



# ESDA6V1-5SC6

ASD™

## TRANSIL™ ARRAY FOR ESD PROTECTION

### MAIN APPLICATIONS

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

- Computers
- Printers
- Communication systems
- Cellular phone handsets and accessories
- Other telephone set
- Set top boxes

### FEATURES

- 5 Unidirectional Transil™ Functions
- Low leakage current:  $I_R$  max. < 1µA
- Breakdown voltage:  $V_{BR} = 6.1V$  min.

### DESCRIPTION

The ESDA6V1-5SC6 is a 5-bit wide monolithic suppressor which is designed to protect against ESD components connected to data and transmission lines.

### BENEFITS

- High integration
- Suitable for high density boards

### COMPLIES WITH THE FOLLOWING STANDARDS:

		Test kV	Max. current
IEC61000-4-2 level 4	Air	15	-
	Contact	8	30A
MIL STD 883C-Method 3015-7 class3 (Human Body Model)	Contact	> 4	> 2.67A

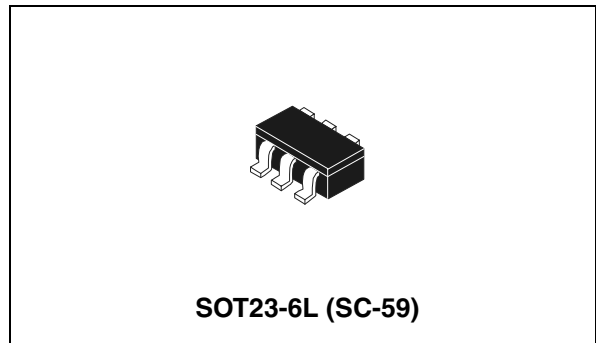


Table 1: Order Code

Part Number	Marking
ESDA6V1-5SC6	EC62

Figure 1: Functional Diagram

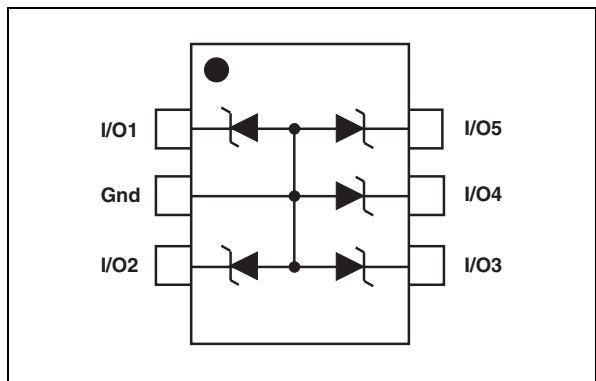
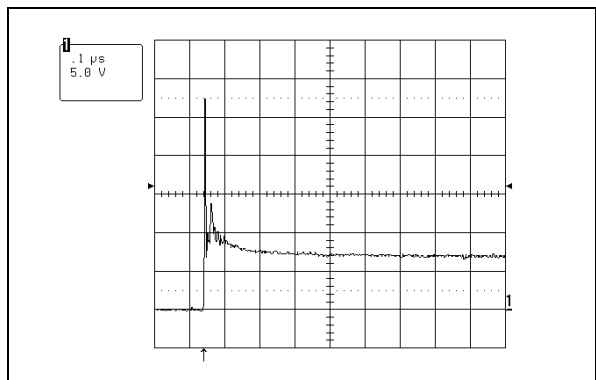


Figure 2: ESD response to IEC61000-4-2 (air discharge 16kV, positive surge)



