CHENMKO ENTERPRISE CO.,LTD

MMSZ5221BGP
THRU
MMSZ5270BGP

Halogens free devices

SURFACE MOUNT ZENER

SILICON PLANAR POWER ZENER DIODES
VOLTAGE RANGE 2.4V TO 91V

FEATURE

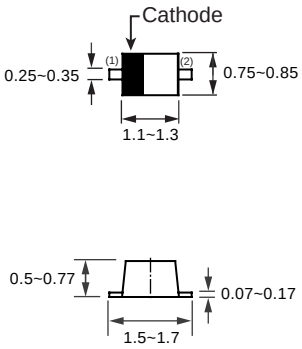
* Small surface mounting type. (SC-79/SOD-523)
* High temperature soldering type.
* ESD rating of class 3(>16 kV) per human body model.
* Silicon planar zener diodes.
* Silcon-oxide passivated junction.
* Low temperature coefficient voltage
* 500 mW Rating on FR-4 or FR-5 Board

MECHANICAL

* SC-79/SOD-523 Packaging.
* Cathode indicated by polarity band.
* Mounting position: Any.

SC-79/SOD-523

CIRCUIT



Dimensions in millimeters

SC-79/SOD-523

MAXIMUM RATINGES (At T_A = 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
Zener Current (see Table "Characteristics")	-	-	-
Max. Steady State Power Dissipation @T_A=25°C	P_D	225	mW
Max. Operating Temperature Range	T_J	-65 to +150	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (At T_A = 25°C unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	-	-	556	°C/W
Max. Instantaneous Forward Voltage at I_F= 10mA	V_F	-	-	0.9	Volts

2002-10

NOTES :
1. The JEDEC type numbers listd have a standaerd tolerance on the normal zener voltage of ±10%, Suffix B=±5%.
2. The zener impedance is derived from 1KHz AC voltage, which results when an AC current having an RMS value equal to 10% of DC zener current (I_{ZT} or I_{ZK}) is superimposed on I_{ZT} or I_{ZK}. Zener impedance is measured at two points to insure a sharp knee on the breakdown curve to eliminate unstable units.
3. Valid provided that electrodes at distance of 10mm from case are kept ambient temperature.
4. Measured under thermal equilibrium and DC test conditions.
5. The rating listd in the electrical characteristics table is maximum peak, non-repetitive, reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current, I_{ZT}, per JEDEC registration.

ELECTRICAL CHARACTERISTICS (MMSZ5221BGP THRU MMSZ5270BGP)

