CHENMKO ENTERPRISE CO.,LTD

SURFACE MOUNT ZENER

SILICON PLANAR POWER ZENER DIODES

VOLTAGE RANGE 2.4V TO 91V

MMKZ5221BGP

THRU

MMKZ5270BGP

Halogens free devices

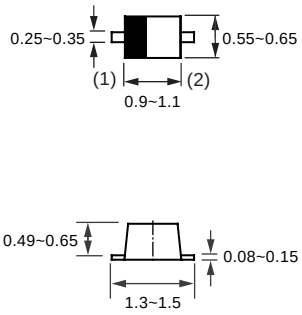
FEATURE

* 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
* SOD-723 Packaging.
* Cathode indicated by polarity band.
* Mounting position: Any.

SOD-723



Dimensions in millimeters

SOD-723

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

2003-01

NOTES :
1. The JEDEC type numbers listd have a standaerd tolerance on the normal zener voltage of ±10%, Suffix B=±5%.
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 (MMKZ5221BGP THRU MMKZ5270BGP)

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}	Z_{ZK}	at I_{ZK}	I_R	at V_R		
	Volts	Volts	Volts	I_{ZT} (mA)	(Ω)	(Ω)	(mA)	(uA)	(V)		
MMKZ5221BGP	2.280	2.4	2.520	5	100	1800	0.25	100	1	-0.085	190
MMKZ5222BGP	2.375	2.5	2.625	5	100	1800	0.25	100	1	-0.085	182
MMKZ5223BGP	2.565	2.7	2.835	5	100	1900	0.25	75	1	-0.080	168
MMKZ5224BGP	2.660	2.8	2.940	5	100	1900	0.25	75	1	-0.080	162
MMKZ5225BGP	2.850	3.0	3.150	5	95	2000	0.25	50	1	-0.075	152
MMKZ5226BGP	3.135	3.3	3.465	5	95	2200	0.25	25	1	-0.070	138
MMKZ5227BGP	3.420	3.6	3.780	5	90	2300	0.25	15	1	-0.065	126
MMKZ5228BGP	3.705	3.9	4.095	5	90	2400	0.25	10	1	-0.060	115
MMKZ5229BGP	4.085	4.3	4.515	5	88	2500	0.25	5	1	-0.055	106
MMKZ5230BGP	4.465	4.7	4.935	5	70	2200	0.25	3	1.5	+0.030	97
MMKZ5231BGP	4.845	5.1	5.355	5	50	2050	0.25	2	2	+0.030	89
MMKZ5232BGP	5.320	5.6	5.880	5	25	1800	0.25	5	3	+0.038	81
MMKZ5233BGP	5.700	6.0	6.300	5	25	1800	0.25	5	3	+0.038	76
MMKZ5234BGP	5.890	6.2	6.510	5	10	1300	0.25	1	4	+0.045	73
MMKZ5235BGP	6.460	6.8	7.140	5	8	750	0.25	1	5.2	+0.050	67
MMKZ5236BGP	7.125	7.5	7.875	5	7	600	0.25	0.5	6	+0.058	61
MMKZ5237BGP	7.790	8.2	8.610	5	7	600	0.25	0.5	6.5	+0.062	55
MMKZ5238BGP	8.265	8.7	9.135	5	7	600	0.25	0.5	6.5	+0.065	52
MMKZ5239BGP	8.645	9.1	9.555	5	10	600	0.25	0.1	7	+0.068	50
MMKZ5240BGP	9.500	10	10.50	5	15	600	0.25	0.1	8	+0.075	45
MMKZ5241BGP	10.45	11	11.55	5	18	600	0.25	0.1	8.4	+0.076	41
MMKZ5242BGP	11.40	12	12.60	5	22	600	0.25	0.1	9.1	+0.077	38
MMKZ5243BGP	12.35	13	13.65	5	25	600	0.25	0.1	9.9	+0.079	35
MMKZ5244BGP	13.30	14	14.70	5	25	600	0.25	0.1	10	+0.082	32
MMKZ5245BGP	14.25	15	15.75	5	32	600	0.25	0.1	11	+0.082	30
MMKZ5246BGP	15.20	16	16.80	5	36	600	0.25	0.1	12	+0.083	28
MMKZ5247BGP	16.15	17	17.85	5	36	600	0.25	0.1	13	+0.084	27
MMKZ5248BGP	17.10	18	18.90	5	42	600	0.25	0.1	14	+0.085	25
MMKZ5249BGP	18.05	19	19.95	5	42	600	0.25	0.1	14	+0.086	24
MMKZ5250BGP	19.00	20	21.00	5	48	600	0.25	0.1	16	+0.086	23
MMKZ5251BGP	20.90	22	23.10	5	55	600	0.25	0.1	17	+0.087	21
MMKZ5252BGP	22.80	24	25.20	5	62	600	0.25	0.1	18	+0.088	19.1
MMKZ5253BGP	23.75	25	26.25	5	62	600	0.25	0.1	19	+0.089	18.2
MMKZ5254BGP	25.65	27	28.35	5	70	600	0.25	0.1	21	+0.090	16.8
MMKZ5255BGP	26.60	28	29.40	5	44	600	0.25	0.1	21	+0.091	16.2
MMKZ5256BGP	28.50	30	31.50	5	78	600	0.25	0.1	23	+0.091	15.1
MMKZ5257BGP	31.35	33	34.65	5	88	700	0.25	0.1	25	+0.092	13.8

