



# ESDA17/19-5SC6

ASD™

## TRANSIL™ ARRAY FOR ESD PROTECTION

### MAIN APPLICATIONS

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

- Computers
- Printers and other peripherals
- Communications systems
- Cellular phone handsets and accessories
- Other telephone sets
- Consumer Electronics (Set top boxes, DVD players, TV sets)

### FEATURES

- 5 unidirectional Transil functions
- Minimum breakdown voltage range:  
V<sub>BR</sub> min. = 17V or 19V
- Peak pulse power (8/20µs); 150W
- Tiny leakage current at stand-off voltage:  
< 100nA

### DESCRIPTION

The ESDA17/19-5SC6 is a monolithic array designed to protect up to 5 lines against ESD transients.

The device is ideal for applications where board space savind is required.

### BENEFITS

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

### COMPLIES WITH THE FOLLOWING STANDARDS:

- IEC61000-4-2 level 4:
  - 15kV (air discharge)
  - 8kV (contact discharge)
- MIL STD 883E-Method 3015-7: class3
  - 25kV (Human Body Model)

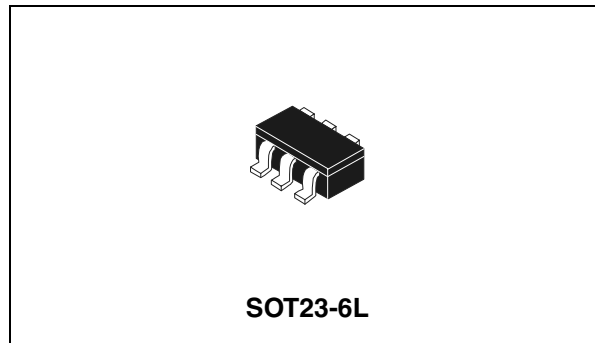
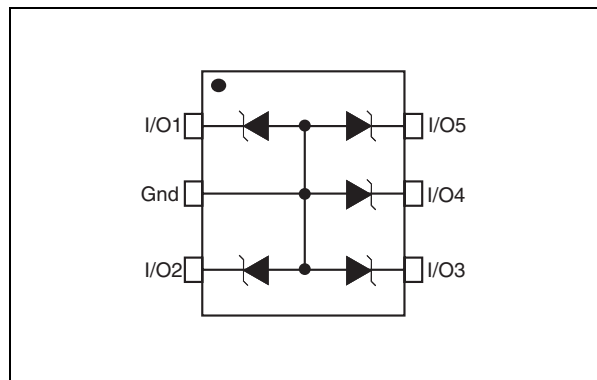


Table 1: Order Codes

Part Number	Marking
ESDA17-5SC6	175
ESDA19-5SC6	195

Figure 1: Functional Diagram



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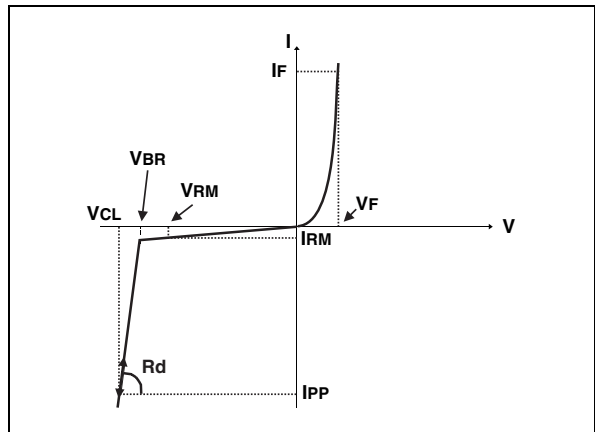
**Table 2: Absolute Maximum Ratings** ( $T_{amb} = 25^{\circ}C$ )

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

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

**Table 3: Electrical Characteristics** ( $T_{amb} = 25^{\circ}C$ )

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

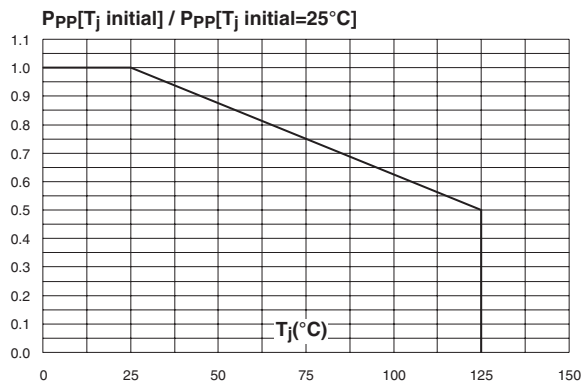


Types	$V_{BR}$ @ $I_R$		$I_{RM}$ @ $V_{RM}$	$R_d$	$\alpha T$	$C$	$V_F$ @ $I_F$			
	min.	max.					max.	typ.	max.	
	V	V	mA	nA	V	$\Omega$	$10^{-4}/^{\circ}C$	pF	V	mA
ESDA17-5SC6	17	19	1	75	14	1	10	33	1.2	10
ESDA19-5SC6	19	21	1	100	15	1	8.5	33	1.2	10

