



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT ZENER

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

MMBZ5221BPT

THRU

MMBZ5270BPT

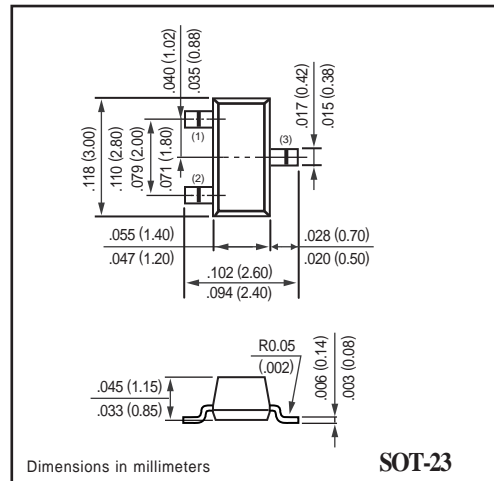
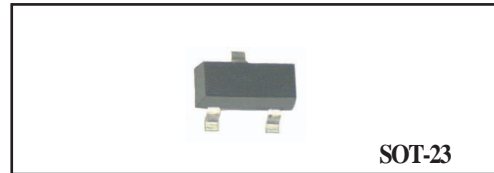
Lead free devices

FEATURE

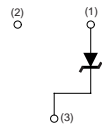
- * Small surface mounting type. (SOT-23)
- * High temperature soldering type.
- * ESD rating of class 3(>16 kV) per human body model.
- * Silicon planar zener diodes.
- * Silicon-oxide passivated junction.
- * Low temperature coefficient voltage
- * 225 mW Rating on FR-4 or FR-5 Board

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	$^{\circ}\text{C}/\text{W}$
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= $\pm 2\%$
 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 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

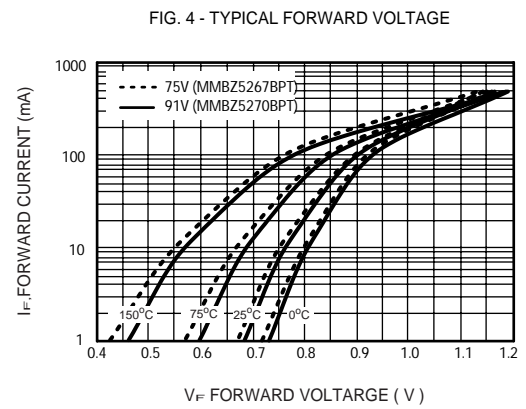
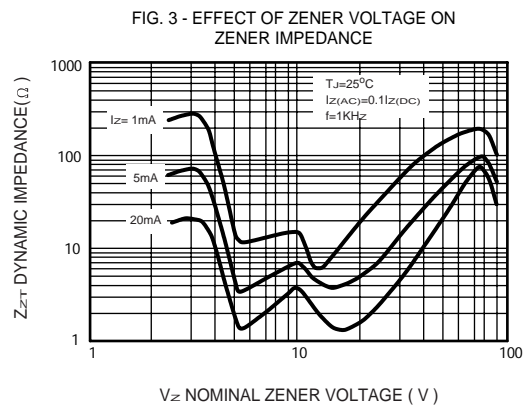
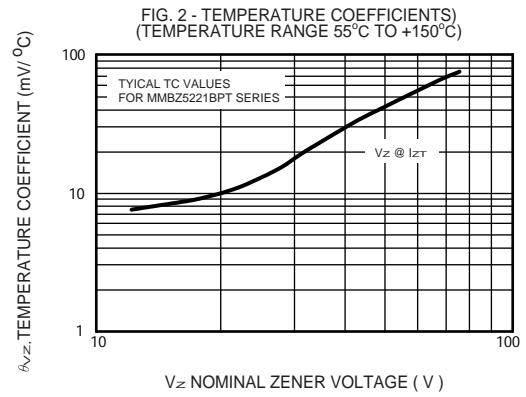
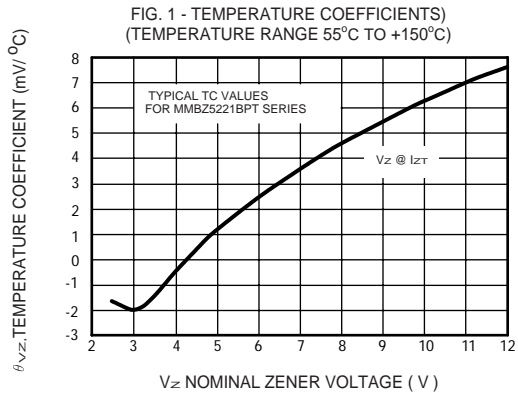
ELECTRICAL CHARACTERISTICS (MMBZ5221BPT THRU MMBZ5270BPT)

