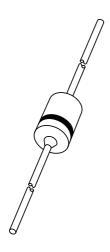
## **DISCRETE SEMICONDUCTORS**

## DATA SHEET



# **BZX79 series**Voltage regulator diodes

Product specification Supersedes data of 1999 May 25 2002 Feb 27





## Voltage regulator diodes

## **BZX79** series

#### **FEATURES**

- Total power dissipation: max. 500 mW
- Two tolerance series: ±2%, and approx. ±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  $\pm 2\%$  (BZX79-B) and approx.  $\pm 5\%$  (BZX79-C) tolerance range. The series consists of 37 types with nominal working voltages from 2.4 to 75 V.

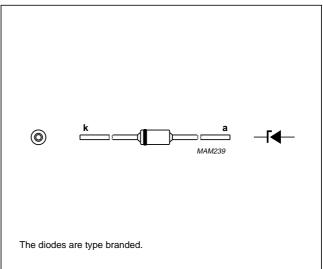


Fig.1 Simplified outline (SOD27; DO-35) and symbol.

#### **LIMITING VALUES**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I <sub>F</sub>	continuous forward current		_	250	mA
I <sub>ZSM</sub>	non-repetitive peak reverse current	$t_p$ = 100 μs; square wave; $T_j$ = 25 °C prior to surge	see Tables 1 and 2		A
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> = 50 °C; note 1	_	400	mW
		T <sub>amb</sub> = 50 °C; note 2	_	500	mW
P <sub>ZSM</sub>	non-repetitive peak reverse power dissipation	$t_p = 100 \mu s$ ; square wave; $T_j = 25 ^{\circ}C$ prior to surge; see Fig.3	_	40	W
T <sub>stg</sub>	storage temperature		-65	+200	°C
Tj	junction temperature		-65	+200	°C

### **Notes**

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

#### **ELECTRICAL CHARACTERISTICS**

#### Total BZX79-B and BZX79-C series

 $T_j = 25$  °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V <sub>F</sub>	forward voltage	I <sub>F</sub> = 10 mA; see Fig.4	0.9	V

## Voltage regulator diodes

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SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
I <sub>R</sub>	reverse current			
	BZX79-B/C2V4	V <sub>R</sub> = 1 V	50	μΑ
	BZX79-B/C2V7	V <sub>R</sub> = 1 V	20	μΑ
	BZX79-B/C3V0	V <sub>R</sub> = 1 V	10	μΑ
	BZX79-B/C3V3	V <sub>R</sub> = 1 V	5	μΑ
	BZX79-B/C3V6	V <sub>R</sub> = 1 V	5	μΑ
	BZX79-B/C3V9	V <sub>R</sub> = 1 V	3	μΑ
	BZX79-B/C4V3	V <sub>R</sub> = 1 V	3	μΑ
	BZX79-B/C4V7	V <sub>R</sub> = 2 V	3	μΑ
	BZX79-B/C5V1	V <sub>R</sub> = 2 V	2	μΑ
	BZX79-B/C5V6	V <sub>R</sub> = 2 V	1	μΑ
	BZX79-B/C6V2	V <sub>R</sub> = 4 V	3	μΑ
	BZX79-B/C6V8	V <sub>R</sub> = 4 V	2	μΑ
	BZX79-B/C7V5	V <sub>R</sub> = 5 V	1	μΑ
	BZX79-B/C8V2	V <sub>R</sub> = 5 V	700	nA
	BZX79-B/C9V1	V <sub>R</sub> = 6 V	500	nA
	BZX79-B/C10	V <sub>R</sub> = 7 V	200	nA
	BZX79-B/C11	V <sub>R</sub> = 8 V	100	nA
	BZX79-B/C12	V <sub>R</sub> = 8 V	100	nA
	BZX79-B/C13	V <sub>R</sub> = 8 V	100	nA
	BZX79-B/C15 to BZX79-B/C75	$V_R = 0.7 V_{Znom}$	50	nA

BZX79 series

Table 1Per type, BZX79-B/C2V4 to BZX79-B/C24

T<sub>i</sub> = 25 °C unless otherwise specified.

