CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT ZENER

SILICON PLANAR POWER ZENER DIODES

VOLTAGE RANGE 2.4V TO 91V

MMPZ5221SGP

THRU

MMPZ5270SGP

Halogens free devices

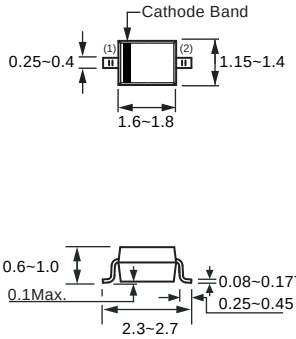
FEATURE

* 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

* Voild-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 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	$R_{\theta JA}$	-	-	550	°C/W
Max. Instantaneous Forward Voltage at I_F= 10mA	V_F	-	-	0.9	Volts

2004-05

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 (MMPZ5221SGP THRU MMPZ5270SGP)

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)							
MMPZ5221SGP	2.352	2.4	2.448	5	100	1800	0.25	100	1	-0.085	85
MMPZ5222SGP	2.450	2.5	2.550	5	100	1800	0.25	100	1	-0.085	82
MMPZ5223SGP	2.646	2.7	2.754	5	100	1900	0.25	75	1	-0.080	76
MMPZ5224SGP	2.774	2.8	2.856	5	100	1900	0.25	75	1	-0.080	73
MMPZ5225SGP	2.940	3.0	3.060	5	95	2000	0.25	50	1	-0.075	68
MMPZ5226SGP	3.234	3.3	3.366	5	95	2200	0.25	25	1	-0.070	62
MMPZ5227SGP	3.528	3.6	3.762	5	90	2300	0.25	15	1	-0.065	57
MMPZ5228SGP	3.822	3.9	3.987	5	90	2400	0.25	10	1	-0.060	52
MMPZ5229SGP	4.214	4.3	4.386	5	88	2500	0.25	5	1	-0.055	48
MMPZ5230SGP	4.606	4.7	4.794	5	70	2200	0.25	3	1.5	+0.030	44
MMPZ5231SGP	4.998	5.1	5.202	5	50	2050	0.25	2	2	+0.030	40
MMPZ5232SGP	5.488	5.6	5.712	5	25	1800	0.25	5	3	+0.038	36
MMPZ5233SGP	5.880	6.0	6.120	5	25	1800	0.25	5	3	+0.038	34
MMPZ5234SGP	6.070	6.2	6.324	5	10	1300	0.25	1	4	+0.045	33
MMPZ5235SGP	6.664	6.8	6.936	5	8	750	0.25	1	5.2	+0.050	30
MMPZ5236SGP	7.350	7.5	7.650	5	7	600	0.25	0.5	6	+0.058	27
MMPZ5237SGP	8.036	8.2	8.364	5	7	600	0.25	0.5	6.5	+0.062	25
MMPZ5238SGP	8.526	8.7	8.874	5	7	600	0.25	0.5	6.5	+0.065	23
MMPZ5239SGP	8.918	9.1	9.282	5	10	600	0.25	0.1	7	+0.068	22
MMPZ5240SGP	9.800	10	10.20	5	15	600	0.25	0.1	8	+0.075	20
MMPZ5241SGP	10.78	11	11.22	5	18	600	0.25	0.1	8.4	+0.076	18
MMPZ5242SGP	11.76	12	12.24	5	22	600	0.25	0.1	9.1	+0.077	17
MMPZ5243SGP	12.74	13	13.26	5	25	600	0.25	0.1	9.9	+0.079	16
MMPZ5244SGP	13.72	14	14.28	5	25	600	0.25	0.1	10	+0.082	14
MMPZ5245SGP	14.70	15	15.30	5	32	600	0.25	0.1	11	+0.082	13
MMPZ5246SGP	15.68	16	16.32	5	36	600	0.25	0.1	12	+0.083	12.5
MMPZ5247SGP	16.66	17	17.34	5	36	600	0.25	0.1	13	+0.084	12.1
MMPZ5248SGP	17.64	18	18.36	5	42	600	0.25	0.1	14	+0.085	11.2
MMPZ5249SGP	18.62	19	19.38	5	42	600	0.25	0.1	14	+0.086	10.8
MMPZ5250SGP	19.60	20	20.40	5	48	600	0.25	0.1	16	+0.086	10.3
MMPZ5251SGP	21.56	22	22.44	5	55	600	0.25	0.1	17	+0.087	9.4
MMPZ5252SGP	23.52	24	24.48	5	62	600	0.25	0.1	18	+0.088	8.6
MMPZ5253SGP	24.50	25	25.50	5	62	600	0.25	0.1	19	+0.089	7.6
MMPZ5254SGP	26.46	27	27.54	5	70	600	0.25	0.1	21	+0.090	7.5
MMPZ5255SGP	27.44	28	28.56	5	44	600	0.25	0.1	21	+0.091	7.3
MMPZ5256SGP	29.40	30	30.60	5	78	600	0.25	0.1	23	+0.091	6.8
MMPZ5257SGP	32.34	33	33.66	5	88	700	0.25	0.1	25	+0.092	6.2

