CHENMKO ENTERPRISE CO.,LTD

MMBZ5221BGP

THRU

MMBZ5270BGP

SURFACE MOUNT ZENER

SILICON PLANAR POWER ZENER DIODES

VOLTAGE RANGE 2.4V TO 91V

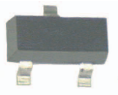
Halogens free devices

FEATURE

* Small surface mounting type. (SOT-23)
* 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
* 225 mW Rating on FR-4 or FR-5 Board

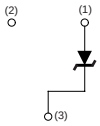
MECHANICAL

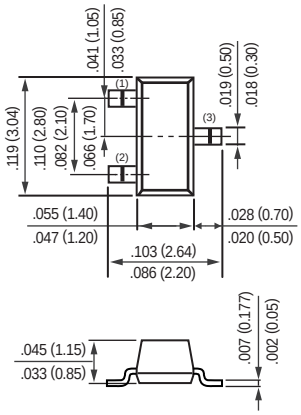
* SOT-23 Packaging.
* Mounting position: Any.



SOT-23

CIRCUIT





Dimensions in inches and (millimeters)

SOT-23

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	$R_{\theta JA}$	-	-	500	°C/W
Max. Instantaneous Forward Voltage at I_F= 10mA	V_F	-	-	0.9	Volts

2003-01

NOTES :
1. The JEDEC type numbers listd have a standaerd tolerance on the normal zener voltage of ±10%, Suffix B=±5%.Suffix S=±2%
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 (MMBZ5221BGP THRU MMBZ5270BGP)

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}	Z_{ZK}	at I_{ZK}	I_R	at V_R		
	Volts	Volts	Volts	I_{ZT} (mA)	(Ω)	(Ω)	(mA)	(uA)	(V)		
MMBZ5221BGP	2.280	2.4	2.520	5	100	1800	0.25	100	1	-0.085	85
MMBZ5222BGP	2.375	2.5	2.625	5	100	1800	0.25	100	1	-0.085	82
MMBZ5223BGP	2.565	2.7	2.835	5	100	1900	0.25	75	1	-0.080	76
MMBZ5224BGP	2.660	2.8	2.940	5	100	1900	0.25	75	1	-0.080	73
MMBZ5225BGP	2.850	3.0	3.150	5	95	2000	0.25	50	1	-0.075	68
MMBZ5226BGP	3.135	3.3	3.465	5	95	2200	0.25	25	1	-0.070	62
MMBZ5227BGP	3.420	3.6	3.780	5	90	2300	0.25	15	1	-0.065	57
MMBZ5228BGP	3.705	3.9	4.095	5	90	2400	0.25	10	1	-0.060	52
MMBZ5229BGP	4.085	4.3	4.515	5	88	2500	0.25	5	1	-0.055	48
MMBZ5230BGP	4.465	4.7	4.935	5	70	2200	0.25	3	1.5	+0.030	44
MMBZ5231BGP	4.845	5.1	5.355	5	50	2050	0.25	2	2	+0.030	40
MMBZ5232BGP	5.320	5.6	5.880	5	25	1800	0.25	5	3	+0.038	36
MMBZ5233BGP	5.700	6.0	6.300	5	25	1800	0.25	5	3	+0.038	34
MMBZ5234BGP	5.890	6.2	6.510	5	10	1300	0.25	1	4	+0.045	33
MMBZ5235BGP	6.460	6.8	7.140	5	8	750	0.25	1	5.2	+0.050	30
MMBZ5236BGP	7.125	7.5	7.875	5	7	600	0.25	0.5	6	+0.058	27
MMBZ5237BGP	7.790	8.2	8.610	5	7	600	0.25	0.5	6.5	+0.062	25
MMBZ5238BGP	8.265	8.7	9.135	5	7	600	0.25	0.5	6.5	+0.065	23
MMBZ5239BGP	8.645	9.1	9.555	5	10	600	0.25	0.1	7	+0.068	22
MMBZ5240BGP	9.500	10	10.50	5	15	600	0.25	0.1	8	+0.075	20
MMBZ5241BGP	10.45	11	11.55	5	18	600	0.25	0.1	8.4	+0.076	18
MMBZ5242BGP	11.40	12	12.60	5	22	600	0.25	0.1	9.1	+0.077	17
MMBZ5243BGP	12.35	13	13.65	5	25	600	0.25	0.1	9.9	+0.079	16
MMBZ5244BGP	13.30	14	14.70	5	25	600	0.25	0.1	10	+0.082	14
MMBZ5245BGP	14.25	15	15.75	5	32	600	0.25	0.1	11	+0.082	13
MMBZ5246BGP	15.20	16	16.80	5	36	600	0.25	0.1	12	+0.083	12.5
MMBZ5247BGP	16.15	17	17.85	5	36	600	0.25	0.1	13	+0.084	12.1
MMBZ5248BGP	17.10	18	18.90	5	42	600	0.25	0.1	14	+0.085	11.2
MMBZ5249BGP	18.05	19	19.95	5	42	600	0.25	0.1	14	+0.086	10.8
MMBZ5250BGP	19.00	20	21.00	5	48	600	0.25	0.1	16	+0.086	10.3
MMBZ5251BGP	20.90	22	23.10	5	55	600	0.25	0.1	17	+0.087	9.4
MMBZ5252BGP	22.80	24	25.20	5	62	600	0.25	0.1	18	+0.088	8.6
MMBZ5253BGP	23.75	25	26.25	5	62	600	0.25	0.1	19	+0.089	7.6
MMBZ5254BGP	25.65	27	28.35	5	70	600	0.25	0.1	21	+0.090	7.5
MMBZ5255BGP	26.60	28	29.40	5	44	600	0.25	0.1	21	+0.091	7.3
MMBZ5256BGP	28.50	30	31.50	5	78	600	0.25	0.1	23	+0.091	6.8
MMBZ5257BGP	31.35	33	34.65	5	88	700	0.25	0.1	25	+0.092	6.2

