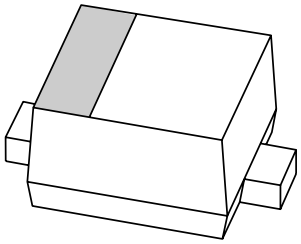
DATA SHEET



BZX585 series
Voltage regulator diodes

Product data sheet
Supersedes data of 2004 Mar 26

2004 Jun 22

Voltage regulator diodes BZX585 series

FEATURES

- Total power dissipation: max. 300 mW
- Two tolerance series: ± 2 % and ± 5 %
- Working voltage range: nominal 2.4 V to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max. 40 W.

APPLICATIONS

- General regulation functions.

DESCRIPTION

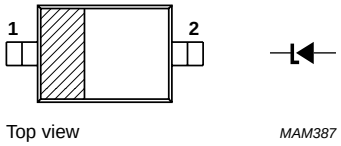
Low-power voltage regulator diodes encapsulated in an ultra small SOD523 plastic SMD package.

The diodes are available in the normalized E24 ± 2 % (BZX585-B) and ± 5 % (BZX585-C) tolerance range.

The series consists of 37 types with nominal working voltages from 2.4 V to 75 V.

PINNING

PIN	DESCRIPTION
1	cathode
2	anode



The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD523) and symbol.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
Marking codes for BZX585-B2V4 to BZX585-B75							
BZX585-B2V4	C1	BZX585-B6V2	E1	BZX585-B16	EA	BZX585-B43	EM
BZX585-B2V7	C2	BZX585-B6V8	E2	BZX585-B18	EB	BZX585-B47	EN
BZX585-B3V0	C3	BZX585-B7V5	E3	BZX585-B20	EC	BZX585-B51	EP
BZX585-B3V3	C4	BZX585-B8V2	E4	BZX585-B22	ED	BZX585-B56	ER
BZX585-B3V6	C5	BZX585-B9V1	E5	BZX585-B24	EE	BZX585-B62	ES
BZX585-B3V9	C6	BZX585-B10	E6	BZX585-B27	EF	BZX585-B68	ET
BZX585-B4V3	C7	BZX585-B11	E7	BZX585-B30	EG	BZX585-B75	EU
BZX585-B4V7	C8	BZX585-B12	E8	BZX585-B33	EH		
BZX585-B5V1	C9	BZX585-B13	E9	BZX585-B36	EK		
BZX585-B5V6	C0	BZX585-B15	E0	BZX585-B39	EL		

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
Marking codes for BZX585-C2V4 to BZX585-C75							
BZX585-C2V4	F1	BZX585-C6V2	H1	BZX585-C16	HA	BZX585-C43	HM
BZX585-C2V7	F2	BZX585-C6V8	H2	BZX585-C18	HB	BZX585-C47	HN
BZX585-C3V0	F3	BZX585-C7V5	H3	BZX585-C20	HC	BZX585-C51	HP
BZX585-C3V3	F4	BZX585-C8V2	H4	BZX585-C22	HD	BZX585-C56	HR
BZX585-C3V6	F5	BZX585-C9V1	H5	BZX585-C24	HE	BZX585-C62	HS
BZX585-C3V9	F6	BZX585-C10	H6	BZX585-C27	HF	BZX585-C68	HT
BZX585-C4V3	F7	BZX585-C11	H7	BZX585-C30	HG	BZX585-C75	HU
BZX585-C4V7	F8	BZX585-C12	H8	BZX585-C33	HH		
BZX585-C5V1	F9	BZX585-C13	H9	BZX585-C36	HK		
BZX585-C5V6	F0	BZX585-C15	H0	BZX585-C39	HL		

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BZX585-B2V4 to BZX585-B75	–	Plastic surface mounted package; 2 leads	SOD523
BZX585-C2V4 to BZX585-C75	–	Plastic surface mounted package; 2 leads	SOD523

