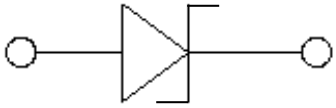
Zener Diodes





Features

- Moisture sensitivity level 1
- Zener voltage 2.4V~47V

Application

- Linear voltage regulator
- DC regulator
- Small-signal surge protection

Mechanical data

- **Package**: SOD-323
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (T_a=25℃ Unless otherwise specified)

Parameter	Symbol	Unit	Value
Forward voltage @ I_F=10mA	V_F	V	0.9
Power dissipation	P_D	mW	200
Maximum regulator current	I_{ZM}	mA	P_D/ V_Z
Junction temperature	T_J	℃	-55 to +150
Storage temperature	T_{STG}	℃	-55 to +150

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Type number	Device marking	V_Z @ I_{ZT} (V)			Z_{ZT}(Ω)		Z_{ZK}(Ω)		I_R(μA) @V_R		Diode capacitance Cd (pF)	Non-repetitive peak reverse current Izsm (A)
		Min.	Typ.	Max.	I_{ZT}(mA)	Max.	I_{ZK}(mA)	Max.	Max	V_R(V)	Max	Max
MMSZ5221BS	C1	2.28	2.4	2.52	20	30	0.25	1200	100	1.0	450	6
MMSZ5222BS	C2	2.38	2.5	2.63	20	30	0.25	1250	100	1.0	450	6
MMSZ5223BS	C3	2.57	2.7	2.84	20	30	0.25	1300	75	1.0	450	6
MMSZ5225BS	C5	2.85	3.0	3.15	20	29	0.25	1600	50	1.0	450	6
MMSZ5226BS	G1	3.14	3.3	3.47	20	28	0.25	1600	25	1.0	450	6
MMSZ5227BS	G2	3.42	3.6	3.78	20	24	0.25	1700	15	1.0	450	4.5
MMSZ5228BS	G3	3.71	3.9	4.10	20	23	0.25	1900	10	1.0	450	4.5
MMSZ5229BS	G4	4.09	4.3	4.52	20	22	0.25	2000	5	1.0	450	3.5
MMSZ5230BS	G5	4.47	4.7	4.94	20	19	0.25	1900	5	2.0	300	3.5
MMSZ5231BS	E1	4.85	5.1	5.36	20	17	0.25	1600	5	2.0	300	3
MMSZ5232BS	E2	5.32	5.6	5.88	20	11	0.25	1600	5	3.0	200	3
MMSZ5234BS	E4	5.89	6.2	6.51	20	7	0.25	1000	5	4.0	200	3
MMSZ5235BS	E5	6.46	6.8	7.14	20	5	0.25	750	3	5.0	200	2
MMSZ5236BS	F1	7.13	7.5	7.88	20	6	0.25	500	3	6.0	150	2
MMSZ5237BS	F2	7.79	8.2	8.61	20	8	0.25	500	3	6.5	150	2
MMSZ5239BS	F4	8.65	9.1	9.56	20	10	0.25	600	3	7.0	150	1.8
MMSZ5240BS	F5	9.50	10	10.50	20	17	0.25	600	3	8.0	90	1.8
MMSZ5241BS	H1	10.45	11	11.55	20	22	0.25	600	2	8.4	85	1.8
MMSZ5242BS	H2	11.40	12	12.60	20	30	0.25	600	1	9.1	85	1.8
MMSZ5243BS	H3	12.35	13	13.65	9.5	13	0.25	600	0.5	9.9	80	1
MMSZ5245BS	H5	14.25	15	15.75	8.5	16	0.25	600	0.1	11.0	75	1
MMSZ5246BS	J1	15.20	16	16.80	7.8	17	0.25	600	0.1	12.0	75	1
MMSZ5248BS	J3	17.10	18	18.90	7	21	0.25	600	0.1	14.0	70	1
MMSZ5250BS	J5	19.00	20	21.00	6.2	25	0.25	600	0.1	15.0	60	1
MMSZ5251BS	K1	20.90	22	23.10	5.6	29	0.25	600	0.1	17.0	60	0.6

Type number	Device marking	V_Z @ I_{ZT} (V)			Z_{ZT}(Ω)		Z_{ZK}(Ω)		I_R(μA) @V_R		Diode capacitance Cd (pF)	Non-repetitive peak reverse current Izsm (A)
		Min.	Typ.	Max.	I_{ZT}(mA)	Max.	I_{ZK}(mA)	Max.	Max	V_R(V)	Max	Max
MMSZ5252BS	K2	22.80	24	25.20	5.2	33	0.25	600	0.1	18.0	55	0.6
MMSZ5254BS	K4	25.65	27	28.35	4.6	41	0.25	600	0.1	21.0	50	0.6
MMSZ5256BS	M1	28.50	30	31.50	4.2	49	0.25	600	0.1	23.0	50	0.6
MMSZ5257BS	M2	31.35	33	34.65	3.8	58	0.25	700	0.1	25.0	45	0.6
MMSZ5258BS	M3	34.20	36	37.80	3.4	70	0.25	700	0.1	27.0	45	0.6
MMSZ5259BS	M4	37.05	39	40.95	3.2	80	0.25	800	0.1	30.0	45	0.6
MMSZ5260BS	M5	40.85	43	45.15	3	93	0.25	900	0.1	33.0	40	0.6
MMSZ5261BS	N1	44.65	47	49.35	2.7	105	0.25	1000	0.1	36.0	40	0.5