ELECTRICAL CHARACTERISTICS (MMBZ5221BGP THRU MMBZ5270BGP)

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)							
MMBZ5258BGP	34.20	36	37.80	5	95	700	0.25	0.1	27	+0.093	5.8
MMBZ5259BGP	37.05	39	40.95	5	130	800	0.25	0.1	30	+0.094	5.4
MMBZ5260BGP	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	4.9
MMBZ5261BGP	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	4.5
MMBZ5262BGP	48.45	51	53.55	2.5	125	1100	0.25	0.1	39	+0.096	4.2
MMBZ5263BGP	53.20	56	58.80	2.2	150	1300	0.25	0.1	43	+0.096	3.8
MMBZ5264BGP	57.00	60	63.00	2.1	170	1400	0.25	0.1	46	+0.097	3.5
MMBZ5265BGP	58.90	62	65.10	2.0	185	1400	0.25	0.1	47	+0.097	-
MMBZ5266BGP	64.60	68	71.40	1.8	230	1600	0.25	0.1	52	+0.097	-
MMBZ5267BGP	71.25	75	78.75	1.7	270	1700	0.25	0.1	56	+0.098	-
MMBZ5268BGP	77.90	82	86.10	1.5	330	2000	0.25	0.1	62	+0.098	-
MMBZ5269BGP	82.65	87	91.35	1.4	370	2200	0.25	0.1	68	+0.099	-
MMBZ5270BGP	86.45	91	95.55	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMBZ5221BGP THRU MMBZ5270BGP)

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

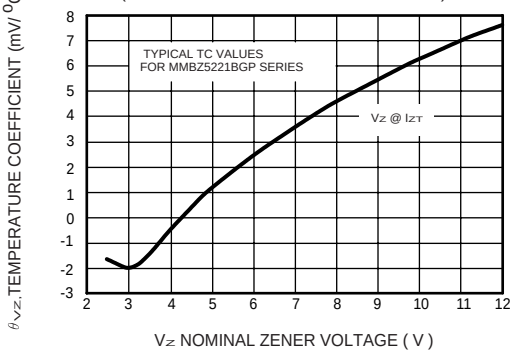


FIG. 2 - TEMPERATURE COEFFICIENTS)
(TEMPERATURE RANGE 55°C TO +150°C)