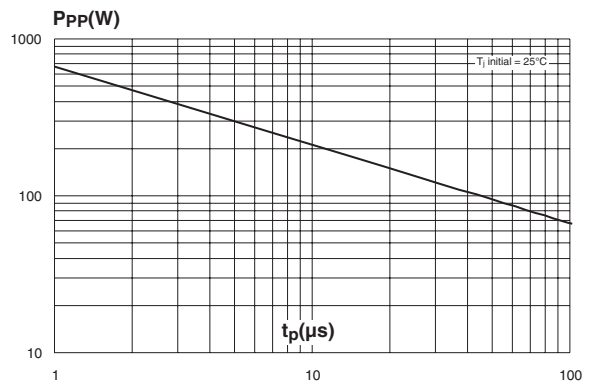
**Note 2:** Square pulse,  $I_{PP} = 15A$ ,  $t_p = 2.5\mu s$ .

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

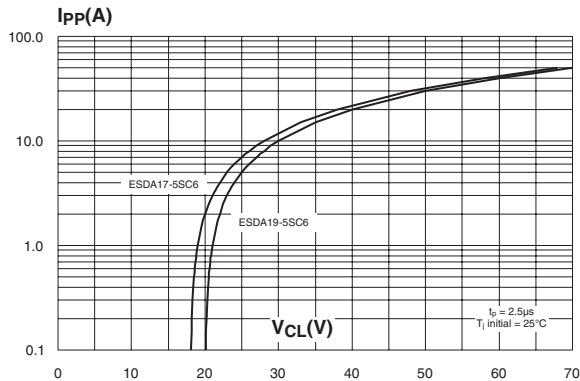
**Figure 2: Relative variation of peak pulse power versus initial junction temperature**



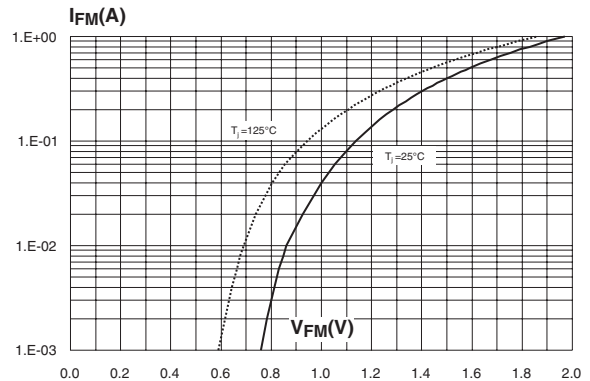
**Figure 3: Peak pulse power versus exponential pulse duration**



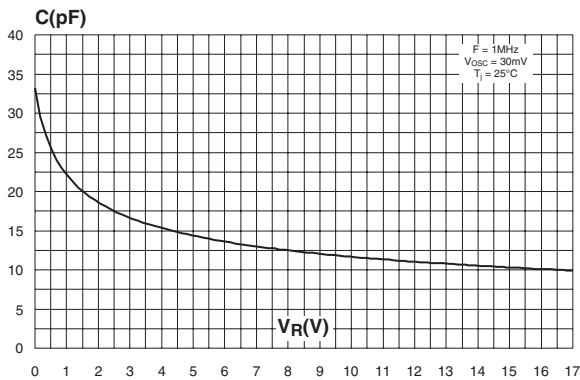
**Figure 4: Clamping voltage versus peak pulse current (typical values, rectangular waveform)**



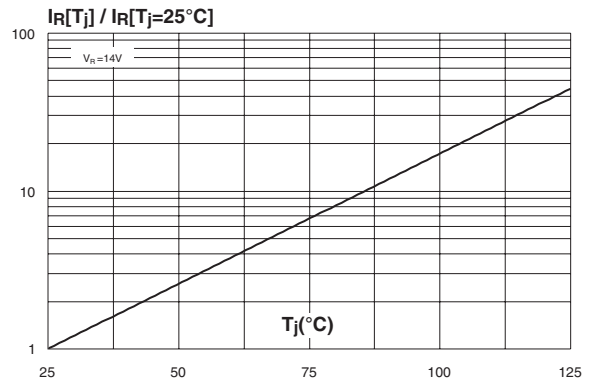
**Figure 5: Forward voltage drop versus peak forward current (typical values)**



