



SPE6V8UN

Ultra Low Capacitance 2 -Line ESD Protection Array

DESCRIPTION

The SPE6V8UN is 2-channel very low capacitance ESD transient voltage suppressor which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge. It is particularly well-suited to protect systems with high speed communication lines from ESD, EFT, and lightning.

The SPE6V8UN is consists of two low capacitance steering diodes and a TVS diode in SOT-353 package. Each channel of SPE6V8UN could safely dissipate ESD strikes of $\pm 15\text{kV}$ air discharge as well as $\pm 8\text{kV}$ contact discharge, meeting the requirement of the IEC 61000-4-2 international standard. Using the MIL-STD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than $\pm 15\text{kV}$.

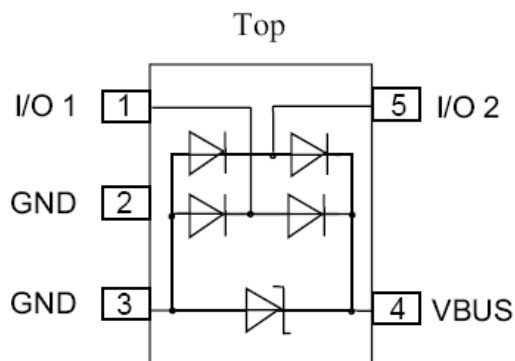
APPLICATIONS

- ◆ Cellular Handsets and Accessories
- ◆ Cordless Phone
- ◆ PDA
- ◆ Notebooks and Handhelds
- ◆ Portable Instrumentation
- ◆ Digital Cameras
- ◆ MP3 Player High Definition Multi-Media Interface Protection
- ◆ USB 2.0 Power and Data Line
- ◆ Monitors and Notebook Computers
- ◆ HDSL, IDSL Secondary IC Side Protection
- ◆ 10/100/1000 Ethernet

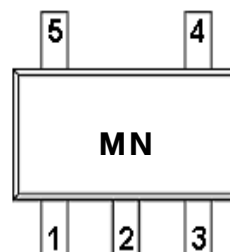
FEATURES

- ◆ Transient protection for data lines to IEC 61000-4-2 (ESD)
 - $\pm 15\text{kV}$ (air)
 - $\pm 8\text{kV}$ (contact)
- ◆ IEC 61000-4-4 (EFT)
 - 40A (5/50ns)
- ◆ Protects five bidirectional I/O lines
- ◆ Working voltage: 5V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages
- ◆ Low capacitance: 0.7 pF typical

PIN CONFIGURATION (SOT-353)



PART MARKING



M: Month Code
N : Specific Device Code



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ORDERING INFORMATION

Part Number	Package	Part Marking
SPE6V8UNS35RGB	SOT-353	MN

M=Month Code (A~Z)

※ SPE6V8UNS35RGB : Tape Reel ; Pb – Free ; Halogen – Free

※

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Peak Pulse Power (tp = 8/20 μs)	Ppk	180	W
Maximum Peak Pulse Current (tp = 8/20 μs)	Ipp	7	A
ESD per IEC 61000 – 4 – 2 (Air)	Vpp	±15	KV
ESD per IEC 61000 – 4 – 2 (Contact)	Vpp	±8	KV
Operating Junction Temperature	Tj	-55 ~ 125	°C
Storage Temperature Range	TSTG	-55 ~ 150	°C
Lead Soldering Temperature	TL	260 (10sec)	°C

ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Reverse Stand – Off Voltage	VRWM				5	V
Forward Voltage @ IF	VF	IF = 10mA	0.4	0.8	1.5	V
Reverse Breakdown Voltage	VBR	It = 1mA	6.0	7.0		V
Reverse Leakage Current	IR	VRWM = 5V , T=25°C		0.01	1	μA
Reverse Leakage Current	IR	VRWM = 3V , T=25°C		0.01	0.5	μA
Clamping Voltage	VC	Ipp = 1A , tp = 8/20 μs			12	V
Junction Capacitance	Cj	VR = 0V, f = 1MHz Any I/O pin to Ground		1.4	1.5	pF
		VR = 0V, f = 1MHz Between I/O pins		0.7		

