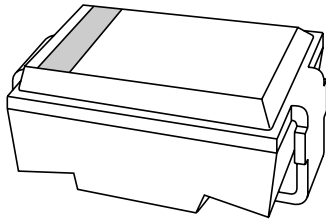


# DATA SHEET



## **BZG01 series** SMA voltage regulator diodes

Product specification

2000 Feb 17

## SMA voltage regulator diodes

## BZG01 series

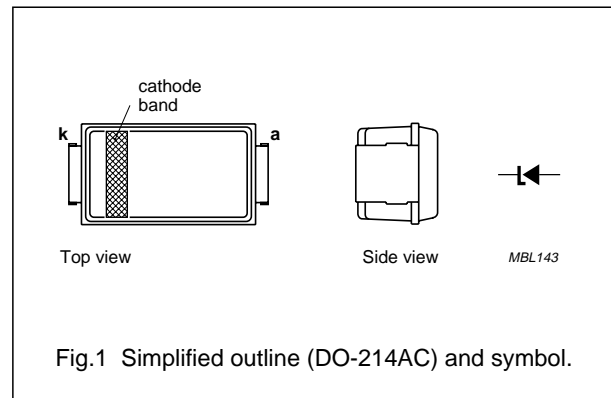
## FEATURES

- Glass passivated
- High maximum operating temperature
- Ideal for surface mount automotive applications
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Zener working voltage range: 10 to 270 V for 35 types
- Supplied in 12 mm embossed tape and reel, 1500 and 7500 pieces
- Marking: cathode, date code, type name
- Easy pick and place.

## DESCRIPTION

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic. The small rectangular package has two J bent leads.



## LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
P <sub>tot</sub>	total power dissipation	T <sub>tp</sub> = 100 °C; see Fig.2	–	2.50	W
		T <sub>amb</sub> = 25 °C; see Fig.2; device mounted on an Al <sub>2</sub> O <sub>3</sub> printed-circuit board: see Fig.5	–	1.50	W
P <sub>ZSM</sub>	non-repetitive peak reverse power dissipation	t <sub>p</sub> = 100 μs; square pulse; T <sub>j</sub> = 25 °C prior to surge; see Fig.3	–	150	W
T <sub>stg</sub>	storage temperature		–65	+175	°C
T <sub>j</sub>	junction temperature		–65	+175	°C

## SMA voltage regulator diodes

## BZG01 series

## ELECTRICAL CHARACTERISTICS

## Total series

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
$V_F$	forward voltage	$I_F = 0.1\text{ A}$ ; see Fig.4	1.2	V

## Per type

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

TYPE No. SUFFIX (1)	WORKING VOLTAGE			DIFFERENTIAL RESISTANCE		TEMPERATURE COEFFICIENT		TEST CURRENT $I_Z$ (mA)	REVERSE CURRENT at REVERSE VOLTAGE	
	$V_Z$ (V) at $I_Z$			$r_{dif}$ ( $\Omega$ ) at $I_Z$		$S_Z$ (%/K) at $I_Z$			$I_R$ ( $\mu\text{A}$ )	$V_R$ (V)
	MIN.	NOM.	MAX.	TYP.	MAX.	MIN.	MAX.	MAX.		
C10	9.4	10	10.6	2	7	0.05	0.09	25	10	7.5
C11	10.4	11	11.6	3	8	0.05	0.10	20	4	8.2
C12	11.4	12	12.7	3	9	0.05	0.10	20	3	9.1
C13	12.4	13	14.1	3	10	0.05	0.10	20	2	10
C15	13.8	15	15.6	5	15	0.05	0.10	15	1	11
C16	15.3	16	17.1	5	15	0.06	0.11	15	1	12
C18	16.8	18	19.1	7	20	0.06	0.11	15	1	13
C20	18.8	20	21.2	8	24	0.06	0.11	10	1	15
C22	20.8	22	23.3	8	25	0.06	0.11	10	1	16
C24	22.8	24	25.6	8	25	0.06	0.11	10	1	18
C27	25.1	27	28.9	10	30	0.06	0.11	8	1	20
C30	28	30	32	10	30	0.06	0.11	8	1	22
C33	31	33	35	12	35	0.06	0.11	8	1	24
C36	34	36	38	13	40	0.06	0.11	8	1	27
C39	37	39	41	17	50	0.06	0.11	6	1	30
C43	40	43	46	17	50	0.07	0.12	6	1	33
C47	44	47	50	30	90	0.07	0.12	4	1	36
C51	48	51	54	40	115	0.07	0.12	4	1	39
C56	52	56	60	40	120	0.07	0.12	4	1	43
C62	58	62	66	40	125	0.08	0.13	4	1	47
C68	64	68	72	40	130	0.08	0.13	4	1	51
C75	70	75	79	40	135	0.08	0.13	4	1	56
C82	77	82	87	70	200	0.08	0.13	2.7	1	62
C91	85	91	96	80	250	0.09	0.13	2.7	1	68
C100	94	100	106	120	350	0.09	0.13	2.7	1	75
C110	104	110	116	150	450	0.09	0.13	2.7	1	82
C120	114	120	127	200	550	0.09	0.13	2	1	91
C130	124	130	141	250	700	0.09	0.13	2	1	100
C150	138	150	156	300	1000	0.09	0.13	2	1	110

