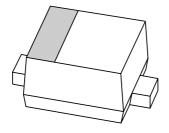
DISCRETE SEMICONDUCTORS

DATA SHEET



BZX585 seriesVoltage regulator diodes

Product specification Supersedes data of 2004 Mar 26 2004 Jun 22

Philips Semiconductors





Voltage regulator diodes

BZX585 series

FEATURES

• Total power dissipation: max. 300 mW

• Two tolerance series: \pm 2 % and \pm 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 \pm 2 % (BZX585-B) and \pm 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

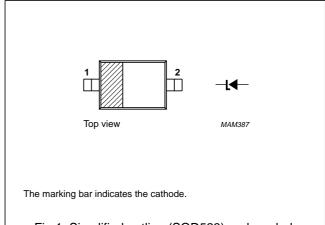


Fig.1 Simplified outline (SOD523) and symbol.

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					

Voltage regulator diodes

BZX585 series

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	НМ			
BZX585-C2V7	F2	BZX585-C6V8	H2	BZX585-C18	НВ	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	PACKAGE							
NUMBER	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
Tj	junction temperature		-65	+150	°C

Note

1. Device mounted on an FR4 printed-circuit board with approximately 35 mm² Cu area at cathode tab.

Voltage regulator diodes

BZX585 series

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	μΑ
	BZX585-B/C2V7	V _R = 1 V	20	μΑ
	BZX585-B/C3V0	V _R = 1 V	10	μΑ
	BZX585-B/C3V3	V _R = 1 V	5	μΑ
	BZX585-B/C3V6	V _R = 1 V	5	μΑ
	BZX585-B/C3V9	V _R = 1 V	3	μΑ
	BZX585-B/C4V3	V _R = 1 V	3	μΑ
	BZX585-B/C4V7	V _R = 2 V	3	μΑ
	BZX585-B/C5V1	V _R = 2 V	2	μΑ
	BZX585-B/C5V6	V _R = 2 V	1	μΑ
	BZX585-B/C6V2	V _R = 4 V	3	μΑ
	BZX585-B/C6V8	V _R = 4 V	2	μΑ
	BZX585-B/C7V5	V _R = 5 V	1	μΑ
	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

Voltage regulator diodes

BZX585 series

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

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

BZX585- B or C	24 l = 5 m A		DIFFE		L RESIST (Ω)	ANCE	TEMP. COEFF. S _Z (mV/K) at I _{Ztest} = 5 mA	DIODE CAP. C _d (pF) at f = 1 MHz;	NON-REPETITIVE PEAK REVERSE CURRENT I _{ZSM} (A) at t _p = 100 μs		
XXX	Tol. ±	2% (B)	Tol. ±	5% (C)	at I _{Ztest}	= 1 mA	at I _{Ztest}	= 5 mA	(see figs 3 AND 4)	V _R = 0 V	12SM (Α) αι τρ = 100 μS
	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

Product specification

Table 2 Per type BZX585-B/C27 to B/C75 T_{amb} = 25 °C unless otherwise specified.

BZX585- B or C	WORKING VOLTAGE V _Z (V) at I _{Ztest} = 2 mA				DIFF	ERENTIA r _{dif}	L RESIS [*] (Ω)	TANCE	TEMP. COEFF. S _Z (mV/K) at I _{Ztest} = 2 mA	DIODE CAP. C _d (pF) at f = 1 MHz;	NON-REPETITIVE PEAK REVERSE CURRENT	
XXX	Tol. ± 2	2 % (B)	Tol. ±	5 % (C)	at I _{Ztest} = 0.5 mA at I _{Ztes}			at I _{Ztest} = 2 mA (see figs 3 and 4)		V _R = 0 V	I_{ZSM} (A) at $t_p = 100 \mu s$	
	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

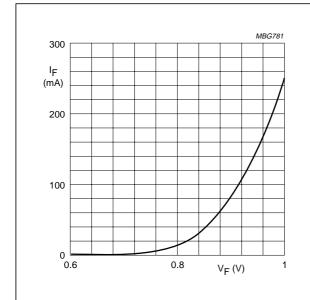
Notes

- 1. Device mounted on a FR4 printed-circuit board with approximately 35 mm² Cu area at cathode tab.
- 2. Solder point at cathode tab.

Voltage regulator diodes

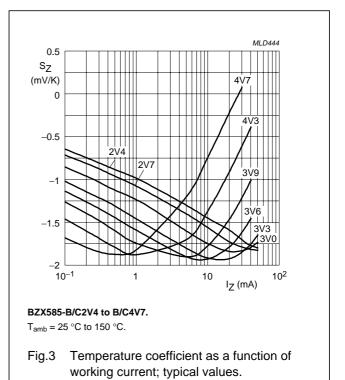
BZX585 series

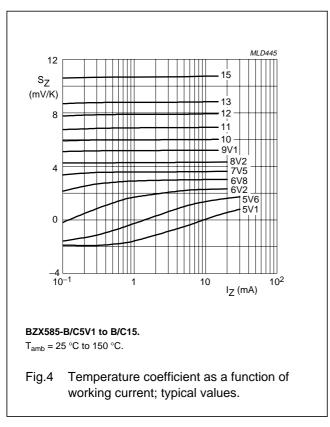
GRAPHICAL DATA



 $T_{amb} = 25 \, ^{\circ}C.$

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

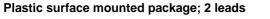




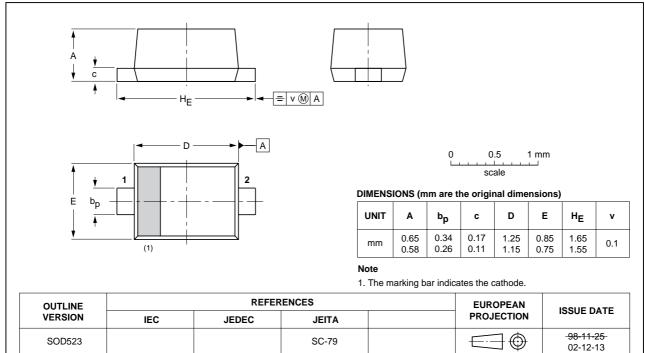
Voltage regulator diodes

BZX585 series

PACKAGE OUTLINE



SOD523



Voltage regulator diodes

BZX585 series

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS(2)(3)	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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Notes

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