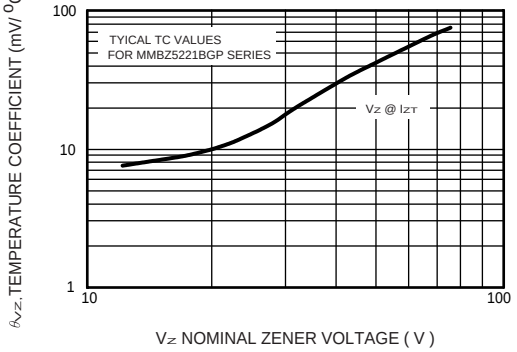


FIG. 3 - EFFECT OF ZENER VOLTAGE ON
ZENER IMPEDANCE

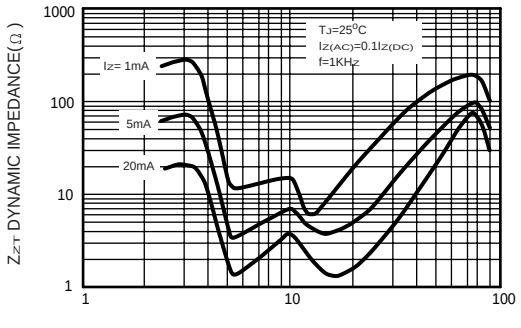
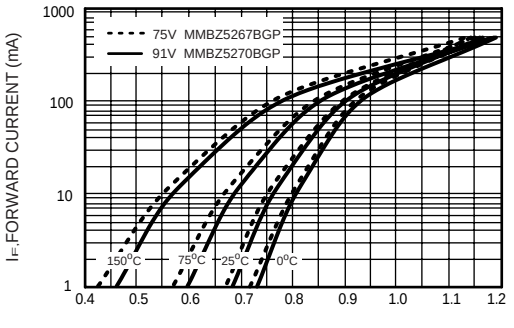


FIG. 4 - TYPICAL FORWARD VOLTAGE



RATING CHARACTERISTIC CURVES (MMBZ5221BGP THRU MMBZ5270BGP)

FIG. 5 - TYPICAL CAPACITANCE

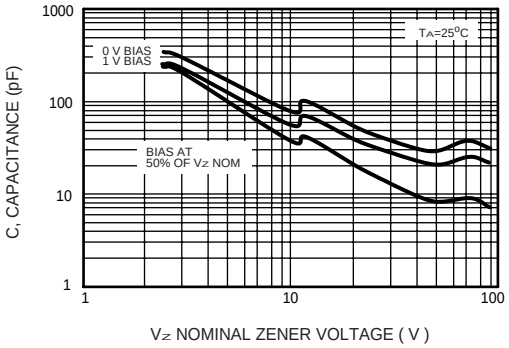


FIG. 6 - TYPICAL LEAKAGE CURRENT

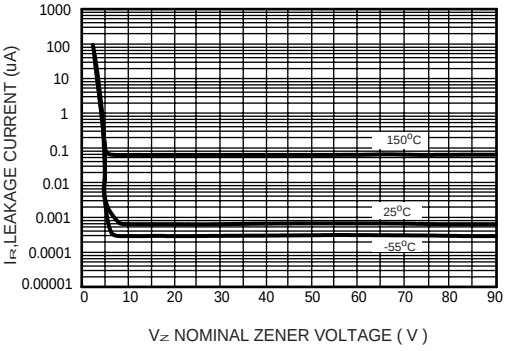


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT
(VZ UP TO 12V)

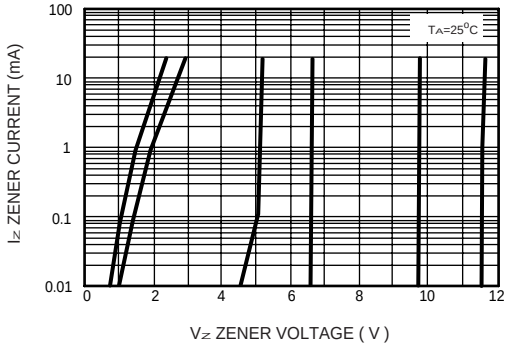


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT
(12V TO 91V)