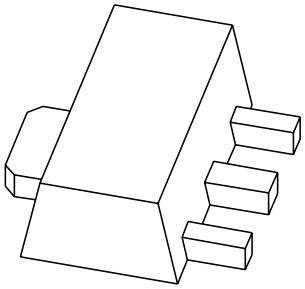
DATA SHEET



BZV49 series
Voltage regulator diodes

Product data sheet
Supersedes data of 1999 May 11

2005 Feb 03

NXP founded by Philips

Voltage regulator diodes BZV49 series

FEATURES

- Total power dissipation: max. 1 W
- Tolerance series: approx. ±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. ±5% tolerance range. The series consists of 37 types with nominal working voltages from 2.4 to 75 V (BZV49-C2V4 to BZV49-C75).

PINNING

PIN	DESCRIPTION
1	anode
2	cathode
3	anode

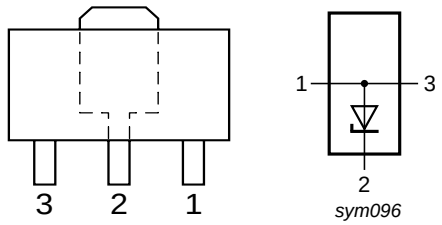


Fig.1 Simplified outline (SOT89) and symbol.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BZV49-C2V4 to BZV49-C75 note 1	SC-62	plastic surface mounted package; collector pad for good heat transfer; 3 leads	SOT89

Note

1. The series consists of 37 types with nominal working voltages from 2.4 to 75 V (E24 range).

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BZV49-C2V4	2Y4	BZV49-C6V2	6Y2	BZV49-C16	16Y	BZV49-C43	43Y
BZV49-C2V7	2Y7	BZV49-C6V8	6Y8	BZV49-C18	18Y	BZV49-C47	47Y
BZV49-C3V0	3Y0	BZV49-C7V5	7Y5	BZV49-C20	20Y	BZV49-C51	51Y
BZV49-C3Y3	3Y3	BZV49-C8V2	8Y2	BZV49-C22	22Y	BZV49-C56	56Y
BZV49-C3V6	3Y6	BZV49-C9V1	9Y1	BZV49-C24	24Y	BZV49-C62	62Y
BZV49-C3V9	3Y9	BZV49-C10	10Y	BZV49-C27	27Y	BZV49-C68	68Y
BZV49-C4V3	4Y3	BZV49-C11	11Y	BZV49-C30	30Y	BZV49-C75	75Y
BZV49-C4V7	4Y7	BZV49-C12	12Y	BZV49-C33	33Y	–	–
BZV49-C5V1	5Y1	BZV49-C13	13Y	BZV49-C36	36Y	–	–
BZV49-C5V6	5Y6	BZV49-C15	15Y	BZV49-C39	39Y	–	–

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_F	continuous forward current		–	250	mA
I_{ZSM}	non-repetitive peak reverse current	t_p = 100 μs; square wave; T_j = 25 °C prior to surge	see Table “Per type”		
P_{tot}	total power dissipation	T_{amb} = 25 °C; note 1	–	1	W
P_{ZSM}	non-repetitive peak reverse power dissipation	t_p = 100 μs; square wave; T_j = 25 °C prior to surge; see Fig.2	–	40	W
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C

Note

1. Device mounted on a ceramic substrate; area = 2.5 cm^2; thickness = 0.7 mm.

ELECTRICAL CHARACTERISTICS

Total series

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 50 mA; see Fig.3	1	V

Per type

T_j = 25 °C unless otherwise specified.

