

# Transient Voltage Suppressor Diode

## **BZA100**

18 Diode Array

6.8V/200mA

# DATASHEET

OEM – Philips

Source: Philips Databook 1999

## 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  $\mu$ A
- ESD rating >8 kV, according IEC 801-2.

## APPLICATIONS

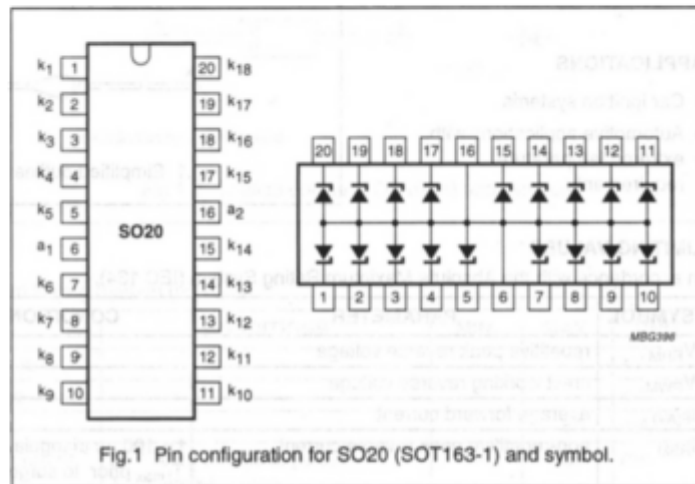
- Where transient overvoltage protection in voltage and ESD sensitive equipment is required such as:
  - Computers
  - Printers
  - Business machines
  - Communication systems
  - Medical equipment.

## 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	-	1.6	W
		up to $T_{amb} = 25$ °C; note 3	-	1.25	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.

## 18-fold ESD transient voltage suppressor

BZA100

## 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
<b>Per diode</b>						
$V_Z$	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	$\mu\text{A}$
$r_{df}$	differential resistance	$I_Z = 1\text{ mA}$	–	–	40	$\Omega$
		$I_Z = 5\text{ mA}$	–	–	8	$\Omega$
$S_Z$	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

18-fold ESD transient voltage suppressor

BZA100

GRAPHICAL DATA

