



Application Specific Discretes  
A.S.D.

## ESDA6V1P6

### QUAD 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

- 4 UNIDIRECTIONAL TRANSIL™ FUNCTIONS.
- BREAKDOWN VOLTAGE  $V_{BR} = 6.1V$  MIN
- LOW LEAKAGE CURRENT  $< 500$  nA
- VERY SMALL PCB AREA  $< 2.6$  mm<sup>2</sup>

#### DESCRIPTION

The ESDA6V1P6 is a monolithic array designed to protect up to 4 lines against ESD transients.

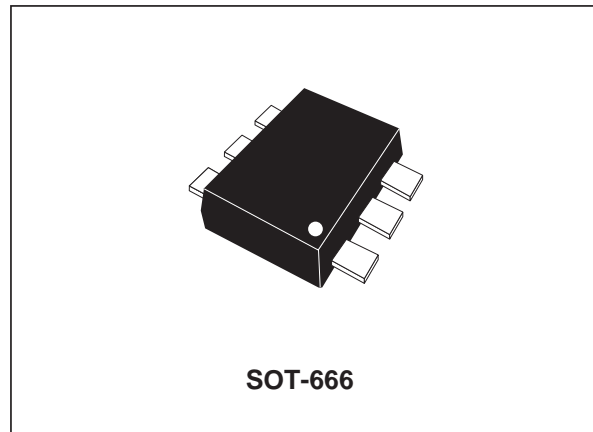
This device is ideal for applications where board space saving is required.

#### BENEFITS

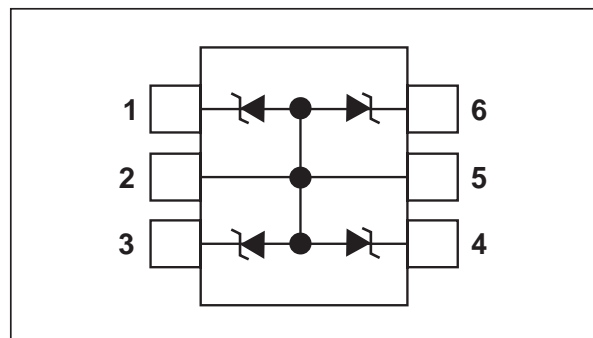
- High ESD protection level.
- High integration.
- Suitable for high density boards.

#### 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



# ESDA6V1P6

## ABSOLUTE RATINGS (T<sub>amb</sub> = 25°C)

Symbol	Parameter	Test conditions	Value	Unit
V <sub>PP</sub>	ESD discharge - IEC61000-4-2 air discharge IEC61000-4-2 contact discharge		± 15 ± 8	kV
P <sub>PP</sub>	Peak pulse power (8/20 μs) (see note 1)	T <sub>j</sub> initial = T <sub>amb</sub>	150	W
T <sub>j</sub>	Junction temperature		125	°C
T <sub>stg</sub>	Storage temperature range		- 55 to + 150	°C
T <sub>L</sub>	Maximum lead temperature for soldering during 10s at 5mm for case		260	°C
T <sub>op</sub>	Operating temperature range		- 40 to + 150	°C

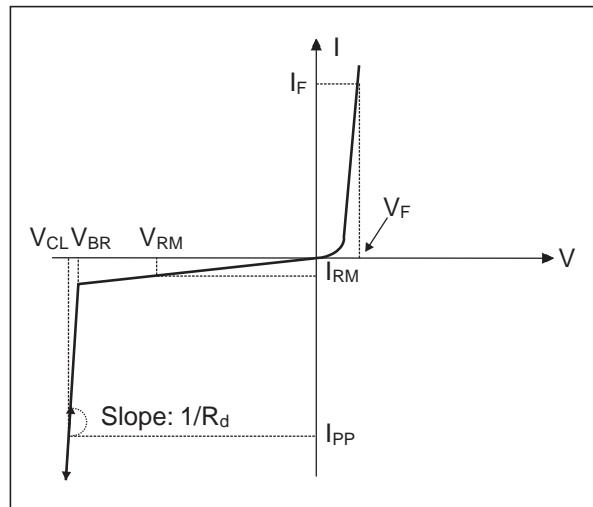
**Note 1:** for a surge greater than the maximum values, the diode will fail in short-circuit.

