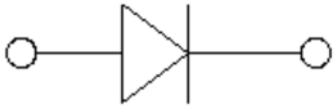
MMSZ5221B THRU MMSZ5261B

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-123
- **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	500
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
MMSZ5221B	C1	2.28	2.4	2.52	20	30	0.25	1200	100	1.0	450	6
MMSZ5222B	C2	2.38	2.5	2.63	20	30	0.25	1250	100	1.0	450	6
MMSZ5223B	C3	2.57	2.7	2.84	20	30	0.25	1300	75	1.0	450	6
MMSZ5225B	C5	2.85	3.0	3.15	20	29	0.25	1600	50	1.0	450	6
MMSZ5226B	G1	3.14	3.3	3.47	20	28	0.25	1600	25	1.0	450	6
MMSZ5227B	G2	3.42	3.6	3.78	20	24	0.25	1700	15	1.0	450	4.5
MMSZ5228B	G3	3.71	3.9	4.10	20	23	0.25	1900	10	1.0	450	4.5
MMSZ5229B	G4	4.09	4.3	4.52	20	22	0.25	2000	5	1.0	450	3.5
MMSZ5230B	G5	4.47	4.7	4.94	20	19	0.25	1900	5	2.0	300	3.5
MMSZ5231B	E1	4.85	5.1	5.36	20	17	0.25	1600	5	2.0	300	3
MMSZ5232B	E2	5.32	5.6	5.88	20	11	0.25	1600	5	3.0	200	3
MMSZ5234B	E4	5.89	6.2	6.51	20	7	0.25	1000	5	4.0	200	3
MMSZ5235B	E5	6.46	6.8	7.14	20	5	0.25	750	3	5.0	200	2
MMSZ5236B	F1	7.13	7.5	7.88	20	6	0.25	500	3	6.0	150	2
MMSZ5237B	F2	7.79	8.2	8.61	20	8	0.25	500	3	6.5	150	2
MMSZ5238B	F3	8.27	8.7	9.14	20	8	0.25	600	3	6.5	150	1.8
MMSZ5239B	F4	8.65	9.1	9.56	20	10	0.25	600	3	7.0	150	1.8
MMSZ5240B	F5	9.50	10	10.50	20	17	0.25	600	3	8.0	90	1.8
MMSZ5241B	H1	10.45	11	11.55	20	22	0.25	600	2	8.4	85	1.8
MMSZ5242B	H2	11.40	12	12.60	20	30	0.25	600	1	9.1	85	1.8
MMSZ5243B	H3	12.35	13	13.65	9.5	13	0.25	600	0.5	9.9	80	1
MMSZ5244B	H4	13.3	14	14.7	9	15	0.25	600	0.1	10	75	1
MMSZ5245B	H5	14.25	15	15.75	8.5	16	0.25	600	0.1	11.0	75	1
MMSZ5246B	J1	15.20	16	16.80	7.8	17	0.25	600	0.1	12.0	75	1
MMSZ5248B	J3	17.10	18	18.90	7	21	0.25	600	0.1	14.0	70	1
MMSZ5250B	J5	19.00	20	21.00	6.2	25	0.25	600	0.1	15.0	60	1
MMSZ5251B	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
MMSZ5252B	K2	22.80	24	25.20	5.2	33	0.25	600	0.1	18.0	55	0.6
MMSZ5254B	K4	25.65	27	28.35	4.6	41	0.25	600	0.1	21.0	50	0.6
MMSZ5255B	K5	26.60	28	29.40	4.5	44	0.25	600	0.1	21.0	50	0.6
MMSZ5256B	M1	28.50	30	31.50	4.2	49	0.25	600	0.1	23.0	50	0.6
MMSZ5257B	M2	31.35	33	34.65	3.8	58	0.25	700	0.1	25.0	45	0.6
MMSZ5258B	M3	34.20	36	37.80	3.4	70	0.25	700	0.1	27.0	45	0.6
MMSZ5259B	M4	37.05	39	40.95	3.2	80	0.25	800	0.1	30.0	45	0.6
MMSZ5260B	M5	40.85	43	45.15	3	93	0.25	900	0.1	33.0	40	0.6
MMSZ5261B	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	250
Thermal resistance, junction-to-case	$R_{\theta J\text{-}C}$(1)	℃/W	200

