



CHENMKO ENTERPRISE CO.,LTD

Halogens free devices

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

MMBZ5221JGP

THRU

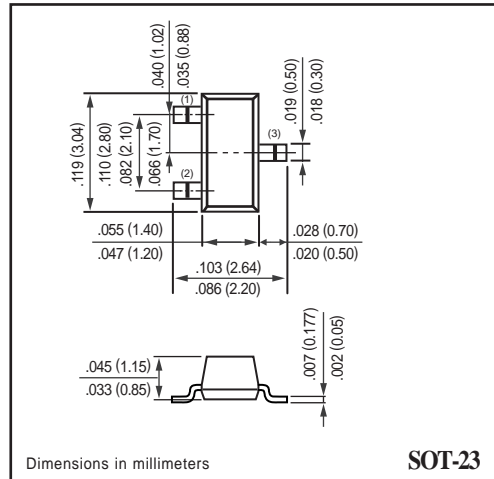
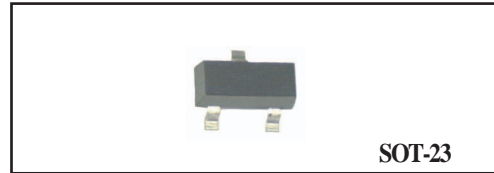
MMBZ5270JGP

FEATURE

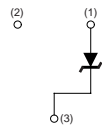
- * Small surface mounting type. (SOT-23)
- * High temperature soldering type.
- * ESD rating of class 3(>16 kV) per human body model.
- * Silicon planar zener diodes.
- * Silicon-oxide passivated junction.
- * Low temperature coefficient voltage
- * 225 mW Rating on FR-4 or FR-5 Board

MECHANICAL

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



CIRCUIT



MAXIMUM RATINGS (At $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

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

ELECTRICAL CHARACTERISTICS (At $T_A = 25^{\circ}\text{C}$ unless otherwise noted)

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	-	-	500	$^{\circ}\text{C/W}$
Max. Instantaneous Forward Voltage at $I_F=10\text{mA}$	V_F	-	-	0.9	Volts

- NOTES :
1. The JEDEC type numbers listed have a standard tolerance on the normal zener voltage of $\pm 10\%$, Suffix B= $\pm 5\%$, Suffix S= $\pm 3\%$
 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 listed 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.

2003-01

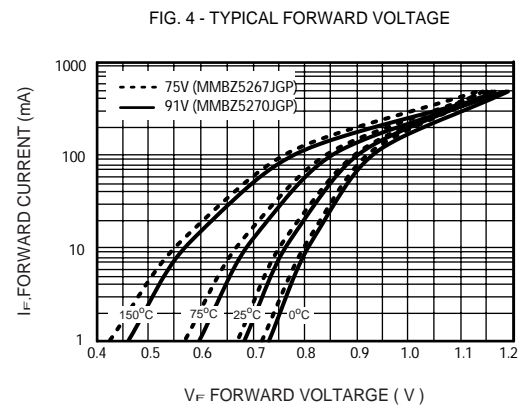
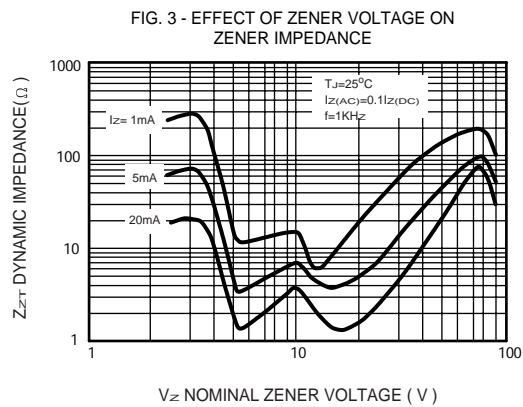
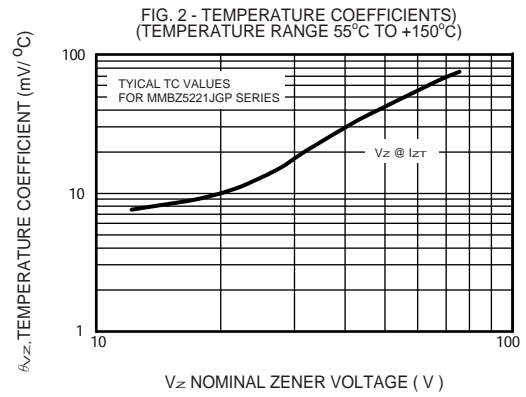
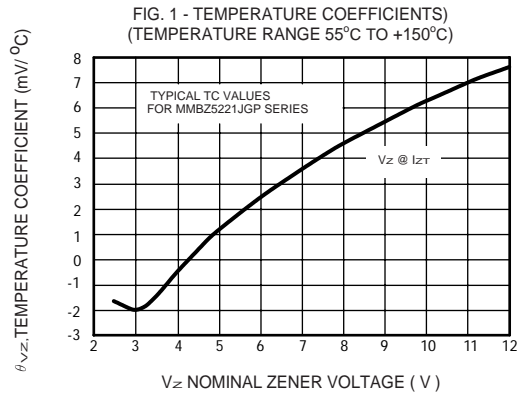
ELECTRICAL CHARACTERISTICS (MMBZ5221JGP THRU MMBZ5270JGP)

