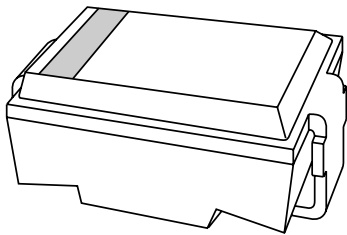


# DATA SHEET



## **BZG04 series** Transient voltage suppressor diodes

Product specification  
Supersedes data of 1996 Sep 19

2002 Jul 04

# Transient voltage suppressor diodes

# BZG04 series

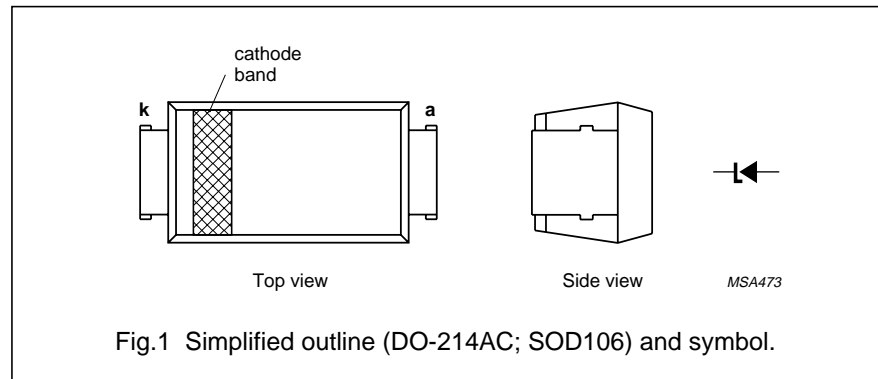
### FEATURES

- Glass passivated
- High maximum operating temperature
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Transient suppressor stand-off voltage range:  
8.2 to 220 V for 32 types
- Shipped in 12 mm embossed tape.

### DESCRIPTION

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

The well-defined void-free case is of a transfer-moulded thermo-setting plastic.



### LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$P_{RSM}$	non-repetitive peak reverse power dissipation	10/1000 $\mu$ s exponential pulse (see Fig.4); $T_j = 25\text{ }^\circ\text{C}$ prior to surge; see also Fig.2	–	300	W
$T_{stg}$	storage temperature		–65	+175	$^\circ\text{C}$
$T_j$	junction temperature		–65	+175	$^\circ\text{C}$

## Transient voltage suppressor diodes

## BZG04 series

## ELECTRICAL CHARACTERISTICS

## Total series

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_F$	forward voltage	$I_F = 0.5\text{ A}$ ; see Fig.3	–	1.2	V

## Per type

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

TYPE NUMBER	REVERSE BREAKDOWN VOLTAGE	TEMPERATURE COEFFICIENT		TEST CURRENT	CLAMPING VOLTAGE		REVERSE CURRENT at STAND-OFF VOLTAGE	
	$V_{(BR)R}$ (V) at $I_{test}$	$S_Z$ (%/K) at $I_{test}$		$I_{test}$ (mA)	$V_{(CL)R}$ (V)	at $I_{RSM}$ (A) note 1	$I_R$ ( $\mu$ A)	at $V_R$ (V)
	MIN.	MIN.	MAX.		MAX.		MAX.	
BZG04-8V2	9.4	0.05	0.09	50	14.8	20.3	20	8.2
BZG04-9V1	10.4	0.05	0.10	50	15.7	19.1	5	9.1
BZG04-10	11.4	0.05	0.10	50	17.0	17.7	5	10
BZG04-11	12.4	0.05	0.10	50	18.9	15.9	5	11
BZG04-12	13.8	0.05	0.10	50	20.9	14.4	5	12
BZG04-13	15.3	0.06	0.11	25	22.9	13.1	5	13
BZG04-15	16.8	0.06	0.11	25	25.6	11.7	5	15
BZG04-16	18.8	0.06	0.11	25	28.4	10.6	5	16
BZG04-18	20.8	0.06	0.11	25	31.0	9.7	5	18
BZG04-20	22.8	0.06	0.11	25	33.8	8.9	5	20
BZG04-22	25.1	0.06	0.11	25	38.1	7.9	5	22
BZG04-24	28	0.06	0.11	25	42.2	7.1	5	24
BZG04-27	31	0.06	0.11	25	46.2	6.5	5	27
BZG04-30	34	0.06	0.11	10	50.1	6.0	5	30
BZG04-33	37	0.06	0.11	10	54.1	5.5	5	33
BZG04-36	40	0.07	0.12	10	60.7	4.9	5	36
BZG04-39	44	0.07	0.12	10	65.5	4.6	5	39
BZG04-43	48	0.07	0.12	10	70.8	4.2	5	43
BZG04-47	52	0.07	0.12	10	78.6	3.8	5	47
BZG04-51	58	0.08	0.13	10	86.5	3.5	5	51
BZG04-56	64	0.08	0.13	10	94.4	3.2	5	56
BZG04-62	70	0.08	0.13	10	103.5	2.9	5	62
BZG04-68	77	0.08	0.13	10	114	2.6	5	68
BZG04-75	85	0.09	0.13	5	126	2.4	5	75
BZG04-82	94	0.09	0.13	5	139	2.2	5	82
BZG04-91	104	0.09	0.13	5	152	2.0	5	91
BZG04-100	114	0.09	0.13	5	167	1.8	5	100
BZG04-110	124	0.09	0.13	5	185	1.6	5	110
BZG04-120	138	0.09	0.13	5	204	1.5	5	120
BZG04-130	153	0.09	0.13	5	224	1.3	5	130

