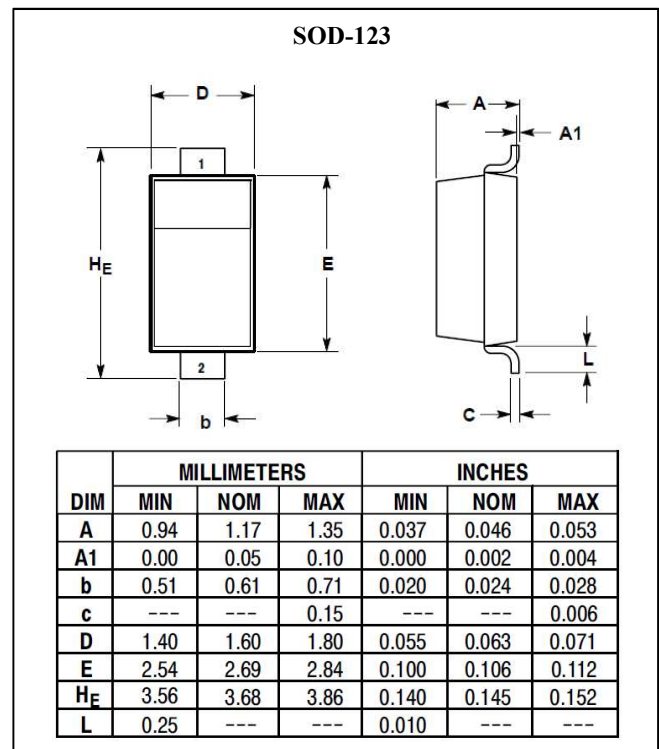
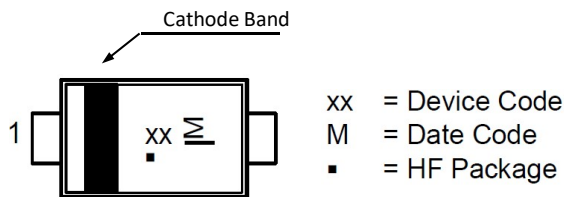
Features

- 500 mW Rating on FR-4 or FR-5 Board
- Wide Zener Reverse Voltage Range – 2.4 V to 110 V
- Package Designed for Optimal Automated Board Assembly
- Small Package Size for High Density Applications
- General Purpose, Medium Current
- ESD Rating of Class 3 (>16 kV) per Human Body Model
- We declare that the material of product compliance with RoHS requirements

Mechanical Data

- Case : Void-free, transfer-molded, thermosetting plastic case
- Finish : Corrosion resistant finish, easily solderable
- Maximum Case Temperature for Soldering Purposes : 260°C for 10 Seconds
- Polarity : Cathode indicated by polarity band
- Flammability Rating : UL 94 V-0

Marking



Maximum Ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Rated Value	Unit	Remark
Total Power Dissipation on FR-5 Board,(Note 1)at T _L =75°C Derate above 75°C	P _D	500 6.7	mW mW/°C	Note 1
Thermal resistance Junction to Ambient Air	R _{th(j-a)}	340	°C/W	Note 2
Thermal resistance Junction to Lead	R _{th(j-l)}	150	°C/W	
Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C	

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

Note 1. FR-5 = 3.5 × 1.5 inches, using the minimum recommended footprint.

