

## SuperESD - 82400102-ES

### 1. Description

The 82400102-ES is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD (Electrostatic Discharge).

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±12kV Contact Discharge
  - ±17kV Air Discharge
- 70W Peak pulse Power (8/20us)
- Low leakage current
- Working voltage: 5V
- RoHS compliant
- Protecting two unidirectional lines
- Low clamping voltage

### 3. Applications

- Portable electronics
- USB 2.0 and USB 3.0
- HDMI 1.3 and HDMI 1.4
- SATA and eSATA
- DVI
- IEEE 1394
- PCI Express
- Notebooks

### 4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
82400102-ES	SOT23-6L	.UL26	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

## 5. Pin Configuration and Functions

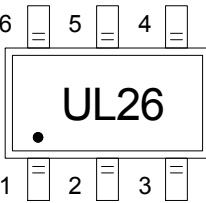
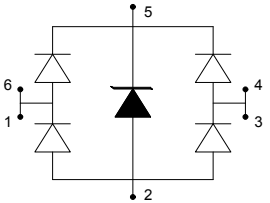
Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to I/O		
2	GND	Connect to GND		
3	IO2	Connect to I/O		
4	IO2	Connect to I/O		
5	Vcc	Connect to Vcc		
6	IO1	Connect to I/O		

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>	-	70	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>	-	4.5	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±17	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±12	kV
Junction temperature	T <sub>J</sub>	-	125	°C
Operating temperature	T <sub>OP</sub>	-40	85	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Table-3 Absolute Maximum rating

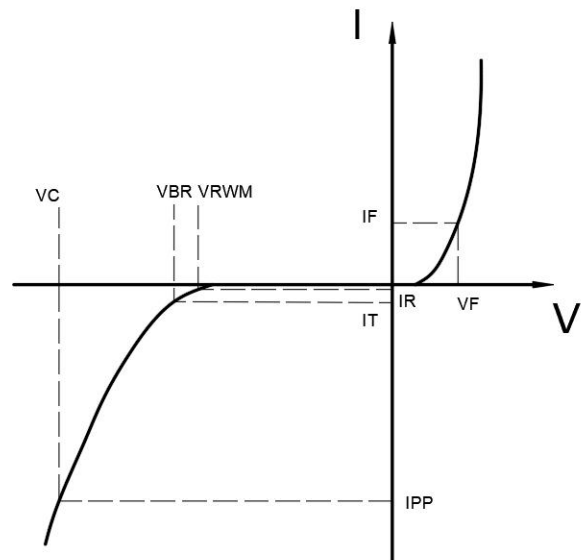
## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

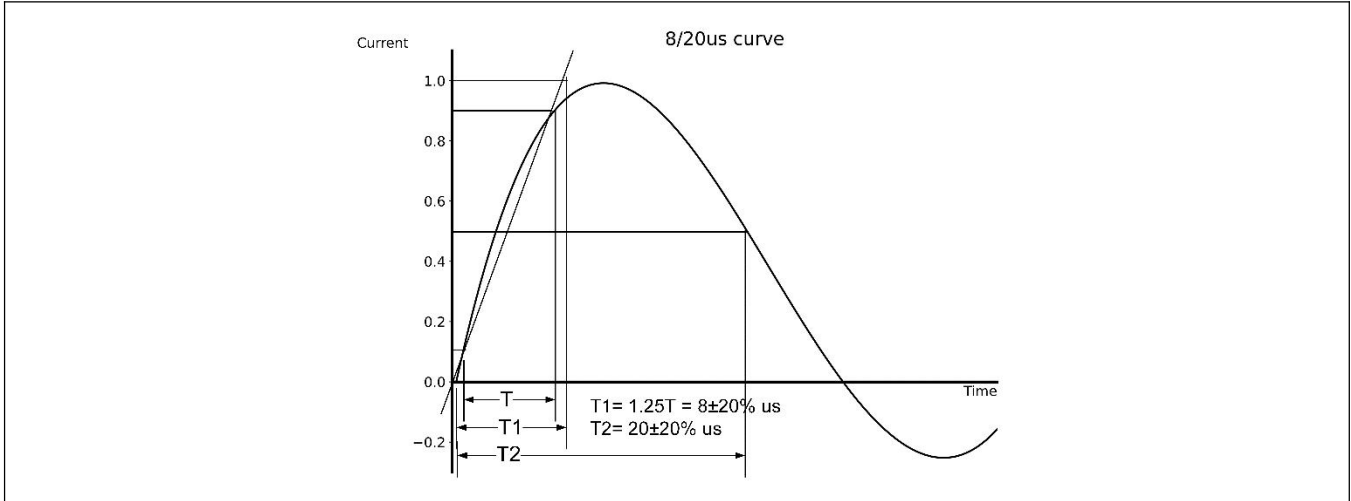
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	6.0			V
Reverse Leakage Current	$I_R$	$V_{RWM}=5V$			1.0	$\mu A$
Clamping Voltage	$V_C$	$I_{PP}=1A$ ; $t_p=8/20\mu s$		9.0	11.0	V
Clamping Voltage	$V_C$	$I_{PP}=4.5A$ ; $t_p=8/20\mu s$		12.0	15.0	V
Junction Capacitance	$C_J$	$V_R=0V$ ; $f=1MHz$		0.8	1.2	pF

