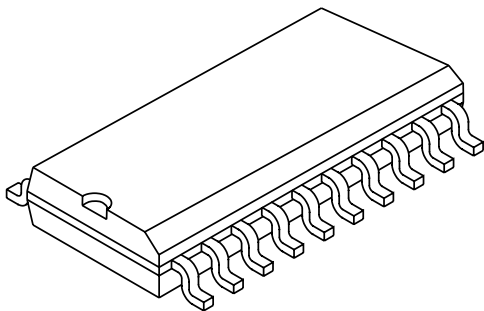


DATA SHEET



BZA100 18-fold ESD transient voltage suppressor

Product data sheet
Supersedes data of 1996 Mar 21

1997 Dec 02

18-fold ESD transient voltage suppressor

BZA100

FEATURES

- SO20 SMD package allows 18 separate voltage regulator diodes in a common anode configuration
- Working voltage: typ. 6.8 V
- Forward voltage: max. 1.3 V
- Maximum reverse peak power dissipation: 27.5 W at $t_p = 1$ ms
- Maximum clamping voltage at peak pulse current: 11 V at 2.5 A
- Low leakage current: max. 2 μ A
- ESD rating >8 kV, according IEC 801-2.

APPLICATIONS

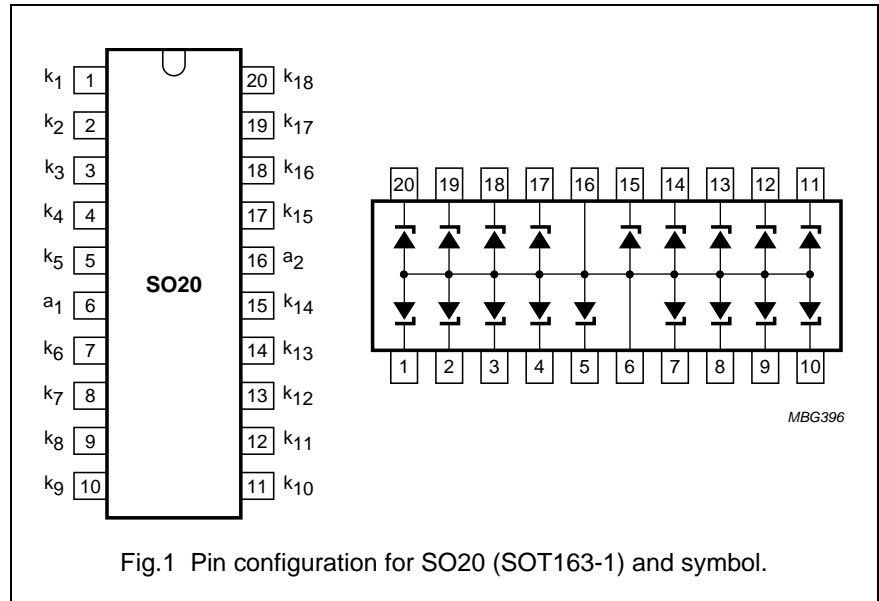
- Where transient overvoltage protection in voltage and ESD sensitive equipment is required such as:
 - Computers
 - Printers
 - Business machines
 - Communication systems
 - Medical equipment.

DESCRIPTION

18-fold monolithic transient voltage suppressor. Its 18-fold junction common anode design protects 18 separate lines using only one package. This device is ideal for situations where board space is a premium.

PINNING

PIN	DESCRIPTION
1 to 5	cathode (k_1 to k_5)
6 and 16	common anode (a_1 ; a_2)
7 to 15	cathode (k_6 to k_{14})
17 to 20	cathode (k_{15} to k_{18})



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_z	working current		–	note 1	mA
I_F	continuous forward current		–	200	mA
I_{FSM}	non-repetitive peak forward current	$t_p = 1$ ms; square pulse	–	4	A
I_{ZSM}	non-repetitive peak reverse current	$t_p = 1$ ms; square pulse; see Fig.2	–	2.5	A
P_{tot}	total power dissipation	see Fig.3 up to $T_s = 60$ °C; note 2 up to $T_{amb} = 25$ °C; note 3	–	1.6 1.25	W W
P_{ZSM}	non-repetitive peak reverse power dissipation	$t_p = 1$ ms; square pulse; see Fig.4	–	27.5	W
T_{stg}	storage temperature		–65	+150	°C
T_j	operating junction temperature		–	150	°C

Notes

1. DC working current limited by $P_{tot\ max}$.
2. One or more diodes loaded; T_s is the temperature at the soldering point.
3. One or more diodes loaded; device mounted on a printed-circuit board with $R_{th\ a-s} = 43.5$ K/W.