## Transient voltage suppressor diodes

## BZG04 series

TYPE NUMBER	REVERSE BREAKDOWN VOLTAGE	TEMPERATURE COEFFICIENT		TEST CURRENT	CLAMPING VOLTAGE		REVERSE CURRENT at STAND-OFF VOLTAGE	
	$V_{(BR)R}$ (V) at $I_{test}$	$S_Z$ (%/K) at $I_{test}$		$I_{test}$ (mA)	$V_{(CL)R}$ (V)	at $I_{RSM}$ (A) note 1	$I_R$ ( $\mu$ A)	at $V_R$ (V)
	MIN.	MIN.	MAX.		MAX.		MAX.	
BZG04-150	168	0.09	0.13	5	249	1.2	5	150
BZG04-160	188	0.09	0.13	5	276	1.1	5	160
BZG04-180	208	0.09	0.13	2	305	1.0	5	180
BZG04-200	228	0.09	0.13	2	336	0.9	5	200
BZG04-220	251	0.09	0.13	2	380	0.8	5	220

**Note**

1. Non-repetitive peak reverse current in accordance with "IEC 60-1, Section 8" (10/1000  $\mu$ s pulse); see Fig.4.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-tp}$	thermal resistance from junction to tie-point		25	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W
		note 2	150	K/W