TYPE	Zener voltage V_Z (V) @ I_{ZT}			Test current	Maximum Zener impedance			Maximum reverse leakage current		Type temperature coefficient at T_A= 25°C θ_{VZ} (%/°C)	Maximum regulator current at T_A= 50°C I_{ZM} (mA)
	Min	Nom	Max		Z_{ZT} at I_{ZT} (Ω)	Z_{ZK} (Ω)	at I_{ZK} (mA)	I_R (uA)	at V_R (V)		
	Volts	Volts	Volts	I_{ZT} (mA)							
MMSZ5221BGP	2.280	2.4	2.520	5	100	1800	0.25	100	1	-0.085	85
MMSZ5222BGP	2.375	2.5	2.625	5	100	1800	0.25	100	1	-0.085	82
MMSZ5223BGP	2.565	2.7	2.835	5	100	1900	0.25	75	1	-0.080	76
MMSZ5224BGP	2.660	2.8	2.940	5	100	1900	0.25	75	1	-0.080	73
MMSZ5225BGP	2.850	3.0	3.150	5	95	2000	0.25	50	1	-0.075	68
MMSZ5226BGP	3.135	3.3	3.465	5	95	2200	0.25	25	1	-0.070	62
MMSZ5227BGP	3.420	3.6	3.780	5	90	2300	0.25	15	1	-0.065	57
MMSZ5228BGP	3.705	3.9	4.095	5	90	2400	0.25	10	1	-0.060	52
MMSZ5229BGP	4.085	4.3	4.515	5	88	2500	0.25	5	1	-0.055	48
MMSZ5230BGP	4.465	4.7	4.935	5	70	2200	0.25	3	1.5	+0.030	44
MMSZ5231BGP	4.845	5.1	5.355	5	50	2050	0.25	2	2	+0.030	40
MMSZ5232BGP	5.320	5.6	5.880	5	25	1800	0.25	5	3	+0.038	36
MMSZ5233BGP	5.700	6.0	6.300	5	25	1800	0.25	5	3	+0.038	34
MMSZ5234BGP	5.890	6.2	6.510	5	10	1300	0.25	1	4	+0.045	33
MMSZ5235BGP	6.460	6.8	7.140	5	8	750	0.25	1	5.2	+0.050	30
MMSZ5236BGP	7.125	7.5	7.875	5	7	600	0.25	0.5	6	+0.058	27
MMSZ5237BGP	7.790	8.2	8.610	5	7	600	0.25	0.5	6.5	+0.062	25
MMSZ5238BGP	8.265	8.7	9.135	5	7	600	0.25	0.5	6.5	+0.065	23
MMSZ5239BGP	8.645	9.1	9.555	5	10	600	0.25	0.1	7	+0.068	22
MMSZ5240BGP	9.500	10	10.50	5	15	600	0.25	0.1	8	+0.075	20
MMSZ5241BGP	10.45	11	11.55	5	18	600	0.25	0.1	8.4	+0.076	18
MMSZ5242BGP	11.40	12	12.60	5	22	600	0.25	0.1	9.1	+0.077	17
MMSZ5243BGP	12.35	13	13.65	5	25	600	0.25	0.1	9.9	+0.079	16
MMSZ5244BGP	13.30	14	14.70	5	25	600	0.25	0.1	10	+0.082	14
MMSZ5245BGP	14.25	15	15.75	5	32	600	0.25	0.1	11	+0.082	13
MMSZ5246BGP	15.20	16	16.80	5	36	600	0.25	0.1	12	+0.083	12.5
MMSZ5247BGP	16.15	17	17.85	5	36	600	0.25	0.1	13	+0.084	12.1
MMSZ5248BGP	17.10	18	18.90	5	42	600	0.25	0.1	14	+0.085	11.2
MMSZ5249BGP	18.05	19	19.95	5	42	600	0.25	0.1	14	+0.086	10.8
MMSZ5250BGP	19.00	20	21.00	5	48	600	0.25	0.1	16	+0.086	10.3
MMSZ5251BGP	20.90	22	23.10	5	55	600	0.25	0.1	17	+0.087	9.4
MMSZ5252BGP	22.80	24	25.20	5	62	600	0.25	0.1	18	+0.088	8.6
MMSZ5253BGP	23.75	25	26.25	5	62	600	0.25	0.1	19	+0.089	7.6
MMSZ5254BGP	25.65	27	28.35	5	70	600	0.25	0.1	21	+0.090	7.5
MMSZ5255BGP	26.60	28	29.40	5	44	600	0.25	0.1	21	+0.091	7.3
MMSZ5256BGP	28.50	30	31.50	5	78	600	0.25	0.1	23	+0.091	6.8
MMSZ5257BGP	31.35	33	34.65	5	88	700	0.25	0.1	25	+0.092	6.2

ELECTRICAL CHARACTERISTICS (MMSZ5221BGP THRU MMSZ5270BGP)

TYPE	Zener voltage V_Z (V) @ I_{ZT}			Test current	Maximum Zener impedance			Maximum reverse leakage current		Type temperature coefficient at T_A= 25°C θ_{VZ} (%/°C)	Maximum regulator current at T_A= 50°C I_{ZM} (mA)
	Min	Nom	Max		Z_{ZT} at I_{ZT} (Ω)	Z_{ZK} (Ω)	at I_{ZK} (mA)	I_R (uA)	at V_R (V)		
	Volts	Volts	Volts	I_{ZT} (mA)							
MMSZ5258BGP	34.20	36	37.80	5	95	700	0.25	0.1	27	+0.093	5.8
MMSZ5259BGP	37.05	39	40.95	5	130	800	0.25	0.1	30	+0.094	5.4
MMSZ5260BGP	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	4.9
MMSZ5261BGP	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	4.5
MMSZ5262BGP	48.45	51	53.55	2.5	125	1100	0.25	0.1	39	+0.096	4.2
MMSZ5263BGP	53.20	56	58.80	2.2	150	1300	0.25	0.1	43	+0.096	3.8
MMSZ5264BGP	57.00	60	63.00	2.1	170	1400	0.25	0.1	46	+0.097	3.5
MMSZ5265BGP	58.90	62	65.10	2.0	185	1400	0.25	0.1	47	+0.097	-
MMSZ5266BGP	64.60	68	71.40	1.8	230	1600	0.25	0.1	52	+0.097	-
MMSZ5267BGP	71.25	75	78.75	1.7	270	1700	0.25	0.1	56	+0.098	-
MMSZ5268BGP	77.90	82	86.10	1.5	330	2000	0.25	0.1	62	+0.098	-
MMSZ5269BGP	82.65	87	91.35	1.4	370	2200	0.25	0.1	68	+0.099	-
MMSZ5270BGP	86.45	91	95.55	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMSZ5221BGP THRU MMSZ5270BGP)

FIG. 1 - TEMPERATURE COEFFICIENTS)
(TEMPERATURE RANGE 55°C TO +150°C)