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_F	continuous forward current		–	200	mA
I_{ZSM}	non-repetitive peak reverse current	t_p = 100 μs; square wave; T_{amb} = 25 °C prior to surge	see Tables 1 and 2		
P_{ZSM}	non-repetitive peak reverse power dissipation	t_p = 100 μs; square wave; T_{amb} = 25 °C prior to surge	–	40	W
P_{tot}	total power dissipation	T_{amb} = 25 °C; note 1	–	300	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		−65	+150	°C

Note

1. Device mounted on an FR4 printed-circuit board with approximately 35 mm^2 Cu area at cathode tab.

ELECTRICAL CHARACTERISTICS

Total BZX585-B and C series

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 10 mA; see Fig.2	0.9	V
		I_F = 100 mA; see Fig.2	1.1	V
I_R	reverse current			
	BZX585-B/C2V4	V_R = 1 V	50	μA
	BZX585-B/C2V7	V_R = 1 V	20	μA
	BZX585-B/C3V0	V_R = 1 V	10	μA
	BZX585-B/C3V3	V_R = 1 V	5	μA
	BZX585-B/C3V6	V_R = 1 V	5	μA
	BZX585-B/C3V9	V_R = 1 V	3	μA
	BZX585-B/C4V3	V_R = 1 V	3	μA
	BZX585-B/C4V7	V_R = 2 V	3	μA
	BZX585-B/C5V1	V_R = 2 V	2	μA
	BZX585-B/C5V6	V_R = 2 V	1	μA
	BZX585-B/C6V2	V_R = 4 V	3	μA
	BZX585-B/C6V8	V_R = 4 V	2	μA
	BZX585-B/C7V5	V_R = 5 V	1	μA
	BZX585-B/C8V2	V_R = 5 V	700	nA
	BZX585-B/C9V1	V_R = 6 V	500	nA
	BZX585-B/C10	V_R = 7 V	200	nA
	BZX585-B/C11	V_R = 8 V	100	nA
	BZX585-B/C12	V_R = 8 V	100	nA
	BZX585-B/C13	V_R = 8 V	100	nA
	BZX585-B/C15 to 75	$V_R = 0.7V_{Znom}$	50	nA

Table 1 Per type BZX585-**B/C2V4** to **B/C24**

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

BZX585-B or C XXX	WORKING VOLTAGE V_Z (V) at I_{Ztest} = 5 mA				DIFFERENTIAL RESISTANCE r_{dif} (Ω)				TEMP. COEFF. S_Z (mV/K) at I_{Ztest} = 5 mA (see figs 3 AND 4)	DIODE CAP. C_d (pF) at f = 1 MHz; V_R = 0 V	NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM} (A) at t_p = 100 μs
	Tol. ± 2% (B)		Tol. ± 5% (C)		at I_{Ztest} = 1 mA		at I_{Ztest} = 5 mA				
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	MAX.
2V4	2.35	2.45	2.28	2.52	275	400	70	100	−1.3	450	6.0
2V7	2.65	2.75	2.57	2.84	300	450	75	100	−1.4	440	6.0
3V0	2.94	3.06	2.85	3.15	325	500	80	95	−1.6	425	6.0
3V3	3.23	3.37	3.14	3.47	350	500	85	95	−1.8	410	6.0
3V6	3.53	3.67	3.42	3.78	375	500	85	90	−1.9	390	6.0
3V9	3.82	3.98	3.71	4.10	400	500	85	90	−1.9	370	6.0
4V3	4.21	4.39	4.09	4.52	410	600	80	90	−1.7	350	6.0
4V7	4.61	4.79	4.47	4.94	425	500	50	80	−1.2	325	6.0
5V1	5.00	5.20	4.85	5.36	400	480	40	60	−0.5	300	6.0
5V6	5.49	5.71	5.32	5.88	80	400	15	40	1.0	275	6.0
6V2	6.08	6.32	5.89	6.51	40	150	6	10	2.2	250	6.0
6V8	6.66	6.94	6.46	7.14	30	80	6	15	3.0	215	6.0
7V5	7.35	7.65	7.13	7.88	15	80	2	10	3.6	170	4.0
8V2	8.04	8.36	7.79	8.61	20	80	2	10	4.3	150	4.0
9V1	8.92	9.28	8.65	9.56	20	100	2	10	5.2	120	3.0
10	9.80	10.20	9.50	10.50	20	150	2	10	6.0	110	3.0
11	10.78	11.22	10.45	11.55	25	150	2	10	6.9	110	2.5
12	11.76	12.24	11.40	12.60	25	150	2	10	7.9	105	2.5
13	12.74	13.26	12.35	13.65	25	170	2	10	8.8	105	2.5
15	14.70	15.30	14.25	15.75	25	200	3	15	10.7	100	2.0
16	15.68	16.32	15.20	16.80	50	200	10	40	12.4	90	1.5
18	17.64	18.36	17.10	18.90	50	225	10	45	14.4	80	1.5
20	19.60	20.40	19.00	21.00	60	225	15	55	16.4	70	1.5
22	21.56	22.44	20.90	23.10	60	250	20	55	18.4	60	1.25
24	23.52	24.48	22.80	25.20	60	250	25	70	20.4	55	1.25

