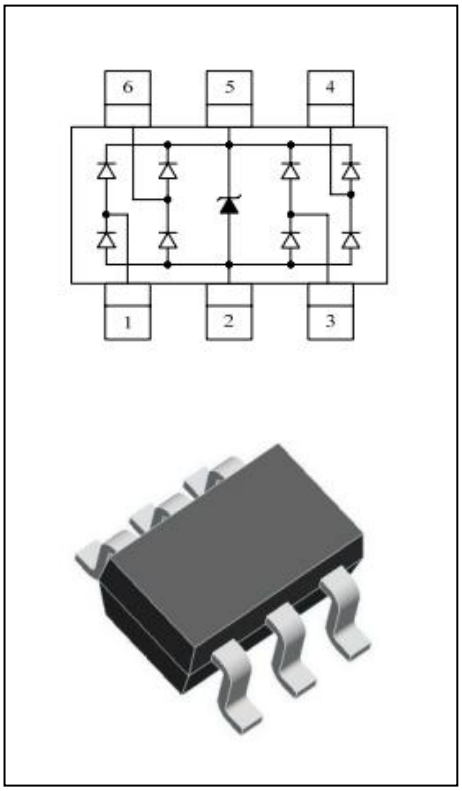
SRV05-4
Ultra Low Capacitance ESD Protection Array

DESCRIPTION

The SRV05-4 has a low capacitance of 0.4pF maximum and operates with virtually no insertion loss to 1GHz. Th -is makes the device ideal for protection of high-speed data lines such as USB 2.0, Firewire, DVI, and gigabit Ethernet interfaces. The low capacitance array configur -ation allows the user to protect four high-speed data or transmission lines. The low inductance construction mini -mizes voltage overshoot during high current surges.They may be used to meet the ESD immunity requirements of IEC61000-4-2, Level 4 (±15kV air, ±8kV contact dischar -ge).This device has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by E SD (electrostatic discharge), CDE (Cable Discharge Even -ts),and lightning.



APPLICATIONS

- Digital Visual Interface (DVI).
- USB 1.1/2.0/OTG.
- IEEE 1394 Firewire Ports.
- Notebooks & Handhelds.
- Projection TV & Monitors.
- Set-top box.
- Flat Panel Displays.
- PCI Express.

FEATURES

- Protects four I/O lines and one Vcc line.
- Low capacitance.
- Working voltages : 5V.
- Low leakage current.
- Low capacitance for high-speed interfaces.
- No insertion loss to 2.0GHz.
- Response Time is < 1 ns.
- Solid-state silicon avalanche technology.
- ROHS compliant.

MECHANICAL CHARACTERISTICS

- SOT-23-6L package.
- Flammability Rating: UL 94V-0.
- Terminal: Matte tin plated.
- Packaging: Tape and Reel.
- High temperature soldering guaranted:260℃/10s.
- Reel size: 7 inch.
- Material: Halogen free.
- Quantity per reel: 3,000pcs.

DEVICE CHARACTERISTICS

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

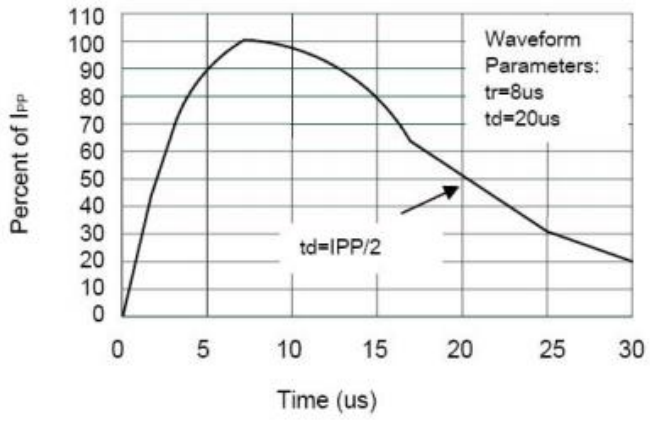
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{PP}	150	W
Peak Pulse Current (8/20μs)	I_{PP}	5	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	VESD	±15 ±8	kV
Operating Temperature Range	TJ	−55 to +150	°C
Storage Temperature Range	Tstg	−55 to +150	°C

ELECTRICAL CHARACTERISTICS(TA=25°C unless otherwise specified)

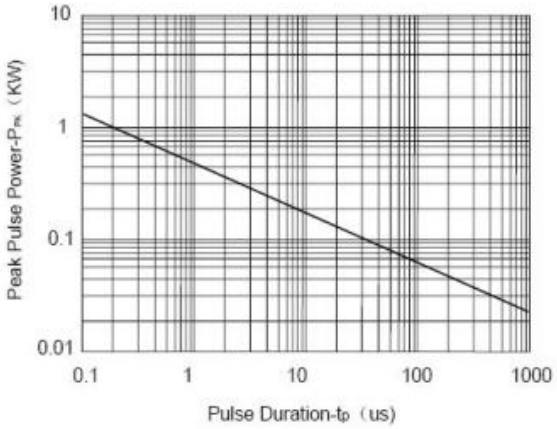
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage	Any I/O pin to GND			5.0	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA Any I/O pin to GND	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 5V Any I/O pin to GND			1	μA
V_F	Diode Forward Voltage	I_F = 15mA			1.2	V
V_{C1}	Clamping Voltage 1	I_{PP} = 1A, t_p = 8/20μs Any I/O pin to GND			15	V
V_{C2}	Clamping Voltage 2	I_{PP} = 5A, t_p = 8/20μs Any I/O pin to GND			28	V
C_{J1}	Junction Capacitance 1	V_R = 0V, f = 1MHz Between I/O pins			0.4	pF
C_{J2}	Junction Capacitance 2	V_R = 0V, f = 1MHz Any I/O pin to GND			0.8	pF

Note: I/O pins are pin 1,3,4,6.

