



**CHENMKO ENTERPRISE CO.,LTD**

*Halogens free devices*

**SURFACE MOUNT ZENER**  
**SILICON PLANAR POWER ZENER DIODES**  
**VOLTAGE RANGE 2.4V TO 39V**

**MMEZ5221BGP**

**THRU**

**MMEZ5259BGP**

**FEATURE**

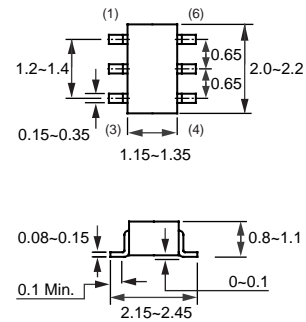
- \* Small surface mounting type. (SC-88/SOT-363)
- \* High temperature soldering type.
- \* ESD rating of class 3(>16 kV) per human body model.
- \* Silicon planar zener diodes.
- \* Silicon-oxide passivated junction.
- \* Low temperature coefficient voltage
- \* 200 mW Rating on FR-4 or FR-5 Board

**MECHANICAL**

- \* SC-88 Packaging.
- \* Mounting position: Any.



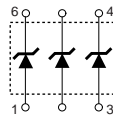
**SC-88/SOT-363**



Dimensions in millimeters

**SC-88/SOT-363**

**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 @ $T_A=25^{\circ}\text{C}$	$P_D$	200	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	$R_{\theta JA}$	-	-	625	$^{\circ}\text{C/W}$
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= $\pm 3\%$
  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.

2004-09

## ELECTRICAL CHARACTERISTICS ( MMEZ5221BGP THRU MMEZ5259BGP )

TYPE	Zener voltage V <sub>Z</sub> (V) @ I <sub>ZT</sub>			Test current  I <sub>ZT</sub> (mA)	Maximum Zener impedance			Maximum reverse leakage current		Type temperature coefficient at T <sub>A</sub> = 25°C θ <sub>VZ</sub> (%/°C)	Maximum regulator current at T <sub>A</sub> = 50°C I <sub>ZM</sub> (mA)
	Min	Nom	Max		Z <sub>ZT</sub> at I <sub>ZT</sub> (Ω)	Z <sub>ZK</sub> (Ω)	at I <sub>ZK</sub> (mA)	I <sub>R</sub> (μA)	at V <sub>R</sub> (V)		
	Volts	Volts	Volts								
MMEZ5221BGP	2.28	2.4	2.52	20	30	1200	0.25	100	1	-0.085	190
MMEZ5223BGP	2.57	2.7	2.84	20	30	1300	0.25	75	1	-0.085	182
MMEZ5225BGP	2.85	3.0	3.15	20	30	1600	0.25	50	1	-0.080	168
MMEZ5226BGP	3.14	3.3	3.47	20	28	1600	0.25	25	1	-0.080	162
MMEZ5227BGP	3.42	3.6	3.78	20	24	1700	0.25	15	1	-0.075	152
MMEZ5228BGP	3.71	3.9	4.10	20	23	1900	0.25	10	1	-0.070	138
MMEZ5229BGP	4.09	4.3	4.52	20	22	2000	0.25	5.0	1	-0.065	126
MMEZ5230BGP	4.47	4.7	4.94	20	19	1900	0.25	5.0	2	-0.060	115
MMEZ5231BGP	4.85	5.1	5.36	20	17	1600	0.25	5.0	2	-0.055	106
MMEZ5232BGP	5.32	5.6	5.88	20	11	1600	0.25	5.0	3	+0.030	97
MMEZ5233BGP	5.70	6.0	6.30	20	7	1600	0.25	5.0	3.5	+0.030	89
MMEZ5234BGP	5.89	6.2	6.51	20	7	1000	0.25	5.0	4	+0.038	81
MMEZ5235BGP	6.46	6.8	7.14	20	5	750	0.25	3.0	5	+0.038	76
MMEZ5236BGP	7.13	7.5	7.88	20	6	500	0.25	3.0	6	+0.045	73
MMEZ5237BGP	7.79	8.2	8.61	20	8	500	0.25	3.0	6.5	+0.050	67
MMEZ5238BGP	8.27	8.7	9.14	20	8	600	0.25	3.0	6.5	+0.058	61
MMEZ5239BGP	8.65	9.1	9.56	20	10	600	0.25	3.0	7.0	+0.062	55
MMEZ5240BGP	9.50	10	10.50	20	17	600	0.25	2.0	8.0	+0.065	52
MMEZ5241BGP	10.45	11	11.55	20	22	600	0.25	1.0	8.4	+0.068	50
MMEZ5242BGP	11.40	12	12.60	20	30	600	0.25	0.5	9.1	+0.075	45
MMEZ5243BGP	12.35	13	13.65	9.5	13	600	0.25	0.1	9.9	+0.076	41
MMEZ5245BGP	14.25	15	15.75	8.5	16	600	0.25	0.1	11	+0.077	38
MMEZ5246BGP	15.20	16	16.80	7.8	17	600	0.25	0.1	12	+0.079	35
MMEZ5248BGP	17.10	18	18.90	7.0	21	600	0.25	0.1	14	+0.082	32
MMEZ5250BGP	19.00	20	21.00	6.2	25	600	0.25	0.1	15	+0.082	30
MMEZ5251BGP	20.90	22	23.10	5.6	29	600	0.25	0.1	17	+0.083	28
MMEZ5252BGP	22.80	24	25.20	5.2	33	600	0.25	0.1	18	+0.084	27
MMEZ5254BGP	25.65	27	28.35	5.0	41	600	0.25	0.1	21	+0.085	25
MMEZ5255BGP	26.60	28	29.40	4.5	44	600	0.25	0.1	21	+0.086	24
MMEZ5256BGP	28.50	30	31.50	4.2	49	600	0.25	0.1	23	+0.086	23
MMEZ5257BGP	31.35	33	34.65	3.8	58	700	0.25	0.1	25	+0.087	21
MMEZ5258BGP	34.20	36	37.80	3.4	70	700	0.25	0.1	27	+0.088	19.1
MMEZ5259BGP	37.05	39	40.95	3.2	80	800	0.25	0.1	30	+0.089	18.2

