



Application Specific Discretes
A.S.D.

ESDA6V1-5P6 TRANSIL™ ARRAY FOR ESD PROTECTION

MAIN APPLICATIONS

Where transient overvoltage protection in ESD sensitive equipment is required, such as :

- Computers
- Printers
- Communication systems and cellular phones
- Video equipment

This device is particularly adapted to the protection of symmetrical signals.

FEATURES

- 5 UNIDIRECTIONAL TRANSIL™ FUNCTIONS.
- BREAKDOWN VOLTAGE $V_{BR} = 6.1V$ MIN
- LOW LEAKAGE CURRENT < 500 nA
- VERY SMALL PCB AREA < 2.6 mm²

DESCRIPTION

The ESDA6V1-5P6 is a monolithic array designed to protect up to 5 lines against ESD transients.

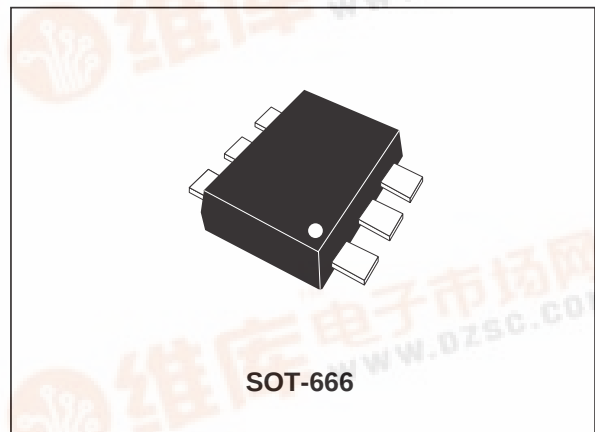
This device is ideal for applications where board space saving is required.

BENEFITS

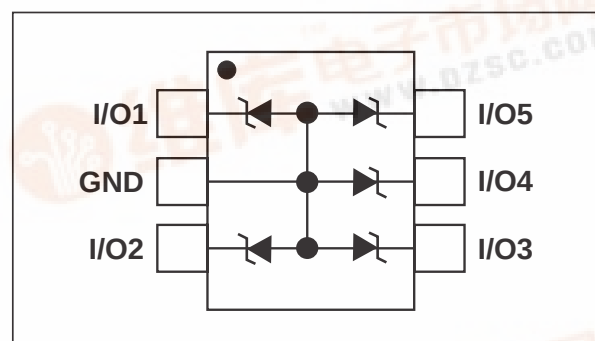
- High ESD protection level.
- High integration.
- Suitable for high density boards.

COMPLIES WITH THE FOLLOWING STANDARDS :

- IEC61000-4-2 level 4: 15 kV (air discharge)
8 kV (contact discharge)
- MIL STD 883E-Method 3015-7: class 3
25kV HBM (Human Body Model)



FUNCTIONAL DIAGRAM



ESDA6V1-5P6

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter	Test conditions	Value	Unit
V_{PP}	ESD discharge - IEC61000-4-2 air discharge IEC61000-4-2 contact discharge		± 15 ± 8	kV
P_{PP}	Peak pulse power (8/20 μs) (see note 1)	$T_j \text{ initial} = T_{amb}$	150	W
T_j	Junction temperature		125	$^{\circ}\text{C}$
T_{stg}	Storage temperature range		- 55 to + 150	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10s at 5mm for case		260	$^{\circ}\text{C}$
T_{op}	Operating temperature range		- 40 to + 150	$^{\circ}\text{C}$

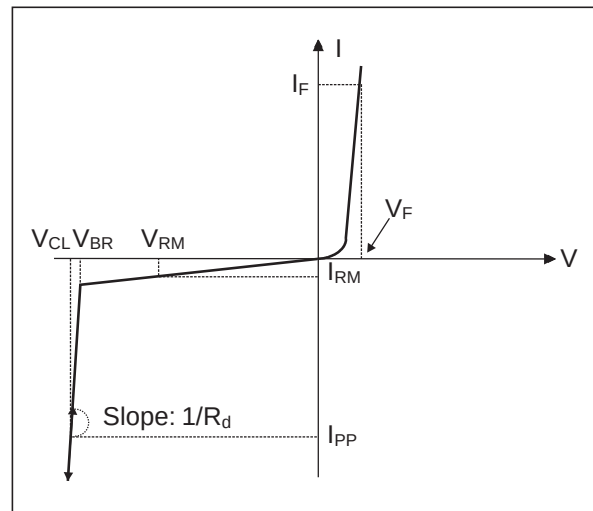
Note 1: for a surge greater than the maximum values, the diode will fail in short-circuit.

