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

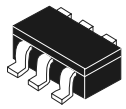
The ESDA6V1-5SC6 is a 5-bit wide monolithic suppressor which is designed to protect against ESD components connected to data and transmission lines.

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



SOT23-6L (SC-59)

Table 1: Order Code

Part Number	Marking
ESDA6V1-5SC6	EC62

Figure 1: Functional Diagram

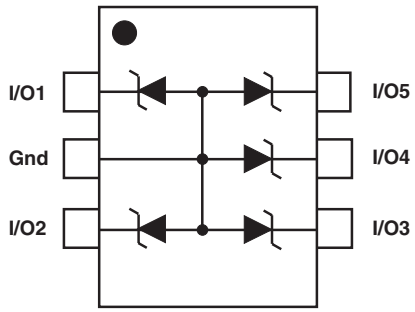
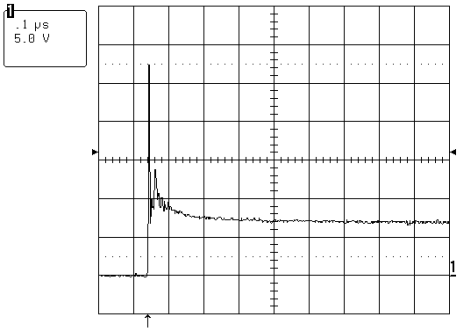


Figure 2: ESD response to IEC61000-4-2 (air discharge 16kV, positive surge)



TM: ASD is a trademark of STMicroelectronics.

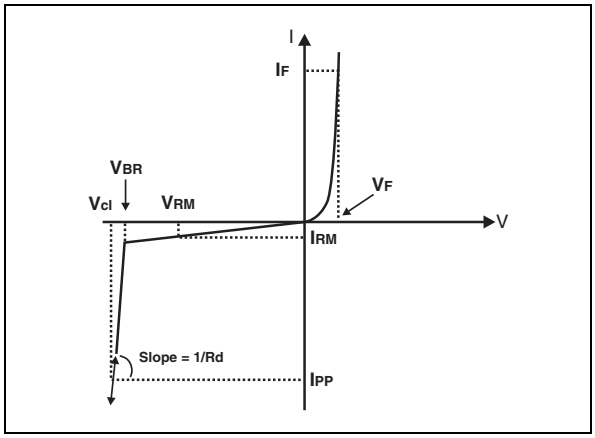
Table 2: Absolute Maximum Ratings (T_{amb} = 25°C)

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

Note 1: The evolution of the operating parameters versus temperature is given by curves and αT parameter.

Table 3: Electrical Characteristics (T_{amb} = 25°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 temperature coefficient
V_F	Forward voltage drop
C	Capacitance
R_d	Dynamic resistance



Type	V_{BR} @ I_R			I_{RM} @ V_{RM}		R_d	αT	C	V_F @ I_F	
	min.	max.		max.		typ. note 2	max. note 3	typ. 0V bias	max.	
	V	V	mA	µA	V	mΩ	10^{-4}/°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} = 15A, t_p=2.5µs.

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

Figure 3: Peak power dissipation versus initial junction temperature

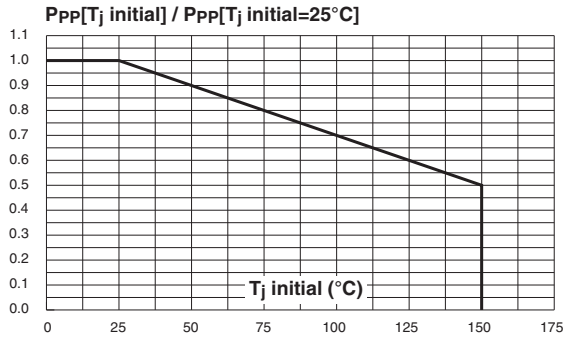


Figure 4: Peak pulse power versus exponential pulse duration (T_j initial = 25 °C)

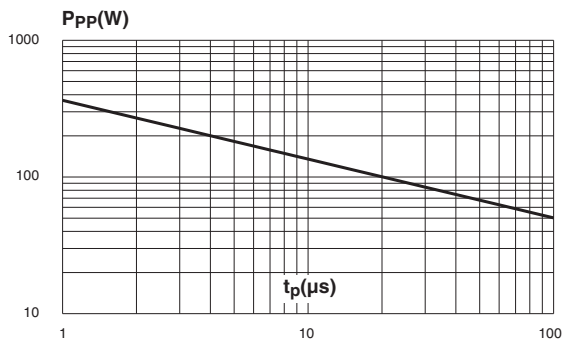


Figure 5: Clamping voltage versus peak pulse current (T_j initial = 25 °C). Rectangular waveform (t_p = 2.5 µs)

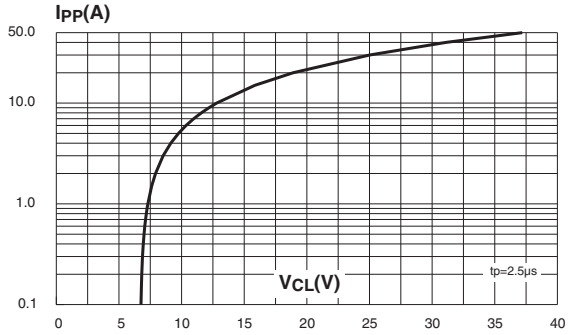


Figure 6: Capacitance versus reverse applied voltage (typical values)