BZX79-	W	_	VOLTA (V) = 5 mA	GE	DIFFE	DIFFERENTIAL RESISTANCE $r_{dif}$ ( $\Omega$ )			TEMP. COEFF. S <sub>Z</sub> (mV/K) at I <sub>Ztest</sub> = 5 mA			DIODE CAP.  C <sub>d</sub> (pF)  at f = 1 MHz;	NON-REPETITIVE PEAK REVERSE CURRENT I <sub>ZSM</sub> (A)
Bxxx Cxxx	Tol. ±	2% (B)	1	pprox. (C)	at I <sub>Ztest</sub>	= 1 mA	at I <sub>Ztest</sub>	= 5 mA	(see	Figs 5 a	and 6) V <sub>R</sub> = <b>0</b> V		at t <sub>p</sub> = 100 μs; T <sub>amb</sub> = 25 °C
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.	MAX.	MAX.
2V4	2.35	2.45	2.2	2.6	275	600	70	100	-3.5	-1.6	0	450	6.0
2V7	2.65	2.75	2.5	2.9	300	600	75	100	-3.5	-2.0	0	450	6.0
3V0	2.94	3.06	2.8	3.2	325	600	80	95	-3.5	-2.1	0	450	6.0
3V3	3.23	3.37	3.1	3.5	350	600	85	95	-3.5	-2.4	0	450	6.0
3V6	3.53	3.67	3.4	3.8	375	600	85	90	-3.5	-2.4	0	450	6.0
3V9	3.82	3.98	3.7	4.1	400	600	85	90	-3.5	-2.5	0	450	6.0
4V3	4.21	4.39	4.0	4.6	410	600	80	90	-3.5	-2.5	0	450	6.0
4V7	4.61	4.79	4.4	5.0	425	500	50	80	-3.5	-1.4	0.2	300	6.0
5V1	5.00	5.20	4.8	5.4	400	480	40	60	-2.7	-0.8	1.2	300	6.0
5V6	5.49	5.71	5.2	6.0	80	400	15	40	-2.0	1.2	2.5	300	6.0
6V2	6.08	6.32	5.8	6.6	40	150	6	10	0.4	2.3	3.7	200	6.0
6V8	6.66	6.94	6.4	7.2	30	80	6	15	1.2	3.0	4.5	200	6.0
7V5	7.35	7.65	7.0	7.9	30	80	6	15	2.5	4.0	5.3	150	4.0
8V2	8.04	8.36	7.7	8.7	40	80	6	15	3.2	4.6	6.2	150	4.0
9V1	8.92	9.28	8.5	9.6	40	100	6	15	3.8	5.5	7.0	150	3.0
10	9.80	10.20	9.4	10.6	50	150	8	20	4.5	6.4	8.0	90	3.0
11	10.80	11.20	10.4	11.6	50	150	10	20	5.4	7.4	9.0	85	2.5
12	11.80	12.20	11.4	12.7	50	150	10	25	6.0	8.4	10.0	85	2.5
13	12.70	13.30	12.4	14.1	50	170	10	30	7.0	9.4	11.0	80	2.5
15	14.70	15.30	13.8	15.6	50	200	10	30	9.2	11.4	13.0	75	2.0
16	15.70	16.30	15.3	17.1	50	200	10	40	10.4	12.4	14.0	75	1.5
18	17.60	18.40	16.8	19.1	50	225	10	45	12.4	14.4	16.0	70	1.5
20	19.60	20.40	18.8	21.2	60	225	15	55	12.3	15.6	18.0	60	1.5
22	21.60	22.40	20.8	23.3	60	250	20	55	14.1	17.6	20.0	60	1.25
24	23.50	24.50	22.8	25.6	60	250	25	70	15.9	19.6	22.0	55	1.25

Voltage regulator diodes

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Table 2 Per type, BZX79-B/C27 to BZX79-B/C75

T<sub>i</sub> = 25 °C unless otherwise specified.

BZX79-	W	_	VOLTA (V) = 2 mA	_	DIFFERENTIAL RESISTANCE $r_{dif}$ ( $\Omega$ )			TEMP. COEFF.  S <sub>Z</sub> (mV/K)  at I <sub>Ztest</sub> = 2 mA			DIODE CAP.  C <sub>d</sub> (pF)  at f = 1 MHz;	NON-REPETITIVE PEAK REVERSE CURRENT I <sub>ZSM</sub> (A)	
Bxxx Cxxx	Tol. ±2% (B) Tol. ap			at la = U 5 ma		at I <sub>Ztest</sub> = 2 mA		(see Figs 5 and 6)		V <sub>R</sub> = 0 V	at t <sub>p</sub> = 100 μs; T <sub>amb</sub> = 25 °C		
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	MIN.	TYP.	MAX.	MAX.	MAX.
27	26.50	27.50	25.1	28.9	65	300	25	80	18.0	22.7	25.3	50	1.0
30	29.40	30.60	28.0	32.0	70	300	30	80	20.6	25.7	29.4	50	1.0
33	32.30	33.70	31.0	35.0	75	325	35	80	23.3	28.7	33.4	45	0.9
36	35.30	36.70	34.0	38.0	80	350	35	90	26.0	31.8	37.4	45	0.8
39	38.20	39.80	37.0	41.0	80	350	40	130	28.7	34.8	41.2	45	0.7
43	42.10	43.90	40.0	46.0	85	375	45	150	31.4	38.8	46.6	40	0.6
47	46.10	47.90	44.0	50.0	85	375	50	170	35.0	42.9	51.8	40	0.5
51	50.00	52.00	48.0	54.0	90	400	60	180	38.6	46.9	57.2	40	0.4
56	54.90	57.10	52.0	60.0	100	425	70	200	42.2	52.0	63.8	40	0.3
62	60.80	63.20	58.0	66.0	120	450	80	215	58.8	64.4	71.6	35	0.3
68	66.60	69.40	64.0	72.0	150	475	90	240	65.6	71.7	79.8	35	0.25
75	73.50	76.50	70.0	79.0	170	500	95	255	73.4	80.2	88.6	35	0.2