Note 2. Thermal Resistance measurement obtained via infrared Scan Method

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

Device	Device Marking	Zener Voltage (Note 3 and 4)				Zener Impedance (Note 5)			Leakage Current I _R @ V _R	
		V _Z (Volts)			@I _{ZT}	Z _{ZT} @ I _{ZT}	Z _{ZK} @ I _{ZK}			
		Min	Nom	Max	mA	Ω	Ω	mA	uA	Volts
LMSZ5221BT1H	C1	2.28	2.4	2.52	20	30	1200	0.25	100	1.0
LMSZ5222BT1H	C2	2.38	2.5	2.63	20	30	1250	0.25	100	1.0
LMSZ5223BT1H	C3	2.57	2.7	2.84	20	30	1300	0.25	75	1.0
LMSZ5224BT1H	C4	2.66	2.8	2.94	20	30	1400	0.25	75	1.0
LMSZ5225BT1H	C5	2.85	3.0	3.15	20	29	1600	0.25	50	1.0
LMSZ5226BT1H	D1	3.14	3.3	3.47	20	28	1600	0.25	25	1.0
LMSZ5227BT1H	D2	3.42	3.6	3.78	20	24	1700	0.25	15	1.0
LMSZ5228BT1H	D3	3.71	3.9	4.10	20	23	1900	0.25	10	1.0
LMSZ5229BT1H	D4	4.09	4.3	4.52	20	22	2000	0.25	5.0	1.0
LMSZ5230BT1H	D5	4.47	4.7	4.94	20	19	1900	0.25	5.0	2.0
LMSZ5231BT1H	E1	4.85	5.1	5.36	20	17	1600	0.25	5.0	2.0
LMSZ5232BT1H	E2	5.32	5.6	5.88	20	11	1600	0.25	5.0	3.0
LMSZ5233BT1H	E3	5.70	6.0	6.30	20	7.0	1600	0.25	5.0	3.5
LMSZ5234BT1H	E4	5.89	6.2	6.51	20	7.0	1000	0.25	5.0	4.0
LMSZ5235BT1H	E5	6.46	6.8	7.14	20	5.0	750	0.25	3.0	5.0
LMSZ5236BT1H	F1	7.13	7.5	7.88	20	6.0	500	0.25	3.0	6.0
LMSZ5237BT1H	F2	7.79	8.2	8.61	20	8.0	500	0.25	3.0	6.5
LMSZ5238BT1H	F3	8.27	8.7	9.14	20	8.0	600	0.25	3.0	6.5
LMSZ5239BT1H	F4	8.65	9.1	9.56	20	10	600	0.25	3.0	7.0
LMSZ5240BT1H	F5	9.50	10	10.50	20	17	600	0.25	3.0	8.0
LMSZ5241BT1H	H1	10.45	11	11.55	20	22	600	0.25	2.0	8.4
LMSZ5242BT1H	H2	11.40	12	12.60	20	30	600	0.25	1.0	9.1
LMSZ5243BT1H	H3	12.35	13	13.65	9.5	13	600	0.25	0.5	9.9
LMSZ5244BT1H	H4	13.30	14	14.70	9.0	15	600	0.25	0.1	10
LMSZ5245BT1H	H5	14.25	15	15.75	8.5	16	600	0.25	0.1	11
LMSZ5246BT1H	J1	15.20	16	16.80	7.8	17	600	0.25	0.1	12
LMSZ5247BT1H	J2	16.15	17	17.85	7.4	19	600	0.25	0.1	13
LMSZ5248BT1H	J3	17.10	18	18.90	7.0	21	600	0.25	0.1	14
LMSZ5250BT1H	J5	19.00	20	21.00	6.2	25	600	0.25	0.1	15
LMSZ5251BT1H	K1	20.90	22	23.10	5.6	29	600	0.25	0.1	17
LMSZ5252BT1H	K2	22.80	24	25.20	5.2	33	600	0.25	0.1	18
LMSZ5253BT1H	K3	23.75	25	26.25	5.0	35	600	0.25	0.1	19
LMSZ5254BT1H	K4	25.65	27	28.35	4.6	41	600	0.25	0.1	21
LMSZ5255BT1H	K5	26.60	28	29.40	4.5	44	600	0.25	0.1	21
LMSZ5256BT1H	M1	28.50	30	31.50	4.2	49	600	0.25	0.1	23
LMSZ5257BT1H	M2	31.35	33	34.65	3.8	58	700	0.25	0.1	25
LMSZ5258BT1H	M3	34.20	36	37.80	3.4	70	700	0.25	0.1	27
LMSZ5259BT1H	M4	37.05	39	40.95	3.2	80	800	0.25	0.1	30
LMSZ5260BT1H	M5	40.85	43	45.15	3.0	93	900	0.25	0.1	33
LMSZ5261BT1H	N1	44.65	47	49.35	2.7	105	1000	0.25	0.1	36
LMSZ5262BT1H	N2	48.45	51	53.55	2.5	125	1100	0.25	0.1	39
LMSZ5263BT1H	N3	53.20	56	58.80	2.2	150	1300	0.25	0.1	43
LMSZ5264BT1H	N4	57.00	60	63.00	2.1	170	1400	0.25	0.1	46
LMSZ5265BT1H	N5	58.90	62	65.10	2.0	185	1400	0.25	0.1	47
LMSZ5266BT1H	P1	64.60	68	71.40	1.8	230	1600	0.25	0.1	52
LMSZ5267BT1H	P2	71.25	75	78.75	1.7	270	1700	0.25	0.1	56
LMSZ5268BT1H	P3	77.90	82	86.10	1.5	330	2000	0.25	0.1	62
LMSZ5269BT1H	P4	82.65	87	91.35	1.4	370	2200	0.25	0.1	68
LMSZ5270BT1H	P5	86.45	91	95.55	1.4	400	2300	0.25	0.1	69
LMSZ5272BT1H	R2	104.5	110	115.5	1.1	750	3000	0.25	0.1	84

