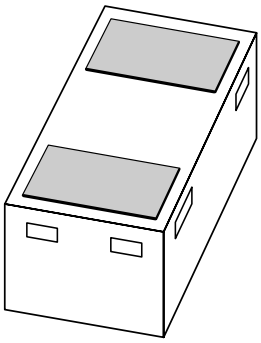
DATA SHEET



BZX884 series
Voltage regulator diodes

Product specification

2003 May 15

Philips
Semiconductors

PHILIPS

Voltage regulator diodes BZX884 series

FEATURES

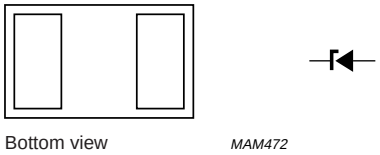
- Two tolerance series: ±2% and approximately ±5%
- Working voltage range: nom. 2.4 to 15 V
- Leadless ultra small plastic package (1 mm × 0.6 mm × 0.5 mm)
- Boardspace 1.17 mm^2 (approximately 10% of SOT23)
- Power dissipation comparable to SOT23.

APPLICATIONS

- General regulation functions
- ESD ultra high-speed switching
- High frequency applications
- Mobile communication, digital (still) cameras, PDAs and PCMCIA cards.

DESCRIPTION

Low-power voltage regulator diodes encapsulated in SOD882 leadless ultra small plastic packages.



The marking bar indicates the cathode.

Fig.1 Simplified outline (SOD882) and symbol.

MARKING

TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE	TYPE NUMBER	MARKING CODE
BZX884-B2V4	A1	BZX884-B6V2	AB	BZX884-C2V4	B1	BZX884-C6V2	BB
BZX884-B2V7	A2	BZX884-B6V8	AC	BZX884-C2V7	B2	BZX884-C6V8	BC
BZX884-B3V0	A3	BZX884-B7V5	AD	BZX884-C3V0	B3	BZX884-C7V5	BD
BZX884-B3V3	A4	BZX884-B8V2	AE	BZX884-C3V3	B4	BZX884-C8V2	BE
BZX884-B3V6	A5	BZX884-B9V1	AF	BZX884-C3V6	B5	BZX884-C9V1	BF
BZX884-B3V9	A6	BZX884-B10	AG	BZX884-C3V9	B6	BZX884-C10	BG
BZX884-B4V3	A7	BZX884-B11	AH	BZX884-C4V3	B7	BZX884-C11	BH
BZX884-B4V7	A8	BZX884-B12	AJ	BZX884-C4V7	B8	BZX884-C12	BJ
BZX884-B5V1	A9	BZX884-B13	AK	BZX884-C5V1	B9	BZX884-C13	BK
BZX884-B5V6	AA	BZX884-B15	AL	BZX884-C5V6	BA	BZX884-C15	BL

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 Table 1		
P_{tot}	total power dissipation	T_{amb} = 25 °C; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C

Note

1. Refer to SOD882 standard mounting conditions (footprint), FR4 with 60 µm copper strip line.

ELECTRICAL CHARACTERISTICS

T_j = 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_R	reverse current			
	BZX884-B/C2V4	V_R = 1 V	50	µA
	BZX884-B/C2V7	V_R = 1 V	20	µA
	BZX884-B/C3V0	V_R = 1 V	10	µA
	BZX884-B/C3V3	V_R = 1 V	5	µA
	BZX884-B/C3V6	V_R = 1 V	5	µA
	BZX884-B/C3V9	V_R = 1 V	3	µA
	BZX884-B/C4V3	V_R = 1 V	3	µA
	BZX884-B/C4V7	V_R = 2 V	3	µA
	BZX884-B/C5V1	V_R = 2 V	2	µA
	BZX884-B/C5V6	V_R = 2 V	1	µA
	BZX884-B/C6V2	V_R = 4 V	3	µA
	BZX884-B/C6V8	V_R = 4 V	2	µA
	BZX884-B/C7V5	V_R = 5 V	1	µA
	BZX884-B/C8V2	V_R = 5 V	700	nA
	BZX884-B/C9V1	V_R = 6 V	500	nA
	BZX884-B/C10	V_R = 7 V	200	nA
	BZX884-B/C11	V_R = 8 V	100	nA
	BZX884-B/C12	V_R = 8 V	100	nA
	BZX884-B/C13	V_R = 8 V	100	nA
	BZX884-B/C15	V_R = 10.5V	50	nA

Table 1 Per type BZX884-**B/C2V4** to **B/C15**

T_j = 25 °C unless otherwise specified.

