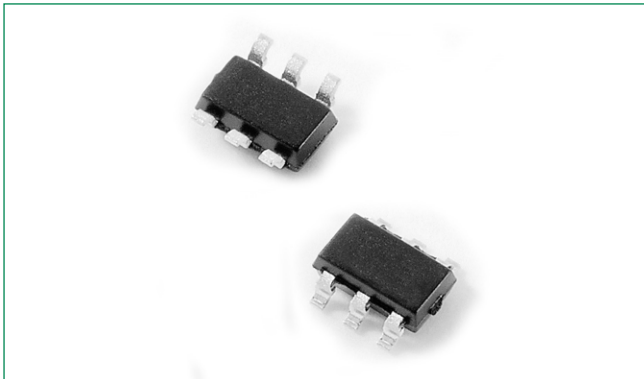
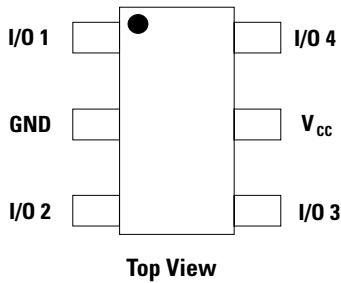


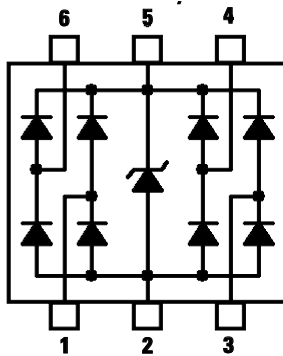
**SRV05-4HTG-D, 5V 10A TVS Diode Array**



**Pinout**



**Functional Block Diagram**



**Description**

The SRV05-4HTG-D integrates low capacitance rail-to-rail diodes with an additional zener diode to protect each I/O pin against ESD and high surge events. This robust device can safely absorb 10A surge current per IEC 61000-4-5 ( $t_p=8/20\mu s$ ) without performance degradation and a minimum  $\pm 30kV$  ESD per IEC 61000-4-2. Their very low loading capacitance also makes them ideal for protecting high speed signal pins.

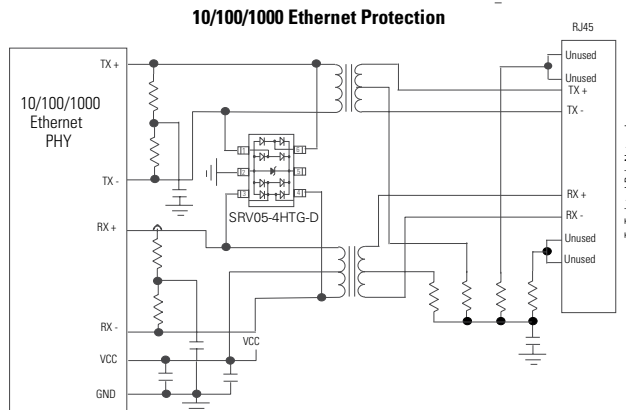
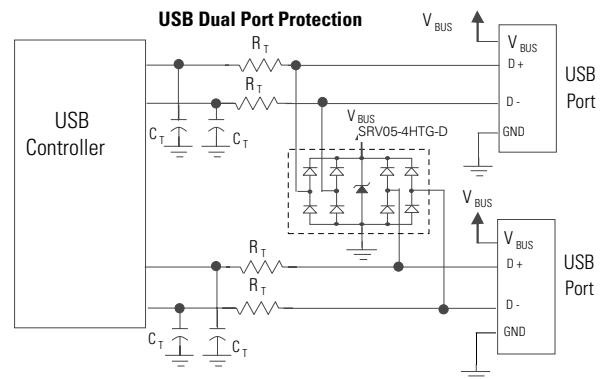
**Features**

- ESD, IEC 61000-4-2,  $\pm 30kV$  contact,  $\pm 30kV$  air
- EFT, IEC61000-4-4, 40A (5/50ns)
- Lightning, 10A (8/20 $\mu s$  as defined in IEC 61000-4-5 2nd Edition)
- Low capacitance of 1pF (TYP) per I/O
- Low leakage current of 0.5 $\mu A$  (MAX) at 5V
- Small SOT23-6 (JEDEC MO-178) packaging
- Halogen free, lead free and RoHS compliant
- Moisture Sensitivity Level (MSL -1)

**Applications**

- LCD/PDP TVs
- Monitors
- Notebooks
- 10/100/1000 Ethernet
- Firewire
- Set Top Boxes
- Flat Panel Displays
- Portable Medical

**Application Examples**



Life Support Note:

**Not Intended for Use in Life Support or Life Saving Applications**

The products shown herein are not designed for use in life sustaining or life saving applications unless otherwise expressly indicated.