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# ESDA6V1-5SC6

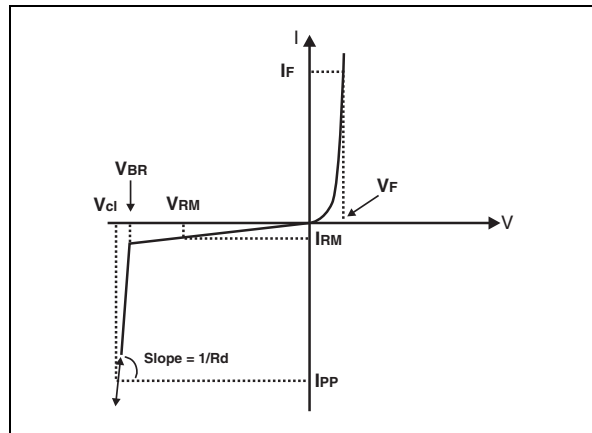
**Table 2: Absolute Maximum Ratings** ( $T_{amb} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{PP}$	ESD discharge	MIL STD 883E - Method 3015-7	25
		IEC61000-4-2 air discharge	20
		IEC61000-4-2 contact discharge	15
$P_{PP}$	Peak pulse power (8/20 $\mu\text{s}$ )	100	W
$T_j$	Junction temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage temperature range	-55 to +150	$^{\circ}\text{C}$
$T_L$	Maximum lead temperature for soldering during 10 s at 5mm for case	260	$^{\circ}\text{C}$
$T_{op}$	Operating temperature range (note 1)	-40 to +125	$^{\circ}\text{C}$

**Note 1:** The evolution of the operating parameters versus temperature is given by curves and  $\alpha T$  parameter.

**Table 3: 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
$\alpha T$	Voltage temperature coefficient
$V_F$	Forward voltage drop
$C$	Capacitance
$R_d$	Dynamic resistance

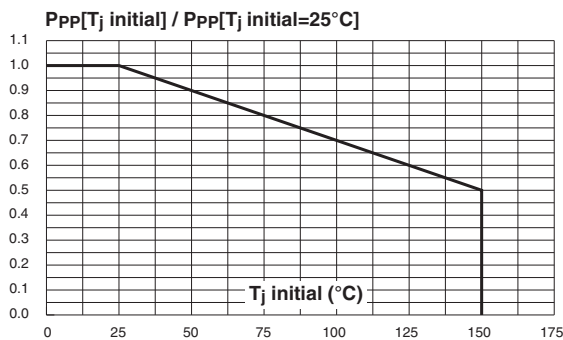


Type	$V_{BR}$ @		$I_R$	$I_{RM}$ @ $V_{RM}$		$R_d$	$\alpha T$	$C$	$V_F$ @ $I_F$	
	min.	max.		max.					max.	
	V	V	mA	$\mu\text{A}$	V	$\text{m}\Omega$	$10^{-4}/^{\circ}\text{C}$	pF	V	mA
ESDA6V1-5SC6	6.1	7.2	1	1	3	590	6	50	1.25	200

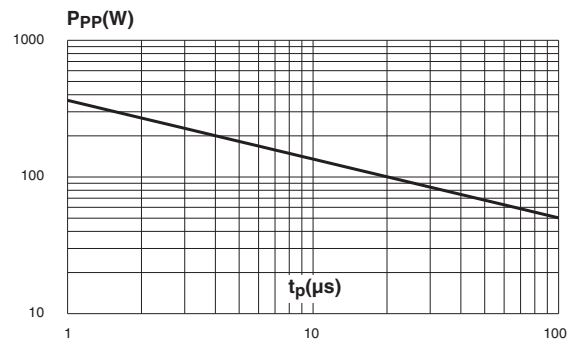
**Note 2:** Square pulse,  $I_{PP} = 15\text{A}$ ,  $t_p = 2.5\mu\text{s}$ .

**Note 3:**  $\Delta V_{BR} = \alpha T * (T_{amb} - 25^{\circ}\text{C}) * V_{BR} (25^{\circ}\text{C})$ .

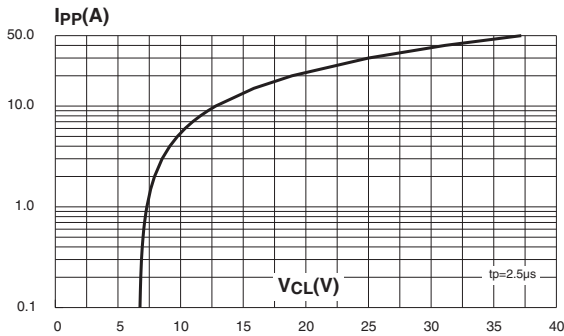
**Figure 3: Peak power dissipation versus initial junction temperature**