3. The type numbers shown have a standard tolerance of ±5% on the nominal Zener voltage.

4. Nominal Zener voltage is measured with the device junction in thermal equilibrium at T_L = 30°C ±1°C.

5. Z_{ZT} and Z_{ZK} are measured by dividing the AC voltage drop across the device by the ac current applied.

The specified limits are for I_{Z(AC)} = 0.1 I_{Z(AC)} with the AC frequency = 1 KHz.

Ratings and Characteristics Curves (Ta=25°C unless otherwise noted)

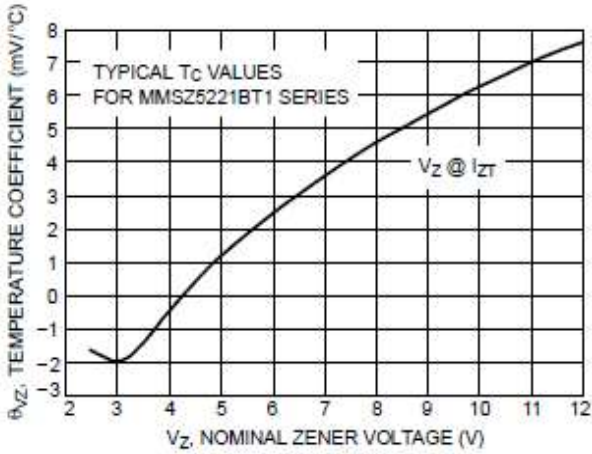


Figure 1. Temperature Coefficients (Temperature Range -55°C to +150°C)

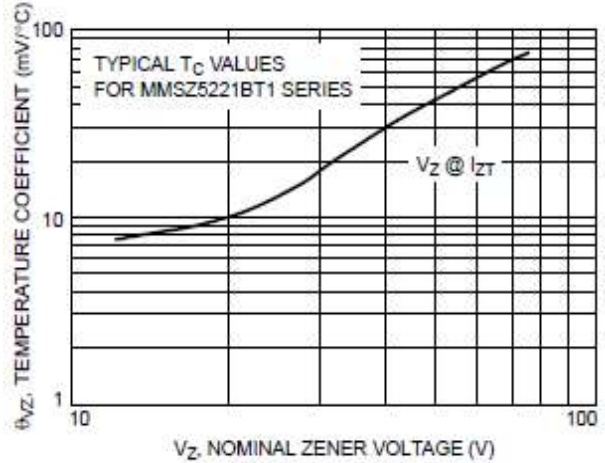


Figure 2. Temperature Coefficients (Temperature Range -55°C to +150°C)

