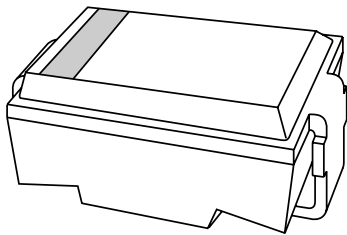


# DATA SHEET



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

Product specification

2000 Feb 17

# SMA voltage regulator diodes

# BZG01 series

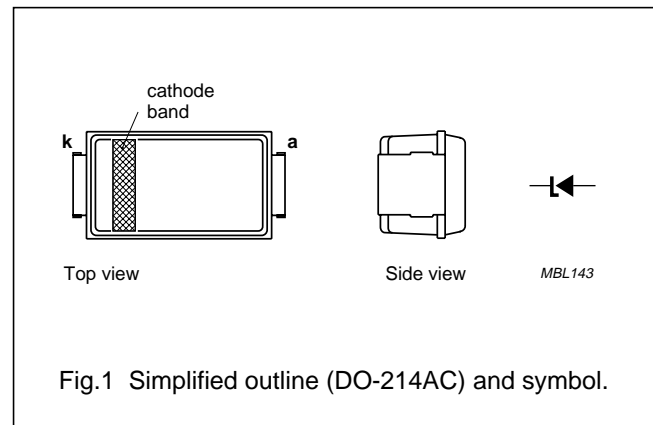
## FEATURES

- 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	REVERSE CURRENT at REVERSE VOLTAGE	
	V <sub>Z</sub> (V) at I <sub>Z</sub>			r <sub>diff</sub> (Ω) at I <sub>Z</sub>		S <sub>Z</sub> (%/K) at I <sub>Z</sub>		I <sub>Z</sub> (mA)	I <sub>R</sub> (μA)	V <sub>R</sub> (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 <sub>th j-tp</sub>	thermal resistance from junction to tie-point		30	K/W
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

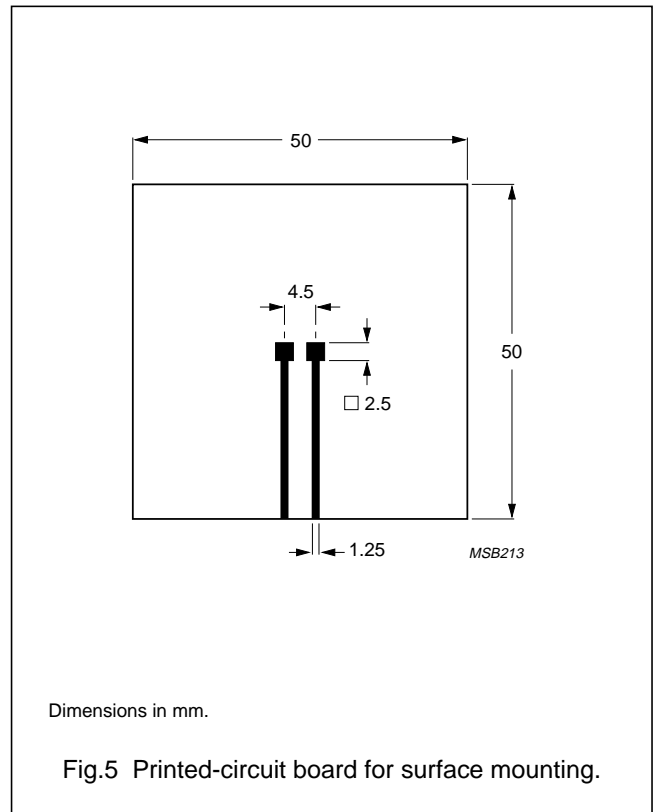
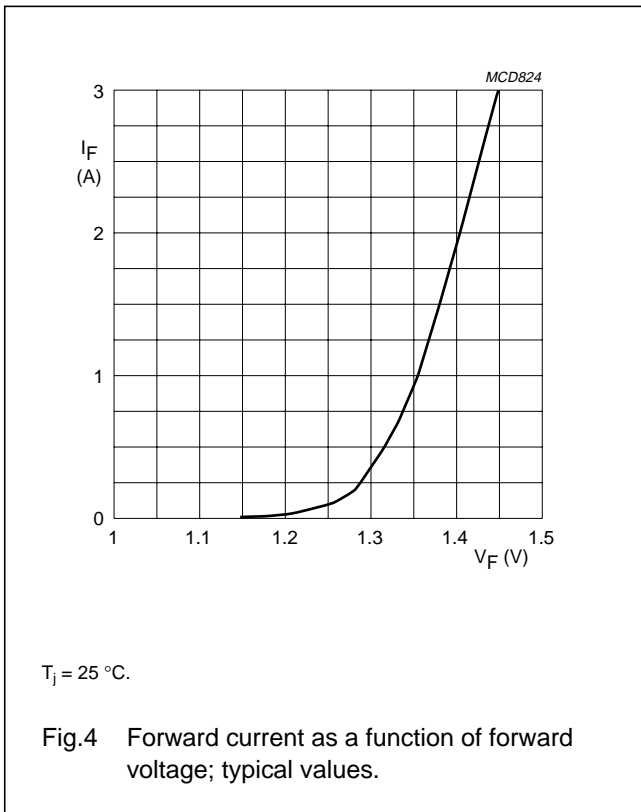
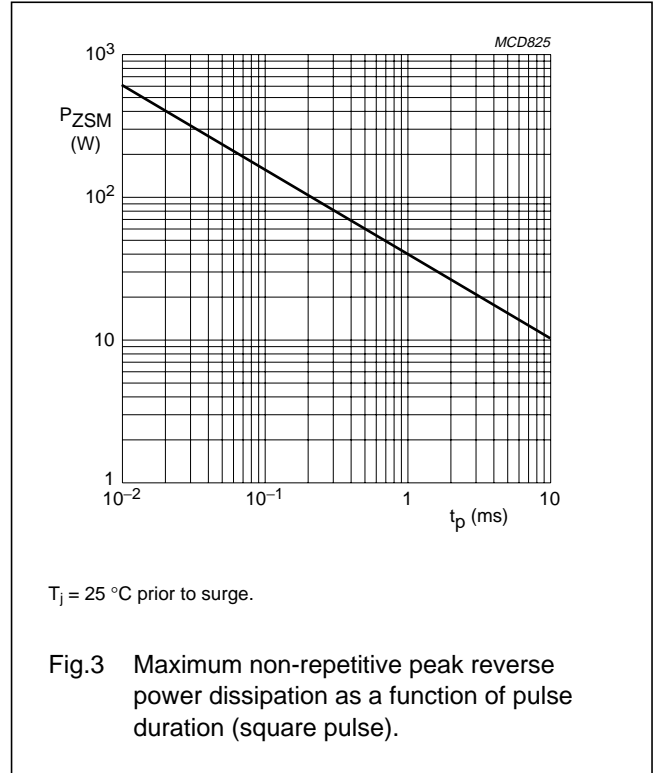
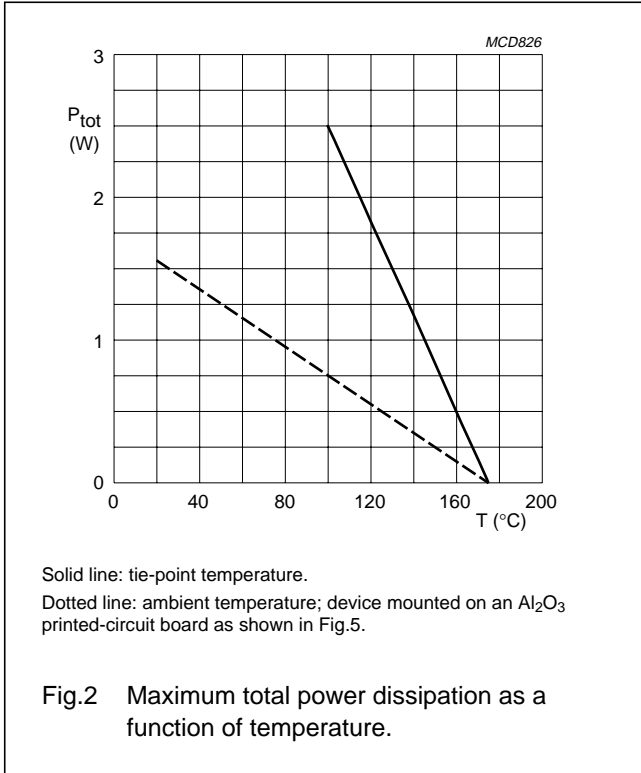
**Notes**

