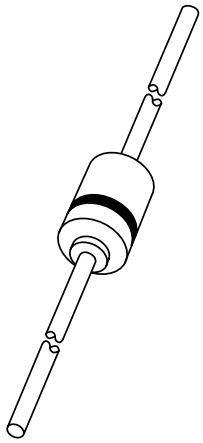
DATA SHEET



BZV85 series
Voltage regulator diodes

Product data sheet
Supersedes data of 1996 Apr 26

1999 May 11

Voltage regulator diodes BZV85 series

FEATURES

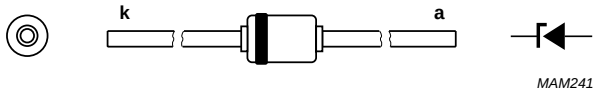
- Total power dissipation: max. 1.3 W
- Tolerance series: approx. ±5%
- Working voltage range: nom. 3.6 to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max. 60 W.

APPLICATIONS

- Stabilization purposes.

DESCRIPTION

Medium-power voltage regulator diodes in hermetically sealed leaded glass SOD66 (DO-41) packages. The diodes are available in the normalized E24 approx. ±5% tolerance range. The series consists of 33 types with nominal working voltages from 3.6 to 75 V (BZV85-C3V6 to BZV85-C75).



The diodes are type branded.

Fig.1 Simplified outline (SOD66; DO-41) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_F	continuous forward current		–	500	mA
I_{ZSM}	non-repetitive peak reverse current	t_p = 100 μs; square wave; T_j = 25 °C prior to surge; see Fig.3	see Table “Per type”		
		t_p = 10 ms; half sinewave; T_j = 25 °C prior to surge	see Table “Per type”		
P_{tot}	total power dissipation	T_{amb} = 25 °C; lead length 10 mm; note 1	–	1	W
		note 2	–	1.3	W
P_{ZSM}	non-repetitive peak reverse power dissipation	t_p = 100 μs; square wave; T_j = 25 °C prior to surge	–	60	W
T_{stg}	storage temperature		–65	+200	°C
T_j	junction temperature		–	200	°C

Notes

1. Device mounted on a printed circuit-board with 1 cm^2 copper area per lead.
2. If the leads are kept at T_{tp} = 55 °C at 4 mm from body.

ELECTRICAL CHARACTERISTICS

Total series

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
V_F	forward voltage	I_F = 50 mA; see Fig.4	1	V

Per type

T_j = 25 °C unless otherwise specified.

BZV85-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 5 and 6		TEST CURRENT I_{Ztest} (mA)	DIODE CAP. C_d (pF) at f = 1 MHz; V_R = 0 V	REVERSE CURRENT at REVERSE VOLTAGE		NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM}	
								I_R (μA)	V_R (V)	at t_p = 100 μs; T_{amb} = 25 °C	at t_p = 10 ms; T_{amb} = 25 °C
	MIN.	MAX.	MAX.	MIN.	MAX.		MAX.	MAX.		MAX. (A)	MAX. (mA)
3V6	3.4	3.8	15	−3.5	−1.0	60	450	50	1.0	8.0	2000
3V9	3.7	4.1	15	−3.5	−1.0	60	450	10	1.0	8.0	1950
4V3	4.0	4.6	13	−2.7	0	50	450	5	1.0	8.0	1850
4V7	4.4	5.0	13	−2.0	+0.7	45	300	3	1.0	8.0	1800
5V1	4.8	5.4	10	−0.5	+2.2	45	300	3	2.0	8.0	1750
5V6	5.2	6.0	7	0	2.7	45	300	2	2.0	8.0	1700
6V2	5.8	6.6	4	0.6	3.6	35	200	2	3.0	7.0	1620
6V8	6.4	7.2	3.5	1.3	4.3	35	200	2	4.0	7.0	1550
7V5	7.0	7.9	3	2.5	5.5	35	150	1	4.5	5.0	1500
8V2	7.7	8.7	5	3.1	6.1	25	150	0.7	5.0	5.0	1400
9V1	8.5	9.6	5	3.8	7.2	25	150	0.7	6.5	4.0	1340
10	9.4	10.6	8	4.7	8.5	25	90	0.2	7.0	4.0	1200
11	10.4	11.6	10	5.3	9.3	20	85	0.2	7.7	3.0	1100
12	11.4	12.7	10	6.3	10.8	20	85	0.2	8.4	3.0	1000
13	12.4	14.1	10	7.4	12.0	20	80	0.2	9.1	3.0	900
15	13.8	15.6	15	8.9	13.6	15	75	0.05	10.5	2.5	760
16	15.3	17.1	15	10.7	15.4	15	75	0.05	11.0	1.75	700
18	16.8	19.1	20	11.8	17.1	15	70	0.05	12.5	1.75	600
20	18.8	21.2	24	13.6	19.1	10	60	0.05	14.0	1.75	540
22	20.8	23.3	25	16.6	22.1	10	60	0.05	15.5	1.5	500
24	22.8	25.6	30	18.3	24.3	10	55	0.05	17	1.5	450
27	25.1	28.9	40	20.1	27.5	8	50	0.05	19	1.2	400
30	28.0	32.0	45	22.4	32.0	8	50	0.05	21	1.2	380

