4-Line Ultra Low Capacitance TVS Diode Array

Features

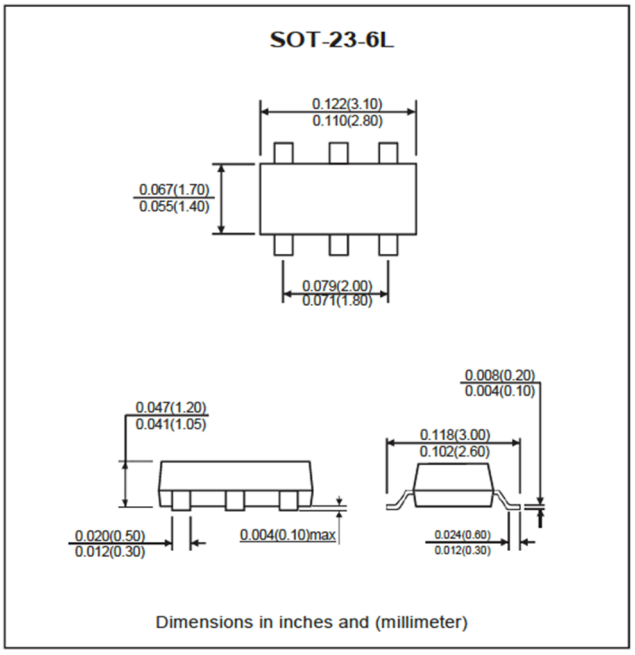
- IEC 61000-4-2 (ESD) ±25kV (air), ±20kV (contact)
- IEC 61000-4-5 (Lightning) 5A (8/20μs)
- Ultra low Capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating Voltage: 5V
- Low clamping Voltage
- Up to four data lines and one power line protects

Applications

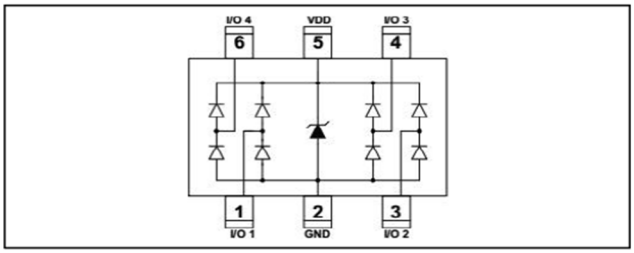
- USB 2.0 Power and Data lines protection
- Digital Visual Interface (DVI)
- Monitors and Flat Panel Displays
- Video Graphic Cards
- Notebook and PC Computers

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

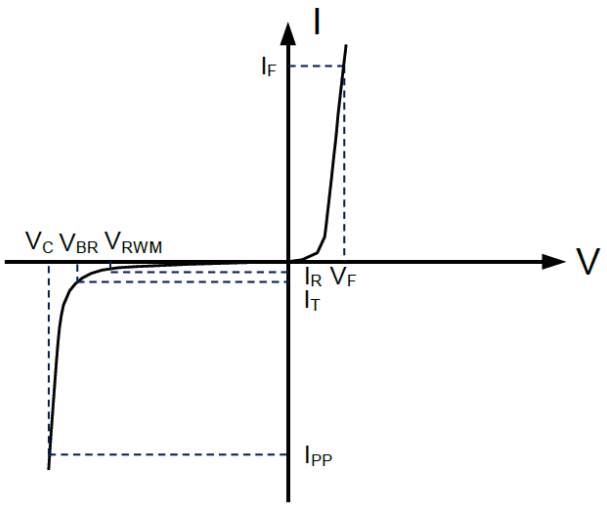


Circuit and Pin Schematic



Absolute Maximum Ratings (T_A = 25℃ Unless otherwise noted)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp = 8/20μs)	P_{PP}	75	W
Peak Pulse Current (tp = 8/20μs)	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	℃
Storage Temperature Range	T_{STG}	-55 to + 150	℃

Electrical Parameters (T_A = 25℃ 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℃ 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 = 1mA, Any I/O pin to ground	6			V
Reverse leakage current	I_R	V_{RWM} = 5V, Any I/O pin to ground			0.5	μA
Clamping Voltage	V_C	I_{PP} = 1A (tp =8/20μs), any I/O pin to ground			10	V
Clamping Voltage	V_C	I_{PP} = 5A (tp =8/20μs), any I/O pin to ground			15	V
Junction capacitance	C_J	V_R = 0V, f = 1MHz, between I/O pins		0.3	0.4	pF
Junction capacitance	C_J	V_R = 0V, f = 1MHz, 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℃ Unless otherwise noted)