Table 2 Per type BZX585-**B/C27** to **B/C75**

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

BZX585-B or C XXX	WORKING VOLTAGE V_Z (V) at I_{Ztest} = 2 mA				DIFFERENTIAL RESISTANCE r_{dif} (Ω)				TEMP. COEFF. S_Z (mV/K) at I_{Ztest} = 2 mA (see figs 3 and 4)	DIODE CAP. C_d (pF) at f = 1 MHz; V_R = 0 V	NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM} (A) at t_p = 100 μs
	Tol. ± 2 % (B)		Tol. ± 5 % (C)		at I_{Ztest} = 0.5 mA		at I_{Ztest} = 2 mA				
	MIN.	MAX.	MIN.	MAX.	TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	MAX.
27	26.46	27.54	25.65	28.35	65	300	25	80	23.4	50	1.0
30	29.40	30.60	28.50	31.50	70	300	30	80	26.6	50	1.0
33	32.34	33.66	31.35	34.65	75	325	35	80	29.7	45	0.9
36	35.28	36.72	34.20	37.80	80	350	35	90	33.0	45	0.8
39	38.22	39.78	37.05	40.95	80	350	40	130	36.4	45	0.7
43	42.14	43.86	40.85	45.15	85	375	45	150	41.2	40	0.6
47	46.06	47.94	44.65	49.35	85	375	50	170	46.1	40	0.5
51	49.98	52.02	48.45	53.55	90	400	60	180	51.0	40	0.4
56	54.88	57.12	53.20	58.80	100	425	70	200	57.0	40	0.3
62	60.76	63.24	58.90	65.10	120	450	80	215	64.4	35	0.3
68	66.64	69.36	64.60	71.40	150	475	90	240	71.7	35	0.25
75	73.50	76.50	71.25	78.75	170	500	95	255	80.2	35	0.2

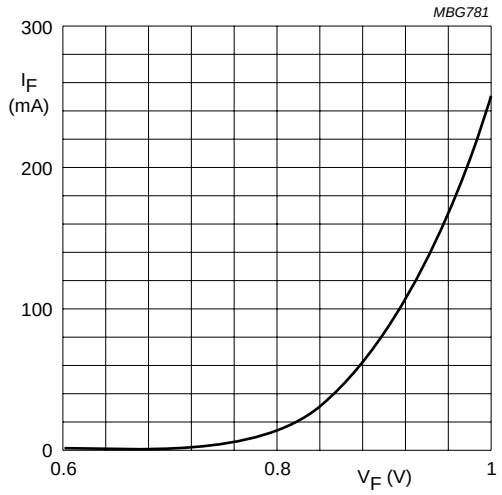
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	note 1	350	K/W
$R_{th(j-s)}$	thermal resistance from junction to solder point	note 2	65	K/W