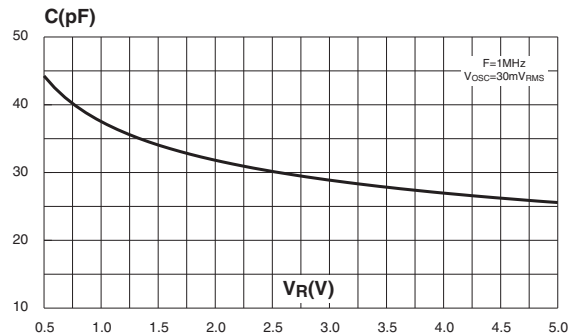
**Figure 4: Peak power versus exponential pulse duration ( $T_j$  initial =  $25^{\circ}\text{C}$ )**



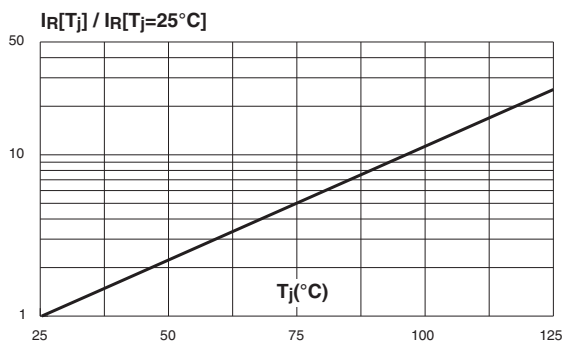
**Figure 5: Clamping voltage versus peak pulse current ( $T_j$  initial = 25 °C). Rectangular waveform ( $t_p = 2.5 \mu s$ )**



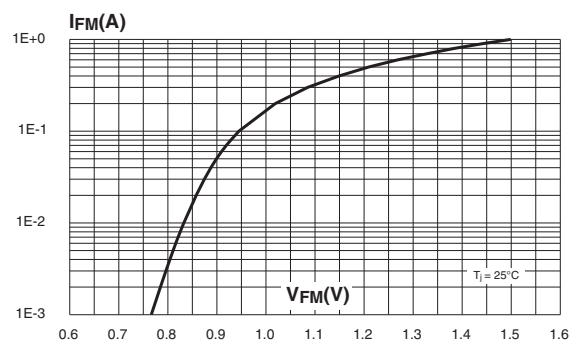
**Figure 6: Capacitance versus reverse applied voltage (typical values)**



