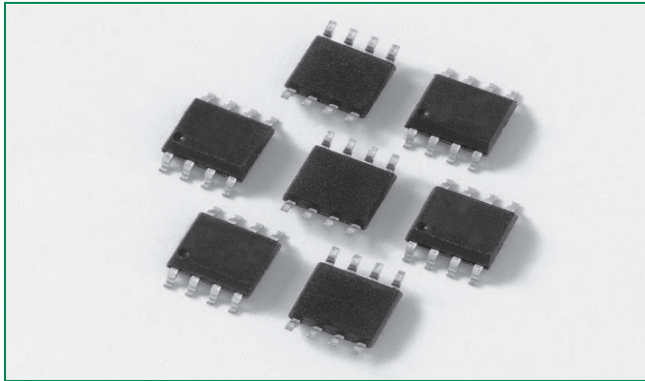
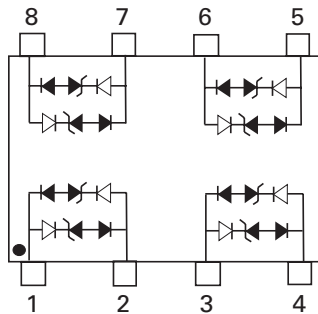


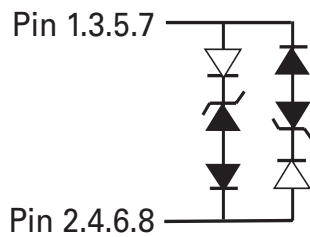
## SLVU2.8-8 Series 2.8V 30A TVS Array



### Pinout



### Functional Block Diagram



### Description

The SLVU2.8-8 was designed to protect low voltage, CMOS devices from ESD and lightning induced transients. There is a compensating diode in series with each low voltage TVS to present a low loading capacitance to the line being protected. These robust structures can safely absorb repetitive ESD strikes at  $\pm 30\text{kV}$  (contact discharge) per IEC 61000-4-2 standard and can safely dissipate up to 30A (IEC 61000-4-5 2nd Edition,  $t_p=8/20\mu\text{s}$ ) with very low clamping voltages.

### Features

- ESD, IEC 61000-4-2,  $\pm 30\text{kV}$  contact,  $\pm 30\text{kV}$  air
- EFT, IEC 61000-4-4, 40A (5/50ns)
- Lightning, IEC 61000-4-5 2nd Edition, 30A (8/20 $\mu\text{s}$ )
- Low capacitance of 2.6pF per line
- Low leakage current of 0.1 $\mu\text{A}$  (MAX) at 2.8V
- SOIC-8 (JEDEC MO-012) pin configuration allows for protection of all 4 differential pair for 1GbE
- RoHS Compliant and Lead Free
- Moisture Sensitivity Level (MSL-1)

### Applications

- 10/100/1000 Ethernet
- WAN/LAN Equipment
- Switching Systems
- Desktops, Servers, and Notebooks
- Analog Inputs
- Base Stations

### Additional Information



Datasheet



Resources



Samples

### Absolute Maximum Ratings

| Parameter                              | Rating     | Units |
|--|------------|-------|
| Peak Pulse Power ( $t_p=8/20\mu s$ )   | 750        | W     |
| Peak Pulse Current ( $t_p=8/20\mu s$ ) | 30         | A     |
| Operating Temperature                  | -40 to 125 | °C    |
| Storage Temperature                    | -55 to 150 | °C    |

### Thermal Information

| Parameter                                   | Rating     | Units |
|---|------------|-------|
| Storage Temperature Range                   | -55 to 150 | °C    |
| Maximum Junction Temperature                | 150        | °C    |
| Maximum Lead Temperature (Soldering 20-40s) | 260        | °C    |

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

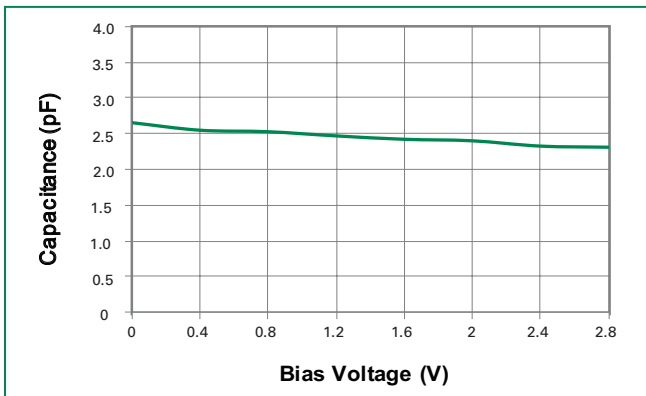
### Electrical Characteristics ( $T_{op} = 25^\circ C$ )