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

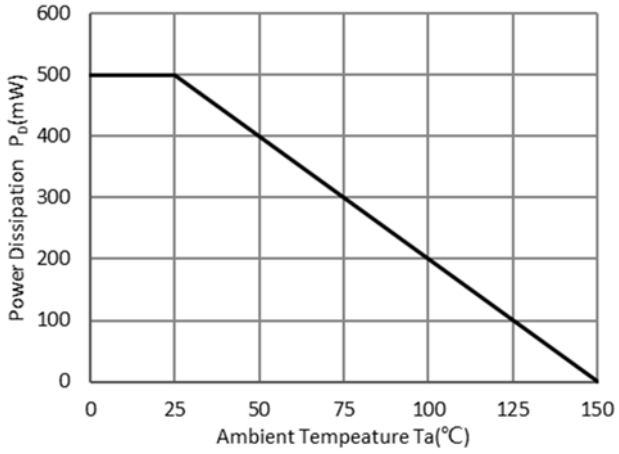


Fig 2：Zener Breakdown Characteristics

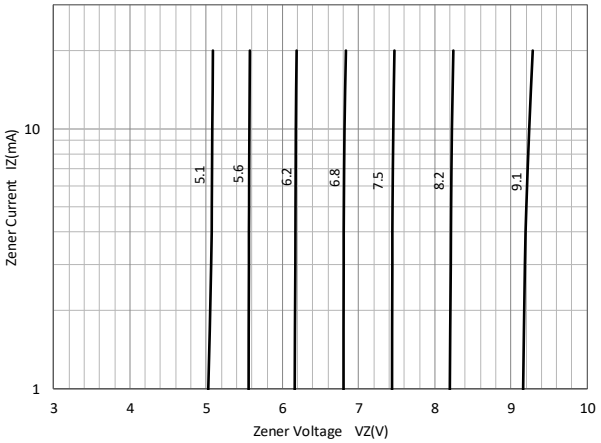


Fig 3：Zener Breakdown Characteristics

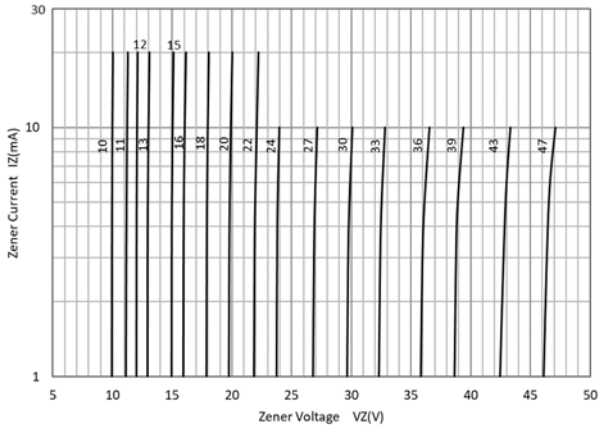


Fig 4：Typical Temperature Coeffient

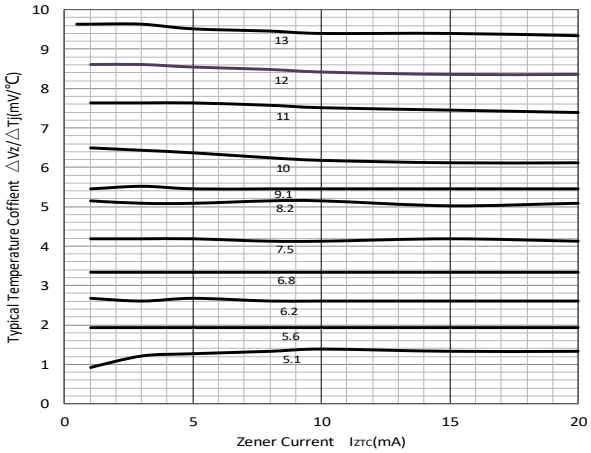


Fig 5：Typical Temperature Coeffient

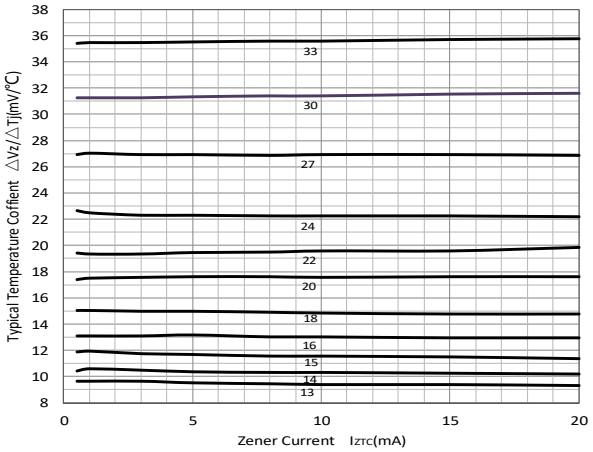


Fig 6：Typical Temperature Coeffient

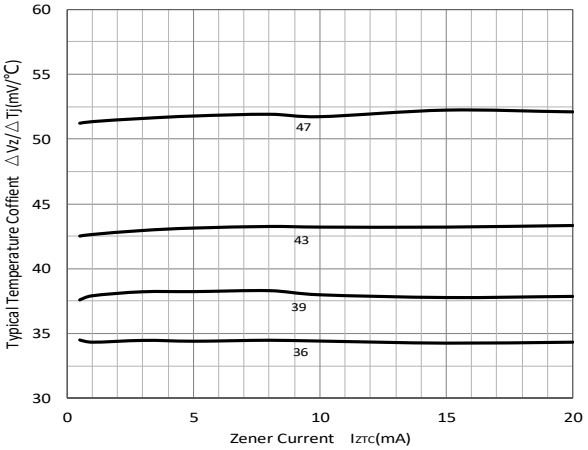
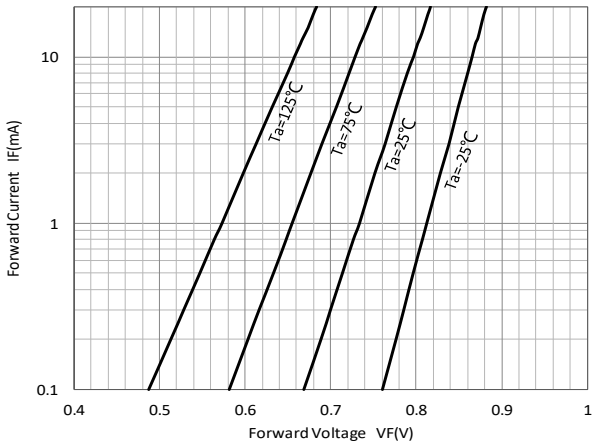


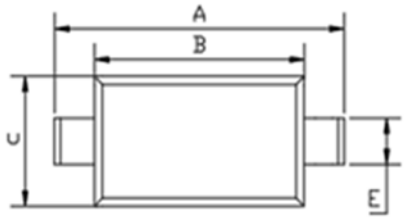
Fig 7：Typical Forward Voltage