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction to ambient on printed circuit on recommended pad layout	220	°C/W

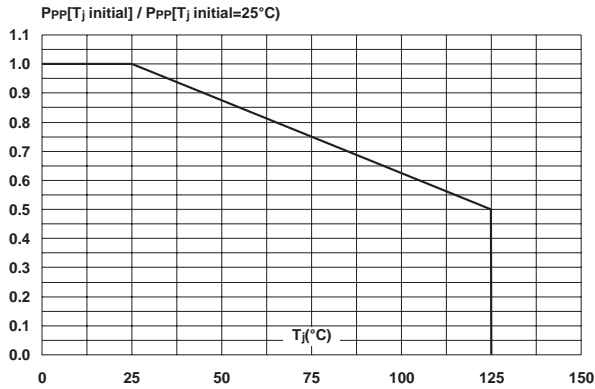
## ELECTRICAL CHARACTERISTICS (T<sub>amb</sub> = 25°C)

Symbol	Parameter
V <sub>RM</sub>	Stand-off voltage
V <sub>BR</sub>	Breakdown voltage
V <sub>CL</sub>	Clamping voltage
I <sub>RM</sub>	Leakage current
I <sub>PP</sub>	Peak pulse current
αT	Voltage temperature coefficient
V <sub>F</sub>	Forward voltage drop
C	Capacitance per line
R <sub>d</sub>	Dynamic resistance

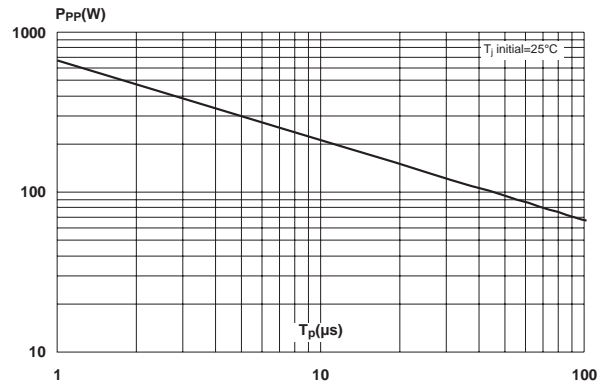


Types	V <sub>BR</sub> @		I <sub>r</sub>	I <sub>RM</sub> @		R <sub>d</sub>	αT	C
	min.	max.		max.	V <sub>RM</sub>			
	V	V	mA	μA	V	Ω	10 <sup>-4</sup> /°C	typ. @ 0V pF
ESDA6V1P6	6.1	7.2	1	0.5	3	1.5	4.5	70

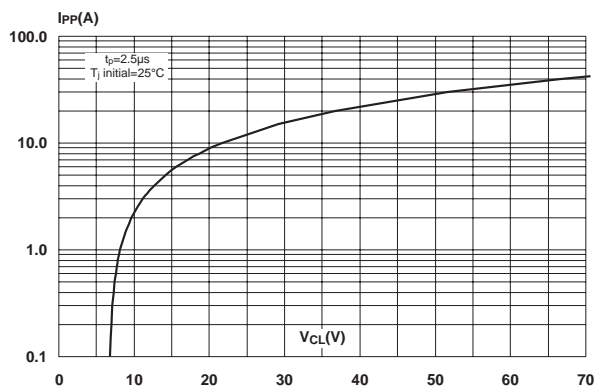
**Fig. 1:** Relative variation of peak pulse power versus initial junction temperature.



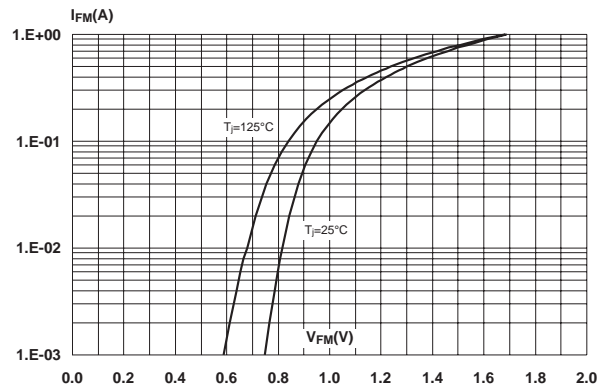
**Fig. 2:** Peak pulse power versus exponential pulse duration.



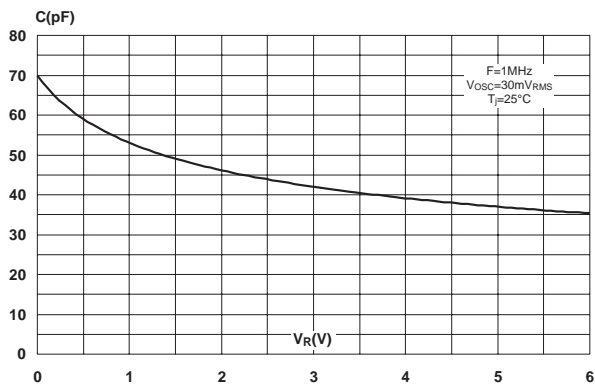
**Fig. 3:** Clamping voltage versus peak pulse current (typical values, rectangular waveform).



