

**MM1Z2V0~MM1Z120**  
**Silicon Planar Zener Diodes**

Revision:A

**General Description**

Silicon planar zener diode in a small plastic SMD SOD-123 package.

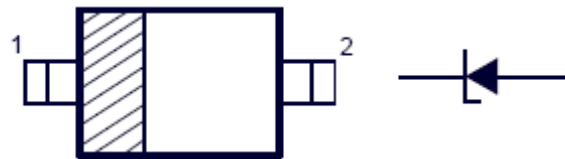
**Features**

- Total power dissipation: max. 500mW
- Small plastic package suitable for surface mounted design
- Wide variety of voltage ranges: nom. 2.0 to 120V
- Tolerance approximately  $\pm 5\%$

**Functional diagram**



SOD-123



Note: 1-Cathode;2-Anode

**Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )**

Symbol	Parameter	Value	Unit
	Zener Current see Table "Characteristics"		
$P_{tot}$	Power Dissipation	500	mW
$T_j$	Junction Temperature	175	$^\circ\text{C}$
$T_s$	Storage Temperature Range	-55 to +175	$^\circ\text{C}$

**Characteristics at  $T_{amb}=25^\circ\text{C}$**

	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient Air	$R_{thA}$	---	---	0.3	K/mW
Forward Voltage at $I_F=100\text{mA}$	$V_F$	---	---	1	V

# MM1Z2V0~MM1Z120

Electrical Characteristics								
Type	Zener Voltage Range			Dynamic Impedance		Revers Leakage Current		Temp. coefficient of Zener Voltage
	V <sub>znom</sub> V	I <sub>ZT</sub> for V <sub>ZT</sub>		Z <sub>Z</sub> (Max) at I <sub>Z</sub>		I <sub>R</sub> (Max) at V <sub>R</sub>		TKvz %/K
		mA	V	Ω	mA	μA	V	
MM1Z2V0	2.0	5	1.80...2.15	100	5	120	0.5	-0.09...-0.06
MM1Z2V2	2.2	5	2.08...2.33	100	5	120	0.7	-0.09...-0.06
MM1Z2V4	2.4	5	2.28...2.56	100	5	120	1.0	-0.09...-0.06
MM1Z2V7	2.7	5	2.5...2.9	110	5	120	1.0	-0.09...-0.06
MM1Z3V0	3.0	5	2.8...3.2	120	5	50	1.0	-0.08...-0.05
MM1Z3V3	3.3	5	3.1...3.5	130	5	20	1.0	-0.08...-0.05
MM1Z3V6	3.6	5	3.4...3.8	130	5	10	1.0	-0.08...-0.05
MM1Z3V9	3.9	5	3.7...4.1	130	5	10	1.0	-0.08...-0.05
MM1Z4V3	4.3	5	4.0...4.6	130	5	10	1.0	-0.06...-0.03
MM1Z4V7	4.7	5	4.4...5.0	130	5	10	1.0	-0.05...+0.02
MM1Z5V1	5.1	5	4.8...5.4	130	5	5	1.5	-0.02...+0.02
MM1Z5V6	5.6	5	5.2...6.0	80	5	5	2.5	-0.05...+0.05
MM1Z6V2	6.2	5	5.8...6.6	50	5	2	3.0	0.03...0.06
MM1Z6V8	6.8	5	6.4...7.2	30	5	2	3.5	0.03...0.07
MM1Z7V5	7.5	5	7.0...7.9	30	5	2	4.0	0.03...0.07
MM1Z8V2	8.2	5	7.7...8.7	30	5	2	5.0	0.03...0.08
MM1Z9V1	9.1	5	8.5...9.6	30	5	2	6.0	0.03...0.09
MM1Z10	10	5	9.4...10.6	30	5	2	7.0	0.03...0.1
MM1Z11	11	5	10.4...11.6	30	5	2	8.0	0.03...0.11
MM1Z12	12	5	11.4...12.7	35	5	2	9.0	0.03...0.11
MM1Z13	13	5	12.4...14.1	35	5	2	10	0.03...0.11
MM1Z15	15	5	13.8...15.6	40	5	2	11	0.03...0.11
MM1Z16	16	5	15.3...17.1	40	5	2	12	0.03...0.11
MM1Z18	18	5	16.8...19.1	45	5	2	13	0.03...0.11
MM1Z20	20	5	18.8...21.2	50	5	2	15	0.03...0.11
MM1Z22	22	5	20.8...23.3	55	5	2	17	0.04...0.12
MM1Z24	24	5	22.8...25.6	60	5	2	19	0.04...0.12
MM1Z27	27	5	25.1...28.9	70	2	2	21	0.04...0.12
MM1Z30	30	5	28...32	80	2	2	23	0.04...0.12
MM1Z33	33	5	31...35	80	2	2	25	0.04...0.12
MM1Z36	36	5	34...38	90	2	2	27	0.04...0.12
MM1Z39	39	2.5	37...41	100	2	2	30	0.04...0.12
MM1Z43	43	2.5	40...46	130	2	2	33	0.04...0.12
MM1Z47	47	2.5	44...50	150	2	2	36	0.04...0.12
MM1Z51	51	2.5	48...54	180	2	1	39	0.04...0.12
MM1Z56	56	2.5	52...60	180	2	1	43	0.04...0.12
MM1Z62	62	2.5	58...66	200	2	0.2	47	0.04...0.12