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J\text{-}A}$(1)	℃/W	625
Thermal resistance, junction-to-case	$R_{\theta J\text{-}C}$(1)	℃/W	500

Note:

（1）Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 8mm*9mm copper pad areas

Fig 1：P_D-Ta Curve

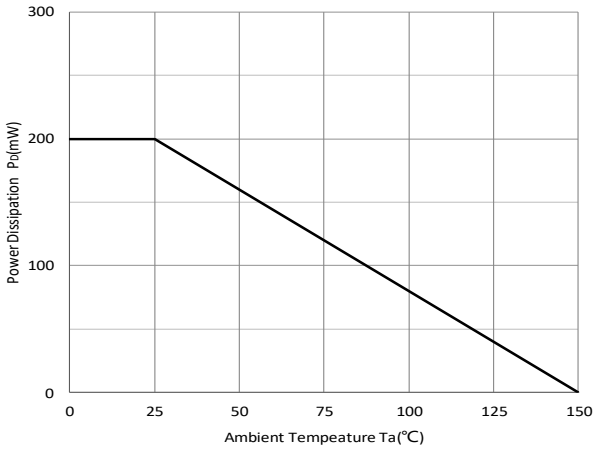


Fig 2：Zener Breakdown Characteristics

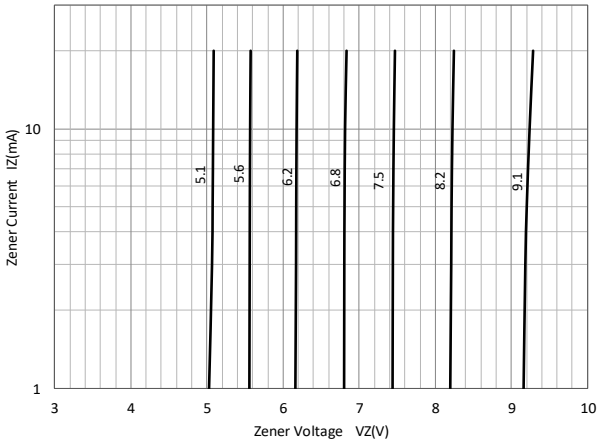


Fig 3：Zener Breakdown Characteristics

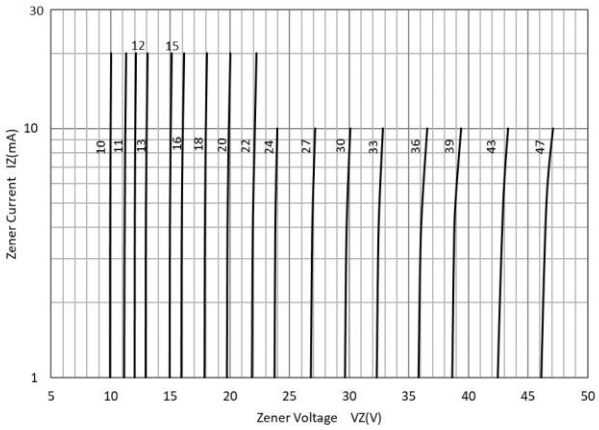


Fig 4：Typical Temperature Coeffient

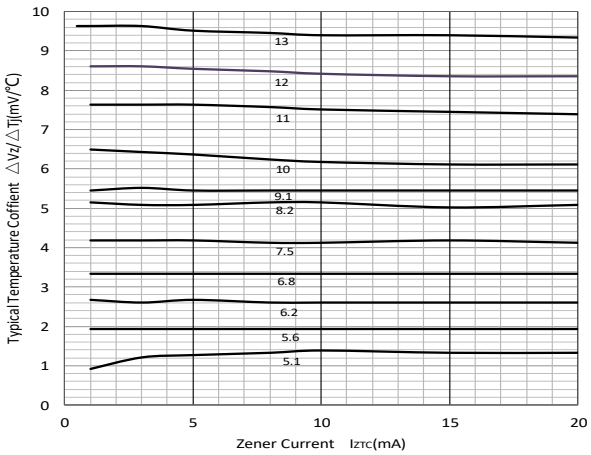


Fig 5：Typical Temperature Coeffient

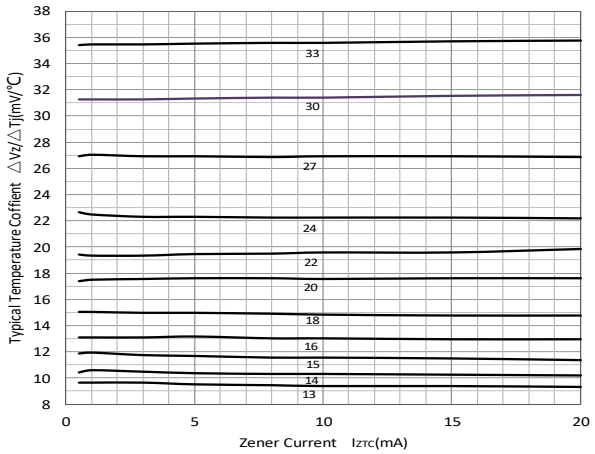


Fig 6：Typical Temperature Coeffient

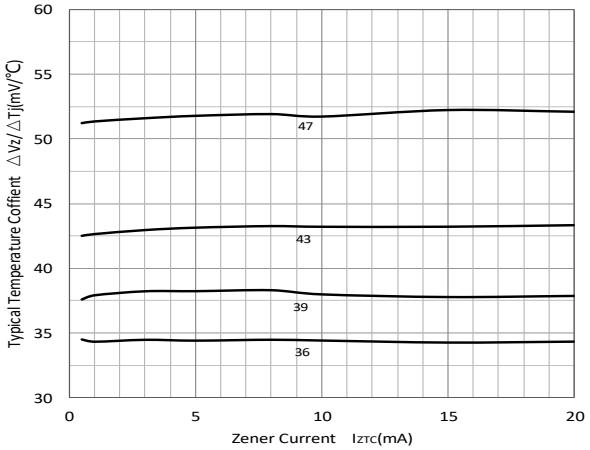
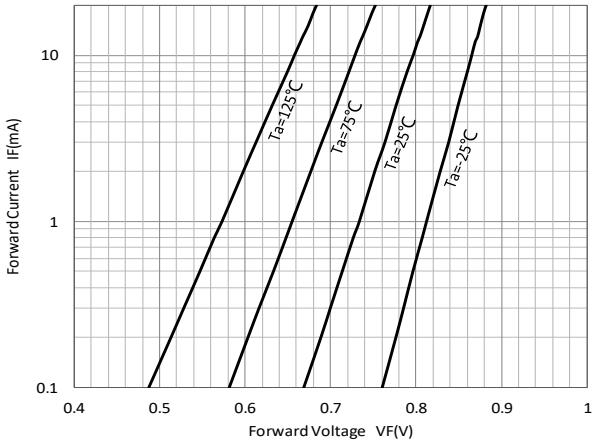


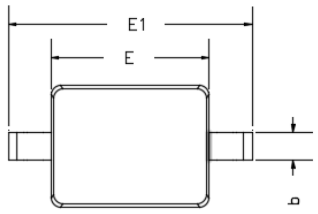
Fig 7：Typical Forward Voltage



