

Silicon Planar Zener Diodes

FEATURES

- Total power dissipation: max. 1 W
- Tolerance series: approx. $\pm 5\%$
- Working voltage range: nom. 2.4 to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max. 40 W.

APPLICATIONS

- General regulation functions.

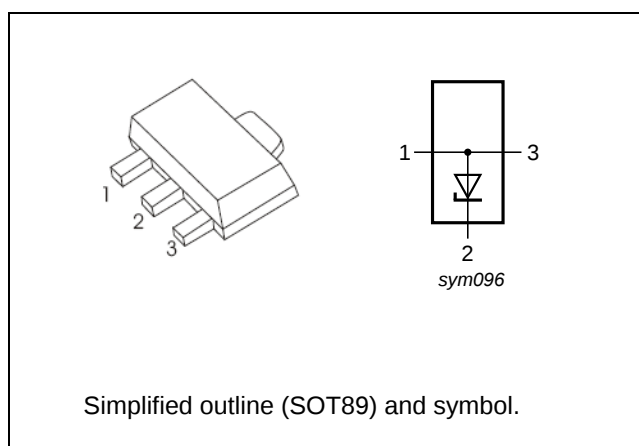
DESCRIPTION

Medium-power voltage regulator diodes in a SOT89 plastic SMD package.

The diodes are available in the normalized E24 approx. $\pm 5\%$ tolerance range. The series consists of 37 types with nominal working voltages from 2.4 to 75 V (BZV49C2V4 to BZV49C75).

PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	anode



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

Parameter	Symbol	Value	Unit
Power Dissipation (Note1)	P_{tot}	1	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

Note

1. Device mounted on a ceramic substrate; area = 2.5 cm²; thickness = 0.7 mm.

Characteristics at $T_a = 25^\circ\text{C}$

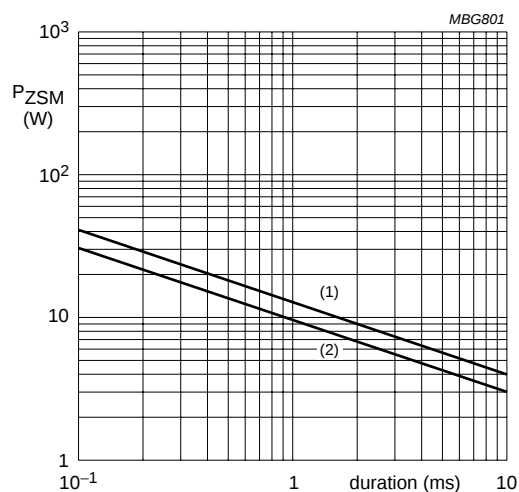
Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient Air	$R_{\theta\text{JA}}$	125	$^\circ\text{C/W}$
Forward Voltage at $I_F = 50\text{ mA}$	V_F	1.0	V