BZV85-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 5 and 6		TEST CURRENT I_{Ztest} (mA)	DIODE CAP. C_d (pF) at f = 1 MHz; V_R = 0 V	REVERSE CURRENT at REVERSE VOLTAGE		NON-REPETITIVE PEAK REVERSE CURRENT I_{ZSM}	
								I_R (μA)	V_R (V)	at t_p = 100 μs; T_{amb} = 25 °C	at t_p = 10 ms; T_{amb} = 25 °C
	MIN.	MAX.	MAX.	MIN.	MAX.		MAX.	MAX.		MAX. (A)	MAX. (mA)
33	31.0	35.0	45	24.8	35.0	8	45	0.05	23	1.0	350
36	34.0	38.0	50	27.2	39.9	8	45	0.05	25	0.9	320
39	37.0	41.0	60	29.6	43.0	6	45	0.05	27	0.8	296
43	40.0	46.0	75	34.0	48.3	6	40	0.05	30	0.7	270
47	44.0	50.0	100	37.4	52.5	4	40	0.05	33	0.6	246
51	48.0	54.0	125	40.8	56.5	4	40	0.05	36	0.5	226
56	52.0	60.0	150	46.8	63.0	4	40	0.05	39	0.4	208
62	58.0	66.0	175	52.2	72.5	4	35	0.05	43	0.4	186
68	64.0	72.0	200	60.5	81.0	4	35	0.05	48	0.35	171
75	70.0	80.0	225	66.5	88.0	4	35	0.05	53	0.3	161

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}tp}$	thermal resistance from junction to tie-point	lead length 4 mm; see Fig.2	110	K/W
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	lead length10 mm; note 1	175	K/W