# ELECTRICAL CHARACTERISTICS ( MMEZ5221BGP THRU MMEZ5259BGP )

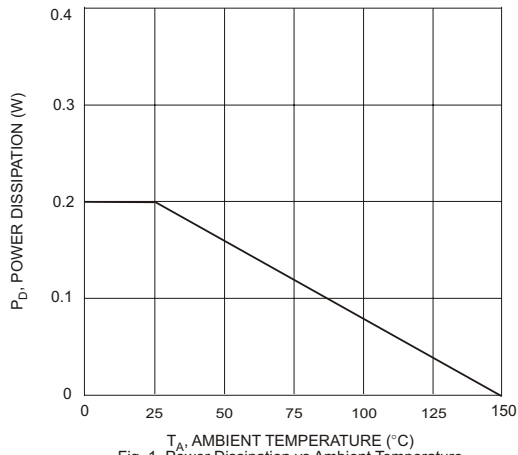


Fig. 1 Power Dissipation vs Ambient Temperature

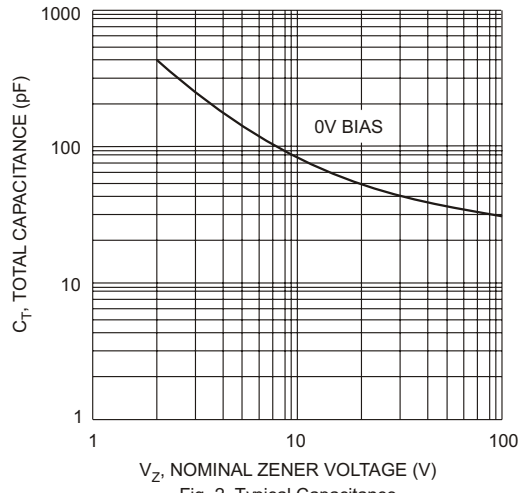


Fig. 2 Typical Capacitance

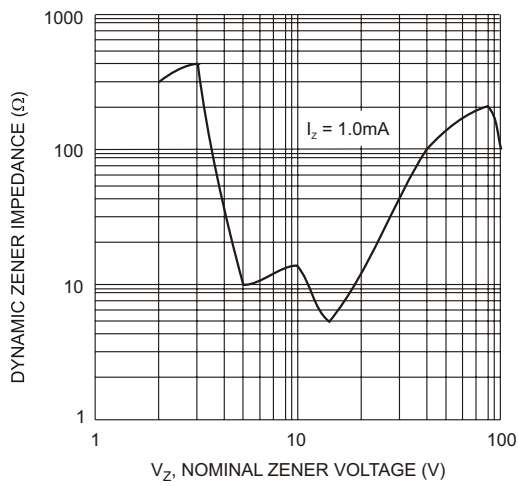


Fig. 3 Zener Voltage vs. Zener Impedance

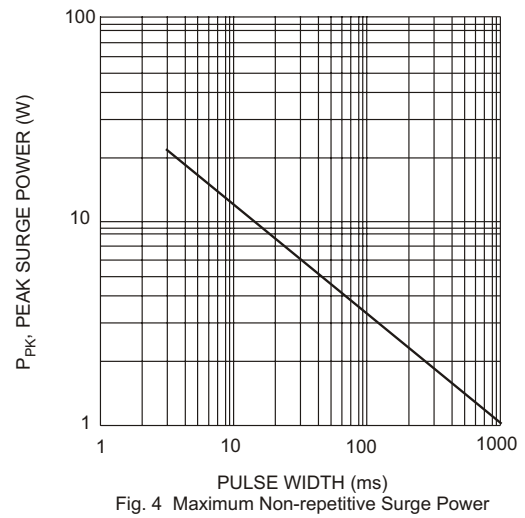


Fig. 4 Maximum Non-repetitive Surge Power