



CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT ZENER

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

MMHZ5221SPT

THRU

MMHZ5270SPT

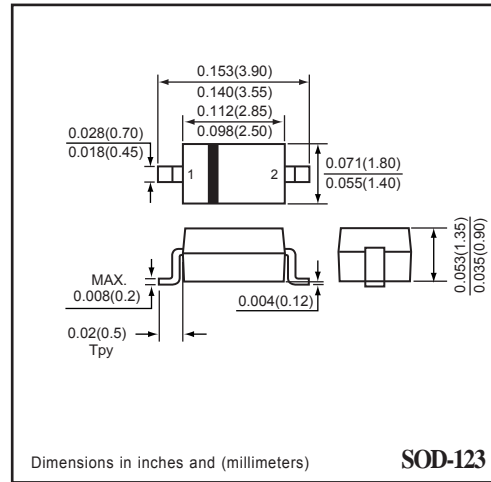
Lead free devices

FEATURE

- * Small surface mounting type. (SOD-123)
- * 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
- * 500 mW Rating on FR-4 or FR-5 Board

MECHANICAL

- * SOD-123 Packaging.
- * Cathode indicated by polarity band.
- * 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= $\pm 2\%$
 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

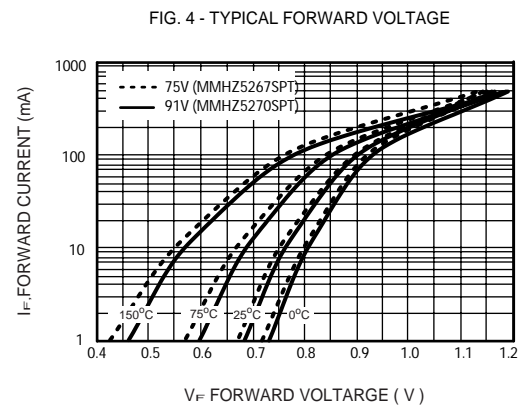
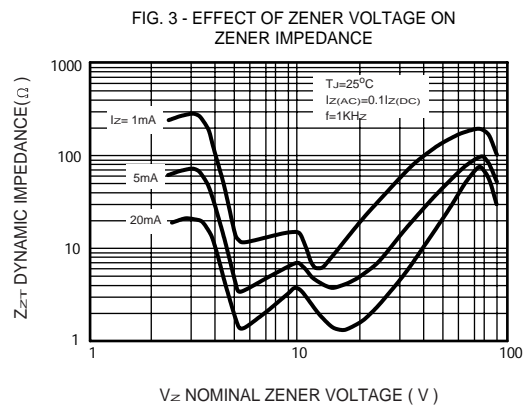
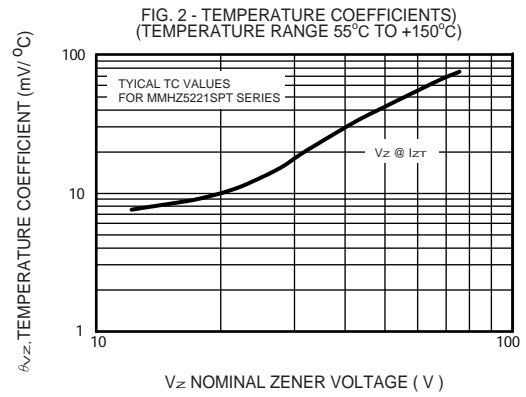
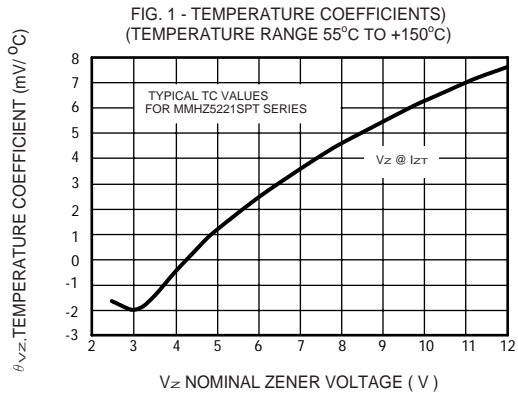
ELECTRICAL CHARACTERISTICS (MMHZ5221S THRU MMHZ5270S)