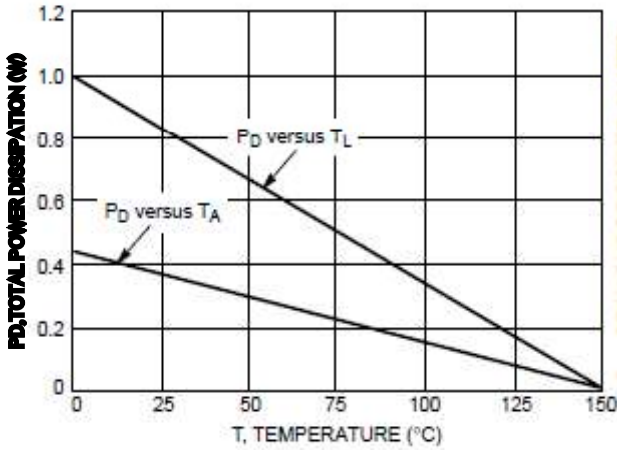


Figure 3. Steady State Power Derating

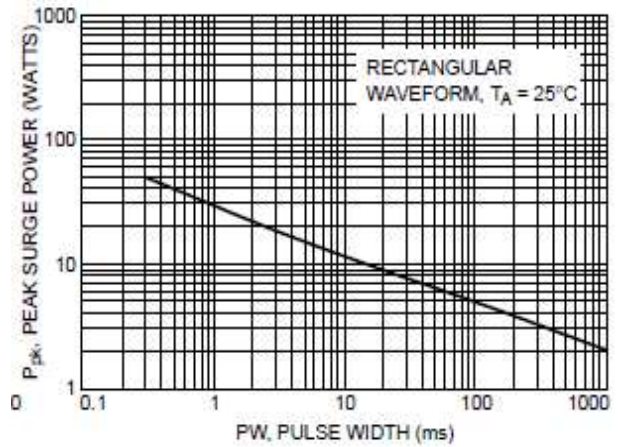


Figure 4. Maximum Nonrepetitive Surge Power

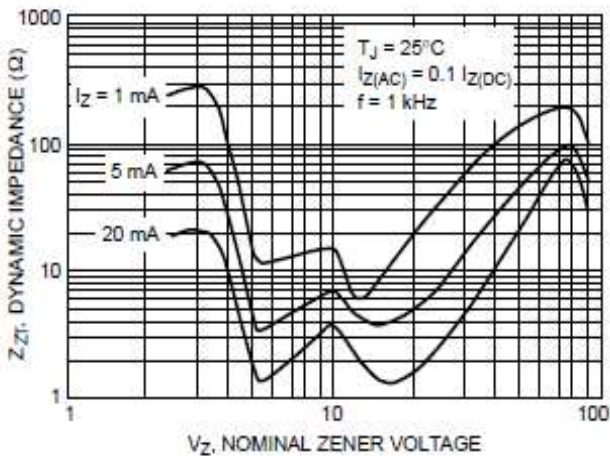


Figure 5. Effect of Zener Voltage on Zener Impedance

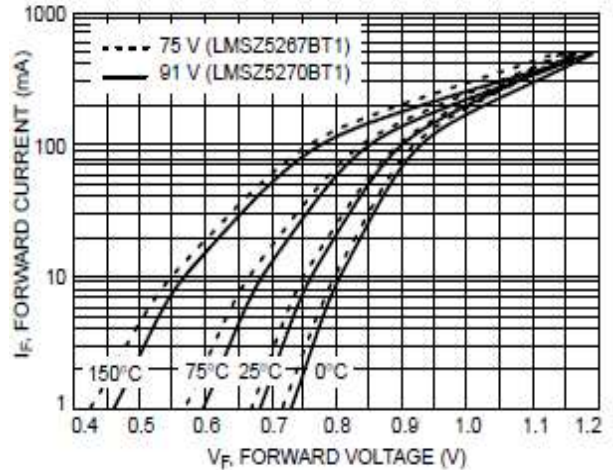


Figure 6. Typical Forward Voltage

Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