ELECTRICAL CHARACTERISTICS (MMPZ5221SGP THRU MMPZ5270SGP)

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)							
MMPZ5258SGP	35.28	36	36.72	5	95	700	0.25	0.1	27	+0.093	5.8
MMPZ5259SGP	38.22	39	39.78	5	130	800	0.25	0.1	30	+0.094	5.4
MMPZ5260SGP	42.14	43	43.86	3.0	93	900	0.25	0.1	33	+0.095	4.9
MMPZ5261SGP	46.06	47	47.94	2.7	105	1000	0.25	0.1	36	+0.095	4.5
MMPZ5262SGP	49.98	51	52.02	2.5	125	1100	0.25	0.1	36	+0.096	4.2
MMPZ5263SGP	54.88	56	57.12	2.2	150	1300	0.25	0.1	39	+0.096	3.8
MMPZ5264SGP	58.80	60	61.20	2.1	170	1400	0.25	0.1	43	+0.097	3.5
MMPZ5265SGP	60.76	62	63.24	2.0	185	1400	0.25	0.1	46	+0.097	-
MMPZ5266SGP	66.64	68	69.36	1.8	230	1600	0.25	0.1	52	+0.097	-
MMPZ5267SGP	73.50	75	76.50	1.7	270	1700	0.25	0.1	56	+0.098	-
MMPZ5268SGP	80.36	82	83.64	1.5	330	2000	0.25	0.1	62	+0.098	-
MMPZ5269SGP	85.26	87	88.74	1.4	370	2000	0.25	0.1	68	+0.099	-
MMPZ5270SGP	89.18	91	92.82	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMPZ5221SGP THRU MMPZ5270SGP)

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

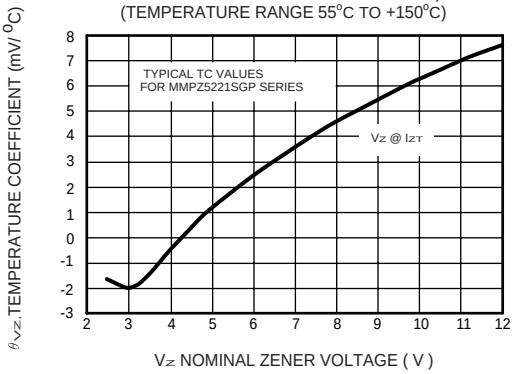


FIG. 2 - TEMPERATURE COEFFICIENTS)
(TEMPERATURE RANGE 55°C TO +150°C)