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction to ambient on printed circuit on recommended pad layout	220	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{CL}	Clamping voltage
I_{RM}	Leakage current
I_{PP}	Peak pulse current
αT	Voltage tempature coefficient
V_F	Forward voltage drop
C	Capacitance per line
R_d	Dynamic resistance



Types	V_{BR} @ I_R			I_{RM} @ V_{RM}		R_d	αT	C
	min.	max.		max.		typ.	max.	typ.
	V	V	mA	μA	V	Ω	$10^{-4}/^{\circ}C$	@ 0V pF
ESDA6V1-5P6	6.1	7.2	1	0.5	3	1.5	4.5	70

Fig. 1: Relative variation of peak pulse power versus initial junction temperature.

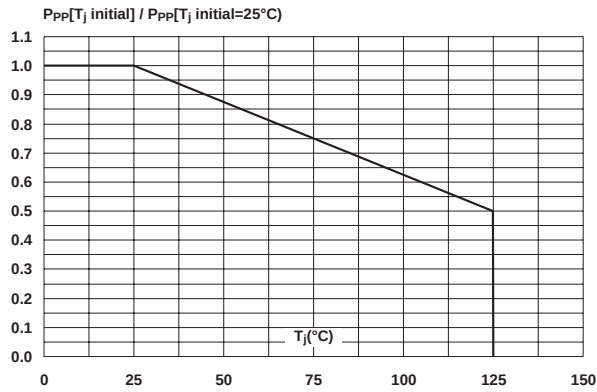


Fig. 2: Peak pulse power versus exponential pulse duration.

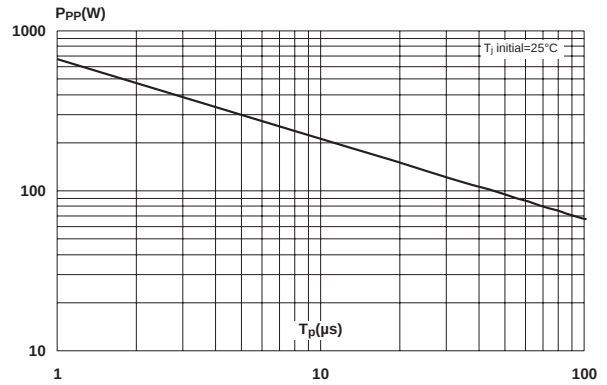


Fig. 3: Clamping voltage versus peak pulse current (typical values, rectangular waveform).

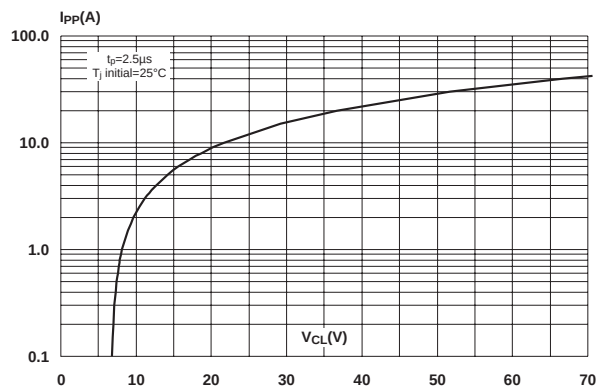


Fig. 4: Forward voltage drop versus peak forward current (typical values).

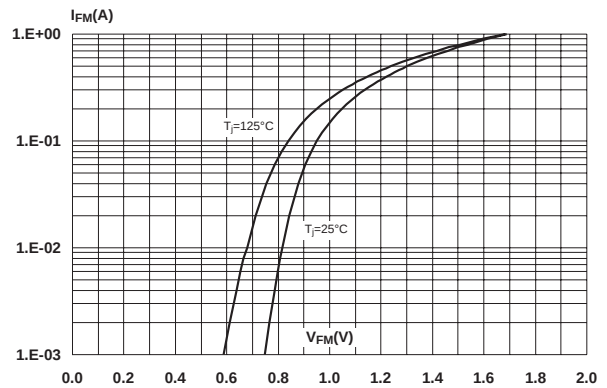


Fig. 5: Junction capacitance versus reverse voltage applied (typical values).

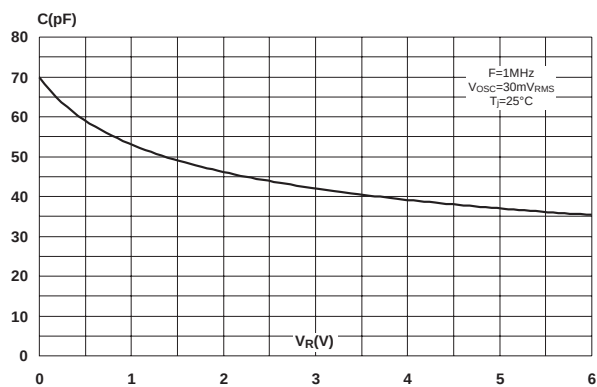
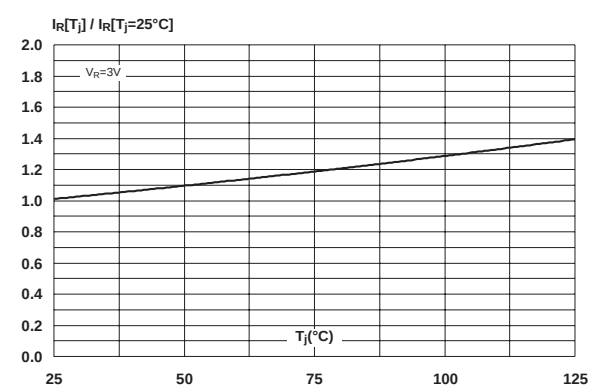


Fig. 6: Relative variation of leakage current versus junction temperature (typical values).