Table-4 Electrical Characteristics

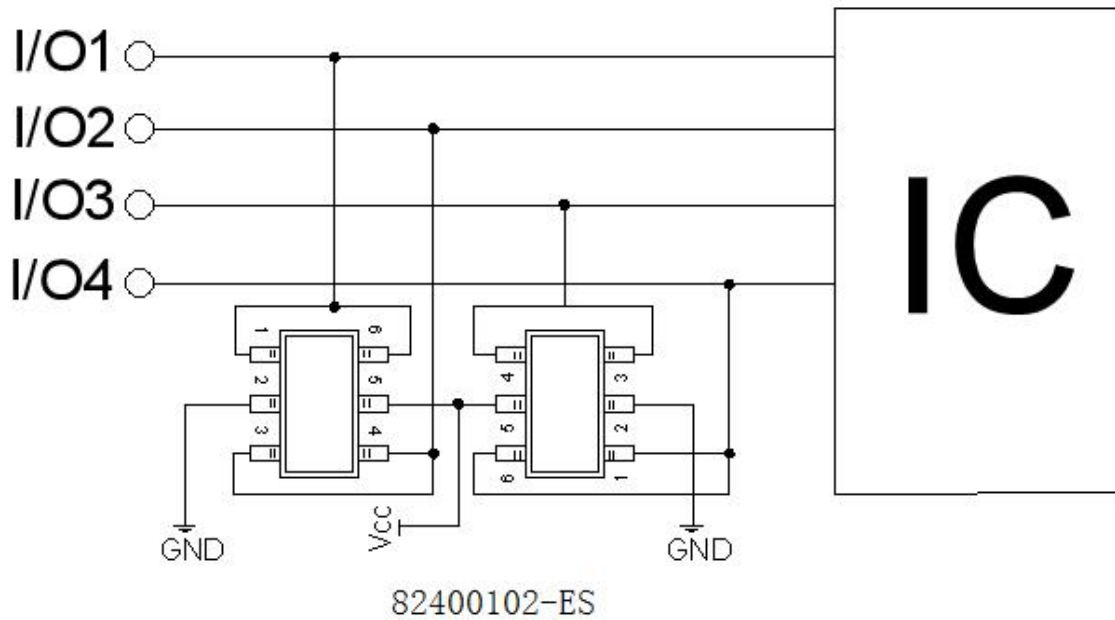
Symbol	Parameters
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$



### 7. Typical Characteristic



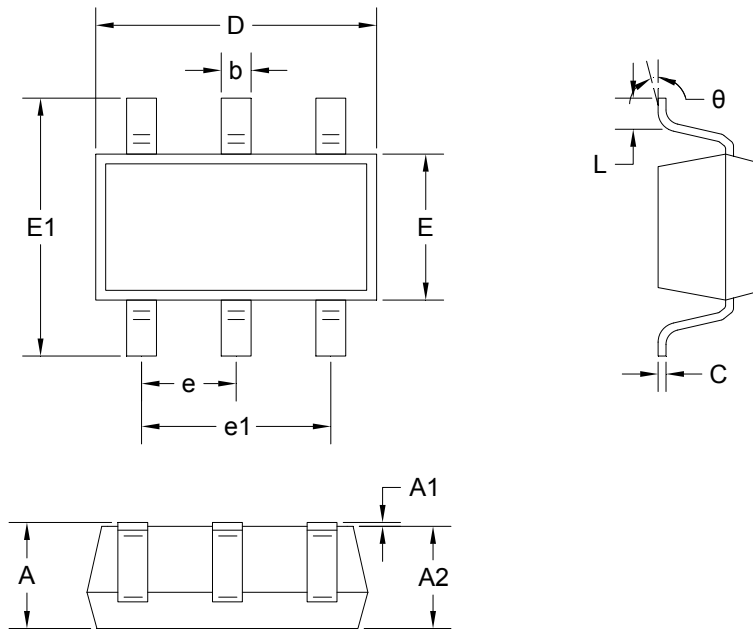
### 8. Typical Application



82400102-ES

Typical Interface Application

9. Dimension (SOT-23-6L)



Unit: mm

Symbol		A	A1	A2	b	c	D
Spec	Min	1.050	0.000	1.050	0.300	0.100	2.820
	Max	1.250	0.100	1.150	0.500	0.200	3.020
Symbol		E	E1	e	e1	L	$\theta$
Spec	Min	1.500	2.650	0.950BSC	1.800	0.300	0°
	Max	1.700	2.950		2.000	0.600	8°

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