



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT ZENER

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

MMPZ5221SPT

THRU

MMPZ5270SPT

Lead free devices

FEATURE

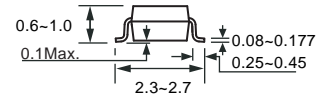
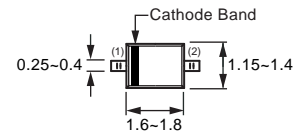
- * High temperature soldering type.
- * ESD rating of class 3(>16 kV) per human body model.
- * Silicon planar zener diodes.
- * Silicon-oxide passivated junction.
- * Low temperature coefficient voltage
- * 225 mW Rating on FR-4 or FR-5 Board

MECHANICAL

- * Void-free, Transfer-molded, Thermosetting plastic case
- * SC-76/SOD-323 Packaging.
- * Cathode indicated by polarity band.
- * Mounting position: Any.



SC-76/SOD-323



Dimensions in millimeters

SC-76/SOD-323

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	$R_{\theta JA}$	-	-	550	$^{\circ}\text{C/W}$
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= $\pm 2\%$.
 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.

2004-05

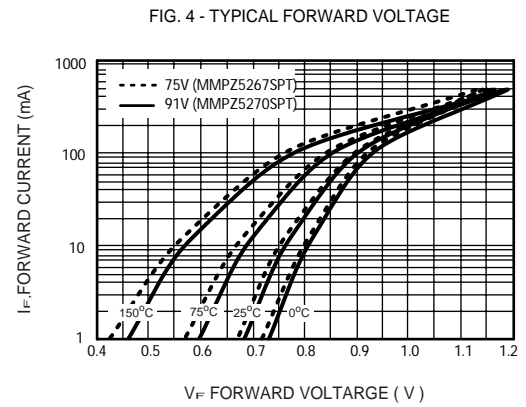
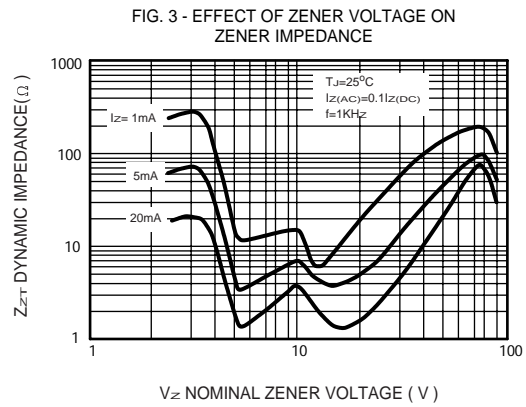
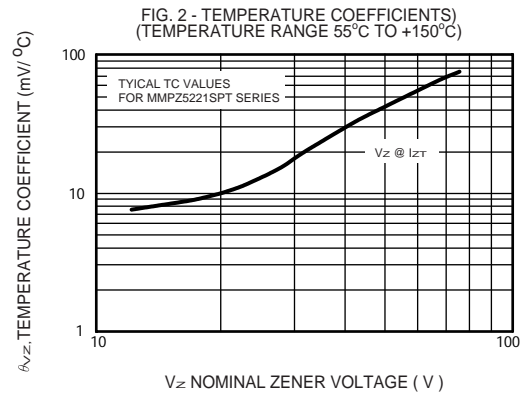
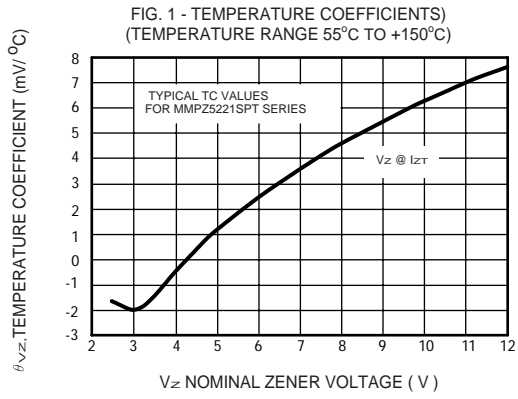
ELECTRICAL CHARACTERISTICS (MMPZ5221SPT THRU MMPZ5270SPT)