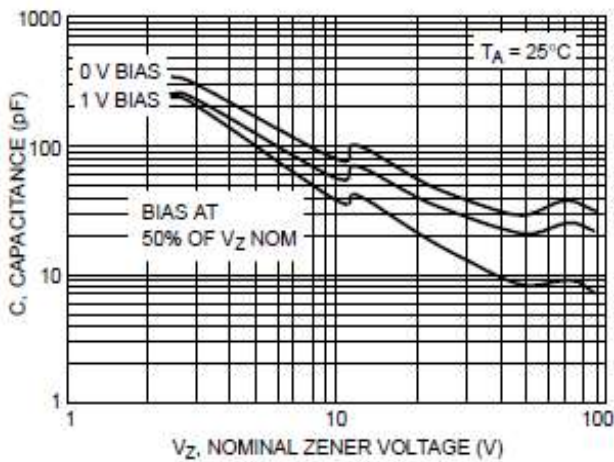


Figure 7. Typical Capacitance

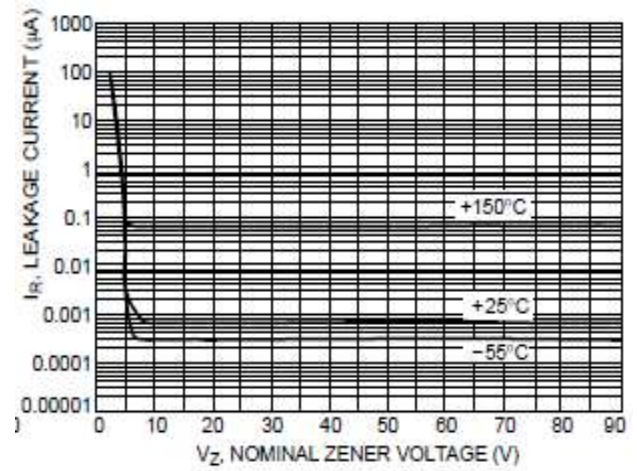


Figure 8. Typical Leakage Current

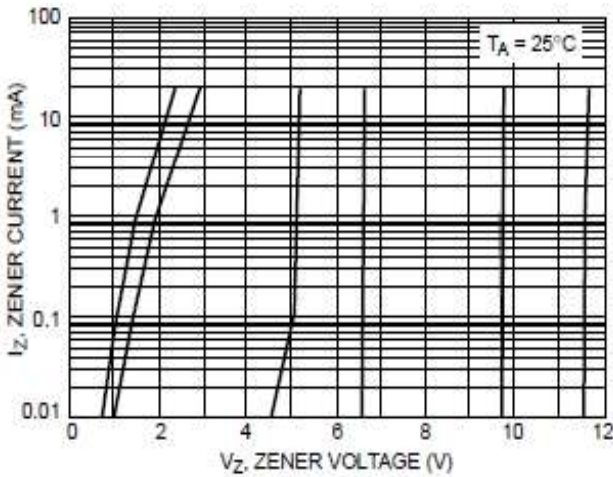


Figure 9. Zener Voltage versus Zener Current
(V_Z Up to 12 V)

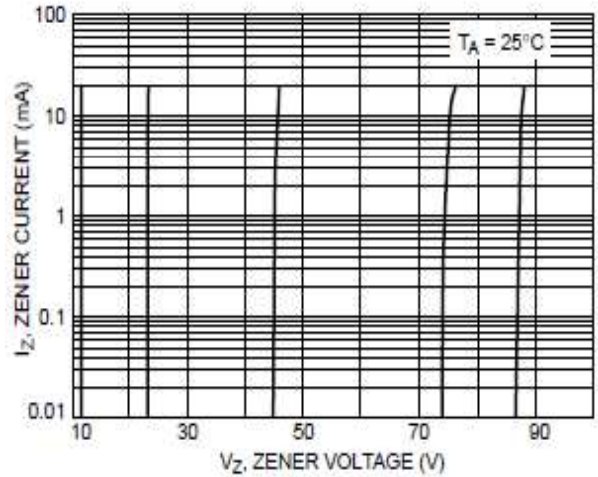


Figure 10. Zener Voltage versus Zener Current
(12 V to 91 V)