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



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



**Figure 8: Ordering information scheme**

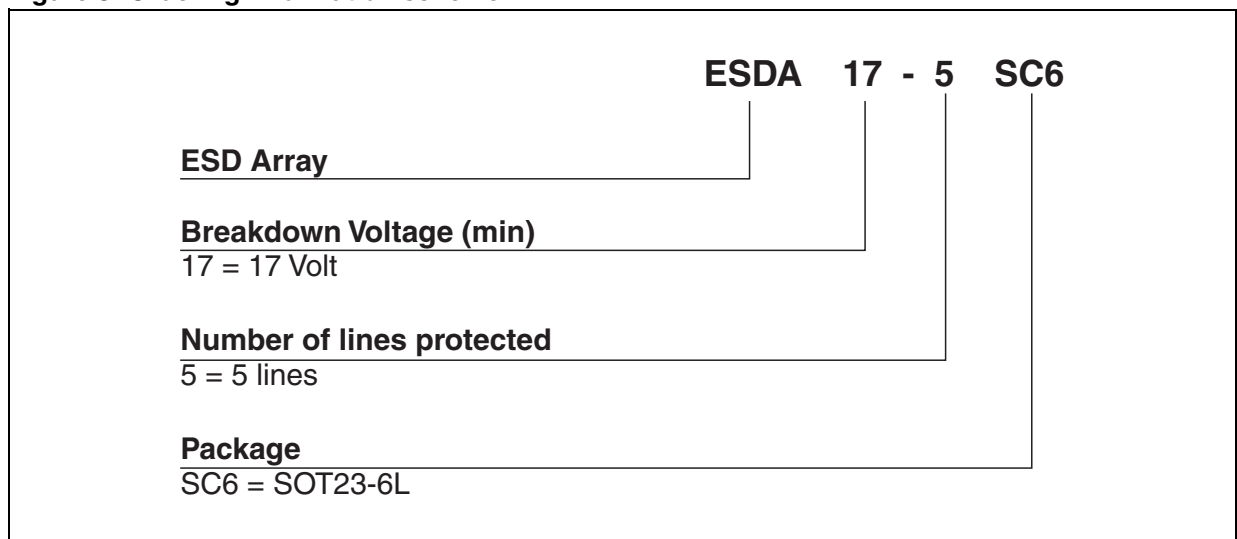


Figure 9: SOT23-6L Package Mechanical Data

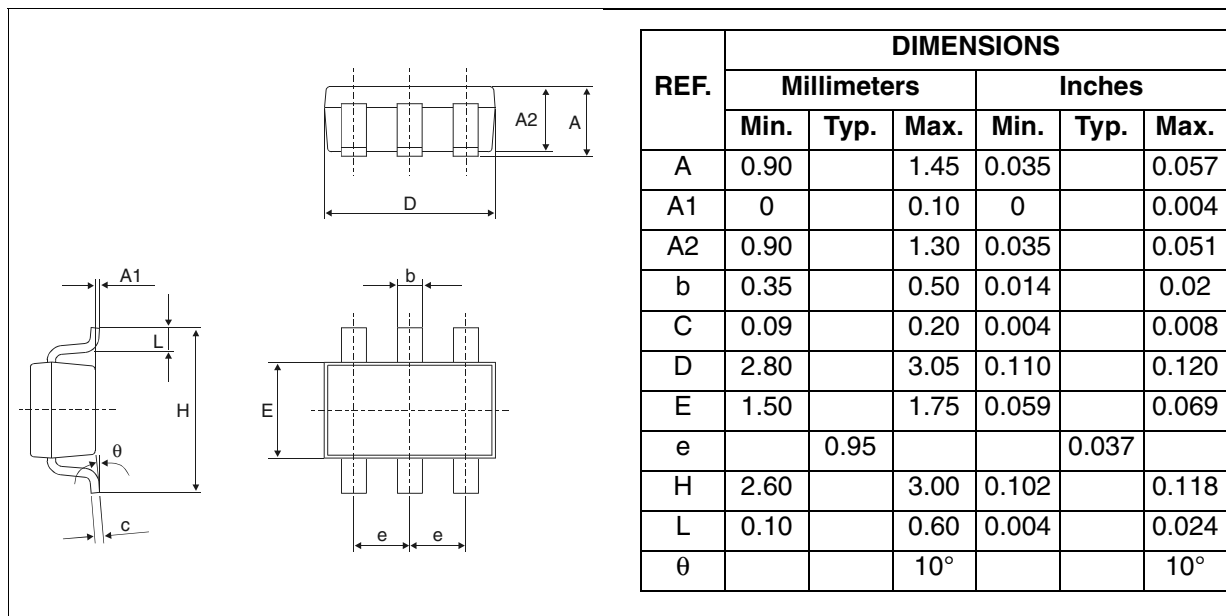


Figure 10: Foot Print Dimensions (in millimeters)

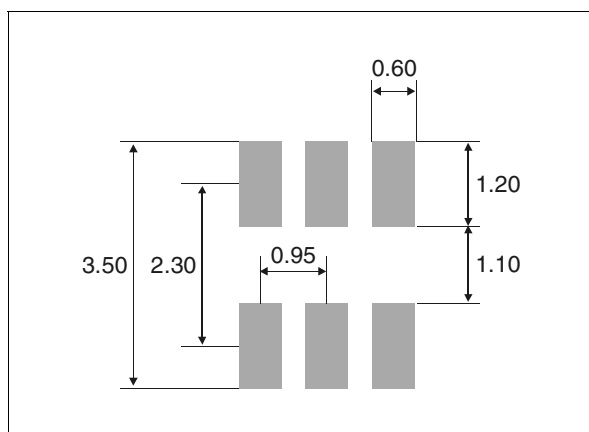


Table 4: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
ESDA17-5SC6	175	SOT23-6L	16.7 mg	3000	Tape & reel
ESDA19-5SC6	195				

Table 5: Revision History

Date	Revision	Description of Changes
Nov-2002	1A	First issue.
4-Nov-2004	2	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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