TYPE	Zener voltage V _Z (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								
MMBZ5221BPT	2.280	2.4	2.520	5	100	1800	0.25	100	1	-0.085	190
MMBZ5222BPT	2.375	2.5	2.625	5	100	1800	0.25	100	1	-0.085	182
MMBZ5223BPT	2.565	2.7	2.835	5	100	1900	0.25	75	1	-0.080	168
MMBZ5224BPT	2.660	2.8	2.940	5	100	1900	0.25	75	1	-0.080	162
MMBZ5225BPT	2.850	3.0	3.150	5	95	2000	0.25	50	1	-0.075	152
MMBZ5226BPT	3.135	3.3	3.465	5	95	2200	0.25	25	1	-0.070	138
MMBZ5227BPT	3.420	3.6	3.780	5	90	2300	0.25	15	1	-0.065	126
MMBZ5228BPT	3.705	3.9	4.095	5	90	2400	0.25	10	1	-0.060	115
MMBZ5229BPT	4.085	4.3	4.515	5	88	2500	0.25	5	1	-0.055	106
MMBZ5230BPT	4.465	4.7	4.935	5	70	2200	0.25	3	1.5	+0.030	97
MMBZ5231BPT	4.845	5.1	5.355	5	50	2050	0.25	2	2	+0.030	89
MMBZ5232BPT	5.320	5.6	5.880	5	25	1800	0.25	5	3	+0.038	81
MMBZ5233BPT	5.700	6.0	6.300	5	25	1800	0.25	5	3	+0.038	76
MMBZ5234BPT	5.890	6.2	6.510	5	10	1300	0.25	1	4	+0.045	73
MMBZ5235BPT	6.460	6.8	7.140	5	8	750	0.25	1	5.2	+0.050	67
MMBZ5236BPT	7.125	7.5	7.875	5	7	600	0.25	0.5	6	+0.058	61
MMBZ5237BPT	7.790	8.2	8.610	5	7	600	0.25	0.5	6.5	+0.062	55
MMBZ5238BPT	8.265	8.7	9.135	5	7	600	0.25	0.5	6.5	+0.065	52
MMBZ5239BPT	8.645	9.1	9.555	5	10	600	0.25	0.1	7	+0.068	50
MMBZ5240BPT	9.500	10	10.50	5	15	600	0.25	0.1	8	+0.075	45
MMBZ5241BPT	10.45	11	11.55	5	18	600	0.25	0.1	8.4	+0.076	41
MMBZ5242BPT	11.40	12	12.60	5	22	600	0.25	0.1	9.1	+0.077	38
MMBZ5243BPT	12.35	13	13.65	5	25	600	0.25	0.1	9.9	+0.079	35
MMBZ5244BPT	13.30	14	14.70	5	25	600	0.25	0.1	10	+0.082	32
MMBZ5245BPT	14.25	15	15.75	5	32	600	0.25	0.1	11	+0.082	30
MMBZ5246BPT	15.20	16	16.80	5	36	600	0.25	0.1	12	+0.083	28
MMBZ5247BPT	16.15	17	17.85	5	36	600	0.25	0.1	13	+0.084	27
MMBZ5248BPT	17.10	18	18.90	5	42	600	0.25	0.1	14	+0.085	25
MMBZ5249BPT	18.05	19	19.95	5	42	600	0.25	0.1	14	+0.086	24
MMBZ5250BPT	19.00	20	21.00	5	48	600	0.25	0.1	16	+0.086	23
MMBZ5251BPT	20.90	22	23.10	5	55	600	0.25	0.1	17	+0.087	21
MMBZ5252BPT	22.80	24	25.20	5	62	600	0.25	0.1	18	+0.088	19.1
MMBZ5253BPT	23.75	25	26.25	5	62	600	0.25	0.1	19	+0.089	18.2
MMBZ5254BPT	25.65	27	28.35	5	70	600	0.25	0.1	21	+0.090	16.8
MMBZ5255BPT	26.60	28	29.40	5	44	600	0.25	0.1	21	+0.091	16.2
MMBZ5256BPT	28.50	30	31.50	5	78	600	0.25	0.1	23	+0.091	15.1
MMBZ5257BPT	31.35	33	34.65	5	88	700	0.25	0.1	25	+0.092	13.8