# MM1Z2V0~MM1Z120

Type	Zener Voltage Range		Dynamic Impedance		Revers Leakage Current		Temp. coefficient of Zener Voltage	
	$V_{znom}$ V	$I_{zT}$ for $V_{zT}$		$Z_z(\text{Max})$ at $I_z$		$I_R(\text{Max})$ at $V_R$		TKvz %/K
		mA	V	$\Omega$	mA	$\mu A$	V	
MM1Z68	68	2.5	64...72	250	2	0.2	52	0.04...0.12
MM1Z75	75	2.5	70...79	300	2	0.2	57	0.04...0.12
MM1Z82	82	2.5	77...87	300	2	0.2	63	0.05...0.12
MM1Z91	91	1	85...96	700	1	0.2	69	0.05...0.12
MM1Z100	100	1	94...106	700	1	0.2	76	0.05...0.12
MM1Z110	110	1	104...116	800	1	0.2	84	0.05...0.12
MM1Z120	120	1	114...127	900	1	0.2	91	0.05...0.12

- 1)  $V_z$  is tested with pulses (20 ms).
- 2)  $Z_z$  is measured at  $I_z$  by given a very small A.C. current signal.

### Breakdown characteristics $T_j = \text{constant}$ (pulse)

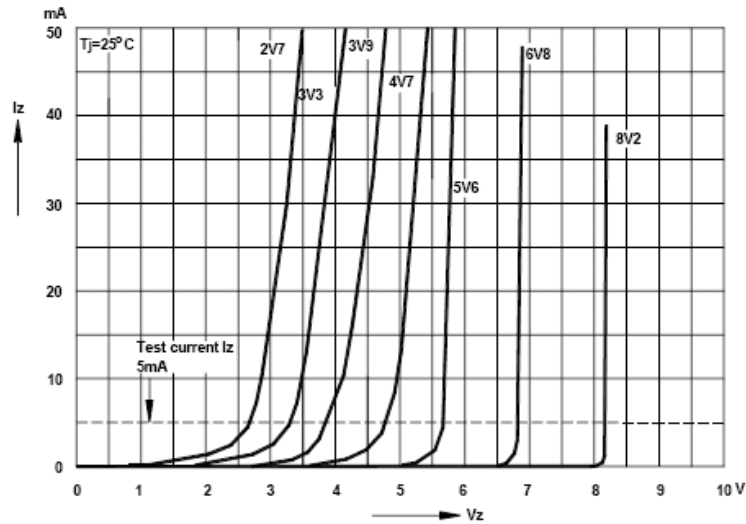


Fig 1

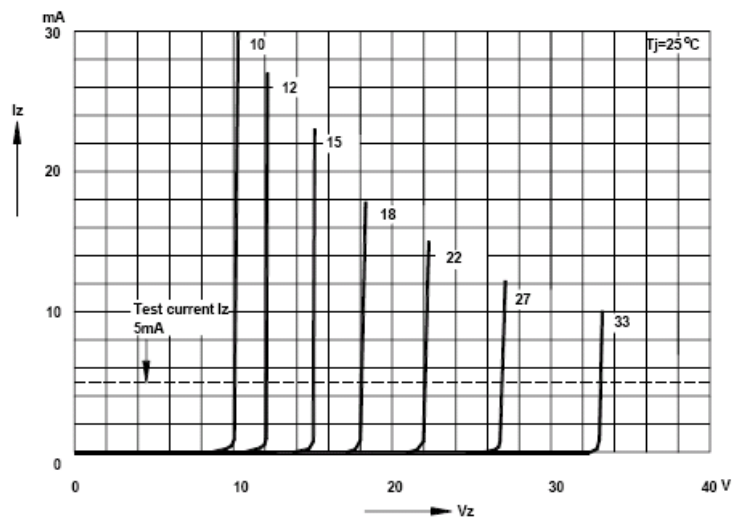
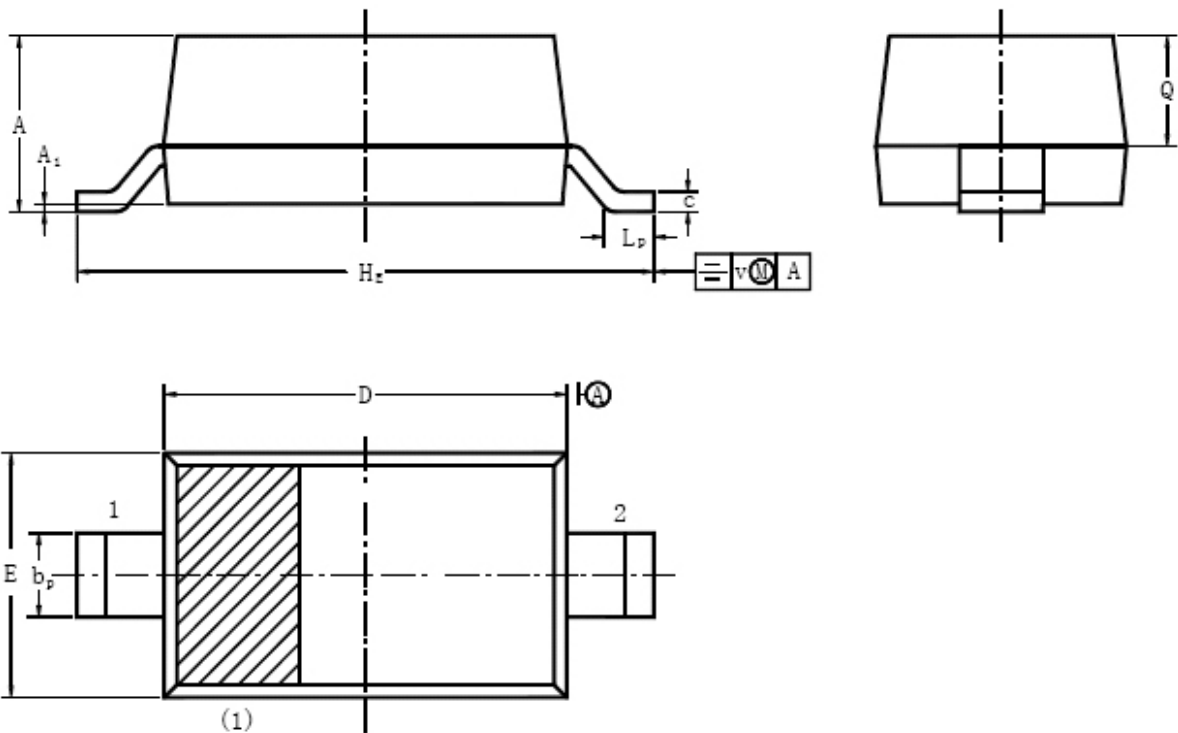


Fig 2

# MM1Z2V0~MM1Z120

## SOD-123 Mechanical Data



### Dimensions (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>P</sub>	c	D	E	H <sub>E</sub>	L <sub>P</sub>	Q	v
mm	1.15	0.1	0.6	0.135	2.7	1.65	4.0	0.4	0.77	0.2
	1.05	0	0.5	0.127	2.6	1.55	3.6	0.2	0.67	

### Note

(1) The marking bar indicates the cathode.

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