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								
MMHZ5221SPT	2.352	2.4	2.448	5	100	1800	0.25	100	1	-0.085	190
MMHZ5222SPT	2.450	2.5	2.550	5	100	1800	0.25	100	1	-0.085	182
MMHZ5223SPT	2.646	2.7	2.754	5	100	1900	0.25	75	1	-0.080	168
MMHZ5224SPT	2.774	2.8	2.856	5	100	1900	0.25	75	1	-0.080	162
MMHZ5225SPT	2.940	3.0	3.060	5	95	2000	0.25	50	1	-0.075	152
MMHZ5226SPT	3.234	3.3	3.366	5	95	2200	0.25	25	1	-0.070	138
MMHZ5227SPT	3.528	3.6	3.762	5	90	2300	0.25	15	1	-0.065	126
MMHZ5228SPT	3.822	3.9	3.987	5	90	2400	0.25	10	1	-0.060	115
MMHZ5229SPT	4.214	4.3	4.386	5	88	2500	0.25	5	1	-0.055	106
MMHZ5230SPT	4.606	4.7	4.794	5	70	2200	0.25	3	1.5	+0.030	97
MMHZ5231SPT	4.998	5.1	5.202	5	50	2050	0.25	2	2	+0.030	89
MMHZ5232SPT	5.488	5.6	5.712	5	25	1800	0.25	5	3	+0.038	81
MMHZ5233SPT	5.880	6.0	6.120	5	25	1800	0.25	5	3	+0.038	76
MMHZ5234SPT	6.070	6.2	6.324	5	10	1300	0.25	1	4	+0.045	73
MMHZ5235SPT	6.664	6.8	6.936	5	8	750	0.25	1	5.2	+0.050	67
MMHZ5236SPT	7.350	7.5	7.650	5	7	600	0.25	0.5	6	+0.058	61
MMHZ5237SPT	8.036	8.2	8.364	5	7	600	0.25	0.5	6.5	+0.062	55
MMHZ5238SPT	8.526	8.7	8.874	5	7	600	0.25	0.5	6.5	+0.065	52
MMHZ5239SPT	8.918	9.1	9.282	5	10	600	0.25	0.1	7	+0.068	50
MMHZ5240SPT	9.800	10	10.20	5	15	600	0.25	0.1	8	+0.075	45
MMHZ5241SPT	10.78	11	11.22	5	18	600	0.25	0.1	8.4	+0.076	41
MMHZ5242SPT	11.76	12	12.24	5	22	600	0.25	0.1	9.1	+0.077	38
MMHZ5243SPT	12.74	13	13.26	5	25	600	0.25	0.1	9.9	+0.079	35
MMHZ5244SPT	13.72	14	14.28	5	25	600	0.25	0.1	10	+0.082	32
MMHZ5245SPT	14.70	15	15.30	5	32	600	0.25	0.1	11	+0.082	30
MMHZ5246SPT	15.68	16	16.32	5	36	600	0.25	0.1	12	+0.083	28
MMHZ5247SPT	16.66	17	17.34	5	36	600	0.25	0.1	13	+0.084	27
MMHZ5248SPT	17.64	18	18.36	5	42	600	0.25	0.1	14	+0.085	25
MMHZ5249SPT	18.62	19	19.38	5	42	600	0.25	0.1	14	+0.086	24
MMHZ5250SPT	19.60	20	20.40	5	48	600	0.25	0.1	16	+0.086	23
MMHZ5251SPT	21.56	22	22.44	5	55	600	0.25	0.1	17	+0.087	21
MMHZ5252SPT	23.52	24	24.48	5	62	600	0.25	0.1	18	+0.088	19.1
MMHZ5253SPT	24.50	25	25.50	5	62	600	0.25	0.1	19	+0.089	18.2
MMHZ5254SPT	26.46	27	27.54	5	70	600	0.25	0.1	21	+0.090	16.8
MMHZ5255SPT	27.44	28	28.56	5	44	600	0.25	0.1	21	+0.091	16.2
MMHZ5256SPT	29.40	30	30.60	5	78	600	0.25	0.1	23	+0.091	15.1
MMHZ5257SPT	32.34	33	33.66	5	88	700	0.25	0.1	25	+0.092	13.8