Note

1. Device mounted on a printed circuit-board with 1 cm^2 copper area per lead.

GRAPHICAL DATA

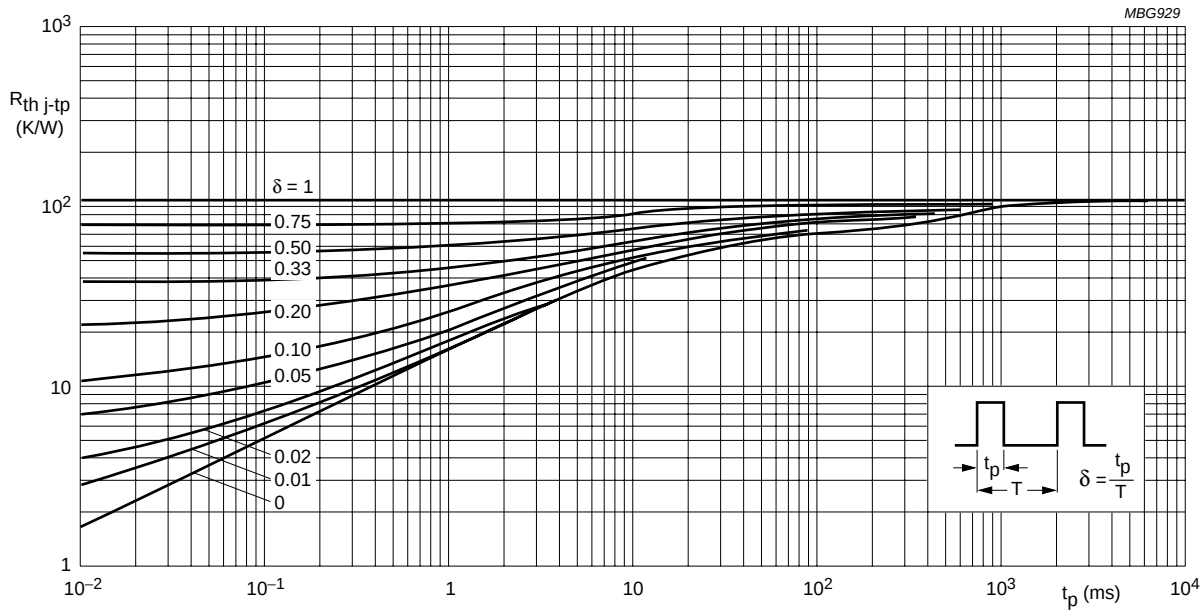
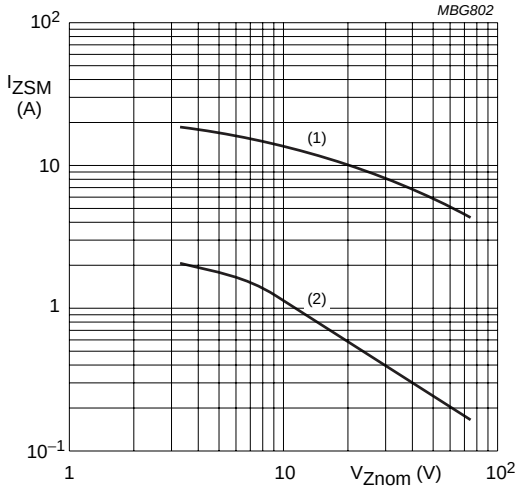
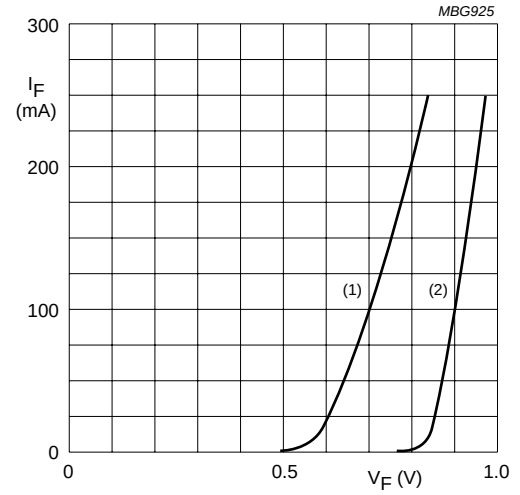


Fig.2 Thermal resistance from junction to tie-point with a lead length of 4 mm.