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point	one or more diodes loaded	56.5	K/W
$R_{th\ j-a}$	thermal resistance from junction to ambient		100	K/W

ELECTRICAL CHARACTERISTICS

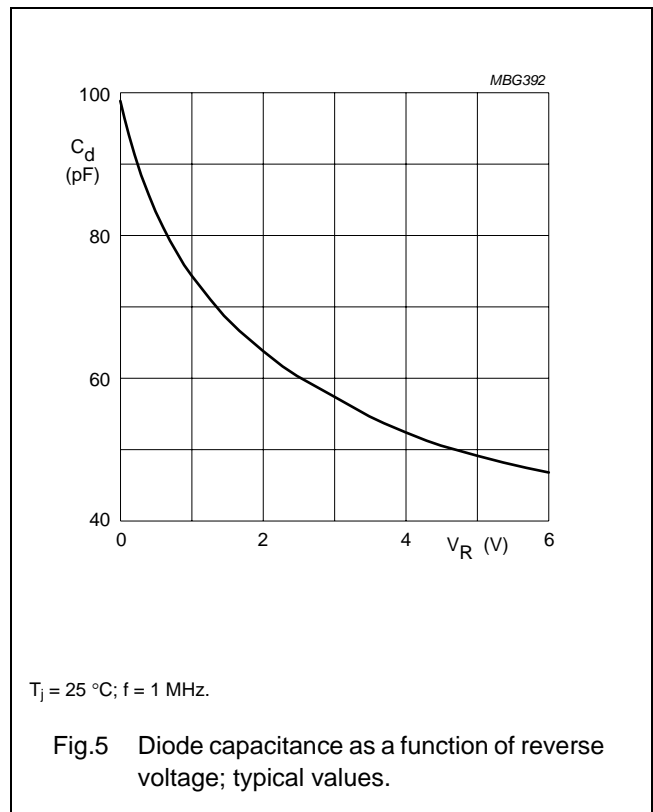
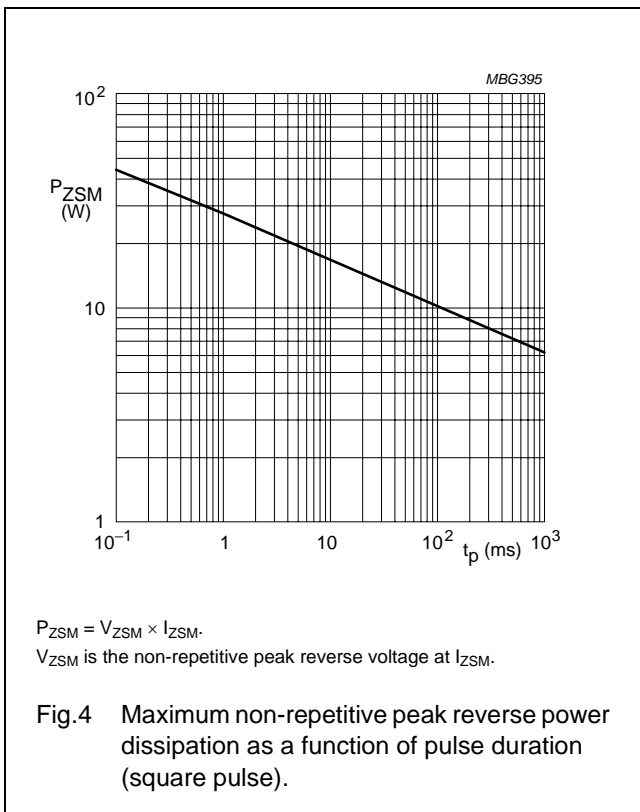
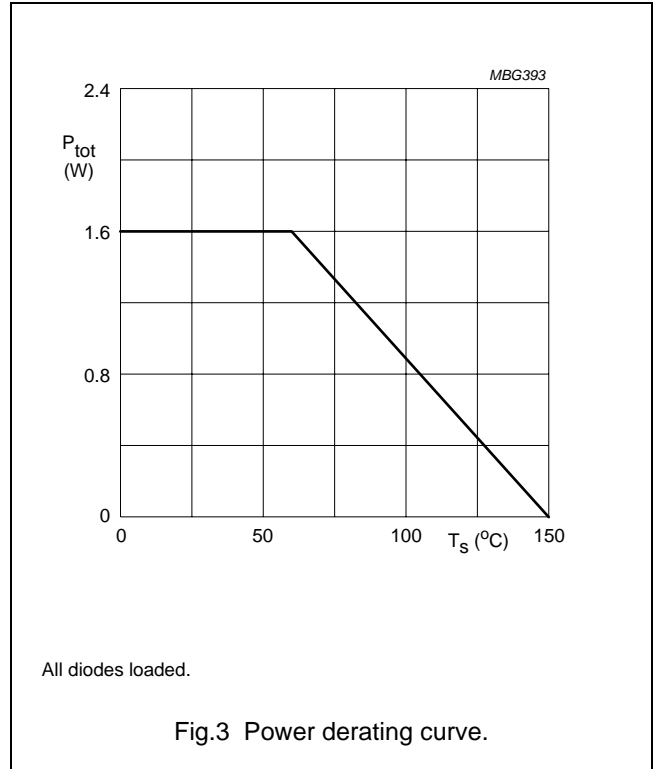
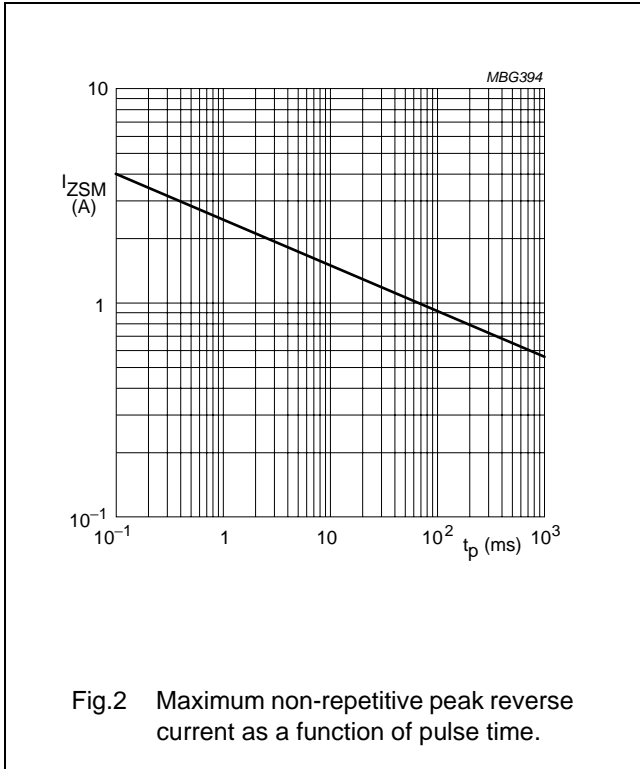
$T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Per diode						
V_Z	working voltage	$I_Z = 5\text{ mA}$	6.4	6.8	7.2	V
V_F	forward voltage	$I_F = 200\text{ mA}$	–	–	1.3	V
V_{ZSM}	non-repetitive peak reverse voltage	$t_p = 1\text{ ms}; I_{ZSM} = 2.5\text{ A}$	–	–	11	V
I_R	reverse current	$V_R = 5.25\text{ V}$	–	–	2	μA
r_{dif}	differential resistance	$I_Z = 1\text{ mA}$	–	–	40	Ω
		$I_Z = 5\text{ mA}$	–	–	8	Ω
S_Z	temperature coefficient of working voltage	$I_Z = 5\text{ mA}$	–	3	–	mV/K
C_d	diode capacitance	see Fig.5				
		$V_R = 0; f = 1\text{ MHz}$	–	–	120	pF
		$V_R = 5.25\text{ V}; f = 1\text{ MHz}$	–	–	60	pF