■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMSZ5221B THRU MMSZ5261B	F2	Approximate 0.011	3000	30000	120000	7” reel
MMSZ5221B THRU MMSZ5261B	F3	Approximate 0.011	10000	/	210000	13” reel

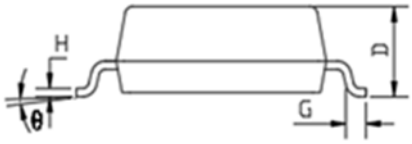
■ Outline Dimensions



TOP VIEW



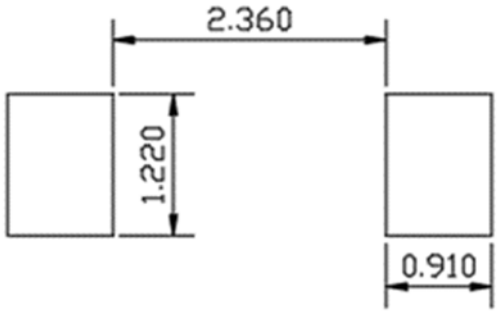
SIDE VIEW



SIDE VIEW

DIMENSIONS				
DIM	INCHES		MM	
	MIN	MAX	MN	MAX
A	0.140	0.152	3.550	3.850
B	0.100	0.112	2.550	2.850
C	0.055	0.071	1.400	1.800
D	0.037	0.053	0.950	1.350
E	0.020	0.028	0.510	0.710
G	0.006	0.018	0.150	0.450
H	0.003	0.010	0.080	0.250
J	0.000	0.006	0.000	0.150
θ	0	8°	0	8°

■ Suggested Pad Layout



UNIT: mm

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