

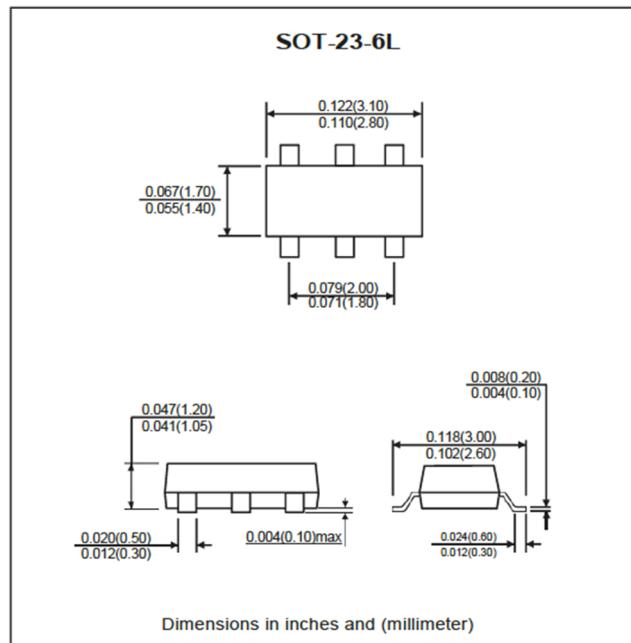
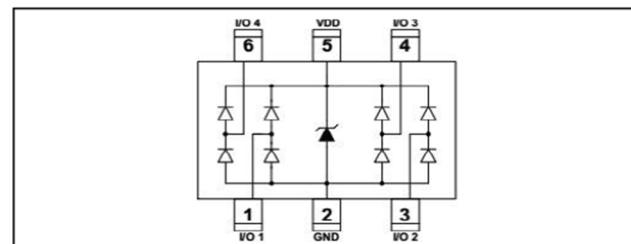
4-Line Ultra Low Capacitance TVS Diode Array

Features

- IEC 61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 20\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 5A ($8/20\mu\text{s}$)
- Ultra low Capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating Voltage: 5V
- Low clamping Voltage
- Up to four data lines and one power line protects

Applications

- USB 2.0 Power and Data lines protection
- Digital Visual Interface (DVI)
- Monitors and Flat Panel Displays
- Video Graphic Cards
- Notebook and PC Computers

**Circuit and Pin Schematic****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

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power ($tp = 8/20\mu\text{s}$)	P_{PP}	75	W
Peak Pulse Current ($tp = 8/20\mu\text{s}$)	I_{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 25	KV
ESD per IEC 61000-4-2 (Contact)		± 20	
Operating Temperature Range	T_J	-55 to + 125	°C
Storage Temperature Range	T_{STG}	-55 to + 150	°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

The graph illustrates the forward voltage-current characteristic of the diode. The vertical axis is labeled I and the horizontal axis is labeled V . A solid curve starts at the origin, remains flat at a low current level until a certain voltage, then rises sharply. Horizontal dashed lines from specific points on the curve define various parameters: V_C is the voltage at current I_F ; V_{BR} is the voltage at current I_T ; V_{RWM} is the voltage at current I_R ; and I_{PP} is the current at voltage V_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}	Any I/O pin to ground			5	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$, Any I/O pin to ground	6			V
Reverse leakage current	I_R	$V_{RWM} = 5\text{V}$, Any I/O pin to ground			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ ($t_p = 8/20\mu\text{s}$), any I/O pin to ground			10	V
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ ($t_p = 8/20\mu\text{s}$), any I/O pin to ground			15	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, between I/O pins		0.3	0.4	pF
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$, any I/O pin to ground			0.8	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)