TYPE	Zener voltage Vz (V) @ I _{ZT}			Test current I _{ZT} (mA)	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 (μA)	at V _R (V)		
	Volts	Volts	Volts								
MMBZ5221JGP	2.328	2.4	2.472	5	100	1800	0.25	100	1	-0.085	85
MMBZ5222JGP	2.425	2.5	2.575	5	100	1800	0.25	100	1	-0.085	82
MMBZ5223JGP	2.619	2.7	2.781	5	100	1900	0.25	75	1	-0.080	76
MMBZ5224JGP	2.716	2.8	2.884	5	100	1900	0.25	75	1	-0.080	73
MMBZ5225JGP	2.910	3.0	3.090	5	95	2000	0.25	50	1	-0.075	68
MMBZ5226JGP	3.201	3.3	3.399	5	95	2200	0.25	25	1	-0.070	62
MMBZ5227JGP	3.492	3.6	3.708	5	90	2300	0.25	15	1	-0.065	57
MMBZ5228JGP	3.783	3.9	4.017	5	90	2400	0.25	10	1	-0.060	52
MMBZ5229JGP	4.171	4.3	4.429	5	88	2500	0.25	5	1	-0.055	48
MMBZ5230JGP	4.559	4.7	4.841	5	70	2200	0.25	3	1.5	+0.030	44
MMBZ5231JGP	4.947	5.1	5.253	5	50	2050	0.25	2	2	+0.030	40
MMBZ5232JGP	5.432	5.6	5.768	5	25	1800	0.25	5	3	+0.038	36
MMBZ5233JGP	5.820	6.0	6.180	5	25	1800	0.25	5	3	+0.038	34
MMBZ5234JGP	6.014	6.2	6.386	5	10	1300	0.25	1	4	+0.045	33
MMBZ5235JGP	6.596	6.8	7.004	5	8	750	0.25	1	5.2	+0.050	30
MMBZ5236JGP	7.275	7.5	7.725	5	7	600	0.25	0.5	6	+0.058	27
MMBZ5237JGP	7.954	8.2	8.446	5	7	600	0.25	0.5	6.5	+0.062	25
MMBZ5238JGP	8.439	8.7	8.961	5	7	600	0.25	0.5	6.5	+0.065	23
MMBZ5239JGP	8.827	9.1	9.373	5	10	600	0.25	0.1	7	+0.068	22
MMBZ5240JGP	9.700	10	10.30	5	15	600	0.25	0.1	8	+0.075	20
MMBZ5241JGP	10.67	11	11.33	5	18	600	0.25	0.1	8.4	+0.076	18
MMBZ5242JGP	11.64	12	12.36	5	22	600	0.25	0.1	9.1	+0.077	17
MMBZ5243JGP	12.61	13	13.39	5	25	600	0.25	0.1	9.9	+0.079	16
MMBZ5244JGP	13.58	14	14.42	5	25	600	0.25	0.1	10	+0.082	14
MMBZ5245JGP	14.55	15	15.45	5	32	600	0.25	0.1	11	+0.082	13
MMBZ5246JGP	15.52	16	16.48	5	36	600	0.25	0.1	12	+0.083	12.5
MMBZ5247JGP	16.49	17	17.51	5	36	600	0.25	0.1	13	+0.084	12.1
MMBZ5248JGP	17.46	18	18.54	5	42	600	0.25	0.1	14	+0.085	11.2
MMBZ5249JGP	18.43	19	19.57	5	42	600	0.25	0.1	14	+0.086	10.8
MMBZ5250JGP	19.40	20	20.60	5	48	600	0.25	0.1	16	+0.086	10.3
MMBZ5251JGP	21.34	22	22.66	5	55	600	0.25	0.1	17	+0.087	9.4
MMBZ5252JGP	23.28	24	24.72	5	62	600	0.25	0.1	18	+0.088	8.6
MMBZ5253JGP	24.25	25	25.75	5	62	600	0.25	0.1	19	+0.089	7.6
MMBZ5254JGP	26.19	27	27.81	5	70	600	0.25	0.1	21	+0.090	7.5
MMBZ5255JGP	27.16	28	28.84	5	44	600	0.25	0.1	21	+0.091	7.3
MMBZ5256JGP	29.10	30	30.90	5	78	600	0.25	0.1	23	+0.091	6.8
MMBZ5257JGP	32.01	33	33.99	5	88	700	0.25	0.1	25	+0.092	6.2