### Absolute Maximum Ratings

Symbol	Parameter	Value	Units
$I_{PP}$	Peak Current ( $t_p=8/20\mu s$ )	10	A
$P_{PK}$	Peak Pulse Power ( $t_p=8/20\mu s$ )	150	W
$T_{OP}$	Operating Temperature	-40 to 125	°C
$T_{STOR}$	Storage Temperature	-55 to 150	°C

**CAUTION:** Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

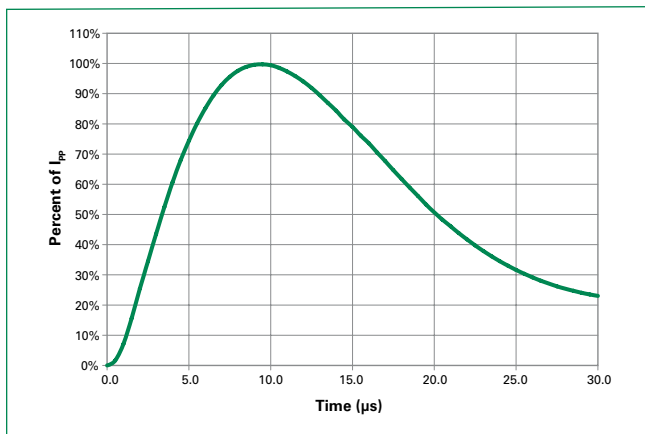
### Electrical Characteristics ( $T_{OP}=25^\circ C$ )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	$V_{RWM}$	$I_R = 1\mu A$ , I/O to GND			6	V
Breakdown Voltage	$V_{BR}$	$I_R = 1mA$ , I/O to GND	6	8.5		V
Reverse Leakage Current	$I_{LEAK}$	$V_R=5V$ , I/O to GND		0.1	0.5	$\mu A$
Clamp Voltage <sup>1</sup>	$V_C$	$I_{PP}=5A$ , $t_p=8/20\mu s$ , I/O to GND		11.7	13	V
		$I_{PP}=8A$ , $t_p=8/20\mu s$ , I/O to GND		12.5	14	V
		$I_{PP}=10A$ , $t_p=8/20\mu s$ , I/O to GND		13.2	15	V
Dynamic Resistance <sup>2</sup>	$R_{DYN}$	TLP, $t_p=100ns$ , I/O to GND		0.28		$\Omega$
ESD Withstand Voltage <sup>1</sup>	$V_{ESD}$	IEC 61000-4-2 (Contact Discharge)	$\pm 30$			kV
		IEC 61000-4-2 (Air Discharge)	$\pm 30$			kV
Diode Capacitance <sup>1</sup>	$C_{I/O-GND}$	Reverse Bias=0V, $f=1MHz$ , I/O to GND		1	3	pF
	$C_{I/O-I/O}$	Reverse Bias=0V, $f=1MHz$ , I/O to I/O		0.5		pF

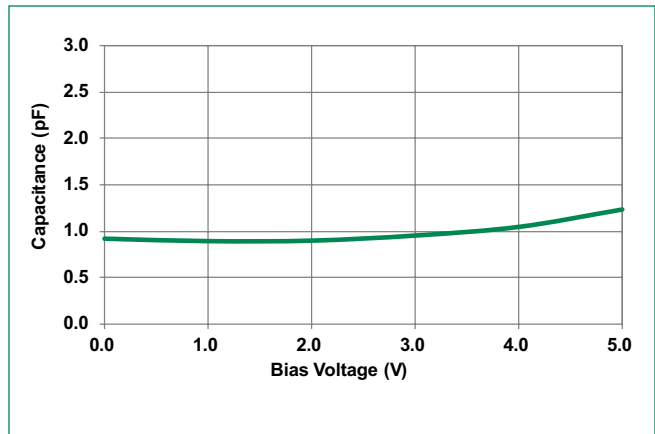
**Notes:**

- Parameter is guaranteed by design and/or component characterization.
- Transmission Line Pulse (TLP) test setting : Std.TDR(500), $t_p=100ns$ ,  $t_r=0.2ns$  ITLP and VTLP averaging window: start  $t_1=70ns$  to end  $t_2=80ns$