ESDA6V1-5P6

Fig. 7: ESD response @ $V_{PP}=8\text{kV}$ contact.

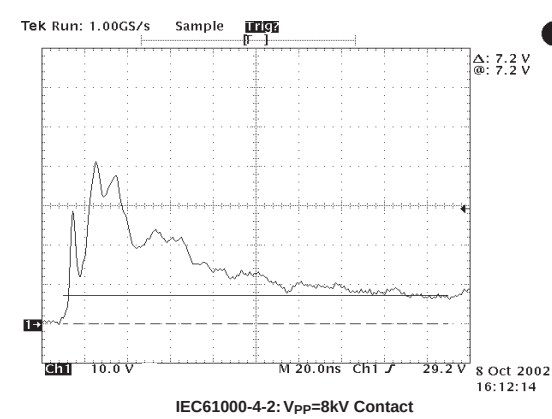
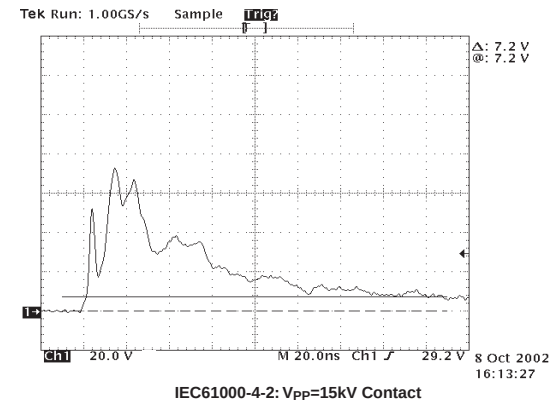
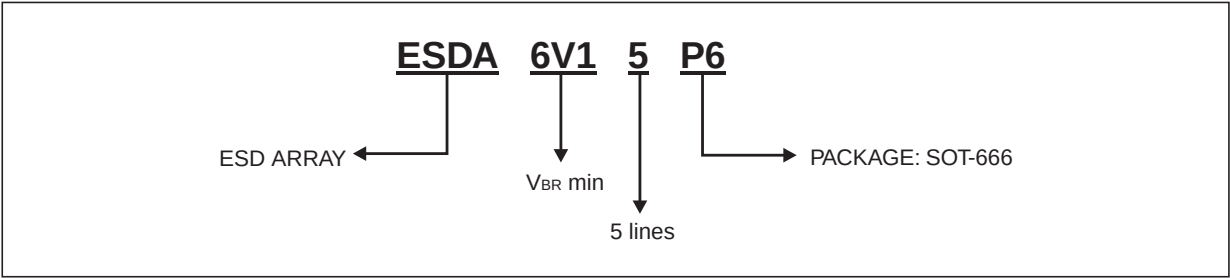


Fig. 8: ESD response @ $V_{PP}=15\text{kV}$ contact.



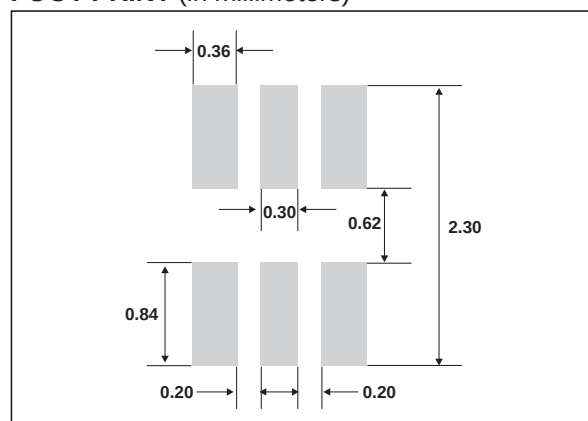
ORDER CODE



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
ESDA6V1-5P6	C	SOT-666	2.9 mg.	3000	Tape & reel

PACKAGE MECHANICAL DATA
SOT-666

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.50	0.60	0.020	0.024
bp	0.17	0.27	0.007	0.011
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.060	0.067
E	1.10	1.30	0.043	0.051
e	1.00		0.040	
e1	0.50		0.020	
He	1.50	1.70	0.059	0.067
Lp	0.10	0.30	0.004	0.012

FOOT PRINT (in millimeters)


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