| Parameter                          | Symbol     | Test Conditions                             | Min      | Typ | Max | Units    |
|------------------------------------|------------|---|----------|-----|-----|----------|
| Reverse Standoff Voltage           | $V_{RWM}$  | $I_r \leq 1\mu A$ (Each Line)               |          |     | 2.8 | V        |
| Reverse Breakdown Voltage          | $V_{BR}$   | $I_r = 2\mu A$ (Each Line)                  | 3.0      |     |     | V        |
| Snapback Voltage                   | $V_{SB}$   | $I_{SB} = 50mA$                             | 2.8      |     |     | V        |
| Reverse Leakage Current            | $I_{LEAK}$ | $V_r = 2.8V$ (Each Line)                    |          |     | 0.1 | $\mu A$  |
| Clamping Voltage <sup>1</sup>      | $V_C$      | $I_{PP} = 5A, t_p = 8/20\mu s$ (Each Line)  |          |     | 8.5 | V        |
|                                    |            | $I_{PP} = 24A, t_p = 8/20\mu s$ (Each Line) |          |     | 17  |          |
| ESD Withstand Voltage <sup>1</sup> | $V_{ESD}$  | IEC61000-4-2 (Contact)                      | $\pm 30$ |     |     | kV       |
|                                    |            | IEC61000-4-2 (Air)                          | $\pm 30$ |     |     |          |
| Dynamic Resistance <sup>2</sup>    | $R_{DYN}$  | TLP $t_p = 100ns$ , (Each Line)             |          | 0.3 |     | $\Omega$ |
| Diode Capacitance <sup>1</sup>     | $C_D$      | $V_r = 0V, f = 1MHz$ (Each Line)            |          | 2.6 | 3.0 | pF       |

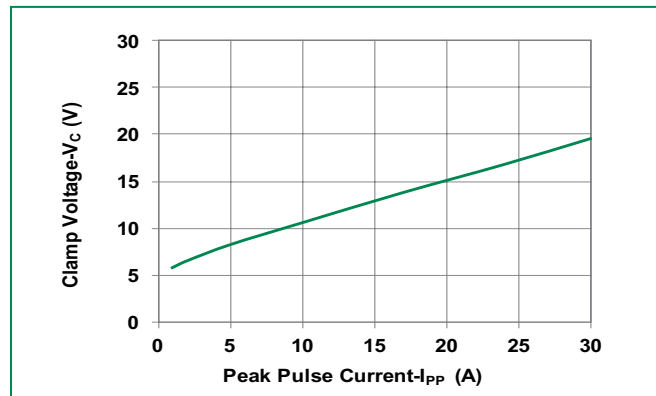
Note: 1 Parameter is guaranteed by design and/or device characterization.

2 Transmission Line Pulse (TLP) test setting : Std.TDR(50 $\Omega$ ),  $t_p = 100ns$ ,  $t_r = 0.2ns$  ITLP and VTLP averaging window: star  $t_1 = 70ns$  to end  $t_2 = 80ns$

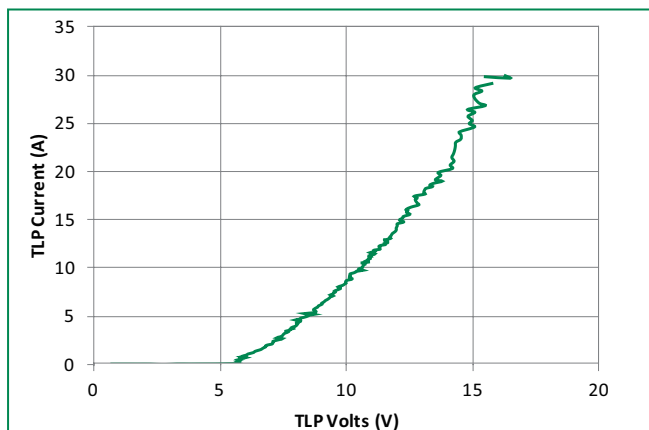
### Capacitance vs. Reverse Bias (Each line)



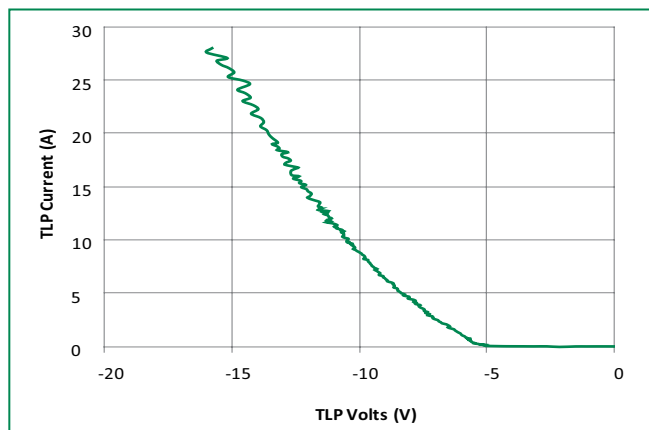
### Clamping Voltage vs. Peak Pulse Current (Each line)



