

## SuperESD - SET23AXXL02

### 1. Description

The SET23AXXL02 is a Transient Voltage Suppressor Arrays that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast Transients (EFT), and lightning. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 are discharge method.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 450W Peak pulse Power (8/20us)
- Low clamping voltage
- Protects one bidirectional or two Unidirectional lines
- Low leakage current
- ESD protection > 15kV
- RoHS compliant

### 3. Applications

- Portable electronic
- Control & monitoring systems
- Servers, notebooks, and desktop PCs
- Set-top box
- Communications systems

### 4. Ordering Information

Part Number	Package	Material	Packing	Quantity per reel	Flammability Rating	Reel Size	
SET23AXXL02	SOT-23	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches	
Marking for the SET23AXXL02 series							
V <sub>RWM</sub>	3.3V	5V	7V	12V	15V	24V	36V
Marking	-	-	-	M12	M15	M24	M36

Table-1 Ordering information

### 5. Pin Configuration and Functions

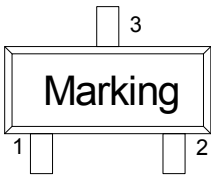
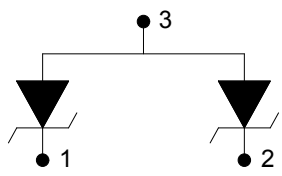
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	IO	Connect to IO		
3	GND	Connect to GND		

Table-2 Pin configuration

## 6. Specification

### 6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P <sub>pk</sub>	-	450	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>		Refer to Table-5	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
Junction temperature	T <sub>J</sub>	-	150	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Table-3 Absolute Maximum rating

### 6.2. Electrical Characteristics

Symbol	Description
$V_{RWM}$	Rated reverse stand-off voltage
$V_{BR}$	Minimum breakdown voltage @ $I_T = 1mA$
$V_{CL}$	Clamping voltage
$I_{PP}$	Maximum peak pulse current
$I_R$	Reverse leakage current @ $V_{RWM}$
$C_o$	Typical line capacitance ( $V_{IO}=0V$ , $V_{P-P} = 30mV$ , $f = 1MHz$ )