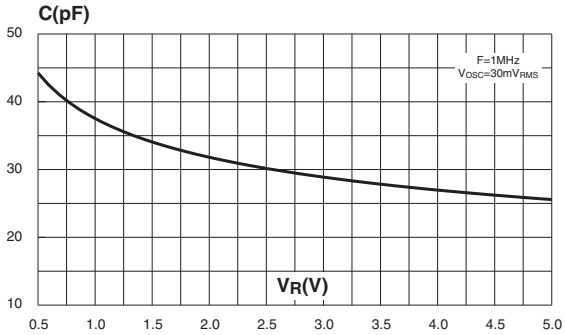


Figure 7: Relative variation of leakage current versus junction temperature (typical values)

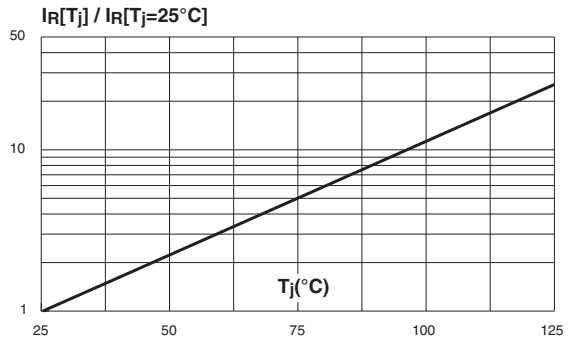


Figure 8: Peak forward voltage drop versus peak forward current (typical values)

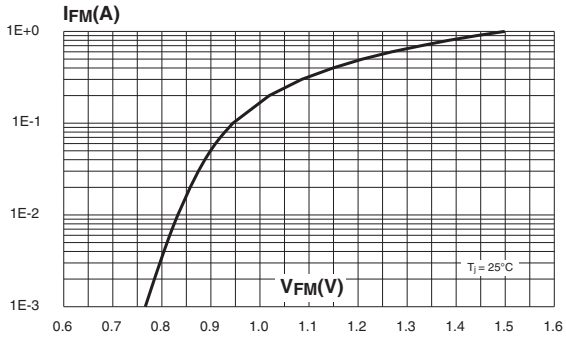


Figure 9: Ordering information scheme

ESDA 6V1 - 5 SC6

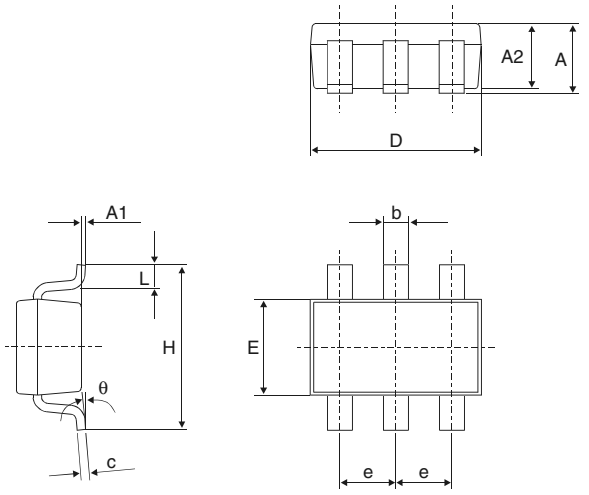
ESD Array

Breakdown Voltage (min)
6V1 = 6.1 Volt

Number of lines protected
5 = 5 lines

Package
SC6 = SOT23-6L

Figure 10: SOT23-6L Package Mechanical Data



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.90		1.45	0.035		0.057
A1	0		0.10	0		0.004
A2	0.90		1.30	0.035		0.051
b	0.35		0.50	0.014		0.02
C	0.09		0.20	0.004		0.008
D	2.80		3.05	0.110		0.120
E	1.50		1.75	0.059		0.069
e		0.95			0.037	
H	2.60		3.00	0.102		0.118
L	0.10		0.60	0.004		0.024
θ			10°			10°

Figure 11: Foot Print Dimensions (in millimeters)

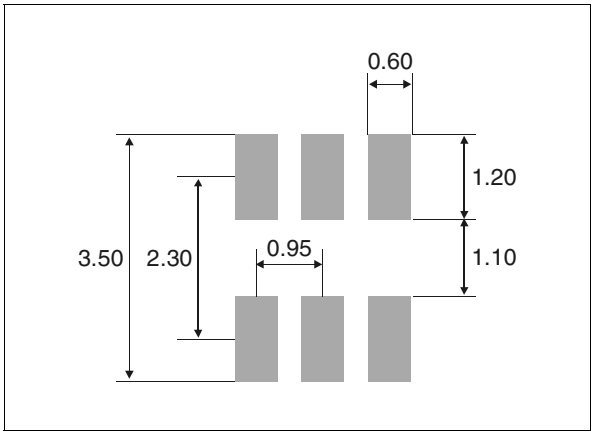


Table 4: Ordering Information

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).