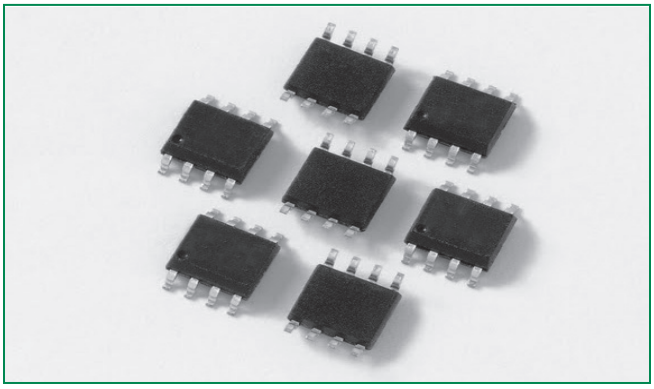
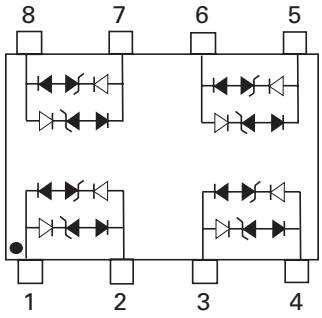
SLVU2.8-8 Series 2.8V 30A TVS Array

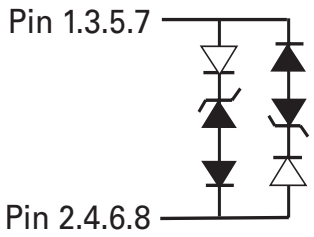
RoHS Pb GREEN



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 ±30kV (contact discharge) per IEC 61000-4-2 standard and can safely dissipate up to 30A (IEC 61000-4-5 2nd Edition, t_p=8/20μs) with very low clamping voltages.

Features

- ESD, IEC 61000-4-2, ±30kV contact, ±30kV air
- EFT, IEC 61000-4-4, 40A (5/50ns)
- Lightning, IEC 61000-4-5 2nd Edition, 30A (8/20μs)
- Low capacitance of 2.6pF per line
- Low leakage current of 0.1μA (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**

Revised: 08/22/19

TVS Diode Arrays (SPA® Diodes)

Lightning Surge Protection- SLVU2.8-8 Series

Absolute Maximum Ratings

Parameter	Rating	Units
Peak Pulse Power (t_P=8/20μs)	750	W
Peak Pulse Current (t_P=8/20μs)	30	A
Operating Temperature	-40 to 125	ºC
Storage Temperature	-55 to 150	ºC

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.

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

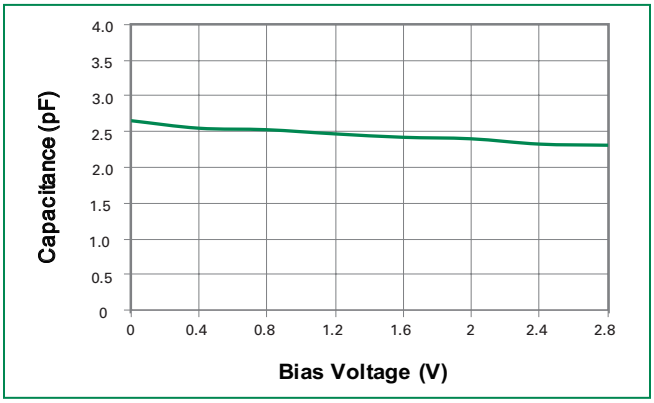
Electrical Characteristics (T_{OP} = 25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}	I_R≤1μA (Each Line)			2.8	V
Reverse Breakdown Voltage	V_{BR}	I_T=2μA (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	μA
Clamping Voltage[1]	V_C	I_{PP}=5A, t_P=8/20μs (Each Line)			8.5	V
		I_{PP}=24A, t_P=8/20μs (Each Line)			17	
ESD Withstand Voltage[1]	V_{ESD}	IEC61000-4-2 (Contact)	±30			kV
		IEC61000-4-2 (Air)	±30			
Dynamic Resistance[2]	R_{DYN}	TLP tp=100ns, (Each Line)		0.3		Ω
Diode Capacitance[1]	C_D	V_R=0V, f=1MHz (Each Line)		2.6	3.0	pF