Notes

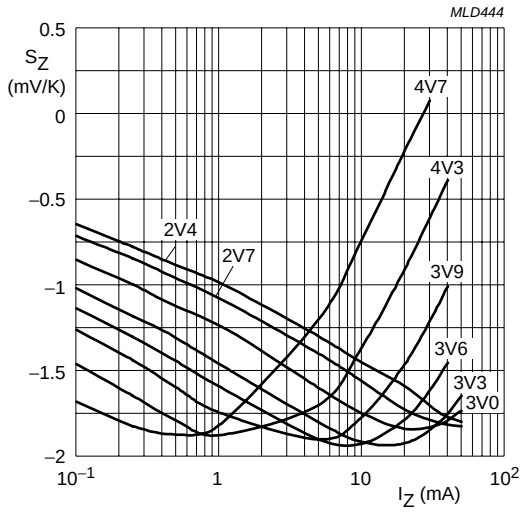
1. Device mounted on a FR4 printed-circuit board with approximately 35 mm^2 Cu area at cathode tab.
2. Solder point at cathode tab.

GRAPHICAL DATA



T_{amb} = 25 °C.

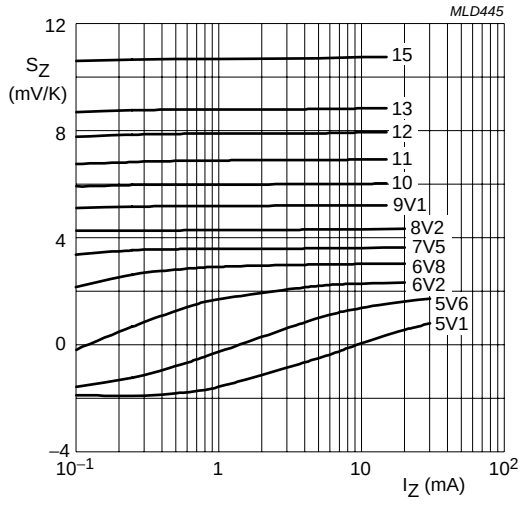
Fig.2 Forward current as a function of forward voltage; typical values.



BZX585-B/C2V4 to B/C4V7.

T_{amb} = 25 °C to 150 °C.

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



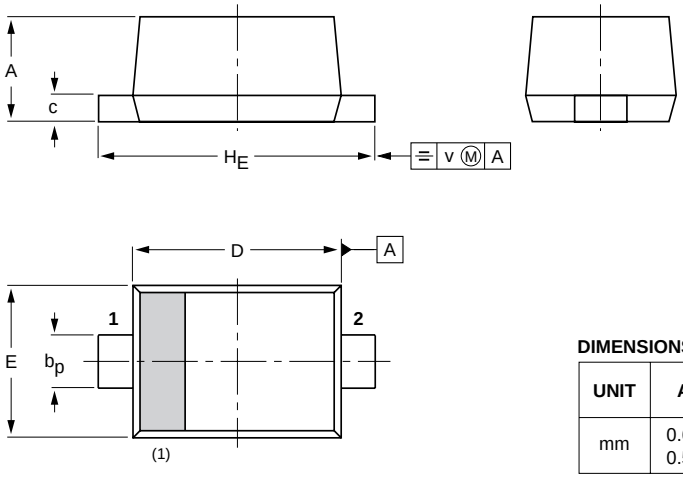
BZX585-B/C5V1 to B/C15.

T_{amb} = 25 °C to 150 °C.

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

PACKAGE OUTLINE

Plastic surface-mounted package; 2 leads **SOD523**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	H_E	v
mm	0.65 0.58	0.34 0.26	0.17 0.11	1.25 1.15	0.85 0.75	1.65 1.55	0.1

Note

1. The marking bar indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD523			SC-79			~~02-12-13~~ 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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