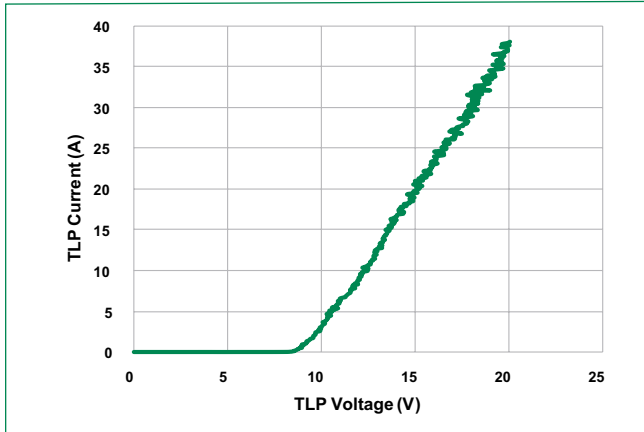
### 8/20 $\mu s$ Pulse Waveform



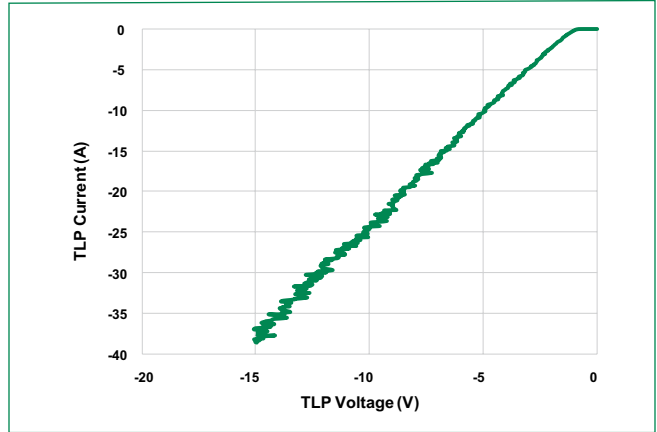
### Capacitance vs. Reverse Bias



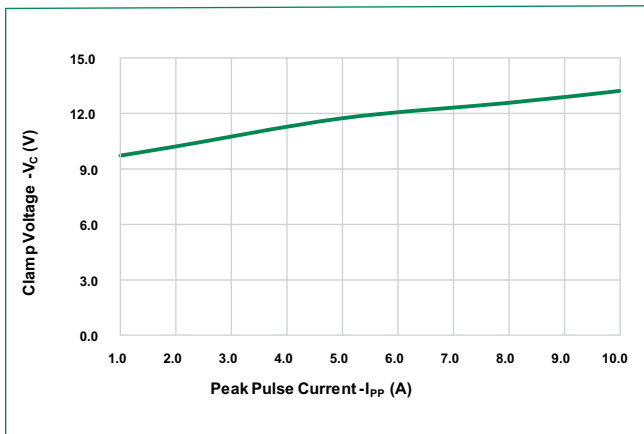
**Positive Transmission Line Pulsing (TLP) Plot**



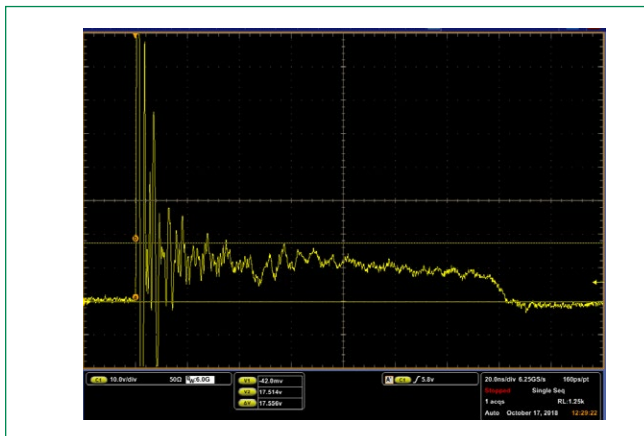
**Negative Transmission Line Pulsing (TLP) Plot**