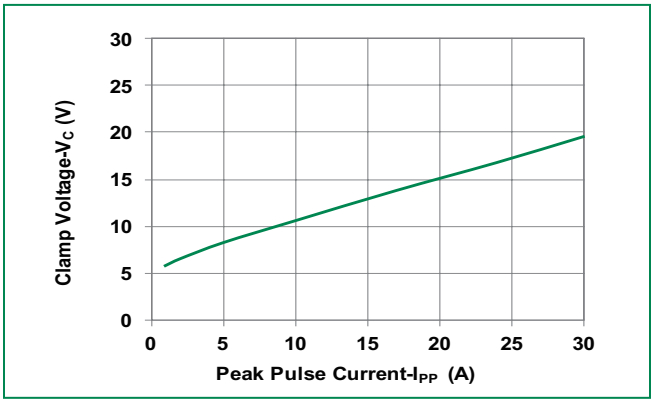
Note: 1 Parameter is guaranteed by design and/or device characterization.

2 Transmission Line Pulse (TLP) test setting : Std.TDR(50Ω),tp=100ns, tr=0.2ns ITLP and VTLP averaging window: star t1=70ns to end t2=80ns

Capacitance vs. Reverse Bias (Each line)



Clamping Voltage vs. Peak Pulse Currennt (Each line)



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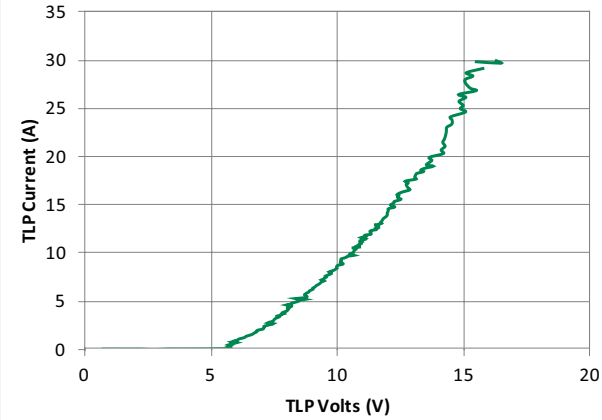
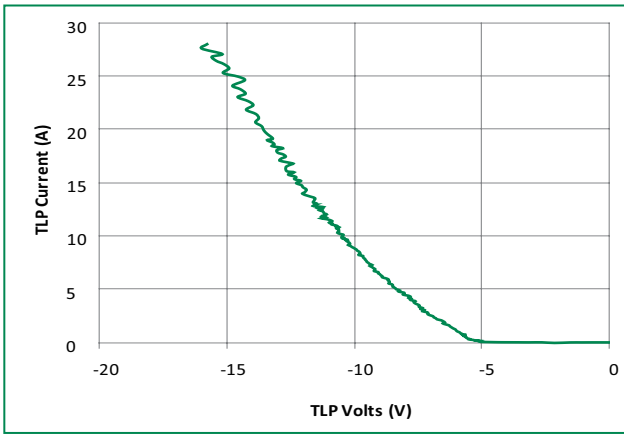
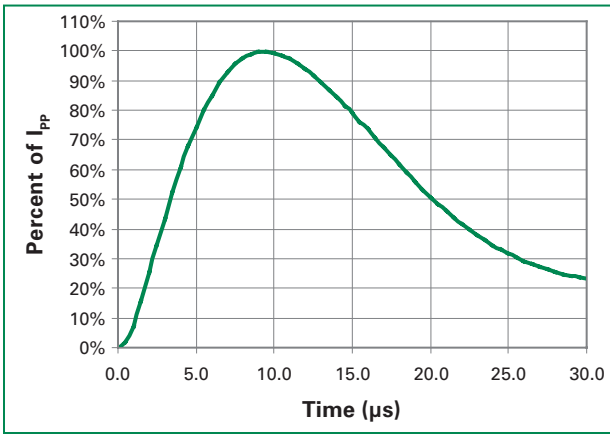
Positive Transmission Line Pulsing (TLP) Plot (Each line)



