

## Voltage regulator diodes

## BZX55 series

## FEATURES

- Total power dissipation: max. 500 mW
- Tolerance series:  $\pm 5\%$
- Working voltage range: nom. 2.4 to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max. 40 W.

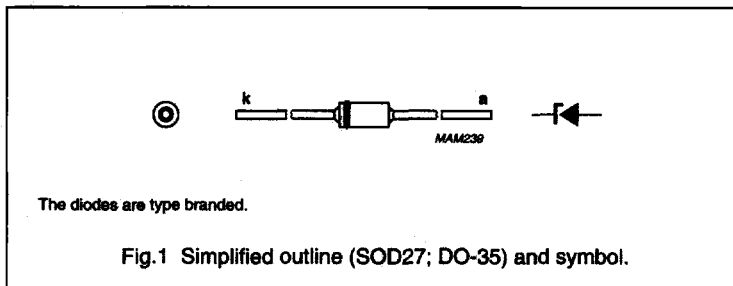
## APPLICATIONS

- Low voltage stabilizers or voltage references.

## DESCRIPTION

Low-power voltage regulator diodes in hermetically sealed leaded glass SOD27 (DO-35) packages.

The diodes are available in the normalized E24  $\pm 5\%$  tolerance range. The series consists of 37 types with nominal working voltages from 2.4 to 75 V (BZX55-C2V4 to BZX55-C75).



## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_F$	continuous forward current		–	250	mA
$I_{ZSM}$	non-repetitive peak reverse current	$t_p = 100 \mu\text{s}$ ; square wave; $T_j = 25^\circ\text{C}$ prior to surge	see Table "Per type"		
$P_{tot}$	total power dissipation	$T_{amb} = 50^\circ\text{C}$ ; note 1	–	400	mW
		$T_{amb} = 50^\circ\text{C}$ ; note 2	–	500	mW
$P_{ZSM}$	non-repetitive peak reverse power dissipation	$t_p = 100 \mu\text{s}$ ; square wave; $T_j = 25^\circ\text{C}$ prior to surge	–	40	W
		$t_p = 8.3 \text{ ms}$ ; square wave; $T_j \leq 150^\circ\text{C}$ prior to surge	–	30	W
$T_{stg}$	storage temperature		–65	+200	$^\circ\text{C}$
$T_j$	junction temperature		–	200	$^\circ\text{C}$

## Notes

1. Device mounted on a printed circuit-board without metallization pad; lead length max.
2. Tie-point temperature  $\leq 50^\circ\text{C}$ ; lead length 8 mm.

## ELECTRICAL CHARACTERISTICS

## Total series

$T_j = 25^\circ\text{C}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 100 \text{ mA}$ ; see Fig.4	–	1.0	V

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Per type

$T_J = 25\text{ }^\circ\text{C}$ ; unless otherwise specified.

BZX55-CXXX	WORKING VOLTAGE $V_Z$ (V) at $I_{Ztest}$		DIFFERENTIAL RESISTANCE $r_{diff}$ ( $\Omega$ )		TEMP. COEFF. $S_Z$ (mV/K) at $I_{Ztest}$ see Figs 5 and 6	TEST CURRENT $I_{Ztest}$ (mA)	DIODE CAP. $C_d$ (pF) at $f = 1\text{ MHz}$ ; at $V_R = 0\text{ V}$	REVERSE CURRENT at REVERSE VOLTAGE $I_R$ ( $\mu\text{A}$ )			NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) at $t_p = 100\text{ }\mu\text{s}$ ; $T_{amb} = 25\text{ }^\circ\text{C}$
	MIN.	MAX.	at $I_Z$	at $I_{Ztest}$				at $T_J = 25\text{ }^\circ\text{C}$	at $T_J = 150\text{ }^\circ\text{C}$	$V_R$ (V)	
			MAX.	TYP.			MAX.	MAX.	MAX.	MAX.	
2V4	2.28	2.56	600	85	-1.8	5	450	50	100	1.0	6.0
2V7	2.5	2.9	600	85	-1.9	5	450	10	50	1.0	6.0
3V0	2.8	3.2	600	85	-2.1	5	450	4	40	1.0	6.0
3V3	3.1	3.5	600	85	-2.2	5	450	2	40	1.0	6.0
3V6	3.4	3.8	600	85	-2.4	5	450	2	40	1.0	6.0
3V9	3.7	4.1	600	85	-2.4	5	450	2	40	1.0	6.0
4V3	4.0	4.6	600	80	-2.4	5	450	1	20	1.0	6.0
4V7	4.4	5.0	600	70	-1.4	5	300	0.5	10	1.0	6.0
5V1	4.8	5.4	550	50	-0.8	5	300	0.1	2	1.0	6.0
5V6	5.2	6.0	450	30	1.6	5	300	0.1	2	1.0	6.0
6V2	5.8	6.6	200	10	2.2	5	200	0.1	2	2.0	6.0
6V8	6.4	7.2	150	8	3.0	5	200	0.1	2	3.0	6.0
7V5	7.0	7.9	50	7	3.8	5	150	0.1	2	5.0	4.0
8V2	7.7	8.7	50	7	4.5	5	150	0.1	2	6.15	4.0
9V1	8.5	9.6	50	10	5.5	5	150	0.1	2	6.8	3.0
10	9.4	10.6	70	15	6.5	5	90	0.1	2	7.5	3.0
11	10.4	11.6	70	20	7.7	5	85	0.1	2	8.25	2.5
12	11.4	12.7	90	20	8.4	5	85	0.1	2	9.0	2.5
13	12.4	14.1	110	26	9.8	5	80	0.1	2	9.75	2.5
15	13.8	15.6	110	30	11.3	5	75	0.1	2	11.25	2.0
16	15.3	17.1	170	40	12.8	5	75	0.1	2	12.0	1.5
18	16.8	19.1	170	50	14.4	5	70	0.1	2	13.5	1.5
20	18.8	21.2	220	55	16.0	5	60	0.1	2	15.0	1.5