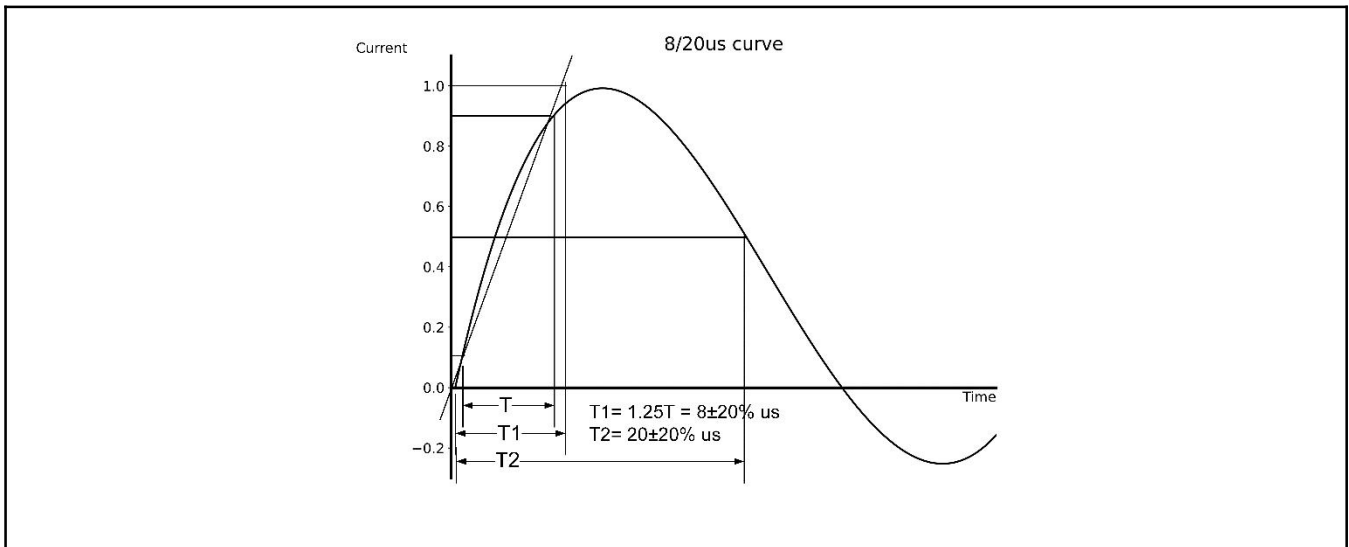
Table-4 Parameters Description

At  $T_A = 25^{\circ}C$  unless otherwise noted

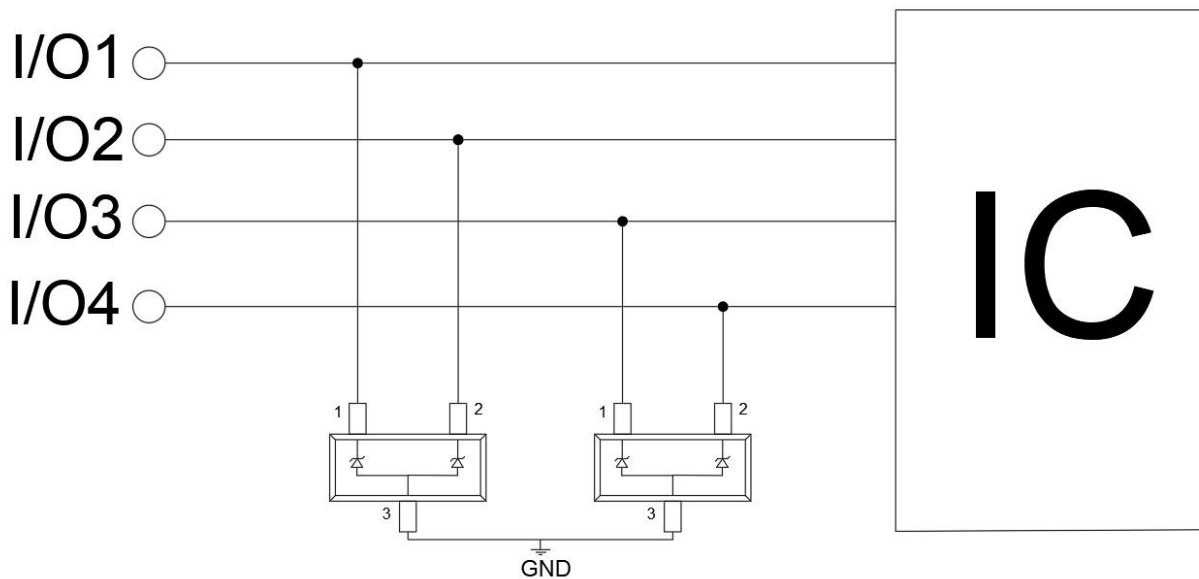
Part Number	$V_{RWM}$	$V_{BR}$	$V_{CL}@I=1A$	$I_{PP}$	$V_{CL}@I=I_{PP}$	$I_R$	$C_o$
	(V)	(V)	(V)	(A)	(V)	( $\mu A$ )	(pF)
SET23A12L02	12	13.5	18	15	28	1.0	100
SET23A15L02	15	16.5	22	11	33	1.0	80
SET23A24L02	24	26.5	33	6	48	1.0	60
SET23A36L02	36	40	55	3	65	1.0	50