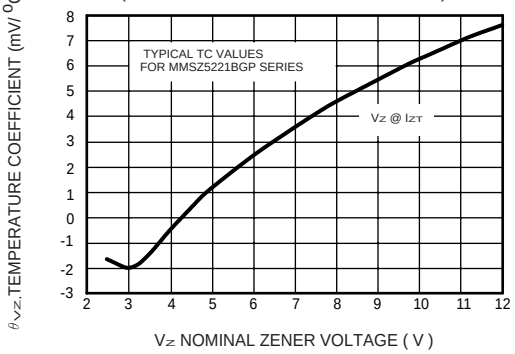


FIG. 2 - TEMPERATURE COEFFICIENTS)
(TEMPERATURE RANGE 55°C TO +150°C)

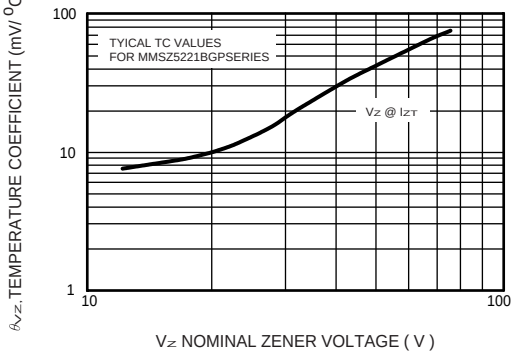


FIG. 3 - EFFECT OF ZENER VOLTAGE ON
ZENER IMPEDANCE

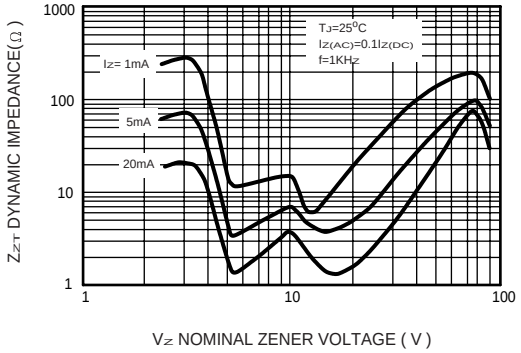
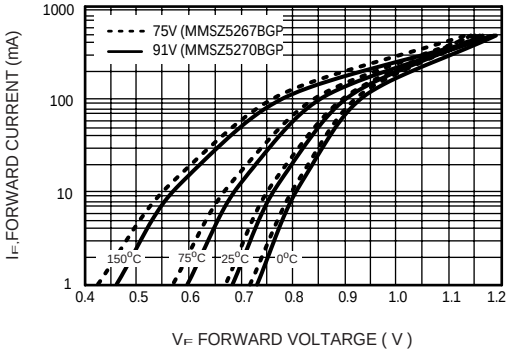


FIG. 4 - TYPICAL FORWARD VOLTAGE



RATING CHARACTERISTIC CURVES (MMSZ5221BGP THRU MMSZ5270BGP)

FIG. 5 - TYPICAL CAPACITANCE

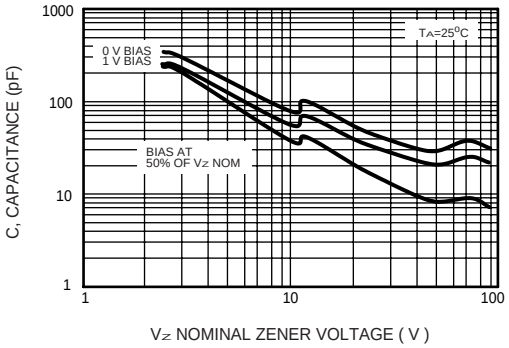


FIG. 6 - TYPICAL LEAKAGE CURRENT

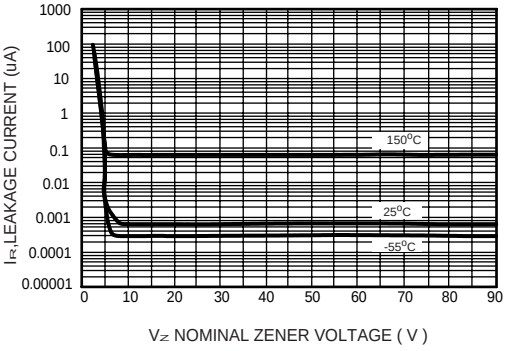


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (VZ UP TO 12V)

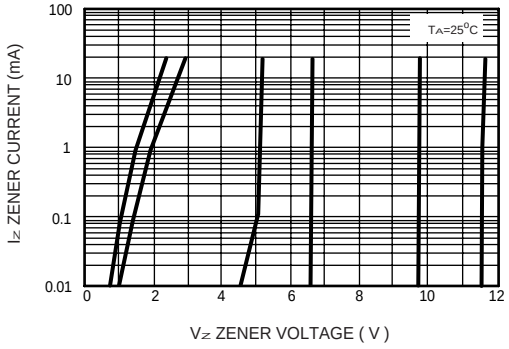


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)