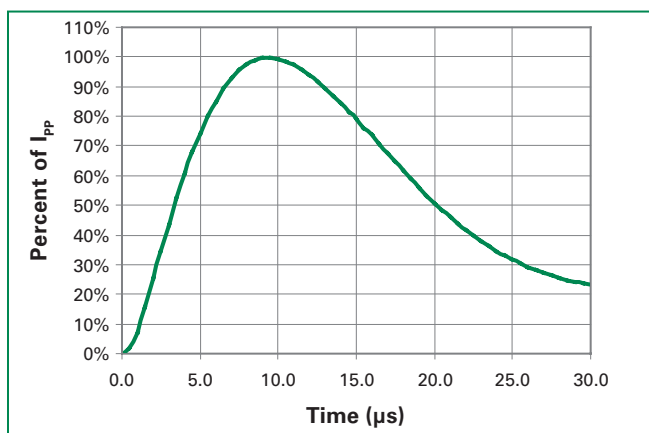
**Positive Transmission Line Pulsing (TLP) Plot (Each line)**



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



**8/20 μs Pulse Waveform**



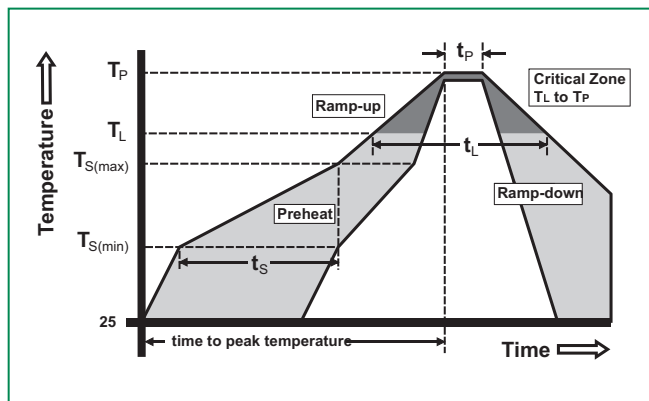
**Product Characteristics**

|                           |                            |
|---------------------------|----------------------------|
| <b>Lead Plating</b>       | Matte Tin                  |
| <b>Lead Material</b>      | Copper Alloy               |
| <b>Lead Coplanarity</b>   | 0.0004 inches (0.102mm)    |
| <b>Substrate material</b> | Silicon                    |
| <b>Body Material</b>      | V-0 per UL 94 Molded Epoxy |

- Notes :
1. All dimensions are in millimeters
  2. Dimensions include solder plating.
  3. Dimensions are exclusive of mold flash & metal burr.
  4. All specifications comply to JEDEC SPEC MO-203 Issue A
  5. Blo is facing up for mold and facing down for trim/form, i.e. reverse trim/form.
  6. Package surface matte finish VDI 11-13.

**Soldering Parameters**

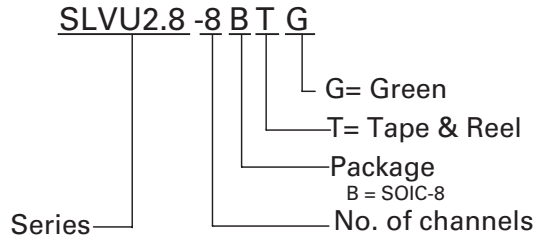
|  |                                    |                         |
|--|------------------------------------|-------------------------|
| Reflow Condition                                       |                                    | Pb – Free assembly      |
| Pre Heat   | - Temperature Min ( $T_{s(min)}$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



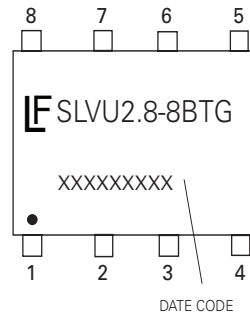
**Ordering Information**

| Part Number  | Package | Min. Order Qty. |
|--------------|---------|-----------------|
| SLVU2.8-8BTG | SOIC-8  | 2500            |