ELECTRICAL CHARACTERISTICS (MMBZ5221BPT THRU MMBZ5270BPT)

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)							
MMBZ5258BPT	34.20	36	37.80	5	95	700	0.25	0.1	27	+0.093	13.8
MMBZ5259BPT	37.05	39	40.95	5	130	800	0.25	0.1	30	+0.094	12.6
MMBZ5260BPT	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	11.6
MMBZ5261BPT	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	10.6
MMBZ5262BPT	48.45	51	53.55	2.5	125	1100	0.25	0.1	39	+0.096	9.7
MMBZ5263BPT	53.20	56	58.80	2.2	150	1300	0.25	0.1	43	+0.096	8.9
MMBZ5264BPT	57.00	60	63.00	2.1	170	1400	0.25	0.1	46	+0.097	11.6
MMBZ5265BPT	58.90	62	65.10	2.0	185	1400	0.25	0.1	47	+0.097	-
MMBZ5266BPT	64.60	68	71.40	1.8	230	1600	0.25	0.1	52	+0.097	-
MMBZ5267BPT	71.25	75	78.75	1.7	270	1700	0.25	0.1	56	+0.098	-
MMBZ5268BPT	77.90	82	86.10	1.5	330	2000	0.25	0.1	62	+0.098	-
MMBZ5269BPT	82.65	87	91.35	1.4	370	2200	0.25	0.1	68	+0.099	-
MMBZ5270BPT	86.45	91	95.55	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMBZ5221BPT THRU MMBZ5270BPT)



RATING CHARACTERISTIC CURVES (MMBZ5221BPT THRU MMBZ5270BPT)

FIG. 5 - TYPICAL CAPACITANCE

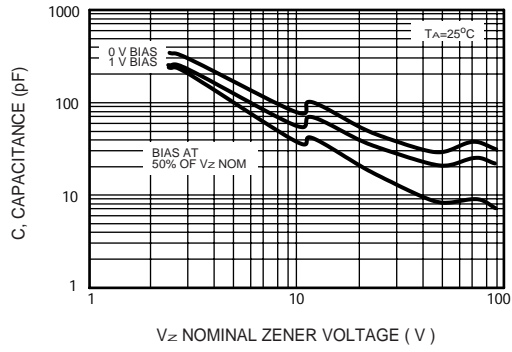


FIG. 6 - TYPICAL LEAKAGE CURRENT

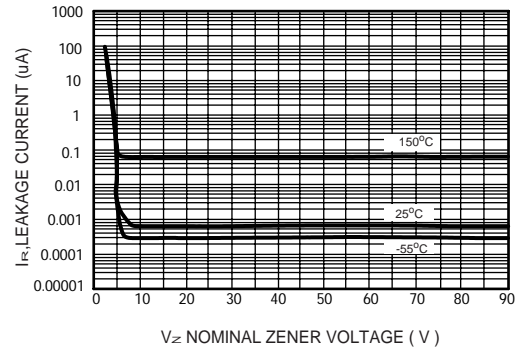


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (V_z UP TO 12V)

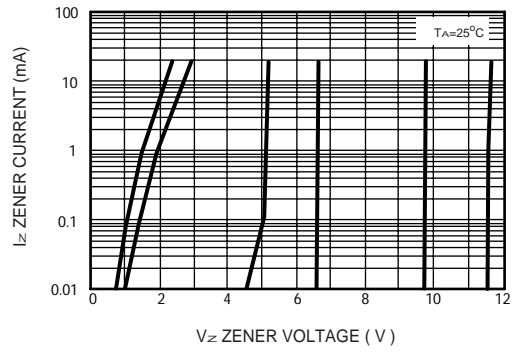


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)