ELECTRICAL CHARACTERISTICS (MMKZ5221BGP THRU MMKZ5270BGP)

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	Maximum regulator current at T_A= 50°C
	Min	Nom	Max		Z_{ZT} at I_{ZT}	Z_{ZK}	at I_{ZK}	I_R	at V_R	θ_{VZ}	I_{ZM}
	Volts	Volts	Volts	I_{ZT} (mA)	(Ω)	(Ω)	(mA)	(uA)	(V)	(%/°C)	(mA)
MMKZ5258BGP	34.20	36	37.80	5	95	700	0.25	0.1	27	+0.093	13.8
MMKZ5259BGP	37.05	39	40.95	5	130	800	0.25	0.1	30	+0.094	12.6
MMKZ5260BGP	40.85	43	45.15	3.0	93	900	0.25	0.1	33	+0.095	11.6
MMKZ5261BGP	44.65	47	49.35	2.7	105	1000	0.25	0.1	36	+0.095	10.6
MMKZ5262BGP	48.45	51	53.55	2.5	125	1100	0.25	0.1	39	+0.096	9.7
MMKZ5263BGP	53.20	56	58.80	2.2	150	1300	0.25	0.1	43	+0.096	8.9
MMKZ5264BGP	57.00	60	63.00	2.1	170	1400	0.25	0.1	46	+0.097	11.6
MMKZ5265BGP	58.90	62	65.10	2.0	185	1400	0.25	0.1	47	+0.097	-
MMKZ5266BGP	64.60	68	71.40	1.8	230	1600	0.25	0.1	52	+0.097	-
MMKZ5267BGP	71.25	75	78.75	1.7	270	1700	0.25	0.1	56	+0.098	-
MMKZ5268BGP	77.90	82	86.10	1.5	330	2000	0.25	0.1	62	+0.098	-
MMKZ5269BGP	82.65	87	91.35	1.4	370	2200	0.25	0.1	68	+0.099	-
MMKZ5270BGP	86.45	91	95.55	1.4	400	2300	0.25	0.1	69	+0.099	-

RATING CHARACTERISTIC CURVES (MMKZ5221BGP THRU MMKZ5270BGP)

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

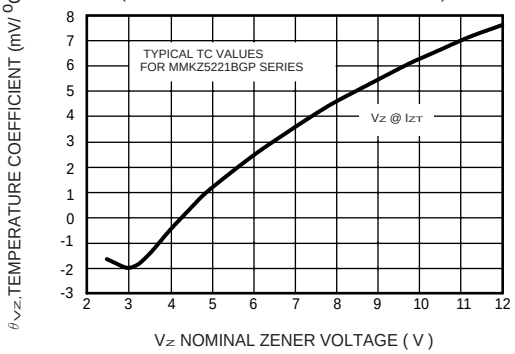


FIG. 2 - TEMPERATURE COEFFICIENTS)
(TEMPERATURE RANGE 55°C TO +150°C)