BZV49-CXXX	WORKING VOLTAGE V_Z (V) at I_{Ztest}		DIFFERENTIAL RESISTANCE r_{dif} (Ω) at I_{Ztest}		TEMP. COEFF. S_Z (mV/K) at I_{Ztest} see Figs 4 and 5			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 μs; T_{amb} = 25 °C
										I_R (μA)	V_R (V)	
	MIN.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.		MAX.	MAX.		MAX.
2V4	2.2	2.6	70	100	–3.5	–1.6	0	5	450	50	1.0	6.0
2V7	2.5	2.9	75	100	–3.5	–2.0	0	5	450	20	1.0	6.0
3V0	2.8	3.2	80	95	–3.5	–2.1	0	5	450	10	1.0	6.0
3V3	3.1	3.5	85	95	–3.5	–2.4	0	5	450	5	1.0	6.0
3V6	3.4	3.8	85	90	–3.5	–2.4	0	5	450	5	1.0	6.0
3V9	3.7	4.1	85	90	–3.5	–2.5	0	5	450	3	1.0	6.0
4V3	4.0	4.6	80	90	–3.5	–2.5	0	5	450	3	1.0	6.0
4V7	4.4	5.0	50	80	–3.5	–1.4	+0.2	5	300	3	2.0	6.0
5V1	4.8	5.4	40	60	–2.7	–0.8	+1.2	5	300	2	2.0	6.0
5V6	5.2	6.0	15	40	–2.0	+1.2	+2.5	5	300	1	2.0	6.0
6V2	5.8	6.6	6	10	0.4	2.3	3.7	5	200	3	4.0	6.0
6V8	6.4	7.2	6	15	1.2	3.0	4.5	5	200	2	4.0	6.0
7V5	7.0	7.9	6	15	2.5	4.0	5.3	5	150	1	5.0	4.0
8V2	7.7	8.7	6	15	3.2	4.6	6.2	5	150	0.7	5.0	4.0
9V1	8.5	9.6	6	15	3.8	5.5	7.0	5	150	0.5	6.0	3.0
10	9.4	10.6	8	20	4.5	6.4	8.0	5	90	0.2	7.0	3.0
11	10.4	11.6	10	20	5.4	7.4	9.0	5	85	0.1	8.0	2.5
12	11.4	12.7	10	25	6.0	8.4	10.0	5	85	0.1	8.0	2.5
13	12.4	14.1	10	30	7.0	9.4	11.0	5	80	0.1	8.0	2.5
15	13.8	15.6	10	30	9.2	11.4	13.0	5	75	0.05	10.5	2.0
16	15.3	17.1	10	40	10.4	12.4	14.0	5	75	0.05	11.2	1.5
18	16.8	19.1	10	45	12.4	14.4	16.0	5	70	0.05	12.6	1.5
20	18.8	21.2	15	55	14.4	16.4	18.0	5	60	0.05	14.0	1.5
22	20.8	23.3	20	55	16.4	18.4	20.0	5	60	0.05	15.4	1.25
24	22.8	25.6	25	70	18.4	20.4	22.0	5	55	0.05	16.8	1.25

BZV49-CXXX	WORKING VOLTAGE V_Z (V) at I_{Ztest}		DIFFERENTIAL RESISTANCE r_{dif} (Ω) at I_{Ztest}		TEMP. COEFF. S_Z (mV/K) at I_{Ztest} see Figs 4 and 5			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 μs; T_{amb} = 25 °C
										I_R (μA)	V_R (V)	
	MIN.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.		MAX.	MAX.		MAX.
27	25.1	28.9	25	80	21.4	23.4	25.3	2	50	0.05	18.9	1.0
30	28.0	32.0	30	80	24.4	26.6	29.4	2	50	0.05	21.0	1.0
33	31.0	35.0	35	80	27.4	29.7	33.4	2	45	0.05	23.1	0.9
36	34.0	38.0	35	90	30.4	33.0	37.4	2	45	0.05	25.2	0.8
39	37.0	41.0	40	130	33.4	36.4	41.2	2	45	0.05	27.3	0.7
43	40.0	46.0	45	150	37.6	41.2	46.6	2	40	0.05	30.1	0.6
47	44.0	50.0	50	170	42.0	46.1	51.8	2	40	0.05	32.9	0.5
51	48.0	54.0	60	180	46.6	51.0	57.2	2	40	0.05	35.7	0.4
56	52.0	60.0	70	200	52.2	57.0	63.8	2	40	0.05	39.2	0.3
62	58.0	66.0	80	215	58.8	64.4	71.6	2	35	0.05	43.4	0.3
68	64.0	72.0	90	240	65.6	71.7	79.8	2	35	0.05	47.6	0.25
75	70.0	79.0	95	255	73.4	80.2	88.6	2	35	0.05	52.5	0.2