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GRAPHICAL DATA



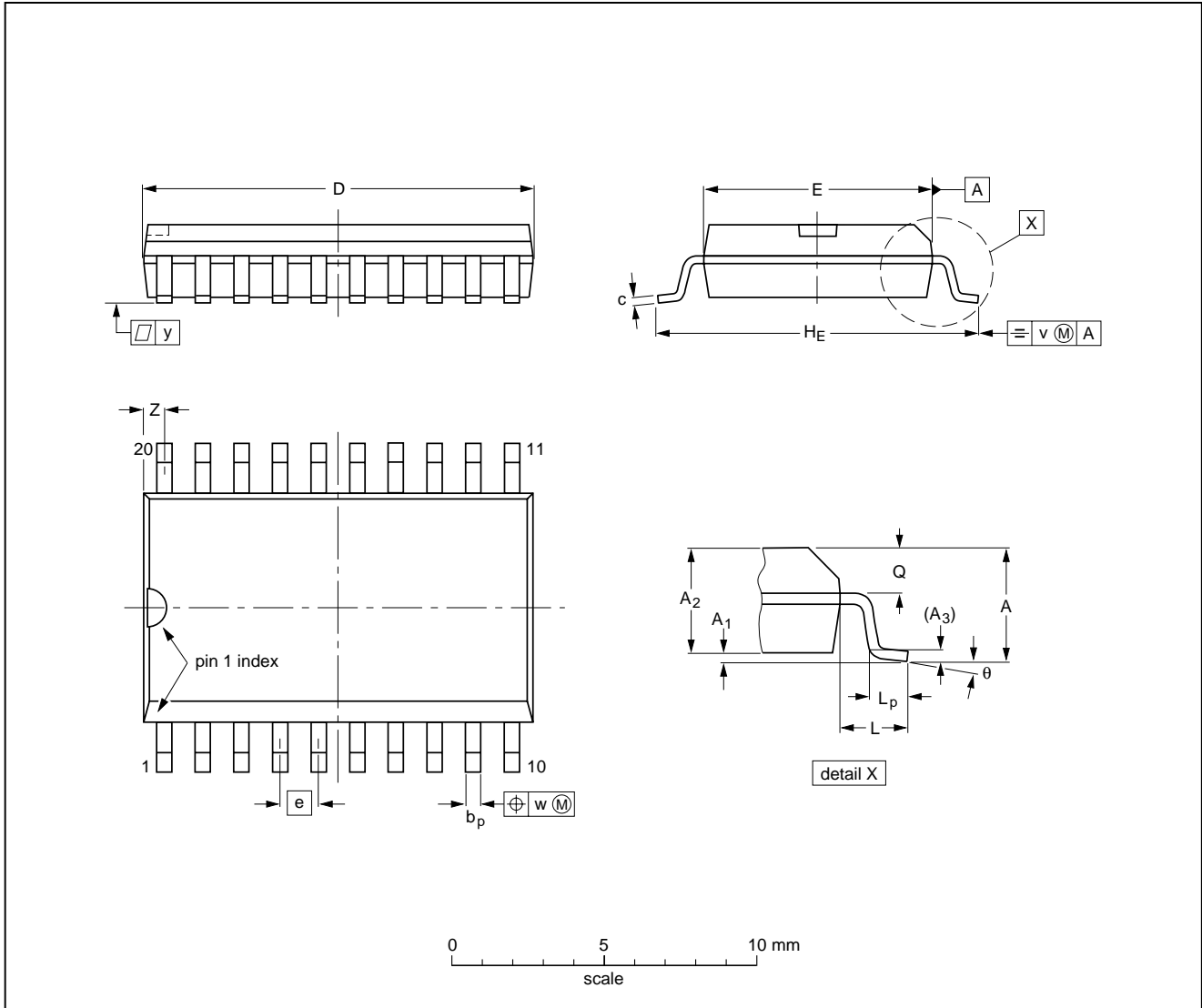
18-fold ESD transient voltage suppressor

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PACKAGE OUTLINE

SO20: plastic small outline package; 20 leads; body width 7.5 mm

SOT163-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.65	0.3 0.1	2.45 2.25	0.25	0.49 0.36	0.32 0.23	13.0 12.6	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8° 0°
inches	0.1	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.51 0.49	0.30 0.29	0.05	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT163-1	075E04	MS-013				99-12-27 03-02-19

18-fold ESD transient voltage suppressor

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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

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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>.

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Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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