- Device mounted on an Al<sub>2</sub>O<sub>3</sub> printed-circuit board, 0.7 mm thick; thickness of Cu-layer ≥35 μm, see Fig.5.
- Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer ≥40 μm, see Fig.5. For more information please refer to the 'General Part of associated Handbook'.

SMA voltage regulator diodes

BZG01 series

GRAPHICAL DATA



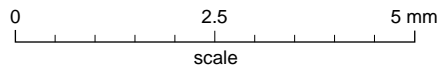
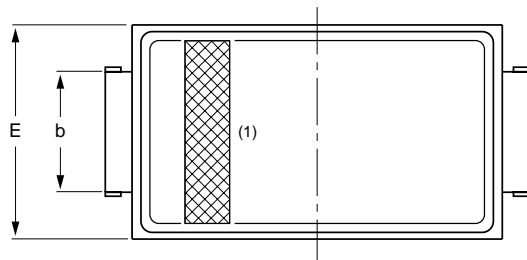
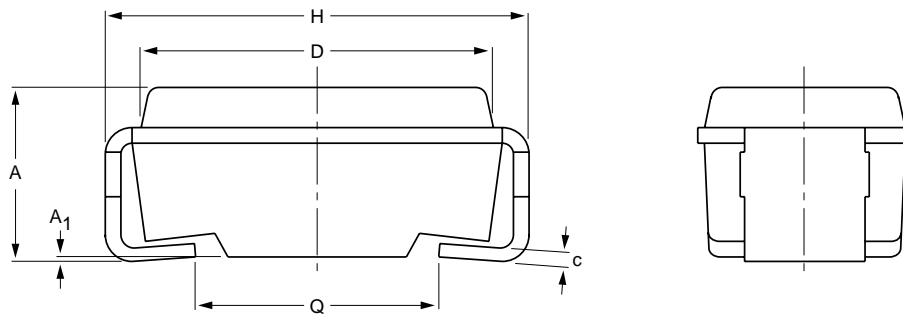
SMA voltage regulator diodes

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 2.0	0.05	1.6 1.4	0.2	4.5 4.3	2.8 2.4	5.5 5.1	3.3 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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