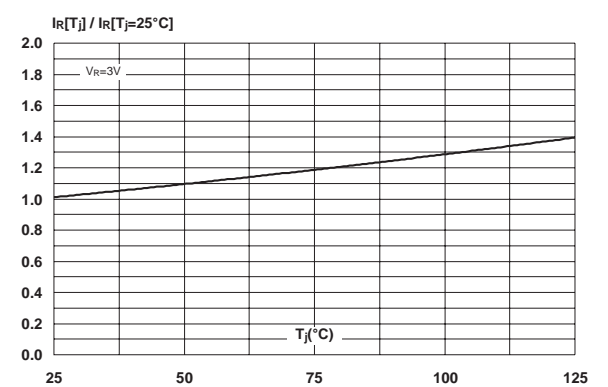
**Fig. 4:** Forward voltage drop versus peak forward current (typical values).



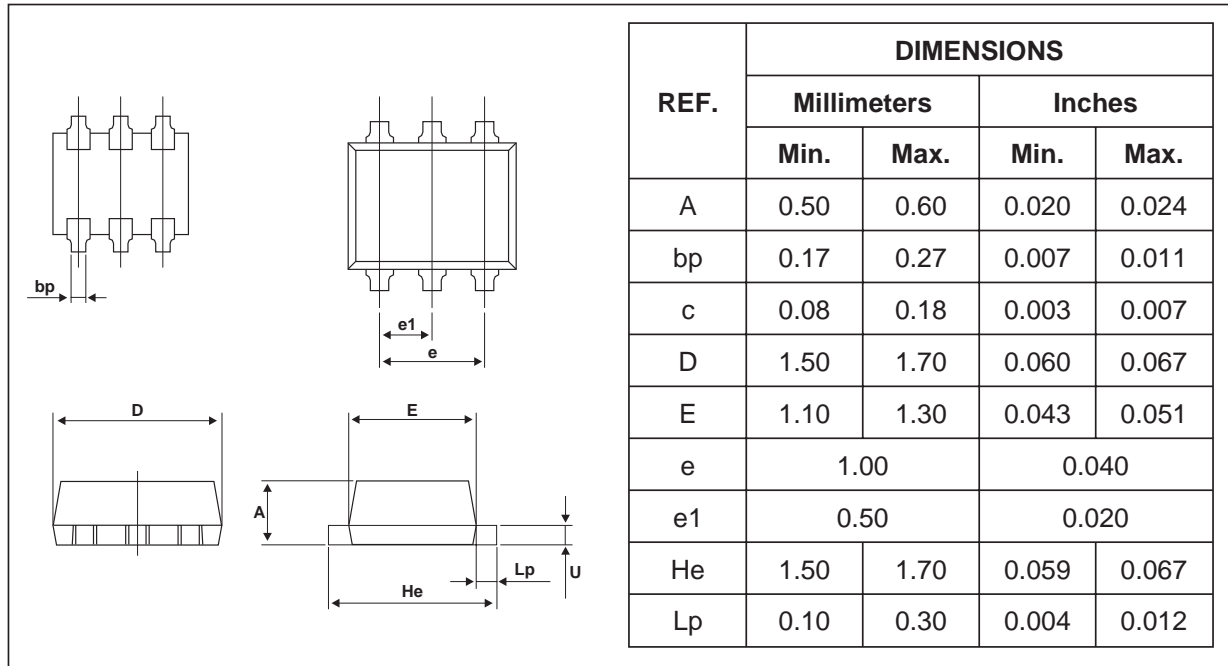
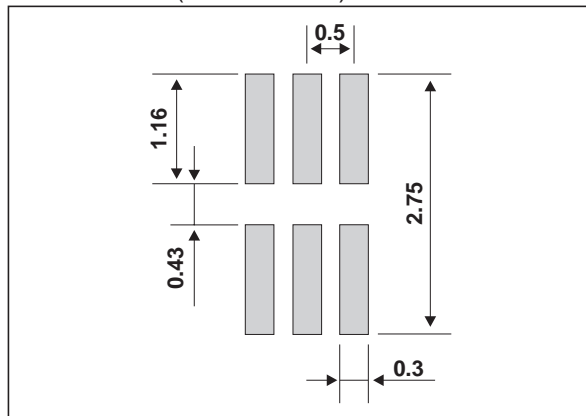
**Fig. 5:** Junction capacitance versus reverse voltage applied (typical values).



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





**PACKAGE MECHANICAL DATA**  
**SOT-666**

**FOOT PRINT (in millimeters)**


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