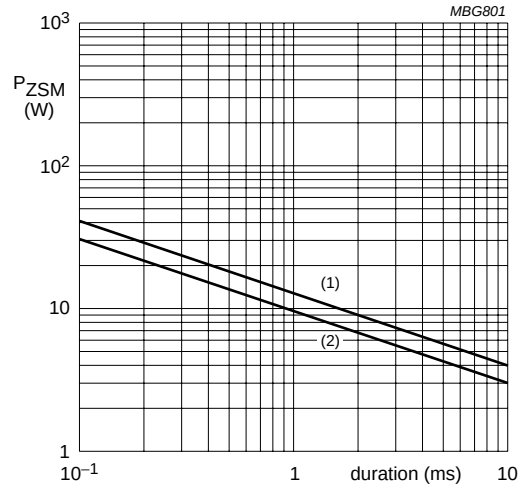
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-tp)}$	thermal resistance from junction to tie-point		15	K/W
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	125	K/W

Note

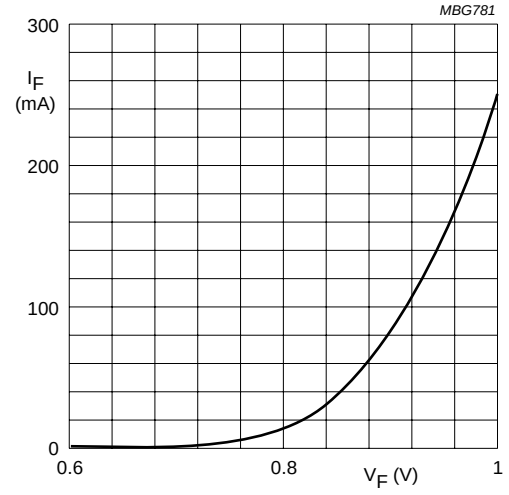
1. Device mounted on a ceramic substrate; area = 2.5 cm^2; thickness = 0.7 mm.

GRAPHICAL DATA



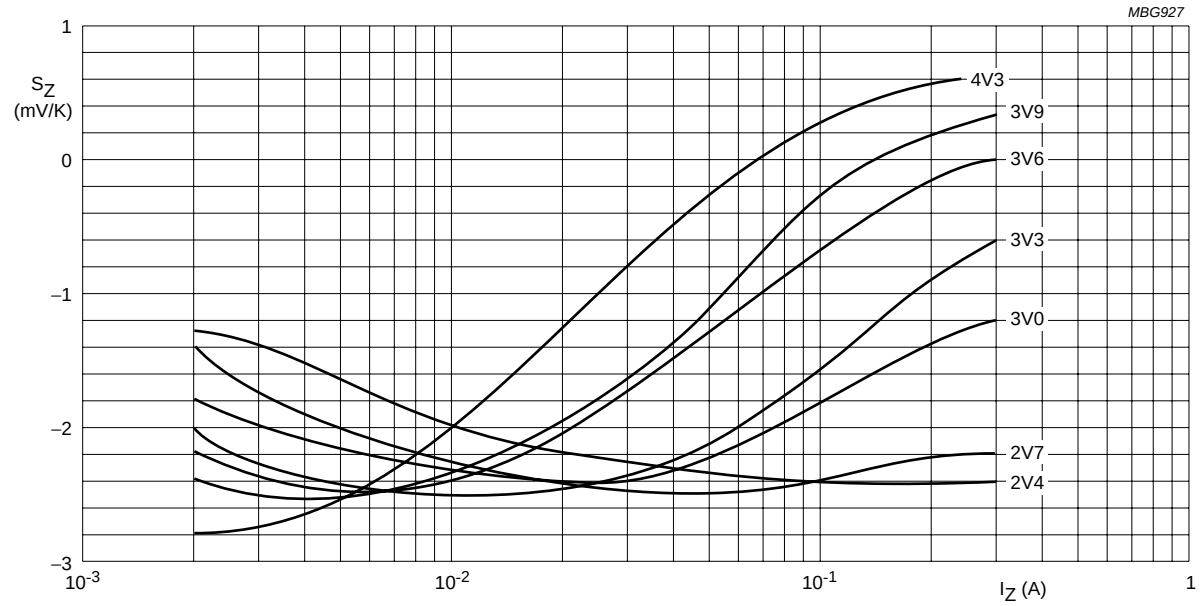
(1) T_j = 25 °C (prior to surge).
(2) T_j = 150 °C (prior to surge).