Characteristics at $T_a = 25\text{ }^{\circ}\text{C}$

Type	Marking Code	Zener Voltage Range ¹⁾			Dynamic Impedance		Reverse Leakage Current	
		V_{znom} V	I_{ZT} for V_{ZT}		$Z_{ZT}(\text{Max.})$	at I_{ZT}	$I_R(\text{Max.})$	at V_R
			I_{ZT} mA	V_{ZT} V	Ω	mA	μA	V
BZV49C2V4	2Y4	2.4	5	2.2...2.6	100	5	120	1
BZV49C2V7	2Y7	2.7	5	2.5...2.9	110	5	120	1
BZV49C3V0	3Y0	3.0	5	2.8...3.2	120	5	50	1
BZV49C3V3	3Y3	3.3	5	3.1...3.5	130	5	20	1
BZV49C3V6	3Y6	3.6	5	3.4...3.8	130	5	10	1
BZV49C3V9	3Y9	3.9	5	3.7...4.1	130	5	5	1
BZV49C4V3	4Y3	4.3	5	4...4.6	130	5	5	1
BZV49C4V7	4Y7	4.7	5	4.4...5	130	5	2	1
BZV49C5V1	5Y1	5.1	5	4.8...5.4	130	5	2	1.5
BZV49C5V6	5Y6	5.6	5	5.2...6	80	5	1	2.5
BZV49C6V2	6Y2	6.2	5	5.8...6.6	50	5	1	3
BZV49C6V8	6Y8	6.8	5	6.4...7.2	30	5	0.5	3.5
BZV49C7V5	7Y5	7.5	5	7...7.9	30	5	0.5	4
BZV49C8V2	8Y2	8.2	5	7.7...8.7	30	5	0.5	5
BZV49C9V1	9Y1	9.1	5	8.5...9.6	30	5	0.5	6
BZV49C10	10Y	10	5	9.4...10.6	30	5	0.1	7
BZV49C11	11Y	11	5	10.4...11.6	30	5	0.1	8
BZV49C12	12Y	12	5	11.4...12.7	35	5	0.1	9
BZV49C13	13Y	13	5	12.4...14.1	35	5	0.1	10
BZV49C15	15Y	15	5	13.8...15.6	40	5	0.1	11
BZV49C16	16Y	16	5	15.3...17.1	40	5	0.1	12
BZV49C18	18Y	18	5	16.8...19.1	45	5	0.1	13
BZV49C20	20Y	20	5	18.8...21.2	50	5	0.1	15
BZV49C22	22Y	22	5	20.8...23.3	55	5	0.1	17
BZV49C24	24Y	24	5	22.8...25.6	60	5	0.1	19
BZV49C27	27Y	27	2	25.1...28.9	70	2	0.1	21
BZV49C30	30Y	30	2	28...32	80	2	0.1	23
BZV49C33	33Y	33	2	31...35	80	2	0.1	25
BZV49C36	36Y	36	2	34...38	90	2	0.1	27
BZV49C39	39Y	39	2	37...41	100	2	2	30
BZV49C43	43Y	43	2	40...46	130	2	2	33
BZV49C47	47Y	47	2	44...50	150	2	2	36
BZV49C51	51Y	51	2	48...54	180	2	1	39
BZV49C56	56Y	56	2	52...60	180	2	1	43
BZV49C62	62Y	62	2	58...66	200	2	0.2	47
BZV49C68	68Y	68	2	64...72	250	2	0.2	52
BZV49C75	75Y	75	2	70...79	300	2	0.2	57

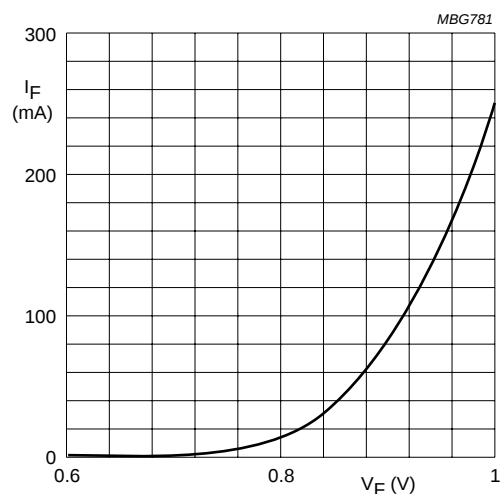
¹⁾ V_Z is tested with pulses (20 ms).

GRAPHICAL DATA



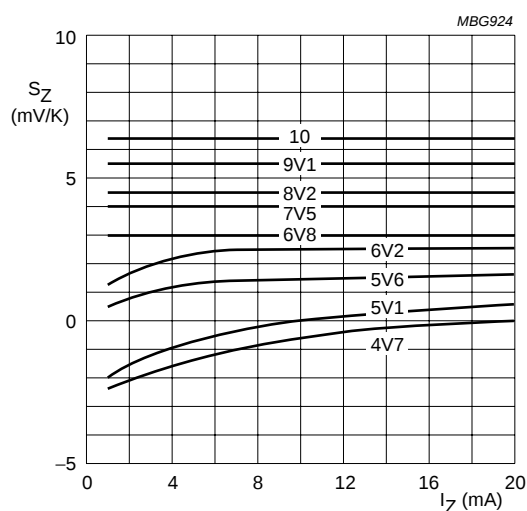
- (1) $T_j = 25\text{ }^{\circ}\text{C}$ (prior to surge).
(2) $T_j = 150\text{ }^{\circ}\text{C}$ (prior to surge).

Fig.1 Maximum permissible non-repetitive peak reverse power dissipation versus duration.



$T_j = 25\text{ }^{\circ}\text{C}$.

Fig.2 Forward current as a function of forward voltage; typical values.



BZV49-C4V7 to C10.
 $T_j = 25\text{ to }150\text{ }^{\circ}\text{C}$.

Fig.3 Temperature coefficient as a function of working current; typical values.