## Voltage regulator diodes

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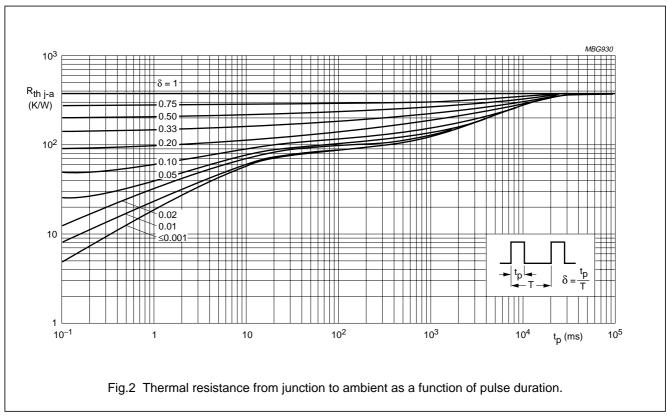
## THERMAL CHARACTERISTICS

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

#### Note

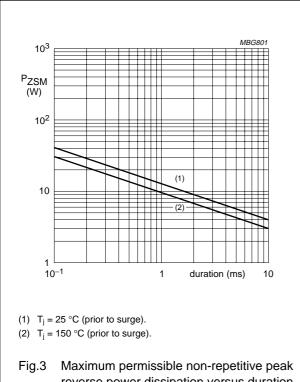
1. Device mounted on a printed circuit-board without metallization pad.

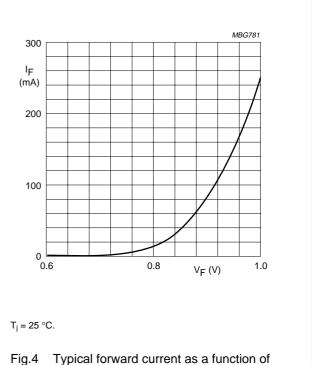
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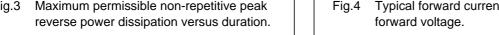


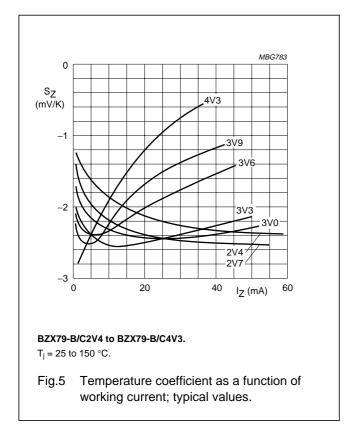
## Voltage regulator diodes

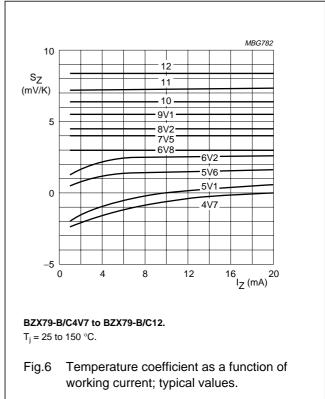
## BZX79 series











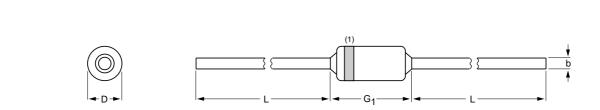
## Voltage regulator diodes

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## **PACKAGE OUTLINE**

Hermetically sealed glass package; axial leaded; 2 leads

SOD27



#### **DIMENSIONS** (mm are the original dimensions)

UNIT	b max.	D max.	G <sub>1</sub> max.	L min.	
mm	0.56	1.85	4.25	25.4	

0 1 2 mm scale

#### Note

1. The marking band indicates the cathode.

OUTLINE		REFER	EUROPEAN	ISSUE DATE			
VERSION	IEC	JEDEC	EIAJ		PROJECTION	ISSUE DATE	
SOD27	A24	DO-35	SC-40			97-06-09	

## Voltage regulator diodes

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## Voltage regulator diodes

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NOTES

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NOTES

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