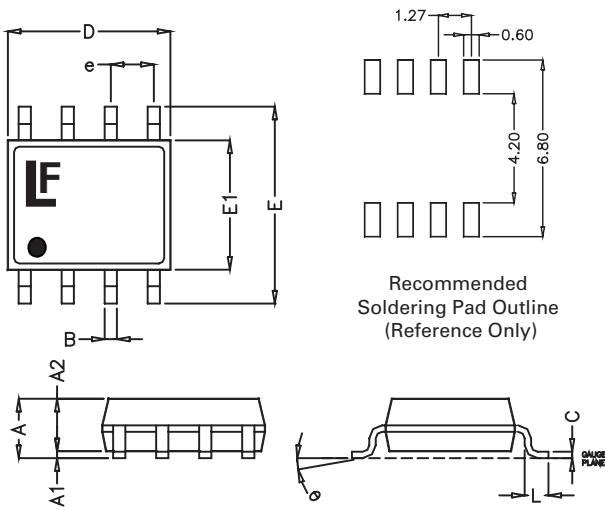
**Part Numbering System**



**Part Marking System**

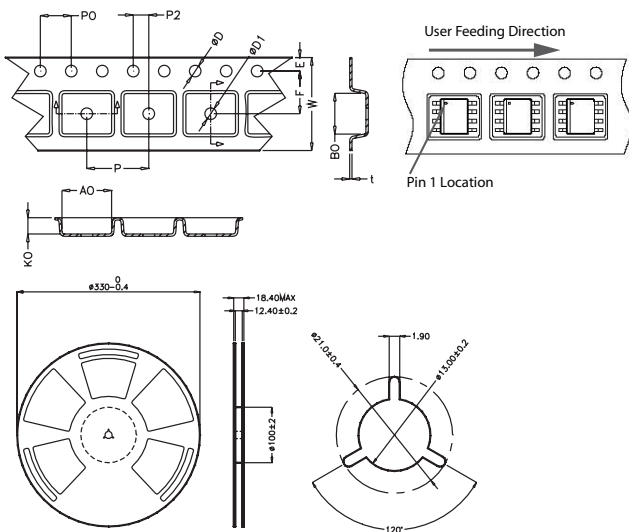


**Package Dimensions — Mechanical Drawings and Recommended Solder Pad Outline**



| Package   | SOIC-8      |      |           |       |
|-----------|-------------|------|-----------|-------|
| Pins      | 8           |      |           |       |
| JEDEC     | MS-012      |      |           |       |
|           | Millimetres |      | Inches    |       |
|           | Min         | Max  | Min       | Max   |
| <b>A</b>  | 1.35        | 1.75 | 0.053     | 0.069 |
| <b>A1</b> | 0.10        | 0.25 | 0.004     | 0.010 |
| <b>A2</b> | 1.25        | 1.65 | 0.050     | 0.065 |
| <b>B</b>  | 0.31        | 0.51 | 0.012     | 0.020 |
| <b>c</b>  | 0.17        | 0.25 | 0.007     | 0.010 |
| <b>D</b>  | 4.80        | 5.00 | 0.189     | 0.197 |
| <b>E</b>  | 5.80        | 6.20 | 0.228     | 0.244 |
| <b>E1</b> | 3.80        | 4.00 | 0.150     | 0.157 |
| <b>e</b>  | 1.27 BSC    |      | 0.050 BSC |       |
| <b>L</b>  | 0.40        | 1.27 | 0.016     | 0.050 |

**Embossed Carrier Tape & Reel Specification — SOIC Package**



| Symbol      | Millimetres   |      | Inches          |       |
|-------------|---------------|------|-----------------|-------|
|             | Min           | Max  | Min             | Max   |
| <b>E</b>    | 1.65          | 1.85 | 0.065           | 0.073 |
| <b>F</b>    | 5.4           | 5.6  | 0.213           | 0.22  |
| <b>P2</b>   | 1.9           | 2.1  | 0.075           | 0.083 |
| <b>D</b>    | 1.5           | 1.6  | 0.059           | 0.063 |
| <b>D1</b>   | 1.50 Min      |      | 0.059 Min       |       |
| <b>P0</b>   | 3.9           | 4.1  | 0.154           | 0.161 |
| <b>10P0</b> | 40.0 +/- 0.20 |      | 1.574 +/- 0.008 |       |
| <b>W</b>    | 11.9          | 12.1 | 0.468           | 0.476 |
| <b>P</b>    | 7.9           | 8.1  | 0.311           | 0.319 |
| <b>A0</b>   | 6.3           | 6.5  | 0.248           | 0.256 |
| <b>B0</b>   | 5.1           | 5.3  | 0.2             | 0.209 |
| <b>K0</b>   | 2             | 2.2  | 0.079           | 0.087 |
| <b>t</b>    | 0.30 +/- 0.05 |      | 0.012 +/- 0.002 |       |