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								
MMPZ5221SPT	2.352	2.4	2.448	5	100	1800	0.25	100	1	-0.085	190
MMPZ5222SPT	2.450	2.5	2.550	5	100	1800	0.25	100	1	-0.085	182
MMPZ5223SPT	2.646	2.7	2.754	5	100	1900	0.25	75	1	-0.080	168
MMPZ5224SPT	2.774	2.8	2.856	5	100	2000	0.25	75	1	-0.080	162
MMPZ5225SPT	2.940	3.0	3.060	5	95	2000	0.25	50	1	-0.075	152
MMPZ5226SPT	3.234	3.3	3.366	5	95	2200	0.25	25	1	-0.070	138
MMPZ5227SPT	3.528	3.6	3.762	5	90	2300	0.25	15	1	-0.065	126
MMPZ5228SPT	3.822	3.9	3.987	5	90	2400	0.25	10	1	-0.060	115
MMPZ5229SPT	4.214	4.3	4.386	5	88	2500	0.25	5	1	-0.055	106
MMPZ5230SPT	4.606	4.7	4.794	5	70	2200	0.25	5	2	+0.030	97
MMPZ5231SPT	4.998	5.1	5.202	5	50	2050	0.25	5	2	+0.030	89
MMPZ5232SPT	5.488	5.6	5.712	5	25	1800	0.25	5	3	+0.038	81
MMPZ5233SPT	5.880	6.0	6.120	5	25	1600	0.25	5	3.5	+0.038	76
MMPZ5234SPT	6.070	6.2	6.324	5	10	1300	0.25	5	4	+0.045	73
MMPZ5235SPT	6.664	6.8	6.936	5	8	750	0.25	3	5	+0.050	67
MMPZ5236SPT	7.350	7.5	7.650	5	7	600	0.25	3	6	+0.058	61
MMPZ5237SPT	8.036	8.2	8.364	5	7	600	0.25	3	6.5	+0.062	55
MMPZ5238SPT	8.526	8.7	8.874	5	8	600	0.25	3	6.5	+0.065	52
MMPZ5239SPT	8.918	9.1	9.282	5	10	600	0.25	3	7	+0.068	50
MMPZ5240SPT	9.800	10	10.20	5	15	600	0.25	3	8	+0.075	45
MMPZ5241SPT	10.78	11	11.22	5	18	600	0.25	2	8.4	+0.076	41
MMPZ5242SPT	11.76	12	12.24	5	22	600	0.25	1	9.1	+0.077	38
MMPZ5243SPT	12.74	13	13.26	5	25	600	0.25	0.5	9.9	+0.079	35
MMPZ5244SPT	13.72	14	14.28	5	25	600	0.25	0.1	10	+0.082	32
MMPZ5245SPT	14.70	15	15.30	5	32	600	0.25	0.1	11	+0.082	30
MMPZ5246SPT	15.68	16	16.32	5	36	600	0.25	0.1	12	+0.083	28
MMPZ5247SPT	16.66	17	17.34	5	40	600	0.25	0.1	13	+0.084	27
MMPZ5248SPT	17.64	18	18.36	5	42	600	0.25	0.1	14	+0.085	25
MMPZ5249SPT	18.62	19	19.38	5	46	600	0.25	0.1	14	+0.086	24
MMPZ5250SPT	19.60	20	20.40	5	48	600	0.25	0.1	16	+0.086	23
MMPZ5251SPT	21.56	22	22.44	5	55	600	0.25	0.1	17	+0.087	21
MMPZ5252SPT	23.52	24	24.48	5	62	600	0.25	0.1	18	+0.088	19.1
MMPZ5253SPT	24.50	25	25.50	5	65	600	0.25	0.1	19	+0.089	18.2
MMPZ5254SPT	26.46	27	27.54	5	70	600	0.25	0.1	21	+0.090	16.8
MMPZ5255SPT	27.44	28	28.56	5	44	600	0.25	0.1	21	+0.091	16.2
MMPZ5256SPT	29.40	30	30.60	5	78	600	0.25	0.1	23	+0.091	15.1
MMPZ5257SPT	32.34	33	33.66	5	88	700	0.25	0.1	25	+0.092	13.8