ELECTRICAL CHARACTERISTICS (MMBZ5221JGP THRU MMBZ5270JGP)

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 (μA)	at V _R (V)		
	Volts	Volts	Volts	I _{ZT} (mA)							
MMBZ5258JGP	34.92	36	37.08	5	95	700	0.25	0.1	27	+0.093	5.8
MMBZ5259JGP	37.83	39	40.17	5	130	800	0.25	0.1	30	+0.094	5.4
MMBZ5260JGP	41.71	43	44.29	3.0	93	900	0.25	0.1	33	+0.095	4.9
MMBZ5261JGP	45.59	47	48.41	2.7	105	1000	0.25	0.1	36	+0.095	4.5
MMBZ5262JGP	49.47	51	52.53	2.5	125	1100	0.25	0.1	36	+0.096	4.2
MMBZ5263JGP	54.32	56	57.68	2.2	150	1300	0.25	0.1	39	+0.096	3.8
MMBZ5264JGP	58.20	60	61.80	2.1	170	1400	0.25	0.1	43	+0.097	3.5
MMBZ5265JGP	60.14	62	63.86	2.0	185	1400	0.25	0.1	46	+0.097	-
MMBZ5266JGP	65.96	68	70.04	1.8	230	1600	0.25	0.1	52	+0.097	-
MMBZ5267JGP	72.75	75	77.25	1.7	270	1700	0.25	0.1	56	+0.098	-
MMBZ5268JGP	79.54	82	84.46	1.5	330	2000	0.25	0.1	62	+0.098	-
MMBZ5269JGP	84.39	87	89.61	1.4	370	2000	0.25	0.1	68	+0.099	-
MMBZ5270JGP	88.27	91	93.73	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMBZ5221JGP THRU MMBZ5270JGP)



RATING CHARACTERISTIC CURVES (MMBZ5221JGP THRU MMBZ5270JGP)

FIG. 5 - TYPICAL CAPACITANCE



FIG. 6 - TYPICAL LEAKAGE CURRENT



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

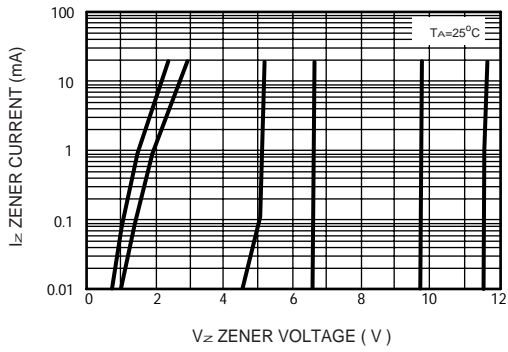


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)