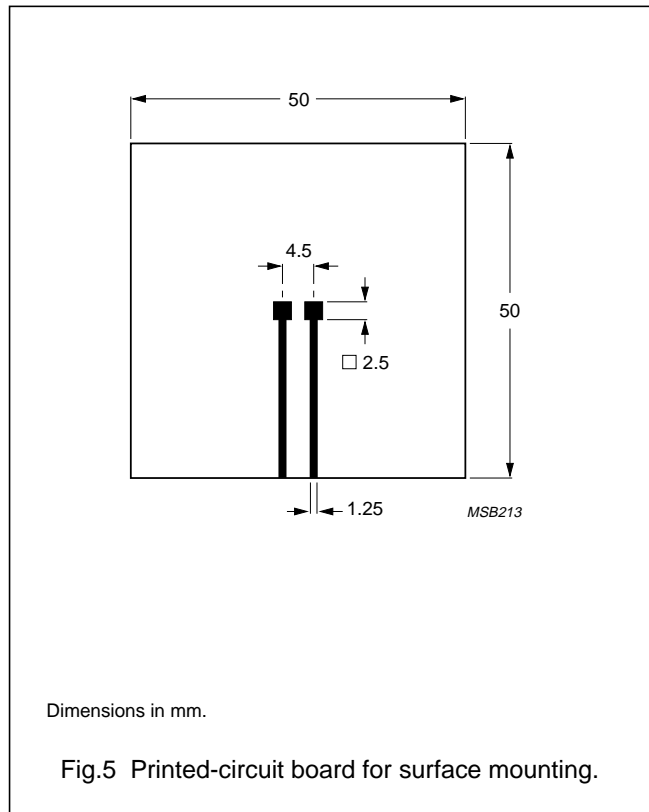
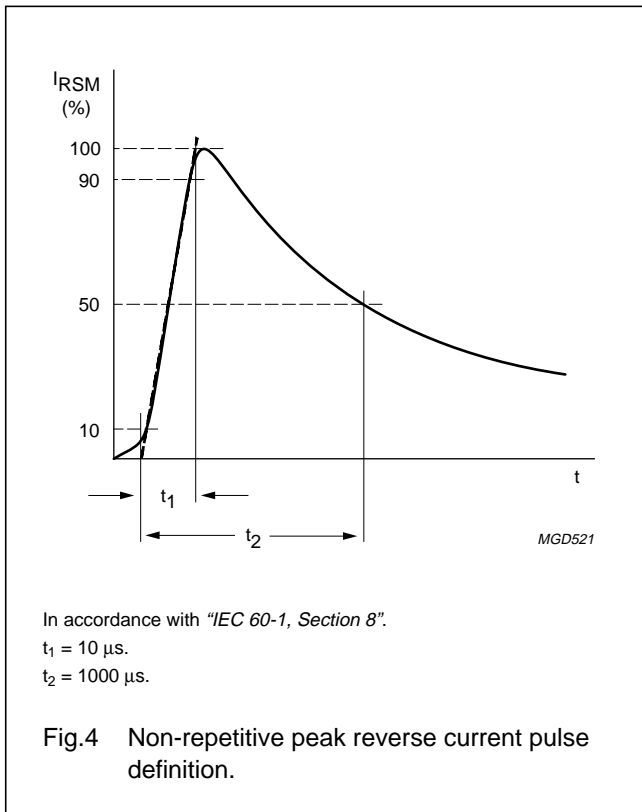
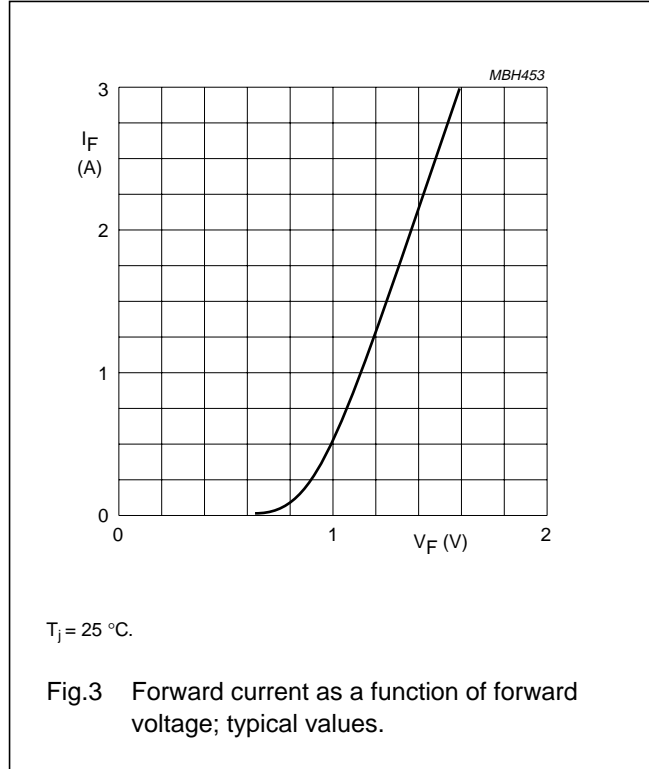
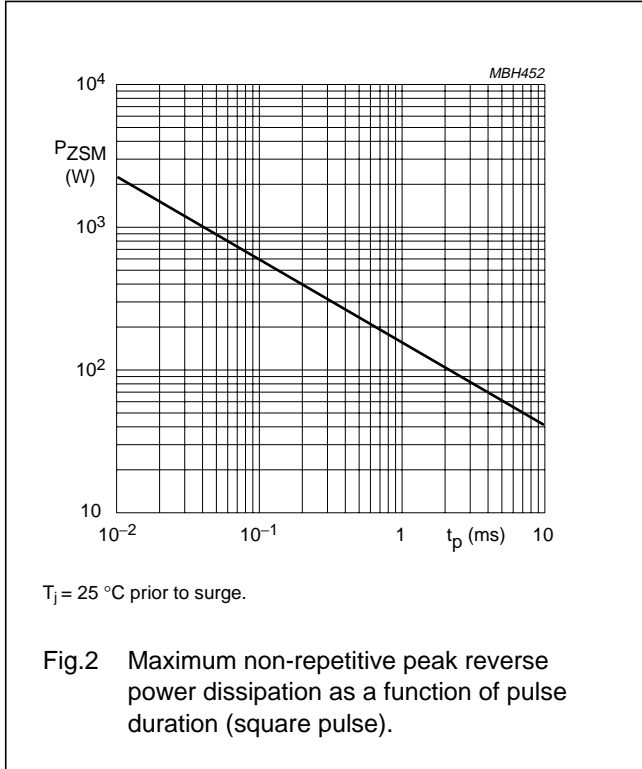
**Notes**