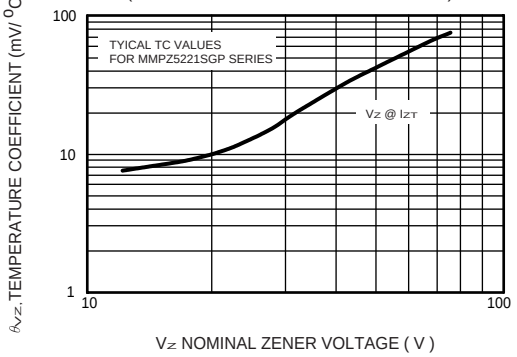


FIG. 3 - EFFECT OF ZENER VOLTAGE ON
ZENER IMPEDANCE

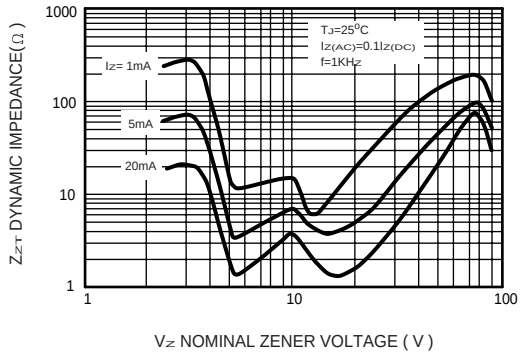
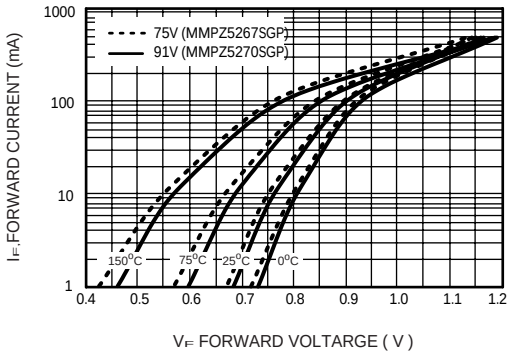


FIG. 4 - TYPICAL FORWARD VOLTAGE



RATING CHARACTERISTIC CURVES (MMPZ5221SGP THRU MMPZ5270SGP)

FIG. 5 - TYPICAL CAPACITANCE

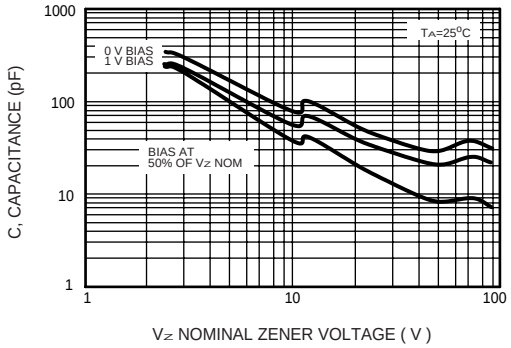


FIG. 6 - TYPICAL LEAKAGE CURRENT

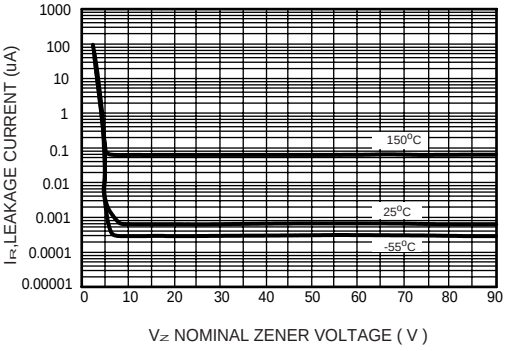


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (VZ UP TO 12V)

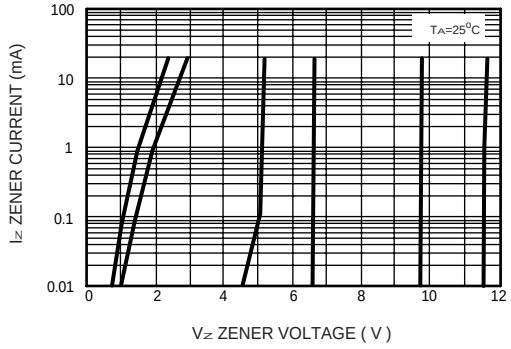


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)