**Figure 7: Relative variation of leakage current versus junction temperature (typical values)**



**Figure 8: Peak forward voltage drop versus peak forward current (typical values)**



**Figure 9: Ordering information scheme**

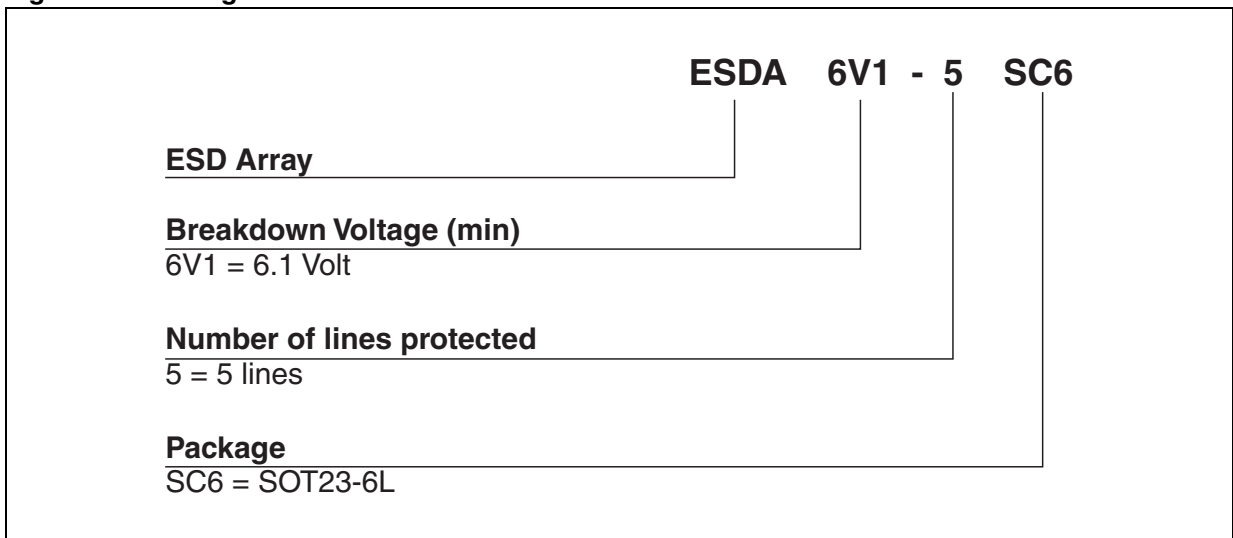


Figure 10: SOT23-6L Package Mechanical Data

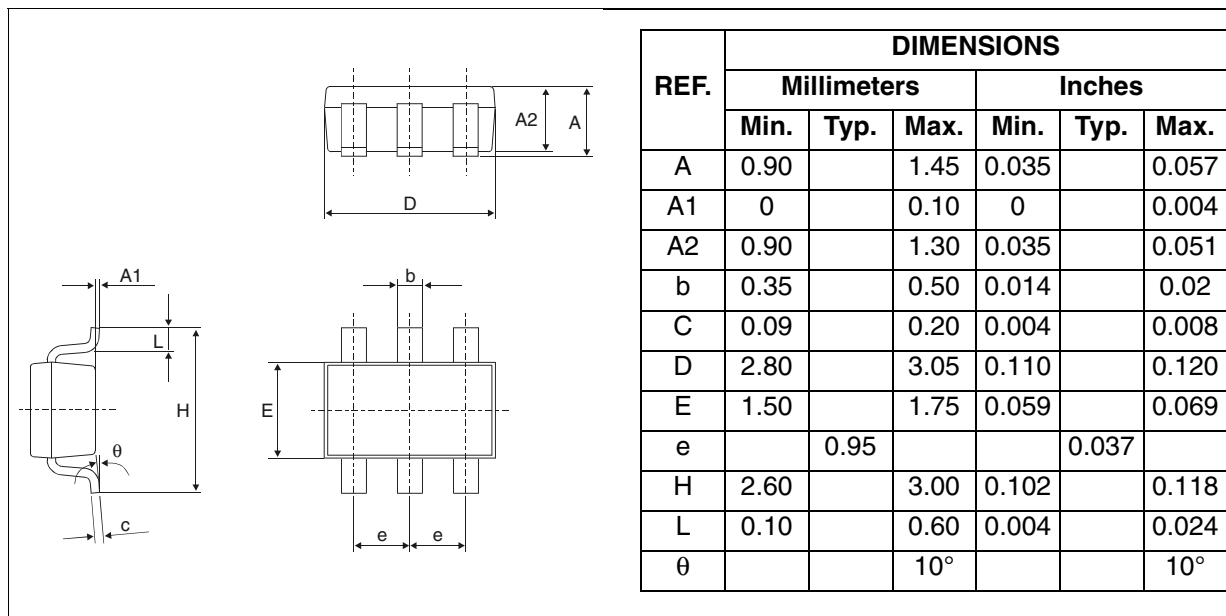


Figure 11: Foot Print Dimensions (in millimeters)

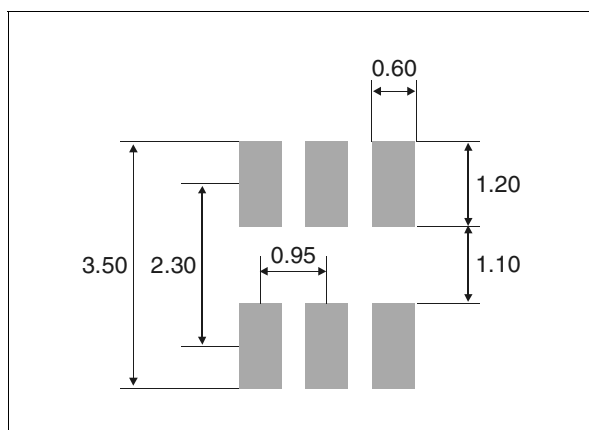


Table 4: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
ESDA6V1-5SC6	EC62	SOT23-6L	16.7 mg	3000	Tape & reel

Table 5: Revision History

Date	Revision	Description of Changes
Feb-2002	2B	Last update.
4-Nov-2004	3	SOT23-6L package dimensions change for reference “D” from 3.0 millimeters (0.118 inches) to 3.05 millimeters (0.120 inches).

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