Fig.2 Maximum permissible non-repetitive peak reverse power dissipation versus duration.



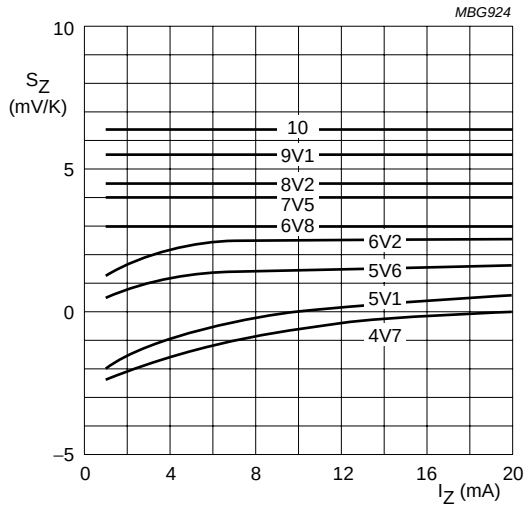
T_j = 25 °C.

Fig.3 Forward current as a function of forward voltage; typical values.



BZV49-C2V4 to C4V3.
T_j = 25 to 150 °C.

Fig.4 Temperature coefficient as a function of working current; typical values.

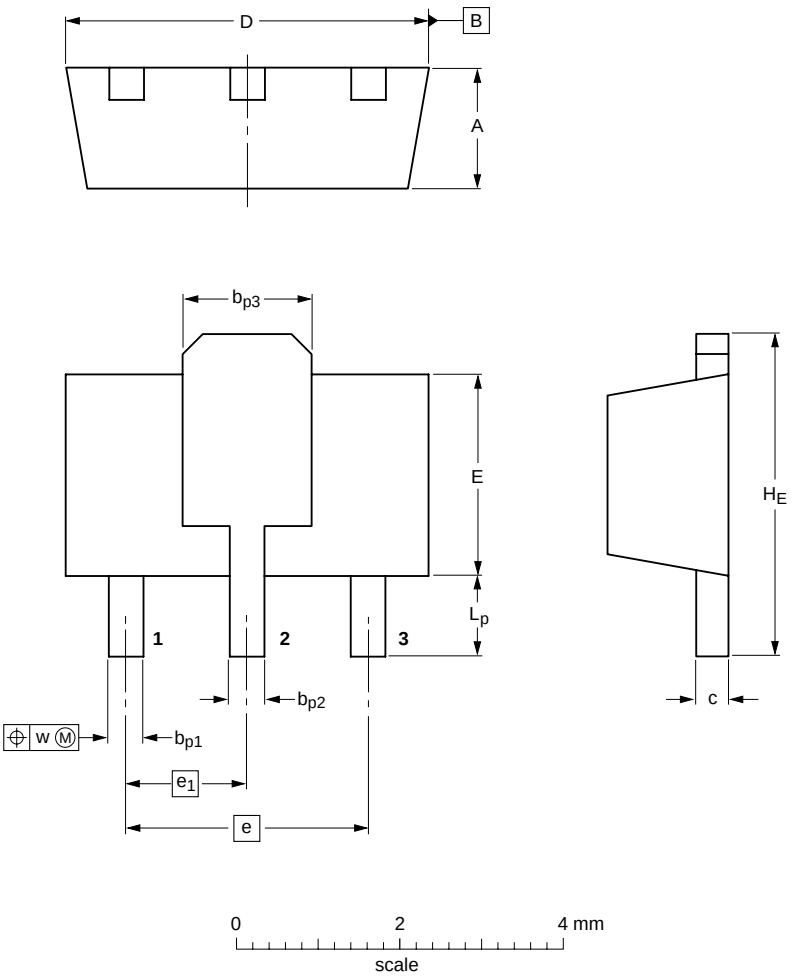


BZV49-C4V7 to C10.
T_j = 25 to 150 °C.

Fig.5 Temperature coefficient as a function of working current; typical values.

PACKAGE OUTLINE

Plastic surface-mounted package; collector pad for good heat transfer; 3 leads **SOT89**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_{p1}	b_{p2}	b_{p3}	c	D	E	e	e_1	H_E	L_p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT89		TO-243	SC-62			~~04-08-03~~ 06-03-16

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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