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BZX55- CXXX	WORKING VOLTAGE $V_Z$ (V) at $I_{Ztest}$		DIFFERENTIAL RESISTANCE $r_{diff}$ ( $\Omega$ )		TEMP. COEFF. $S_Z$ (mV/K) at $I_{Ztest}$ see Figs 5 and 6	TEST CURRENT $I_{Ztest}$ (mA)	DIODE CAP. $C_d$ (pF) at $f = 1$ MHz; at $V_R = 0$ V	REVERSE CURRENT AT REVERSE VOLTAGE			NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) at $t_p = 100 \mu\text{s}$ ; $T_{amb} = 25^\circ\text{C}$
	MIN.	MAX.	at $I_Z$	at $I_{Ztest}$				at $T_j = 25^\circ\text{C}$	at $T_j = 150^\circ\text{C}$	$V_R$ (V)	
			MAX.	MAX.	TYP.		MAX.	MAX.	MAX.	MAX.	MAX.
22	20.8	23.3	220	55	18.7	5	60	0.1	2	16.5	1.25
24	22.8	25.6	220	80	20.4	5	55	0.1	2	18.0	1.25
27	25.1	28.9	220	80	22.9	5	50	0.1	2	20.25	1.0
30	28.0	32.0	220	80	27.0	5	50	0.1	2	22.25	1.0
33	31.0	35.0	220	80	29.7	5	45	0.1	2	24.75	0.9
36	34.0	38.0	220	80	32.4	5	45	0.1	2	27.0	0.8
39	37.0	41.0	500	90	35.1	2.5	45	0.1	2	29.25	0.7
43	40.0	46.0	600	90	38.7	2.5	40	0.1	2	32.25	0.6
47	44.0	50.0	700	110	44.0	2.5	40	0.1	2	35.25	0.5
51	48.0	54.0	700	125	49.0	2.5	40	0.1	2	38.25	0.4
56	52.0	60.0	1000	135	55.0	2.5	40	0.1	2	42.0	0.3
62	58.0	66.0	1000	150	62.0	2.5	35	0.1	2	46.5	0.3
68	64.0	72.0	1000	200	70.0	2.5	35	0.1	2	51.0	0.25
75	70.0	79.0	1500	250	78.0	2.5	35	0.1	2	56.25	0.2

## Note

1. For BZX55-C2V4 up to C36  $I_Z = 1$  mA; for C39 up to C75  $I_Z = 0.5$  mA.

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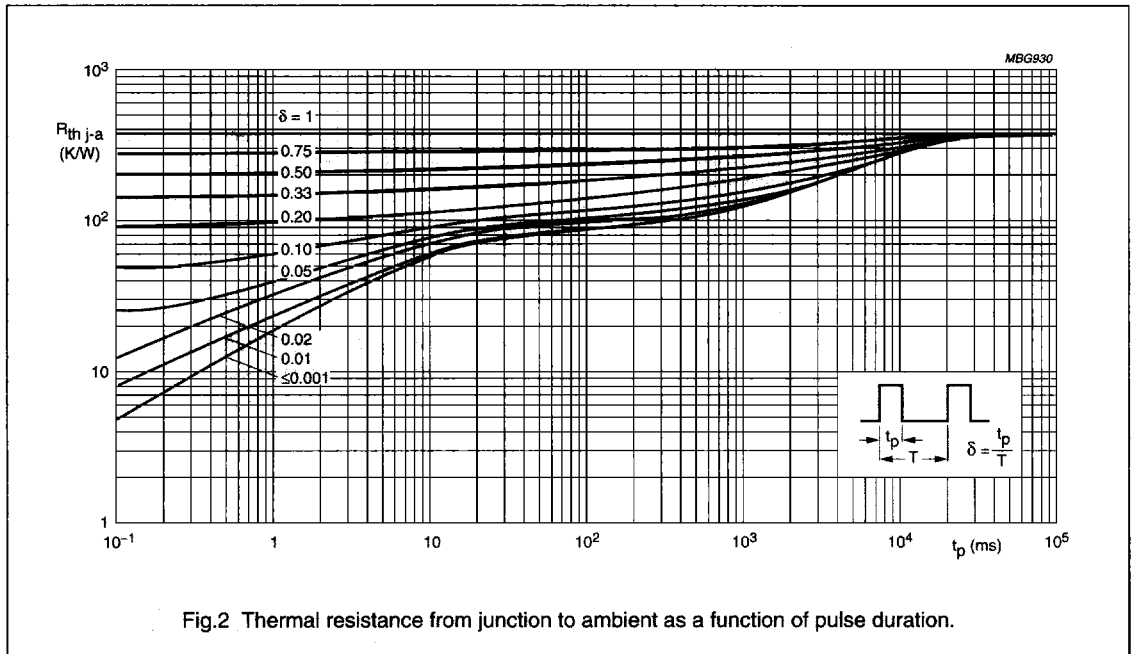
THEMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point	lead length 8 mm	300	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	lead length max.; see Fig.2 and note 1	380	K/W

Note

1. Device mounted on a printed circuit-board without metallization pad.

GRAPHICAL DATA



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