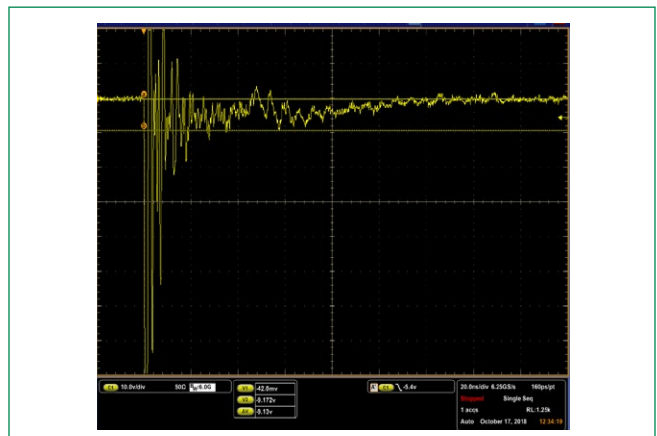
**Clamping Voltage vs. Peak Pulse Current**



**IEC 61000-4-2 +8 kV Contact ESD Clamping Voltage**

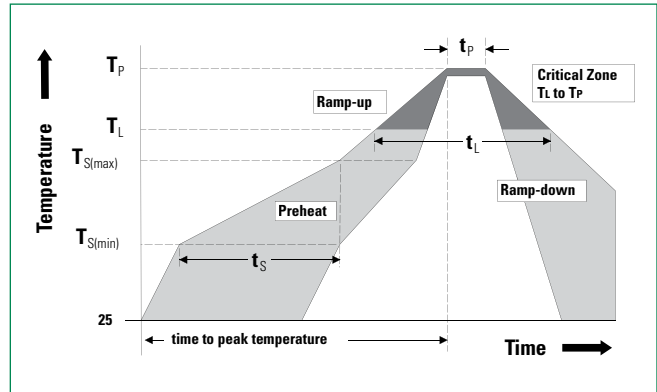


**IEC 61000-4-2 -8 kV Contact ESD Clamping Voltage**



### Soldering Parameters

<b>Reflow Condition</b>		Pb – Free assembly
<b>Pre Heat</b>	- Temperature Min ( $T_{s(min)}$ )	150°C
	- Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 – 180 secs
<b>Average ramp up rate (Liquidus) Temp (<math>T_L</math>) to peak</b>		3°C/second max
<b><math>T_{s(max)}</math> to <math>T_L</math> - Ramp-up Rate</b>		3°C/second max
<b>Reflow</b>	- Temperature ( $T_L$ ) (Liquidus)	217°C
	- Temperature ( $t_L$ )	60 – 150 seconds
<b>Peak Temperature (<math>T_p</math>)</b>		260 <sup>+0/-5</sup> °C
<b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>		20 – 40 seconds
<b>Ramp-down Rate</b>		6°C/second max
<b>Time 25°C to peak Temperature (<math>T_p</math>)</b>		8 minutes Max.
<b>Do not exceed</b>		260°C



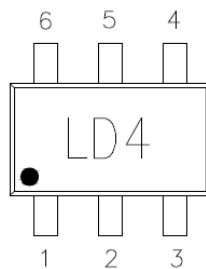
### Ordering Information

Part Number	Package	Min. Order Qty.
SRV05-4HTG-D	SOT23-6	3000

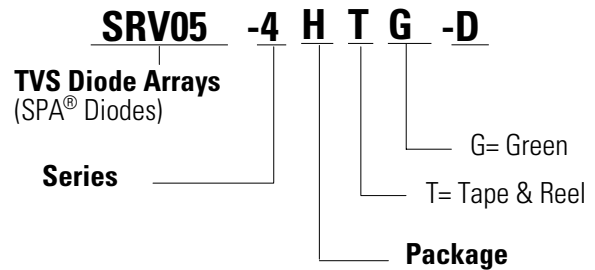
### Product Characteristics

<b>Lead Plating</b>	Matte Tin
<b>Lead Material</b>	Copper Alloy
<b>Lead Conpanarity</b>	0.004 inches(0.102mm)
<b>Substrate Material</b>	Silicon
<b>Body Material</b>	Molded Compound
<b>Flammability</b>	UL Recognized compound meeting flammability rating V-0

