

## 4-Line Ultra Low Capacitance TVS Diode Array

### Features

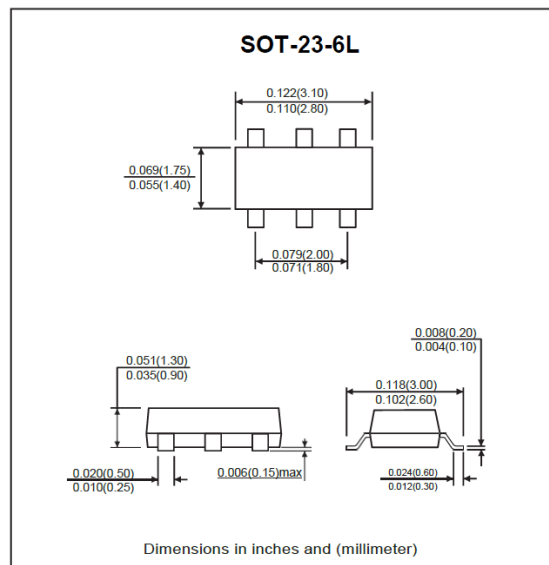
- IEC 61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  $\pm 30\text{kV}$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 13A (8/20 $\mu\text{s}$ )
- Ultra low leakage: nA level
- Operating Voltage: 3.3V
- Low clamping Voltage
- Up to four data lines of protects

### Applications

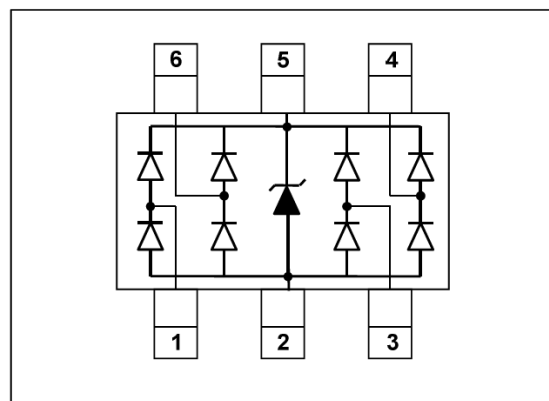
- PC/Notebook USB2.0/IEEE1394 ports
- Digital Visual Interface (DVI)
- Handheld & Portable Electronics
- Video Graphic Cards
- 10/100/1000 Ethernet

### Mechanical Characteristics

- Package: SOT-23-6L
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Material: RoHS compliant



### Circuit and Pin Schematic



### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ( $t_p = 8/20\mu\text{s}$ )	$P_{PP}$	221	W
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )	$I_{PP}$	13	A
ESD per IEC 61000-4-2 (Air)	$V_{ESD}$	$\pm 30$	KV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	KV
Operating Temperature Range	$T_J$	-55 to + 125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to + 150	$^\circ\text{C}$

Electrical Parameters ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)	
Symbol	Parameter
$I_{PP}$	Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Reverse Stand-Off Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$

Electrical Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Standoff Voltage	$V_{RWM}$				3.3	V
Reverse breakdown Voltage	$V_{BR}$	$I_T = 1\text{mA}$	3.7			V
Reverse leakage current	$I_R$	$V_{RWM} = 3.3\text{V}$			0.5	$\mu\text{A}$
Forward Voltage	$V_F$	$I_F = 1\text{mA}$	0.5		1.5	V
Clamping Voltage	$V_C$	$I_{PP} = 13\text{A}$ ( $t_p = 8/20\mu\text{s}$ ), any I/O pin to ground		14.5	17	V
ESD Clamping Voltage	$V_C$	$I_{PP} = 4\text{A}$ ( $TLP=0.2/100\text{ns}$ )		8.3		V
	$V_C$	$I_{PP} = 16\text{A}$ ( $TLP=0.2/100\text{ns}$ )		12.5		V
Dynamic Resistance	$R_{DYN}$	$TLP=0.2/100\text{ns}$		0.35		$\Omega$
Junction capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , between I/O pins		0.7		pF
Junction capacitance	$C_J$	$V_R = 0\text{V}$ , $f = 1\text{MHz}$ , any I/O pin to ground		1.7		pF