## SMA voltage regulator diodes

## BZG01 series

TYPE No. SUFFIX (1)	WORKING VOLTAGE			DIFFERENTIAL RESISTANCE		TEMPERATURE COEFFICIENT		TEST CURRENT  $I_Z$ (mA)	REVERSE CURRENT at REVERSE VOLTAGE	
	$V_Z$ (V) at $I_Z$			$r_{dif}$ ( $\Omega$ ) at $I_Z$		$S_Z$ (%/K) at $I_Z$			$I_R$ ( $\mu$ A)	$V_R$ (V)
	MIN.	NOM.	MAX.	TYP.	MAX.	MIN.	MAX.	MAX.		
C160	153	160	171	350	1100	0.09	0.13	1.5	1	120
C180	168	180	191	400	1200	0.09	0.13	1.5	1	130
C200	188	200	212	500	1500	0.09	0.13	1.5	1	150
C220	208	220	233	700	2250	0.09	0.13	1	1	160
C240	228	240	256	800	2550	0.09	0.13	1	1	180
C270	251	270	289	1000	3000	0.09	0.13	1	1	200

**Note**

- To complete the type number the suffix is added to the basic type number, e.g. BZG01-C130.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		30	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

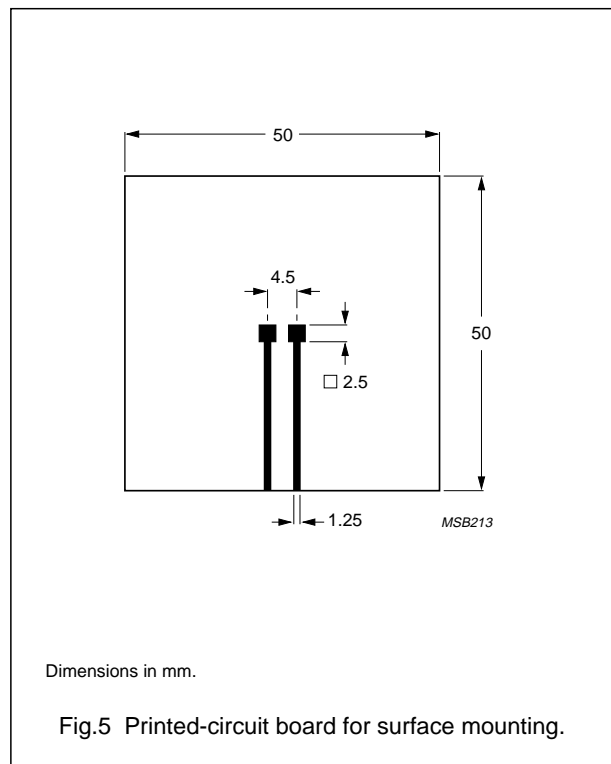
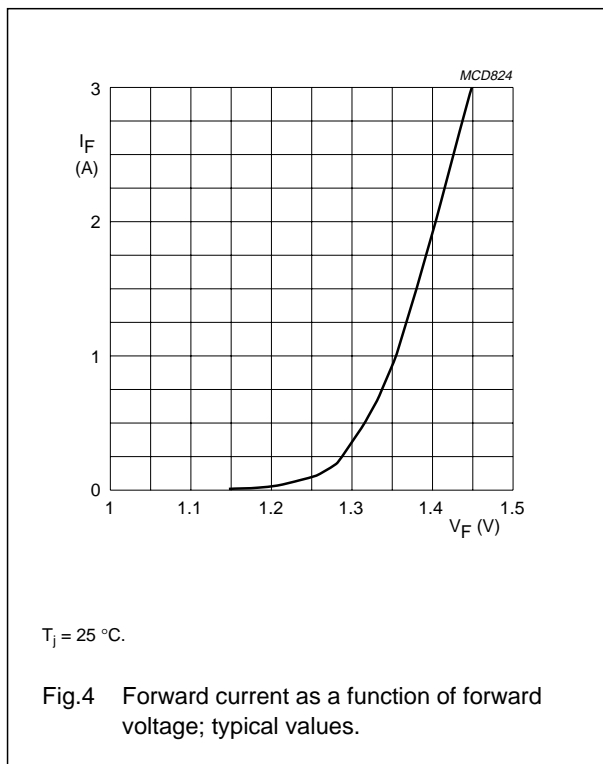
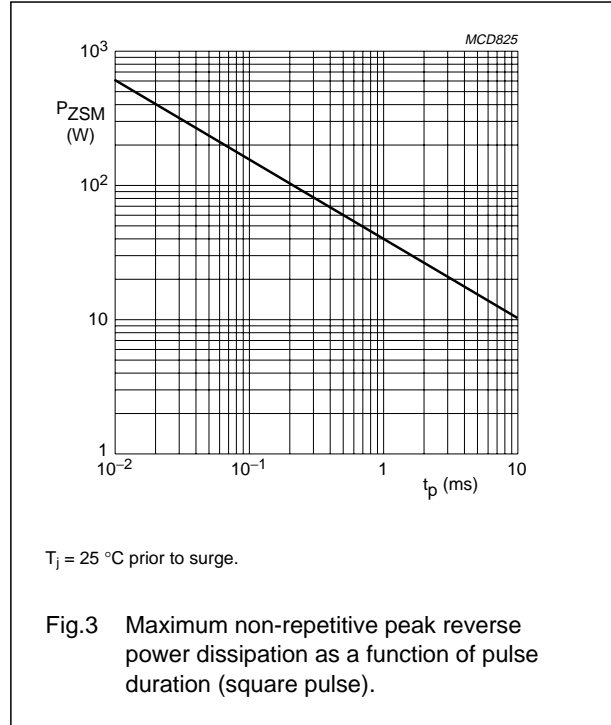
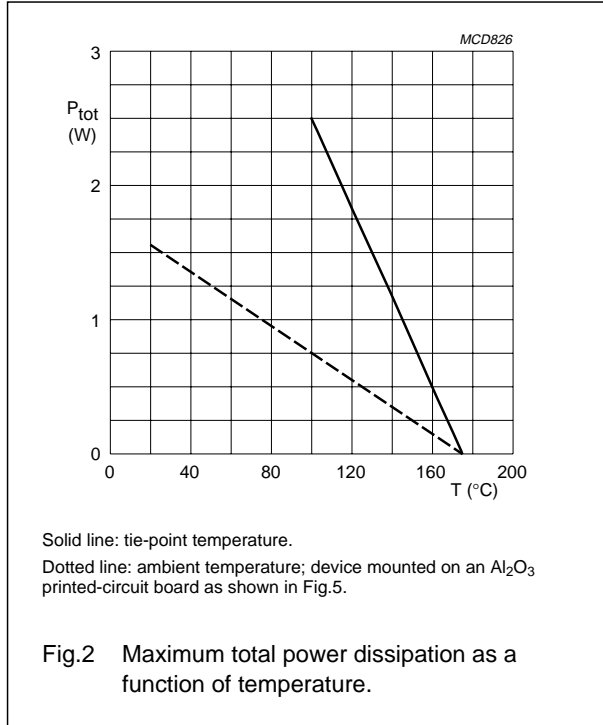
**Notes**

- Device mounted on an  $Al_2O_3$  printed-circuit board, 0.7 mm thick; thickness of Cu-layer  $\geq 35\ \mu$ m, see Fig.5.
- Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer  $\geq 40\ \mu$ m, see Fig.5. For more information please refer to the 'General Part of associated Handbook'.

SMA voltage regulator diodes

BZG01 series

GRAPHICAL DATA



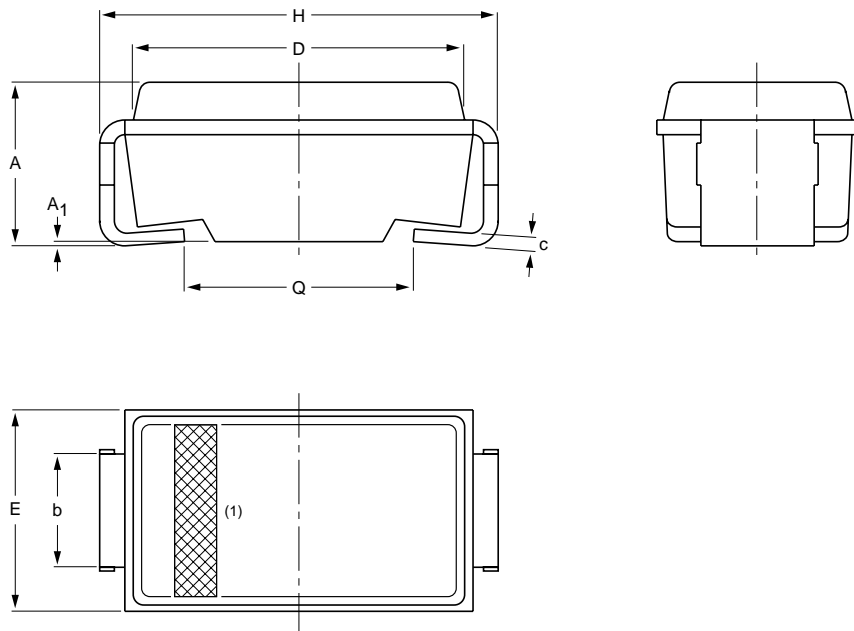
SMA voltage regulator diodes

BZG01 series

**PACKAGE OUTLINE**

Transfer-moulded thermo-setting plastic small rectangular surface mounted package;  
2 connectors