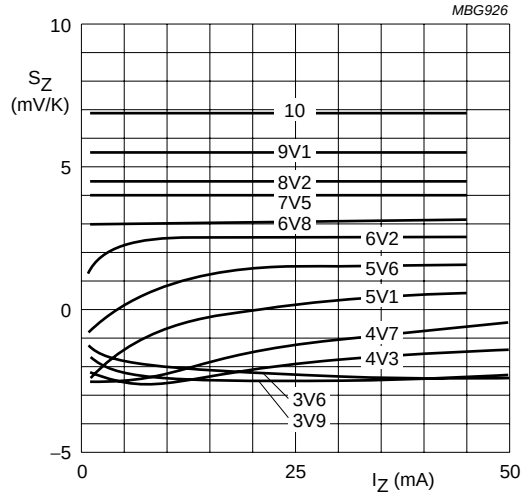
(1) t_p = 10 μs; half sinewave; T_{amb} = 25 °C.
(2) t_p = 10 ms; half sinewave; T_{amb} = 25 °C.

Fig.3 Non-repetitive peak reverse current as a function of the nominal working voltage.



(1) T_j = 200 °C.
(2) T_j = 25 °C.

Fig.4 Forward current as a function of forward voltage; typical values.

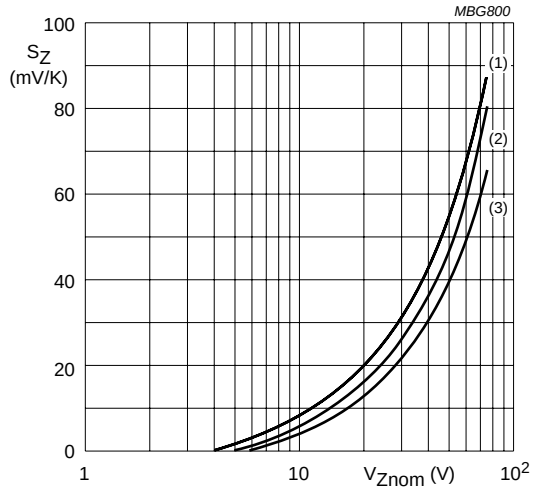


BZV85-C3V6 to C10.

T_j = 25 to 150 °C.

For types above 7.5 V the temperature coefficient is independent of current; see Table “Per type”.

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

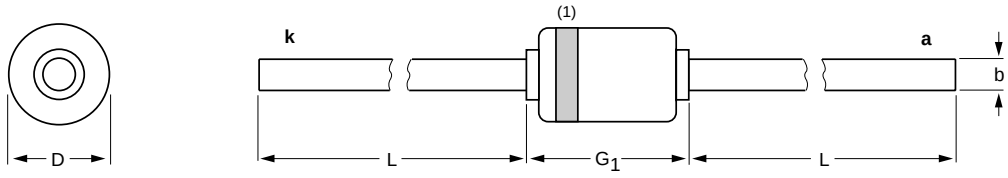


$I_Z = I_{Ztest}$; T_j = 25 to 150 °C.
(1) Maximum values.
(2) Typical values.
(3) Minimum values.

Fig.6 Temperature coefficient as a function of nominal working voltage.

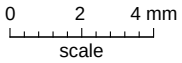
PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads **SOD66**



DIMENSIONS (mm are the original dimensions)

UNIT	b max.	D max.	G_1 max.	L min.
mm	0.81	2.6	4.8	28



Note

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOD66		DO-41				97-06-20

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.

Notes

1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

DISCLAIMERS

General — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in medical, military, aircraft, space or life support equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors accepts no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

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

Terms and conditions of sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at http://www.nxp.com/profile/terms, including those pertaining to warranty, intellectual property rights infringement and limitation of liability, unless explicitly otherwise agreed to in writing by NXP Semiconductors. In case of any inconsistency or conflict between information in this document and such terms and conditions, the latter will prevail.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from national authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors. No changes were made to the content, except for the legal definitions and disclaimers.

Contact information

For additional information please visit: **http://www.nxp.com**
For sales offices addresses send e-mail to: **salesaddresses@nxp.com**

Printed in The Netherlands 115002/00/02/pp9 Date of release: 1999 May 11 Document order number: 9397 750 05929

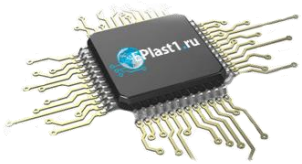
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.