Note 1: I/O pins are Pin 1, 3, 4 and 6

## Typical Performance Characteristics ( $T_A = 25^\circ\text{C}$ Unless otherwise noted)

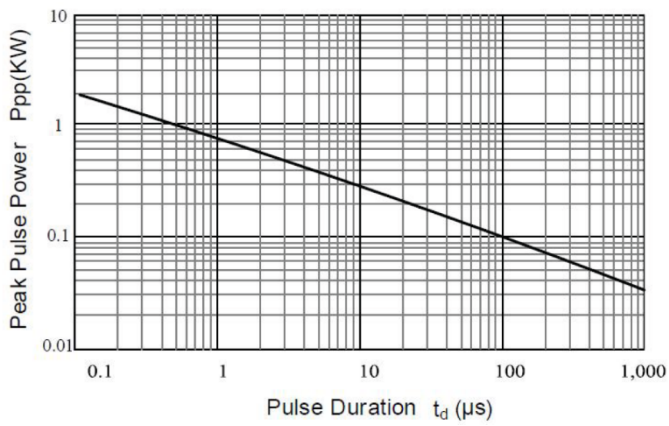


Fig 1. Peak Pulse Power vs. Pulse Time

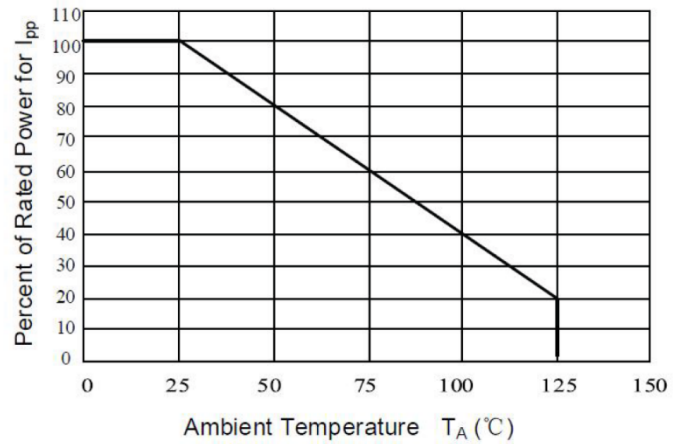


Fig 2. Power Derating Curve

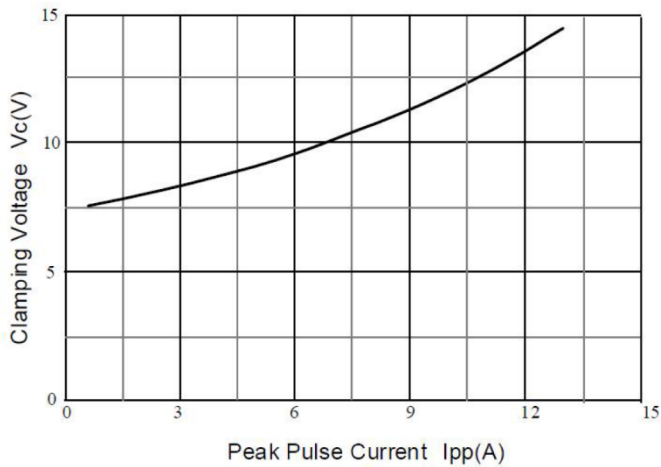


Fig 3. Clamping Voltage vs. Peak Pulse Current

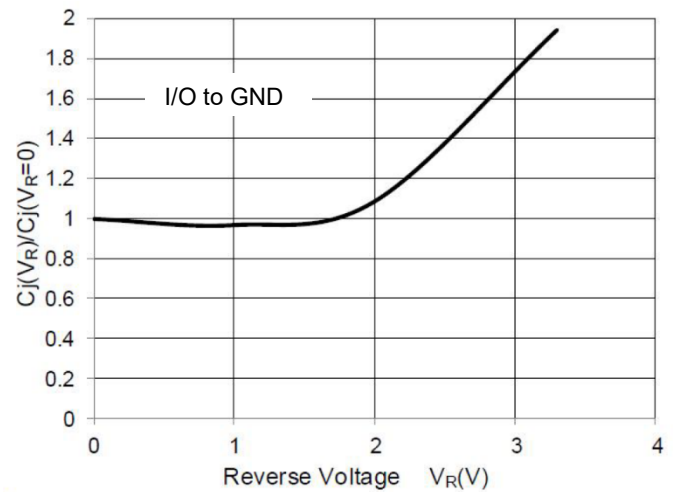


Fig 4. Junction Capacitance vs. Reverse Voltage

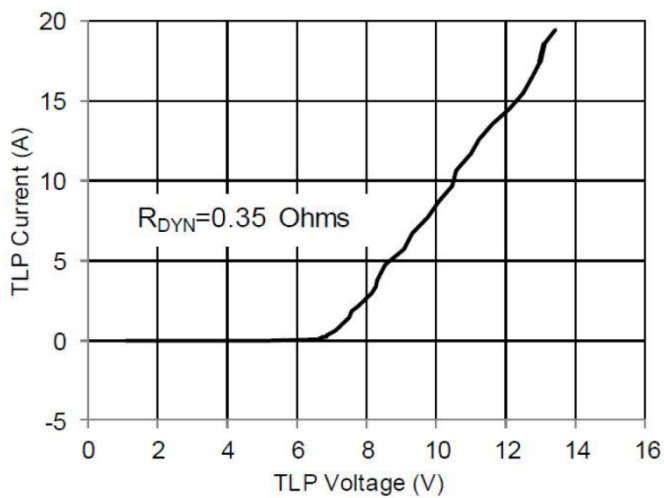


Fig 5. TLP I-V Curve

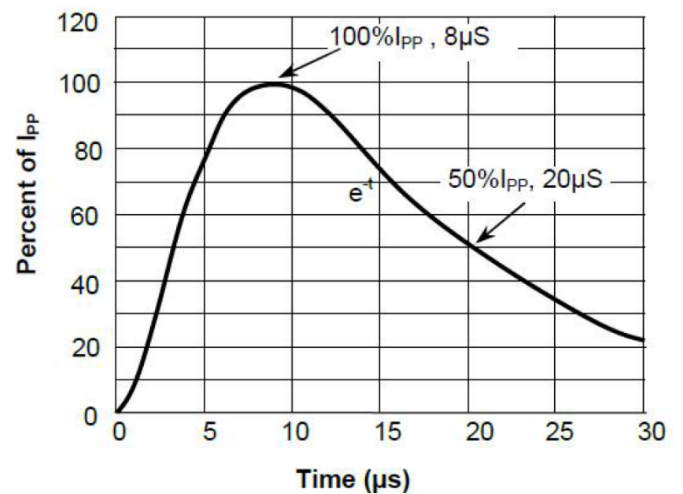
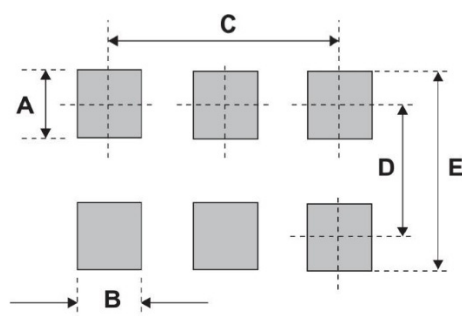


Fig 6. 8/20μs Pulse Waveform

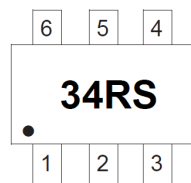
### Suggested PAD Layout

Symbol	SOT-23-6L	
	(mm)	(inch)
A	1.10	0.043
B	0.60	0.024
C	1.90	0.075
D	2.50	0.098
E	3.60	0.142



The diagram shows the suggested pad layout for the SOT-23-6L package. It features six square pads arranged in two rows of three. Dimension A is the height of the top row of pads. Dimension B is the width of the pads in the bottom row. Dimension C is the distance between the center of the first and third pads in the top row. Dimension D is the distance between the center of the first and third pads in the bottom row. Dimension E is the total height of the pad array.

### Marking Code



**34RS = Device Marking Code**

### Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SC33X4UTS	SOT-23-6L	3,000	7	Tape and reel