

## Silicon Planar Zener Diodes

### General description

General purpose Zener diode in an small SOD-123F flat-lead Surface-Mounted plastic package.  
Approximately  $\pm 5\%$  tolerance range with nominal working voltage from 2.4V to 75V

### Features

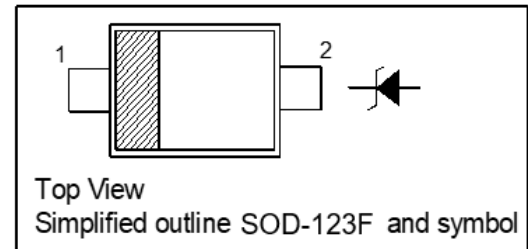
- AEC-Q101 Qualified
- Total power dissipation: Max. 500 mW
- Small plastic package suitable for surface mounted design
- Tolerance approximately  $\pm 5\%$
- Halogen and Antimony Free(HAF), RoHS compliant

### Applications

- General regulation functions

### PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



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

Parameter	Symbol	Value	Unit
Power Dissipation $T_L = 75^\circ\text{C}$ <sup>1)</sup>	$P_{tot}$	500	mW
Operating Junction Temperature Range	$T_j$	- 55 to + 150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient <sup>2)</sup>	$R_{\theta JA}$	340	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction to Lead <sup>1)</sup>	$R_{\theta JL}$	150	$^\circ\text{C}/\text{W}$

<sup>1)</sup> FR-4 PCB = 89 \* 38 mm.

<sup>2)</sup> Mounted on an FR-4 PCB 38 \* 38 \* 1.6 mm with single-sided Cu pad areas 25mm<sup>2</sup>(>70  $\mu\text{m}$  thick).

**Characteristics at  $T_a = 25^\circ\text{C}$  unless otherwise specified (  $V_F$  max : 0.9 V at  $I_F = 10$  mA )**

Type	Marking Code	Zener Voltage Range <sup>1)</sup>				Dynamic Impedance <sup>2)</sup>				Reverse Current	
		$V_{znom}$	$V_{zT}$		at $I_{zT}$	$Z_{zT}$	at $I_{zT}$	$Z_{zK}$	at $I_{zK}$	$I_R$	at $V_R$
		V	Min. (v)	Max.(v)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\Omega$ )	(mA)	Max.( $\mu\text{A}$ )	(V)
MM1Z5221BA	A4	2.4	2.28	2.52	20	30	20	1200	0.25	100	1
MM1Z5222BA	Q4	2.5	2.38	2.63	20	30	20	1250	0.25	100	1
MM1Z5223BA	B4	2.7	2.57	2.84	20	30	20	1300	0.25	75	1
MM1Z5225BA	C4	3.0	2.85	3.15	20	29	20	1600	0.25	50	1
MM1Z5226BA	D4	3.3	3.14	3.47	20	28	20	1600	0.25	25	1
MM1Z5227BA	E4	3.6	3.42	3.78	20	24	20	1700	0.25	15	1
MM1Z5228BA	F4	3.9	3.71	4.1	20	23	20	1900	0.25	10	1
MM1Z5229BA	H4	4.3	4.09	4.52	20	22	20	2000	0.25	5	1
MM1Z5230BA	J4	4.7	4.47	4.94	20	19	20	1900	0.25	5	2
MM1Z5231BA	K4	5.1	4.85	5.36	20	17	20	1600	0.25	5	2
MM1Z5232BA	M4	5.6	5.32	5.88	20	11	20	1600	0.25	5	3
MM1Z5234BA	N4	6.2	5.89	6.51	20	7	20	1000	0.25	5	4
MM1Z5235BA	P4	6.8	6.46	7.14	20	5	20	750	0.25	3	5
MM1Z5236BA	R4	7.5	7.13	7.88	20	6	20	500	0.25	3	6
MM1Z5237BA	X4	8.2	7.79	8.61	20	8	20	500	0.25	3	6.5
MM1Z5239BA	Y4	9.1	8.65	9.56	20	10	20	600	0.25	3	7
MM1Z5240BA	Z4	10	9.50	10.5	20	17	20	600	0.25	3	8
MM1Z5241BA	A5	11	10.45	11.55	20	22	20	600	0.25	2	8.4
MM1Z5242BA	B5	12	11.40	12.6	20	30	20	600	0.25	1	9.1
MM1Z5243BA	C5	13	12.35	13.65	9.5	13	9.5	600	0.25	0.5	9.9
MM1Z5245BA	D5	15	14.25	15.75	8.5	16	8.5	600	0.25	0.1	11
MM1Z5246BA	E5	16	15.20	16.8	7.8	17	7.8	600	0.25	0.1	12
MM1Z5247BA	G5	17	16.15	17.85	7.4	19	7.4	600	0.25	0.1	13
MM1Z5248BA	F5	18	17.10	18.9	7	21	7	600	0.25	0.1	14
MM1Z5249BA	K9	19	18.05	19.95	6.6	23	6.6	600	0.25	0.1	14
MM1Z5250BA	H5	20	19.00	21	6.2	25	6.2	600	0.25	0.1	15
MM1Z5251BA	J5	22	20.90	23.1	5.6	29	5.6	600	0.25	0.1	17
MM1Z5252BA	K5	24	22.80	25.2	5.2	33	5.2	600	0.25	0.1	18
MM1Z5253BA	M9	25	23.75	26.25	5	35	5	600	0.25	0.1	19
MM1Z5254BA	M5	27	25.65	28.35	4.6	41	4.6	600	0.25	0.1	21
MM1Z5255BA	F6	28	26.6	29.4	4.5	44	4.5	600	0.25	0.1	21
MM1Z5256BA	N5	30	28.50	31.5	4.2	49	4.2	600	0.25	0.1	23
MM1Z5257BA	P5	33	31.35	34.65	3.8	58	3.8	700	0.25	0.1	25
MM1Z5258BA	R5	36	34.20	37.8	3.4	70	3.4	700	0.25	0.1	27
MM1Z5259BA	X5	39	37.05	40.95	3.2	80	3.2	800	0.25	0.1	30
MM1Z5260BA	Y5	43	40.85	45.15	3	93	3	900	0.25	0.1	33
MM1Z5261BA	Z5	47	44.65	49.35	2.7	105	2.7	1000	0.25	0.1	36
MM1Z5262BA	A6	51	48.45	53.55	2.5	125	2.5	1100	0.25	0.1	39
MM1Z5263BA	B6	56	53.20	58.8	2.2	150	2.2	1300	0.25	0.1	43
MM1Z5265BA	C6	62	58.90	65.1	2	185	2	1400	0.25	0.1	47
MM1Z5266BA	D6	68	64.60	71.4	1.8	230	1.8	1600	0.25	0.1	52
MM1Z5267BA	E6	75	71.25	78.75	1.7	270	1.7	1700	0.25	0.1	56