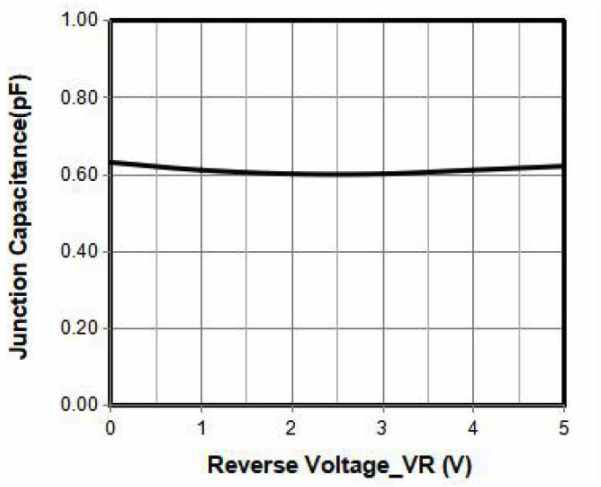


Figure 1. Junction Capacitance vs. Reverse Voltage

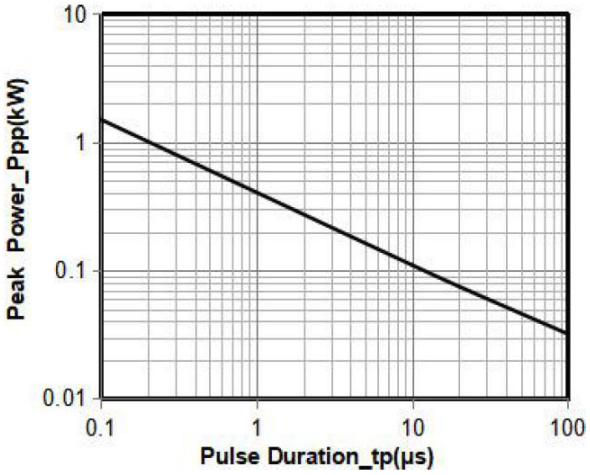


Figure 2. Peak Pulse Power vs. Pulse Time

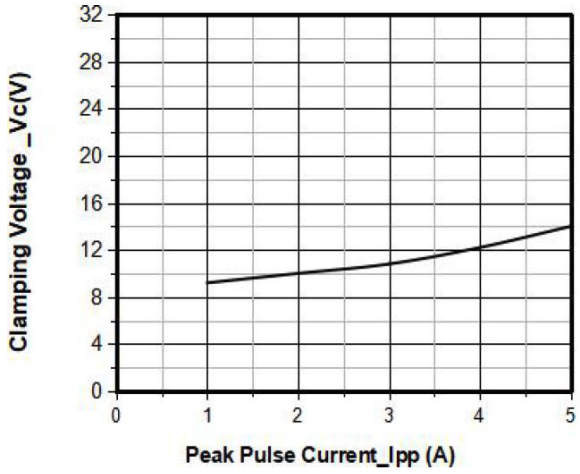


Figure 3. Clamping Voltage vs. Peak Pulse Current

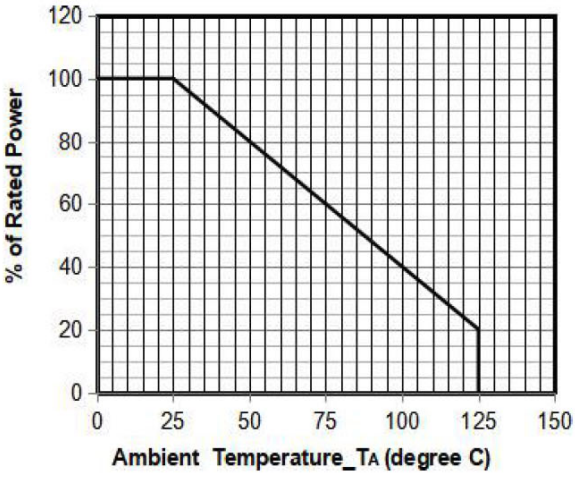


Figure 4. Power Derating Curve

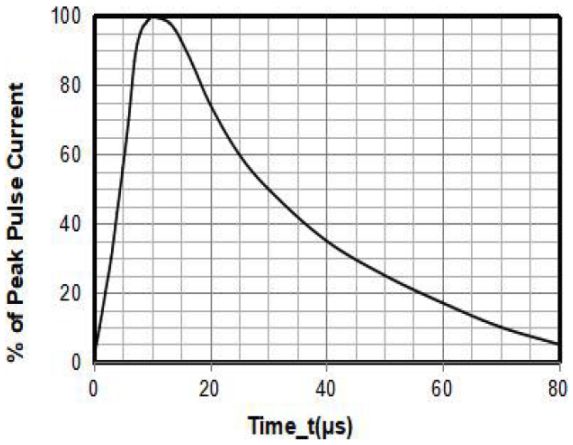


Figure 5. 8 X 20μs Pulse Waveform

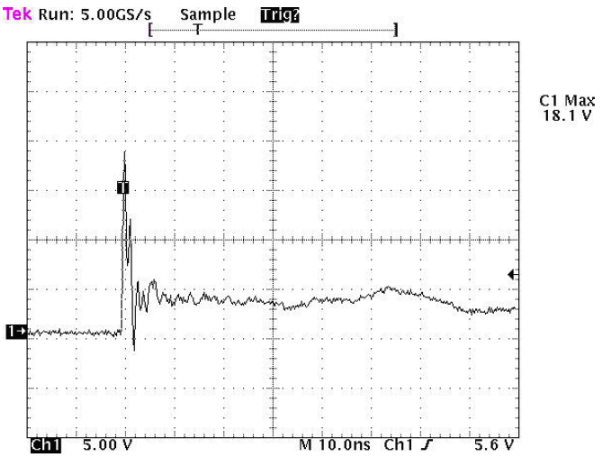
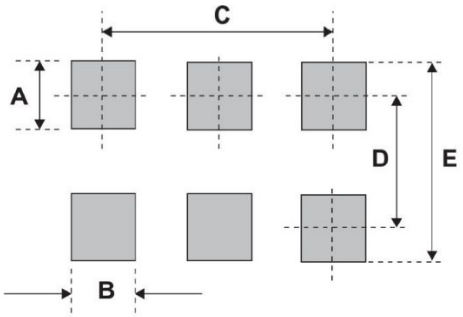


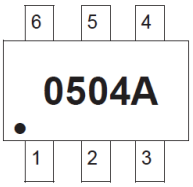
Figure 6. ESD Clamping Voltage
8 KV Contact per IEC61000−4−2

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



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