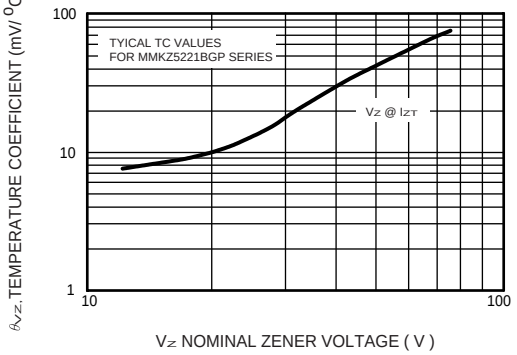


FIG. 3 - EFFECT OF ZENER VOLTAGE ON
ZENER IMPEDANCE

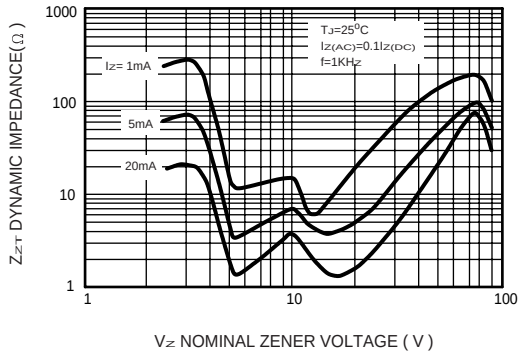
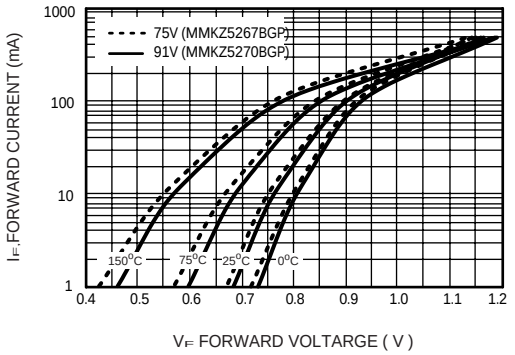


FIG. 4 - TYPICAL FORWARD VOLTAGE



RATING CHARACTERISTIC CURVES (MMKZ5221BGP THRU MMKZ5270BGP)

FIG. 5 - TYPICAL CAPACITANCE

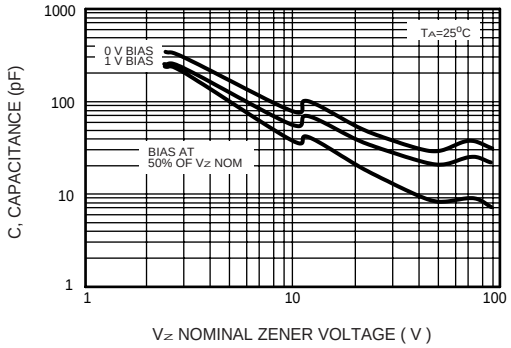


FIG. 6 - TYPICAL LEAKAGE CURRENT

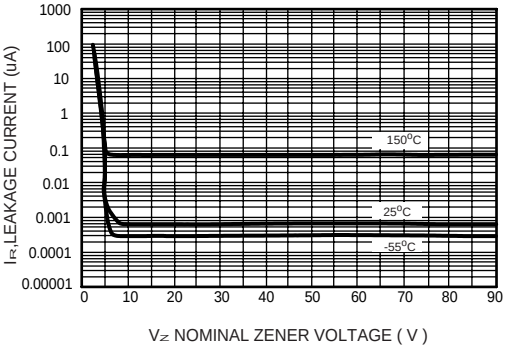


FIG. 7 - ZENER VOLTAGE VERSUS ZENER CURRENT (VZ UP TO 12V)

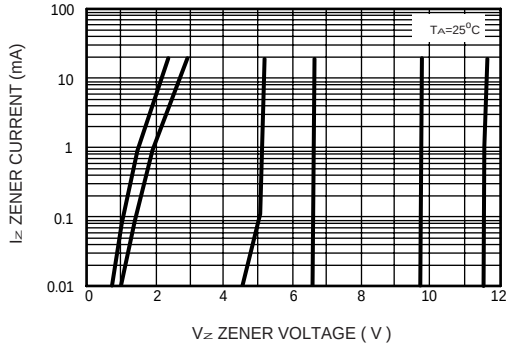


FIG. 8 - ZENER VOLTAGE VERSUS ZENER CURRENT (12V TO 91V)