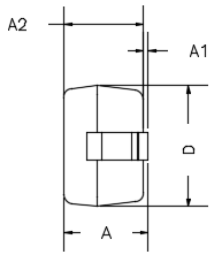
■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMSZ5221BS THRU MMSZ5261BS	F2	Approximate 0.0048	3000	30000	120000	7” reel
MMSZ5221BS THRU MMSZ5261BS	F3	Approximate 0.0048	10000	/	210000	13” reel

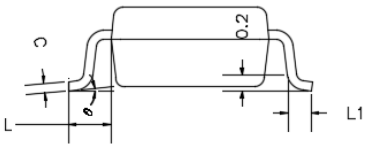
■ Outline Dimensions



TOP VIEW



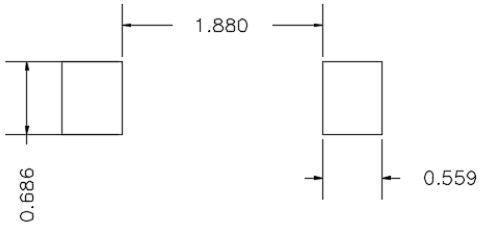
SIDE VIEW



SIDE VIEW

DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	---	0.0393	---	1.0000
A1	0.0000	0.0039	0.0000	0.1000
A2	0.0314	0.0354	0.8000	0.9000
b	0.0098	0.0157	0.2500	0.4000
c	0.0031	0.0059	0.0800	0.1500
D	0.0472	0.0551	1.2000	1.4000
E	0.0629	0.0709	1.6000	1.8000
E1	0.0984	0.1063	2.5000	2.7000
L	0.0187TYP		0.475TYP	
L1	0.0098	0.0157	0.250	0.400
θ	0°	8°	0°	8°

■ Suggested Pad Layout



UNIT: mm

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