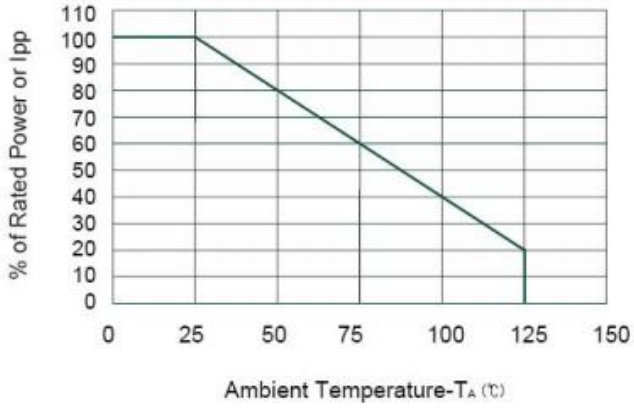
TYPICAL CHARACTERISTICS(T_A=25°C unless otherwise Specified)



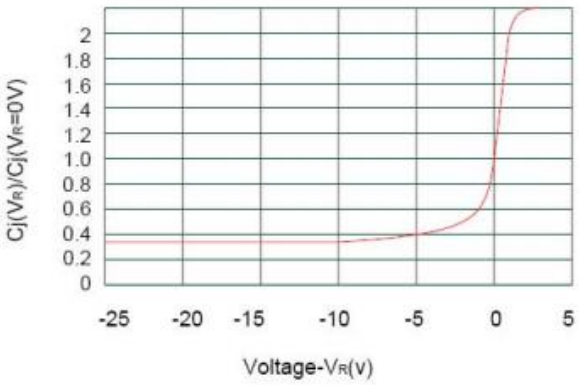
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

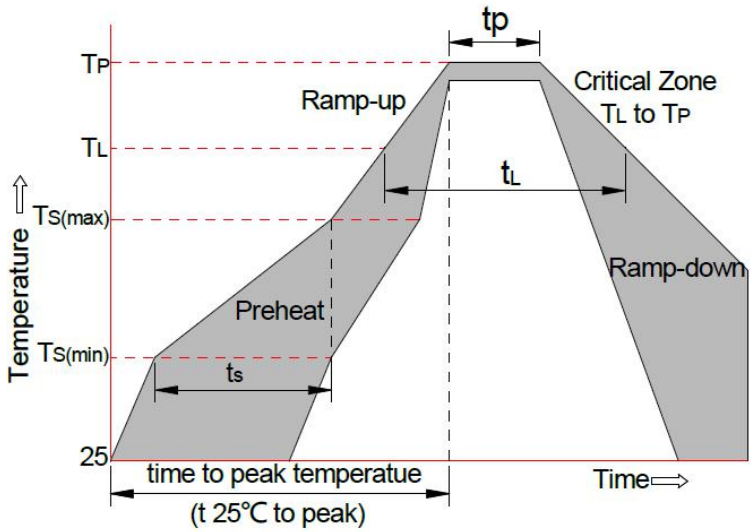


Power Derating Curve



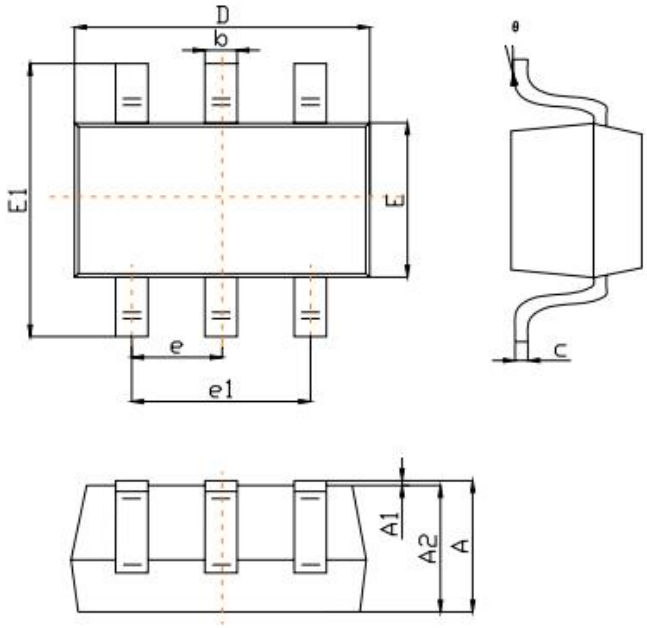
Junction Capacitance vs. Reverse Voltage

SOLDERING PARAMETERS



Reflow Condition		Pb-Free assembly (see FIG.5)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
xTime 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

SOT-23-6L PACKAGE OUTLINE & DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100		0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0,950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
	0°	8°	0°	8°

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