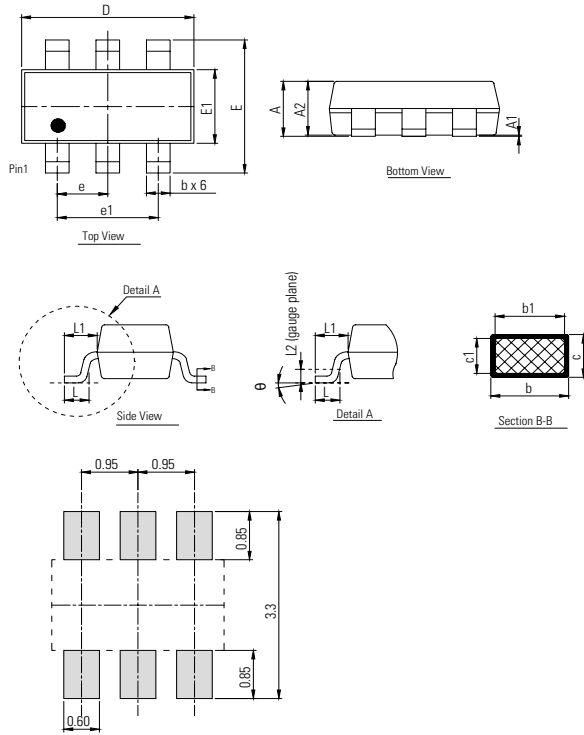
### Part Marking System



### Part Numbering System



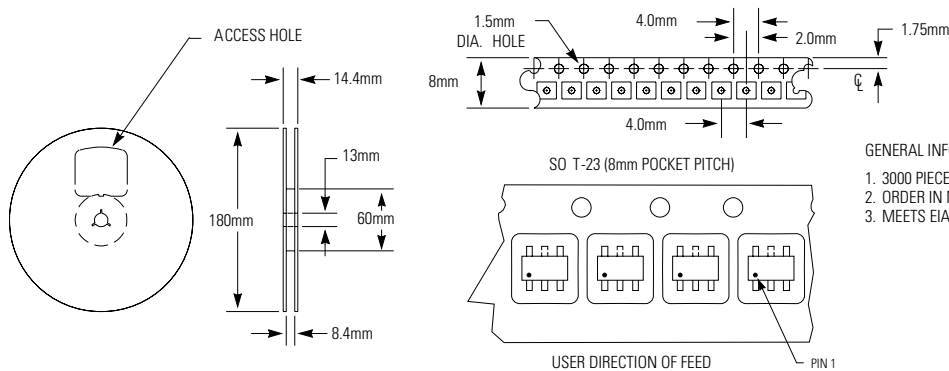
**Package Dimensions - SOT23-6**



Symbol	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
<b>A</b>	-	-	1.45	-	-	0.057
<b>A1</b>	0.00	-	0.15	0.000	-	0.006
<b>A2</b>	0.90	1.15	1.30	0.035	0.045	0.051
<b>b</b>	0.30	-	0.50	0.012	-	0.020
<b>b1</b>	0.30	0.40	0.45	0.012	0.016	0.018
<b>c</b>	0.08	-	0.22	0.003	-	0.009
<b>c1</b>	0.08	0.13	0.20	0.003	0.005	0.008
<b>D</b>	2.70	2.90	3.05	0.106	0.114	0.120
<b>E</b>	2.60	2.80	3.00	0.102	0.110	0.118
<b>E1</b>	1.45	1.60	1.75	0.057	0.063	0.069
<b>e</b>	0.95 BSC			0.037 BSC		
<b>e1</b>	1.90 BSC			0.075 BSC		
<b>L</b>	0.30	0.50	0.60	0.012	0.020	0.024
<b>L1</b>	0.60 REF			0.024 REF		
<b>L2</b>	0.25 BSC			0.010 BSC		
<b>Θ</b>	0°	4°	8°	0°	4°	8°

**Embossed Carrier Tape & Reel Specification – SOT23-6**

**8mm TAPE AND REEL**



- GENERAL INFORMATION
- 3000 PIECES PER REEL.
  - ORDER IN MULTIPLES OF FULL REELS ONLY.
  - MEETS EIA-481 REVISION "A" SPECIFICATIONS.

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