BZX884-B or C XXX	WORKING VOLTAGE V_Z (V) at I_Z = 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; T_{amb} = 25 °C
	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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	500	K/W

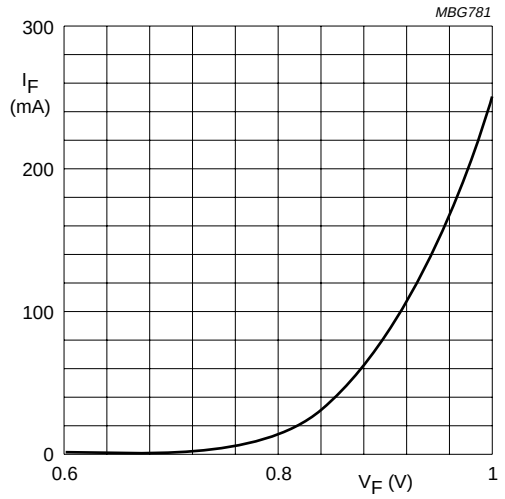
Notes

1. Refer to SOD882 standard mounting conditions (footprint), FR4 with 60 μm copper strip line.

SOLDERING

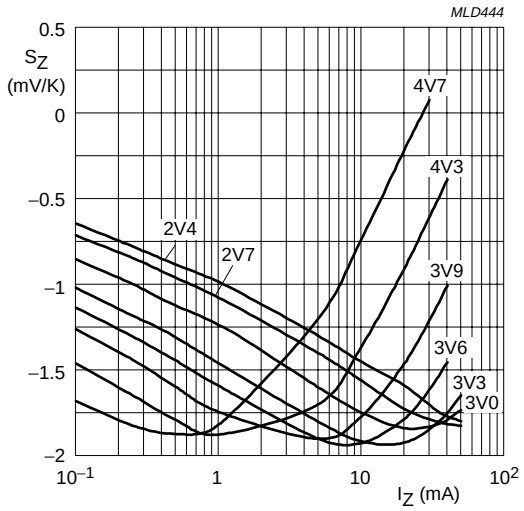
Reflow soldering is the only recommended soldering method.

GRAPHICAL DATA



T_j = 25 °C.

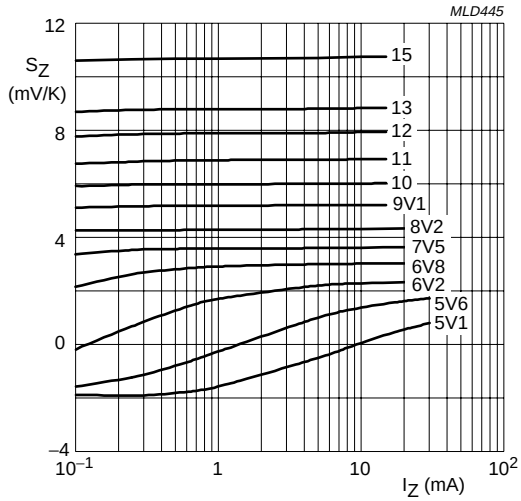
Fig.2 Forward current as a function of forward voltage; typical values.



BZX885-B/C2V4 to B/C4V7.

T_j = 25 to 150 °C.