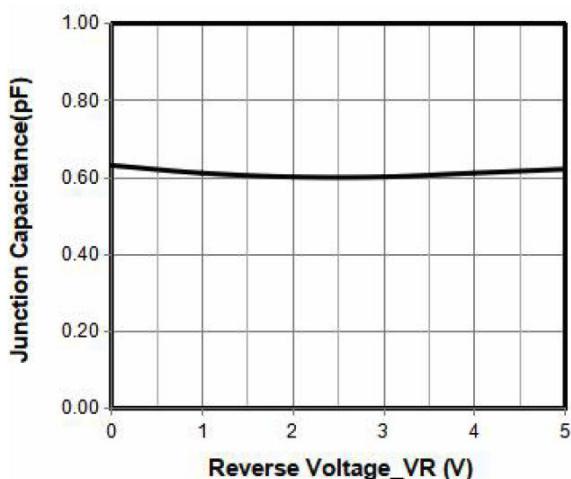


Figure 1. Junction Capacitance vs. Reverse Voltage

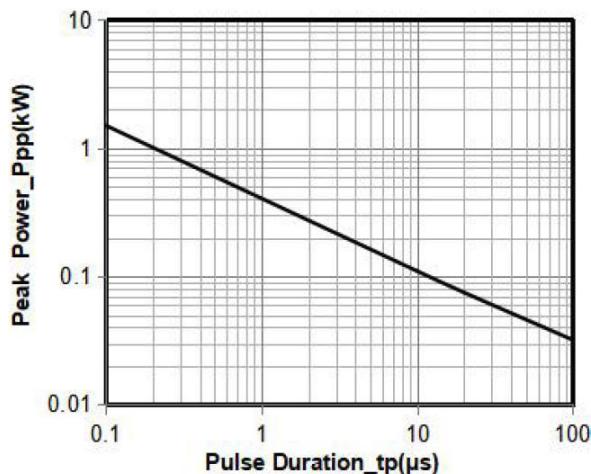


Figure 2. Peak Pulse Power vs. Pulse Time

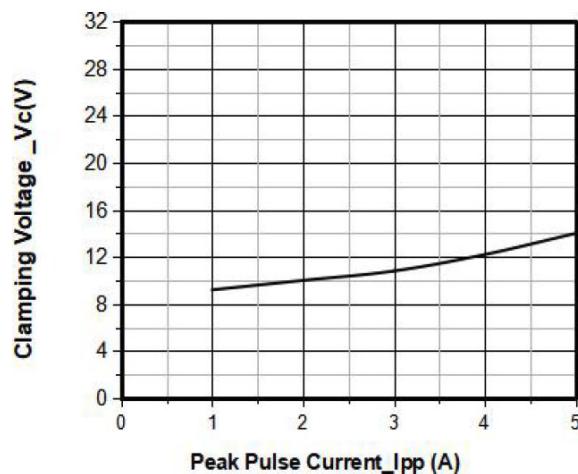


Figure 3. Clamping Voltage vs. Peak Pulse Current

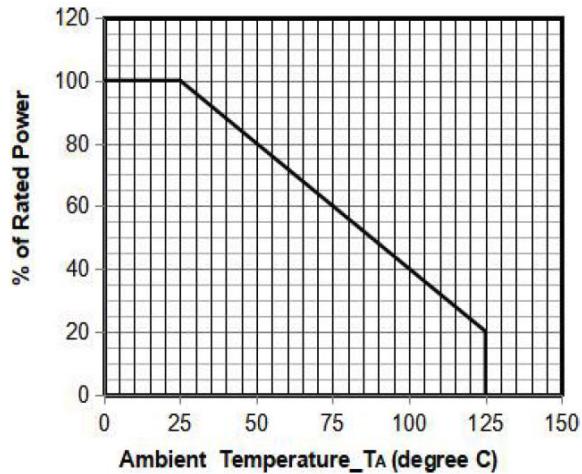


Figure 4. Power Derating Curve

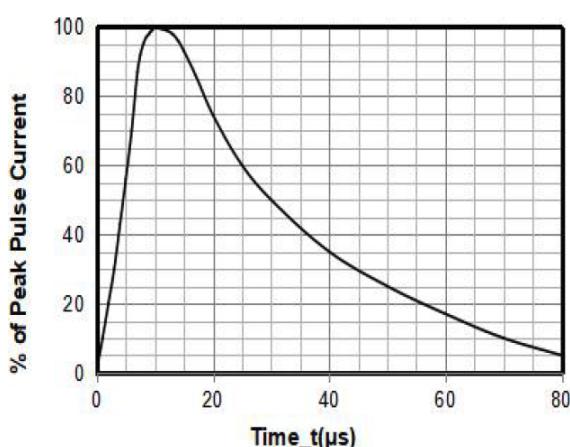


Figure 5. 8 X 20μs Pulse Waveform

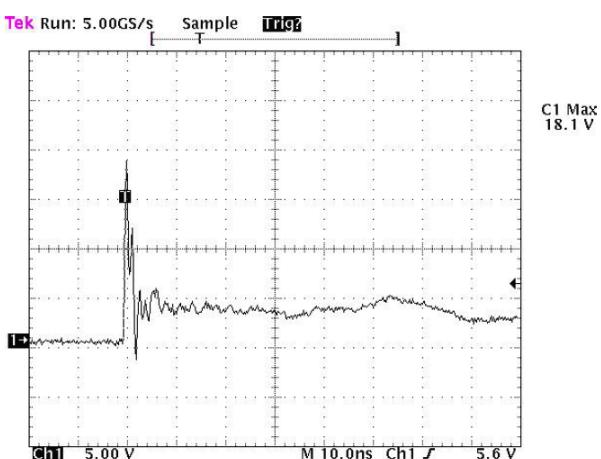
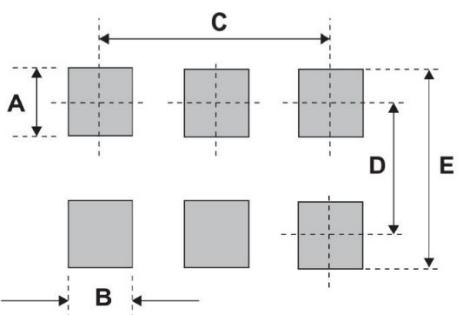


Figure 6. ESD Clamping Voltage
8 KV Contact per IEC61000-4-2

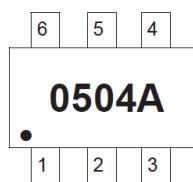
Suggested PAD Layout

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 illustrates the suggested pad layout for an SOT-23-6L package. It shows six pads arranged in two rows of three. Dimension A is the height of one pad, dimension B is the width of one pad, dimension C is the distance between the centers of the top row of pads, dimension D is the distance between the centers of the bottom row of pads, and dimension E is the total height from the bottom of the bottom row to the top of the top row.

Marking Code



0504A = Device Marking Code

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SC05L4UTS	SOT-23-6L	3,000	7	Tape and reel