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



8/20 µs Pulse Waveform



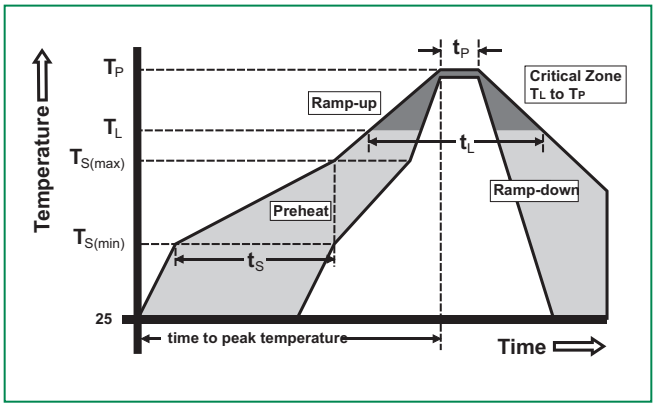
Product Characteristics

Lead Plating	Matte Tin
Lead Material	Copper Alloy
Lead Coplanarity	0.0004 inches (0.102mm)
Substrate material	Silicon
Body Material	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)		$260^{+0/-5}$ °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

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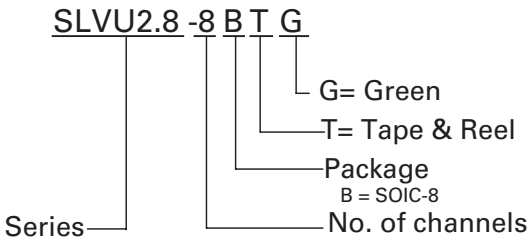
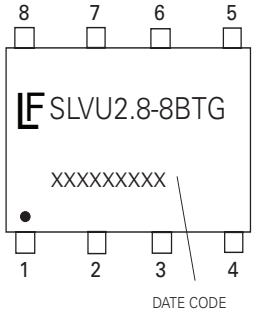
TVS Diode Arrays (SPA® Diodes)

Lightning Surge Protection- SLVU2.8-8 Series

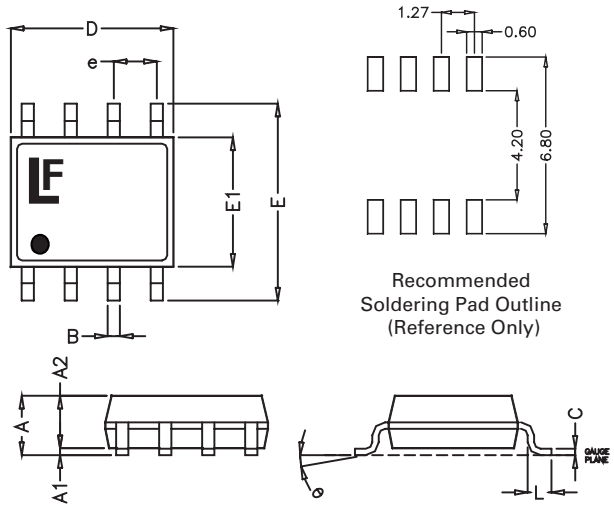
Part Numbering System



Part Marking System

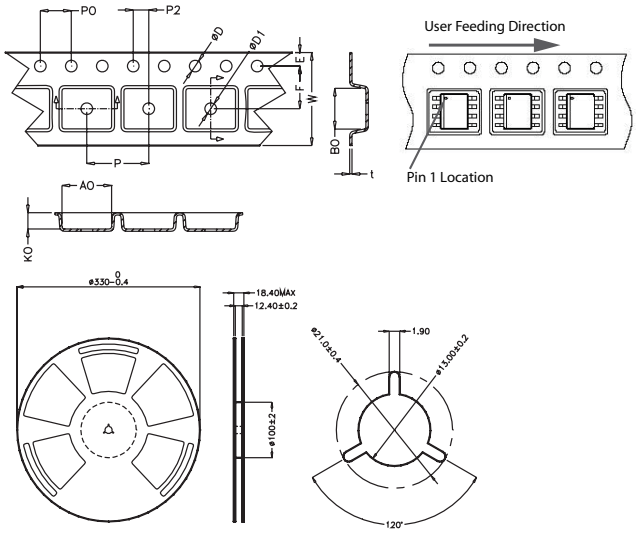


Package Dimensions — Mechanical Drawings and Recommended Solder Pad Outline



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

Embossed Carrier Tape & Reel Specification — SOIC Package



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

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