Table-5 Electrical Characteristics for All Series

### 7. Typical Characteristic

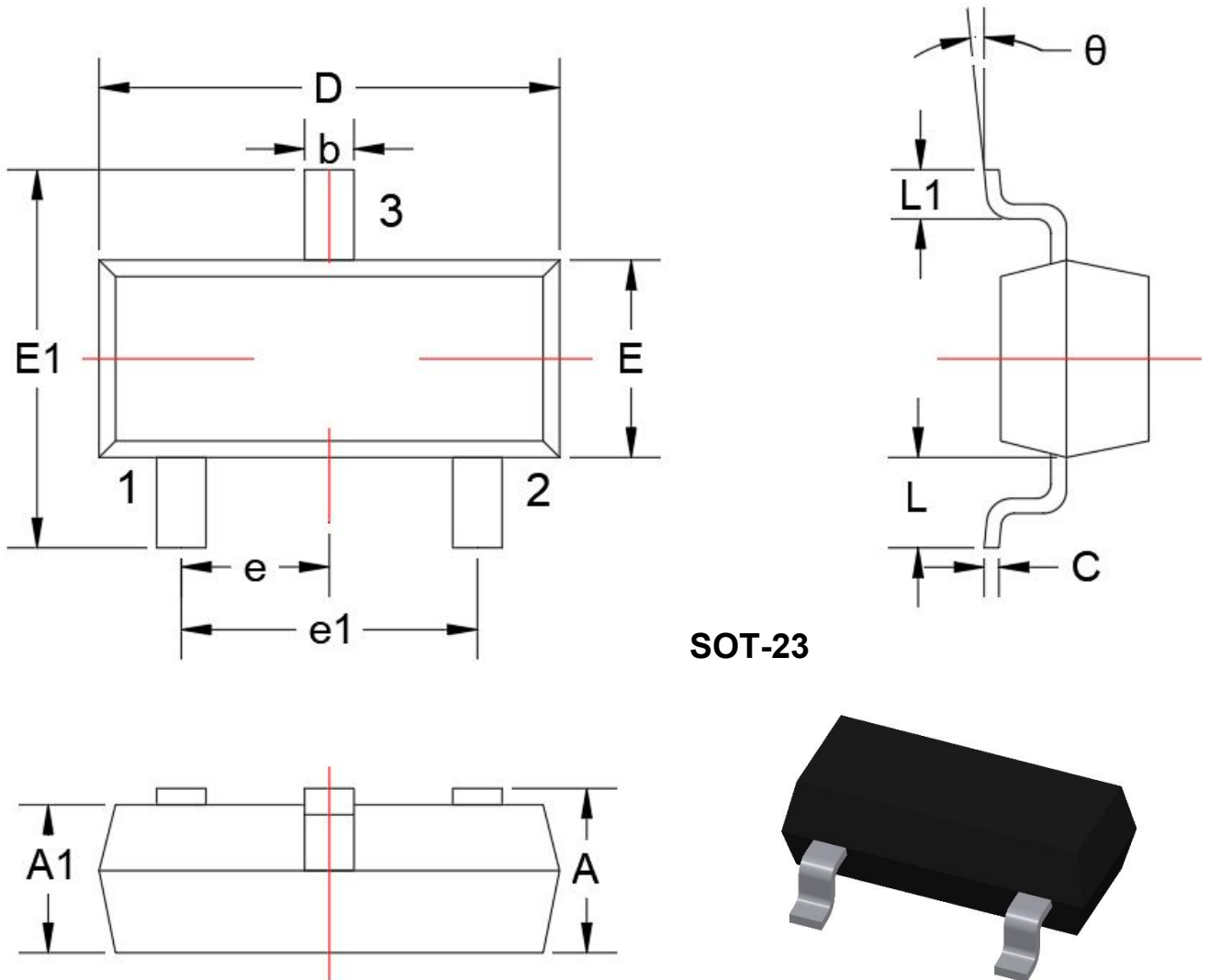


### 8. Typical Application



Typical Interface Application

9. Dimension

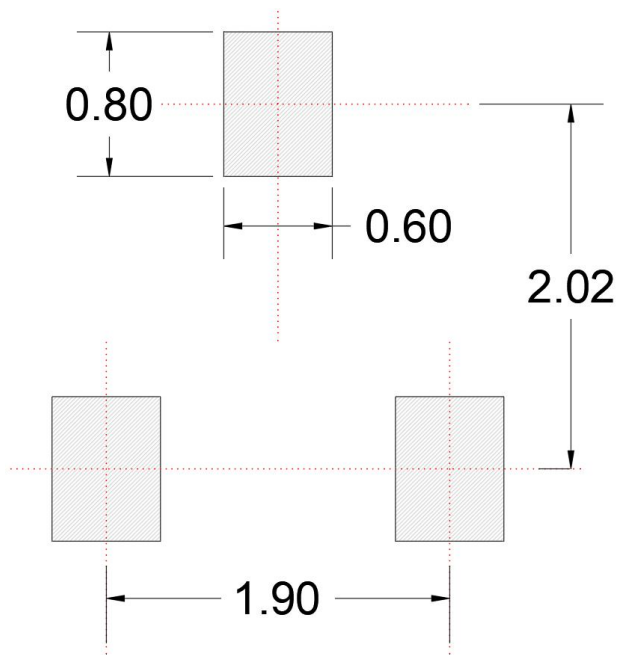


**SOT-23**

Dimensions in Millimeters					
Symbol	Min.	Max.	Symbol	Min.	Max.
A	0.90	1.15	e1	1.80	2.00
A1	0.90	1.05	L	0.55REF	
b	0.30	0.50	L1	0.30	0.50
C	0.08	0.15	θ	0°	8°
D	2.80	3.00			
E	1.20	1.40			
E1	2.25	2.55			
e	0.95TYP				

Table-5 Product dimensions

## 10. Recommended Land Pattern



**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference only

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