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



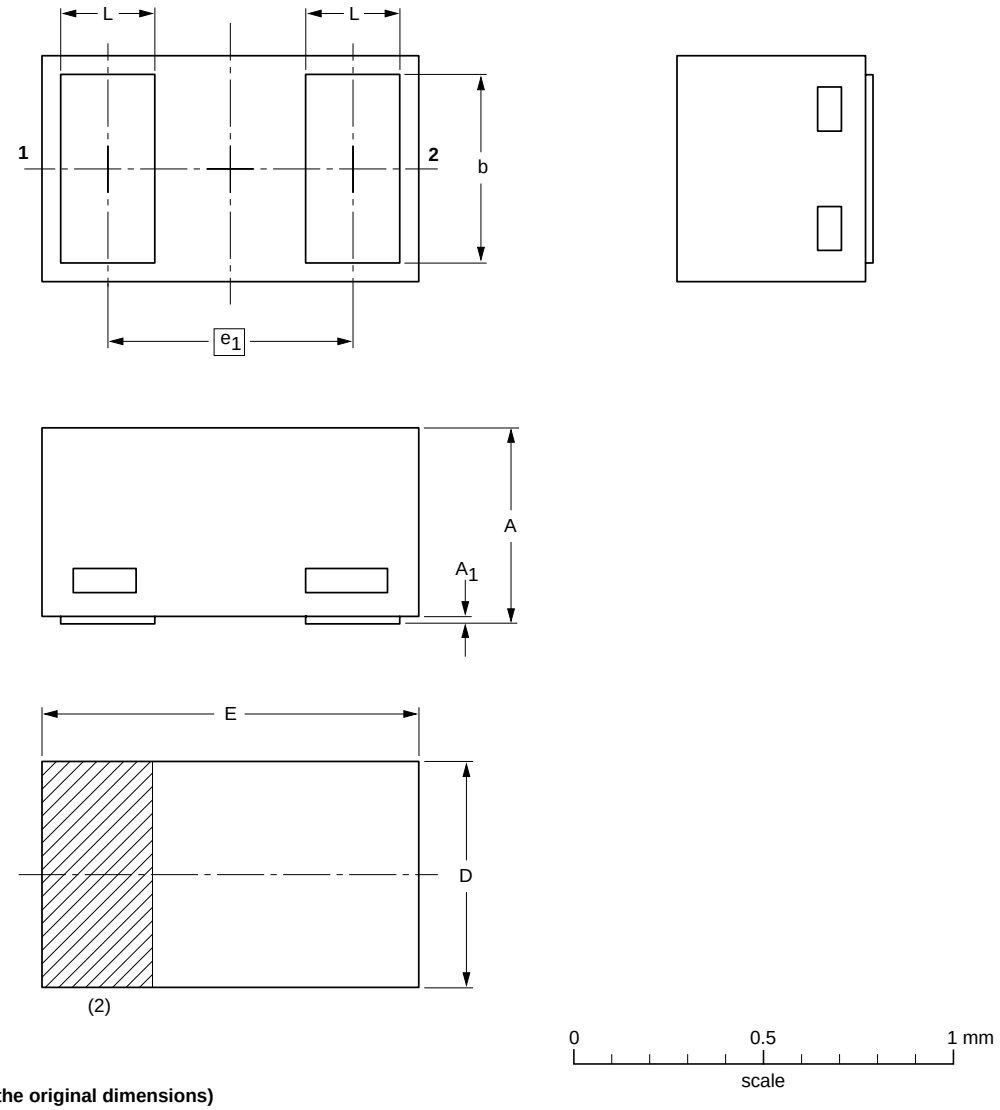
BZX885-B/C5V1 to B/C15.

T_j = 25 to 150 °C.

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

PACKAGE OUTLINE

Leadless ultra small plastic package; 2 terminals; body 1.0 x 0.6 x 0.5 mm **SOD882**



DIMENSIONS (mm are the original dimensions)

UNIT	A(1)	A1 max.	b	D	E	e1	L
mm	0.50 0.46	0.03	0.55 0.47	0.62 0.55	1.02 0.95	0.65	0.30 0.22

Notes

1. Including plating thickness
2. The marking bar indicates the cathode

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOD882						~~03-04-16~~ 03-04-17

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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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

Short-form specification — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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