ELECTRICAL CHARACTERISTICS (MMPZ5221SPT THRU MMPZ5270SPT)

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)							
MMPZ5258SPT	35.28	36	36.72	5	95	700	0.25	0.1	27	+0.093	13.8
MMPZ5259SPT	38.22	39	39.78	5	130	800	0.25	0.1	30	+0.094	12.6
MMPZ5260SPT	42.14	43	43.86	3.0	93	900	0.25	0.1	33	+0.095	11.6
MMPZ5261SPT	46.06	47	47.94	2.7	105	1000	0.25	0.1	36	+0.095	10.6
MMPZ5262SPT	49.98	51	52.02	2.5	125	1100	0.25	0.1	36	+0.096	9.7
MMPZ5263SPT	54.88	56	57.12	2.2	150	1300	0.25	0.1	39	+0.096	8.9
MMPZ5264SPT	58.80	60	61.20	2.1	170	1400	0.25	0.1	43	+0.097	11.6
MMPZ5265SPT	60.76	62	63.24	2.0	185	1400	0.25	0.1	46	+0.097	-
MMPZ5266SPT	66.64	68	69.36	1.8	230	1600	0.25	0.1	52	+0.097	-
MMPZ5267SPT	73.50	75	76.50	1.7	270	1700	0.25	0.1	56	+0.098	-
MMPZ5268SPT	80.36	82	83.64	1.5	330	2000	0.25	0.1	62	+0.098	-
MMPZ5269SPT	85.26	87	88.74	1.4	370	2000	0.25	0.1	68	+0.099	-
MMPZ5270SPT	89.18	91	92.82	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMPZ5221SPT THRU MMPZ5270SPT)



RATING CHARACTERISTIC CURVES (MMPZ5221SPT THRU MMPZ5270SPT)

FIG. 5 - TYPICAL CAPACITANCE

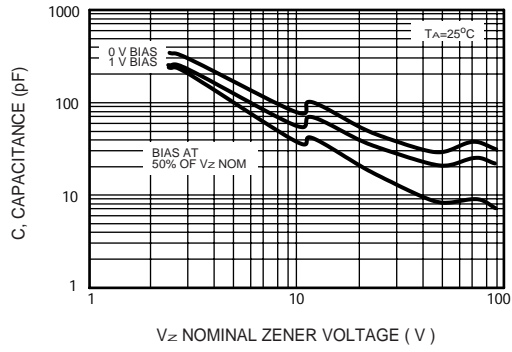


FIG. 6 - TYPICAL LEAKAGE CURRENT

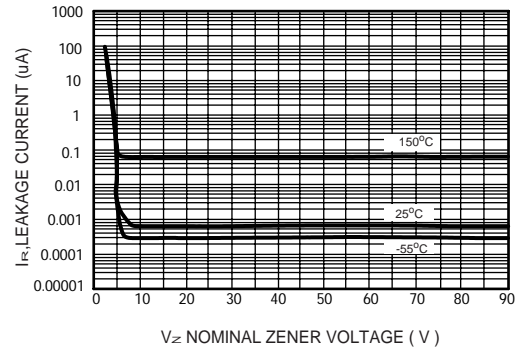


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (V_z UP TO 12V)

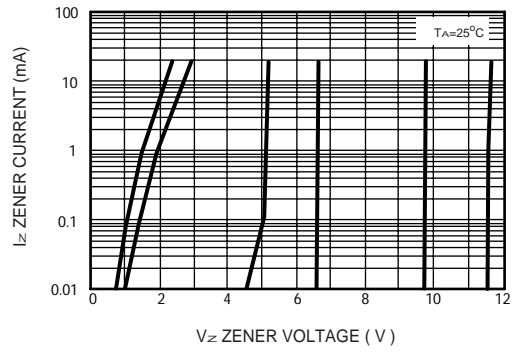


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)