1. 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.
2. 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".

# Transient voltage suppressor diodes

# BZG04 series

## GRAPHICAL DATA



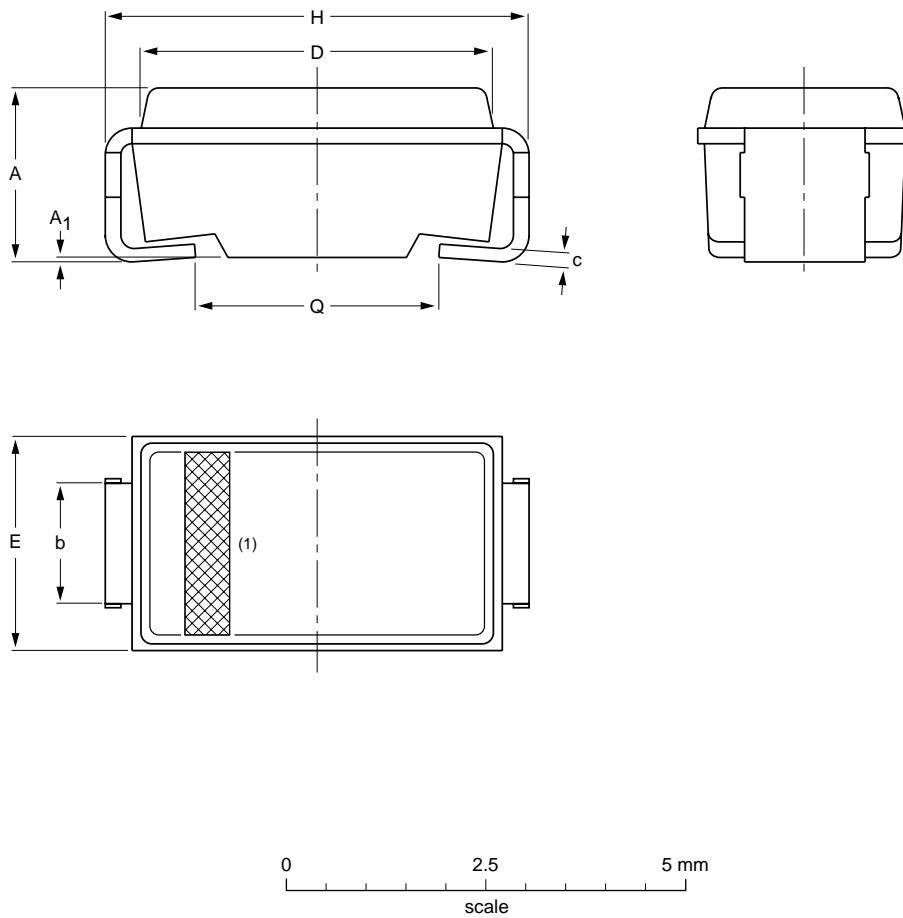
Transient voltage suppressor diodes

BZG04 series

PACKAGE OUTLINE

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

SOD106



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		
SOD106		DO-214AC			97-06-09

## Transient voltage suppressor diodes

## BZG04 series

## DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITIONS
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