ELECTRICAL CHARACTERISTICS (MMHZ5221SPT THRU MMHZ5270SPT)

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)							
MMHZ5258SPT	35.28	36	36.72	5	95	700	0.25	0.1	27	+0.093	13.8
MMHZ5259SPT	38.22	39	39.78	5	130	800	0.25	0.1	30	+0.094	12.6
MMHZ5260SPT	42.14	43	43.86	3.0	93	900	0.25	0.1	33	+0.095	11.6
MMHZ5261SPT	46.06	47	47.94	2.7	105	1000	0.25	0.1	36	+0.095	10.6
MMHZ5262SPT	49.98	51	52.02	2.5	125	1100	0.25	0.1	36	+0.096	9.7
MMHZ5263SPT	54.88	56	57.12	2.2	150	1300	0.25	0.1	39	+0.096	8.9
MMHZ5264SPT	58.80	60	61.20	2.1	170	1400	0.25	0.1	43	+0.097	11.6
MMHZ5265SPT	60.76	62	63.24	2.0	185	1400	0.25	0.1	46	+0.097	-
MMHZ5266SPT	66.64	68	69.36	1.8	230	1600	0.25	0.1	52	+0.097	-
MMHZ5267SPT	73.50	75	76.50	1.7	270	1700	0.25	0.1	56	+0.098	-
MMHZ5268SPT	80.36	82	83.64	1.5	330	2000	0.25	0.1	62	+0.098	-
MMHZ5269SPT	85.26	87	88.74	1.4	370	2000	0.25	0.1	68	+0.099	-
MMHZ5270SPT	89.18	91	92.82	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMHZ5221SPT THRU MMHZ5270SPT)



RATING CHARACTERISTIC CURVES (MMHZ5221SPT THRU MMHZ5270SPT)

FIG. 5 - TYPICAL CAPACITANCE



FIG. 6 - TYPICAL LEAKAGE CURRENT

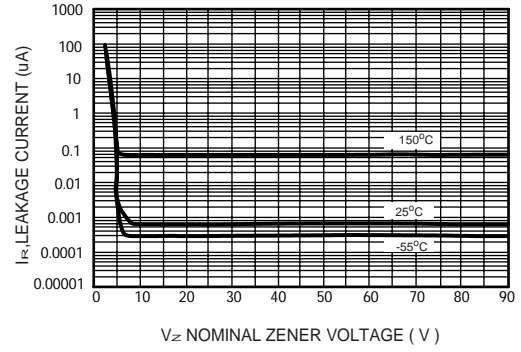


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (V_z UP TO 12V)

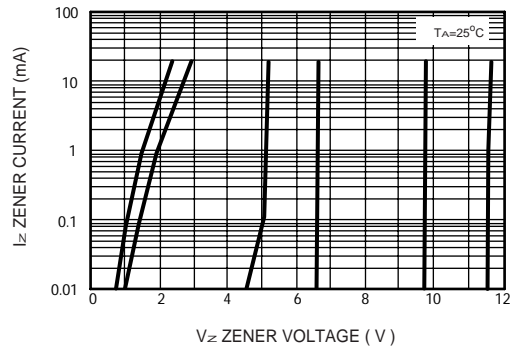


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)