SOD124



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

UNIT	A	A <sub>1</sub>	b	c	D	E	H	Q
mm	2.3	0.05	1.6	0.2	4.5	2.8	5.5	3.3
	2.0		1.4		4.3	2.4	5.1	2.7

**Note**

1. The marking band indicates the cathode.

OUTLINE VERSION	REFERENCES			EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ		
SOD124		DO-214AC			99-10-22

## SMA voltage regulator diodes

## BZG01 series

**DEFINITIONS**

<b>Data sheet status</b>	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Short-form specification	The data in this 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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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Tel. +61 2 9704 8141, Fax. +61 2 9704 8139

**Austria:** Computerstr. 6, A-1101 WIEN, P.O. Box 213,  
Tel. +43 1 60 101 1248, Fax. +43 1 60 101 1210

**Belarus:** Hotel Minsk Business Center, Bld. 3, r. 1211, Volodarski Str. 6,  
220050 MINSK, Tel. +375 172 20 0733, Fax. +375 172 20 0773

**Belgium:** see The Netherlands

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**Bulgaria:** Philips Bulgaria Ltd., Energoproject, 15th floor,  
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**Canada:** PHILIPS SEMICONDUCTORS/COMPONENTS,  
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**China/Hong Kong:** 501 Hong Kong Industrial Technology Centre,  
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**Colombia:** see South America

**Czech Republic:** see Austria

**Denmark:** Sydhavnsgade 23, 1780 COPENHAGEN V,  
Tel. +45 33 29 3333, Fax. +45 33 29 3905

**Finland:** Sinikalliontie 3, FIN-02630 ESPOO,  
Tel. +358 9 615 800, Fax. +358 9 6158 0920

**France:** 51 Rue Carnot, BP317, 92156 SURESNES Cedex,  
Tel. +33 1 4099 6161, Fax. +33 1 4099 6427

**Germany:** Hammerbrookstraße 69, D-20097 HAMBURG,  
Tel. +49 40 2353 60, Fax. +49 40 2353 6300

**Hungary:** see Austria

**India:** Philips INDIA Ltd, Band Box Building, 2nd floor,  
254-D, Dr. Annie Besant Road, Worli, MUMBAI 400 025,  
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**Indonesia:** PT Philips Development Corporation, Semiconductors Division,  
Gedung Philips, Jl. Buncit Raya Kav.99-100, JAKARTA 12510,  
Tel. +62 21 794 0040 ext. 2501, Fax. +62 21 794 0080

**Ireland:** Newstead, Clonskeagh, DUBLIN 14,  
Tel. +353 1 7640 000, Fax. +353 1 7640 200

**Israel:** RAPAC Electronics, 7 Kehilat Saloniki St, PO Box 18053,  
TEL AVIV 61180, Tel. +972 3 645 0444, Fax. +972 3 649 1007

**Italy:** PHILIPS SEMICONDUCTORS, Via Casati, 23 - 20052 MONZA (MI),  
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**Malaysia:** No. 76 Jalan Universiti, 46200 PETALING JAYA, SELANGOR,  
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**Mexico:** 5900 Gateway East, Suite 200, EL PASO, TEXAS 79905,  
Tel. +9-5 800 234 7381, Fax. +9-5 800 943 0087

**Middle East:** see Italy

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Tel. +64 9 849 4160, Fax. +64 9 849 7811

**Norway:** Box 1, Manglerud 0612, OSLO,  
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**Poland:** Al.Jerozolimskie 195 B, 02-222 WARSAW,  
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**Spain:** Balmes 22, 08007 BARCELONA,  
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**Sweden:** Kottbygatan 7, Akalla, S-16485 STOCKHOLM,  
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**Turkey:** Yukari Dudullu, Org. San. Blg., 2.Cad. Nr. 28 81260 Umraniye,  
ISTANBUL, Tel. +90 216 522 1500, Fax. +90 216 522 1813

**Ukraine:** PHILIPS UKRAINE, 4 Patrice Lumumba str., Building B, Floor 7,  
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MIDDLESEX UB3 5BX, Tel. +44 208 730 5000, Fax. +44 208 754 8421

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