<sup>1)</sup>  $V_{zT}$  is tested with pulses (20 ms)

<sup>2)</sup>  $Z_{zT}$  and  $Z_{zK}$  are measured by dividing the AC voltage drop across the device by the AC current applied. The specified limits are for  $I_{z(AC)} = 0.1 I_{z(DC)}$  with the AC frequency = 1 KHz.

## Electrical Characteristic Curves

Fig 1. Power Dissipation vs. Temperature

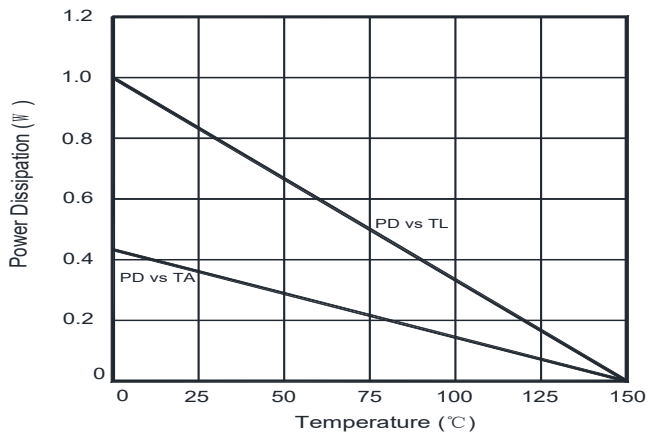


Fig 2. Zener Voltage vs. Zener Impedance

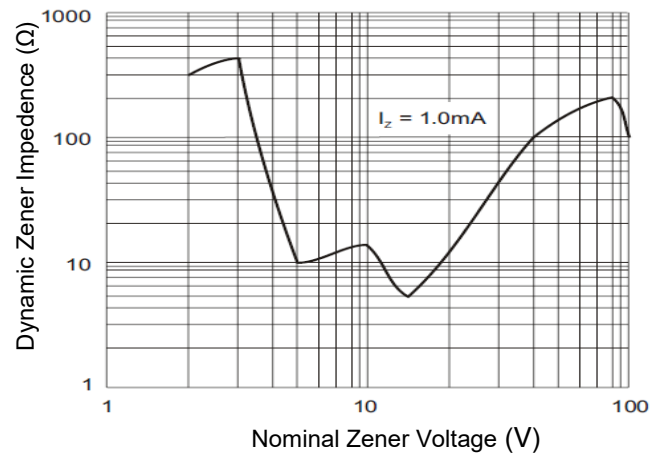


Fig 3. Zener Current vs. Zener Voltage

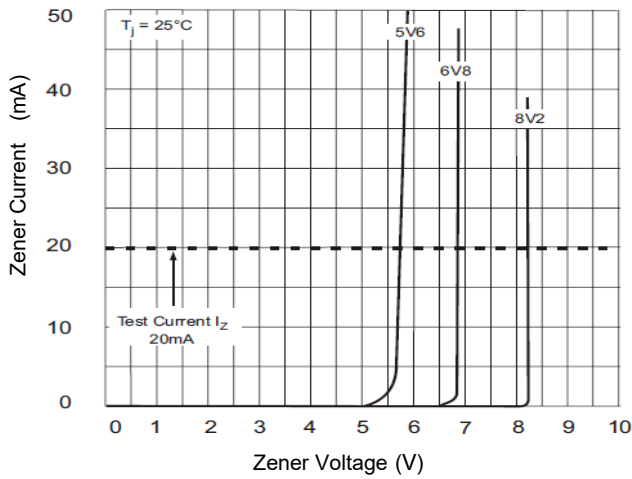
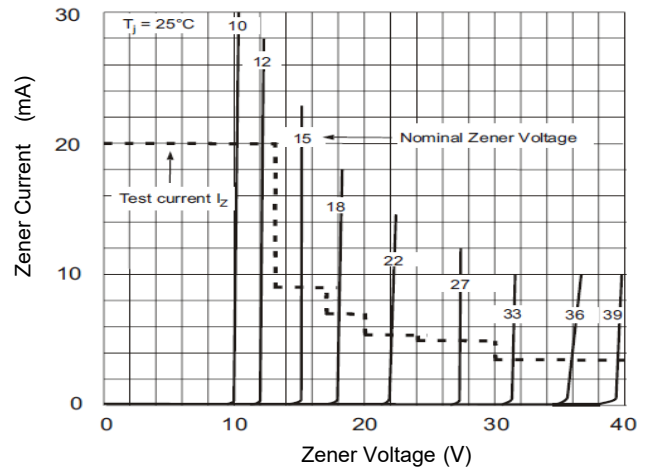


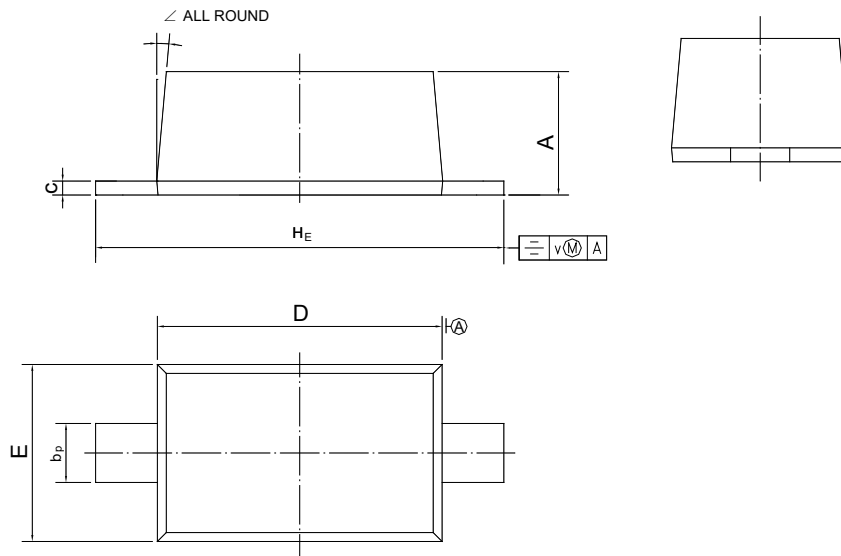
Fig 4. Zener Current vs. Zener Voltage



## PACKAGE OUTLINE

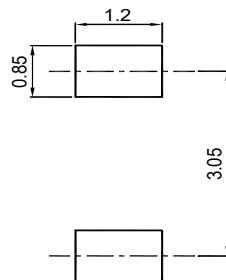
Plastic surface mounted package; 2 leads

SOD-123F



UNIT	A	b <sub>p</sub>	c	D	E	H <sub>E</sub>	v	∠
mm	1.15 1.05	0.6 0.5	0.135 0.100	2.7 2.6	1.65 1.55	3.85 3.55	0.2	5°

### Recommended Soldering Footprint



### Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	(inch)	mm	(inch)	
SOD-123F	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

### Marking information

- "\*\*" = Part No.
  - "III" = Cathode line
  - "•" = HAF (Halogen and Antimony Free)
- Font type: Arial