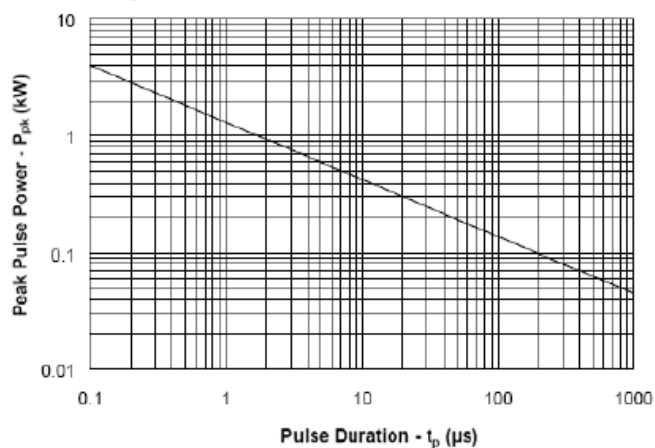


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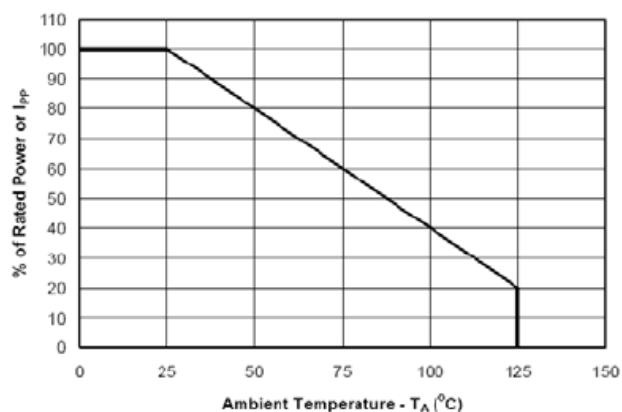
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TYPICAL CHARACTERISTICS

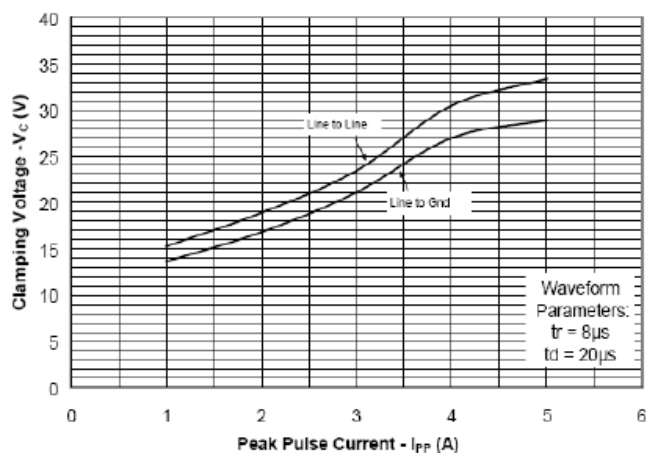
Non-Repetitive Peak Pulse Power vs. Pulse Time



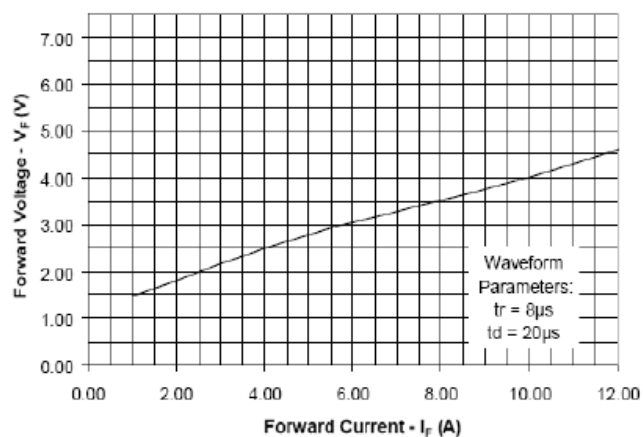
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current



Forward Voltage vs. Forward Current



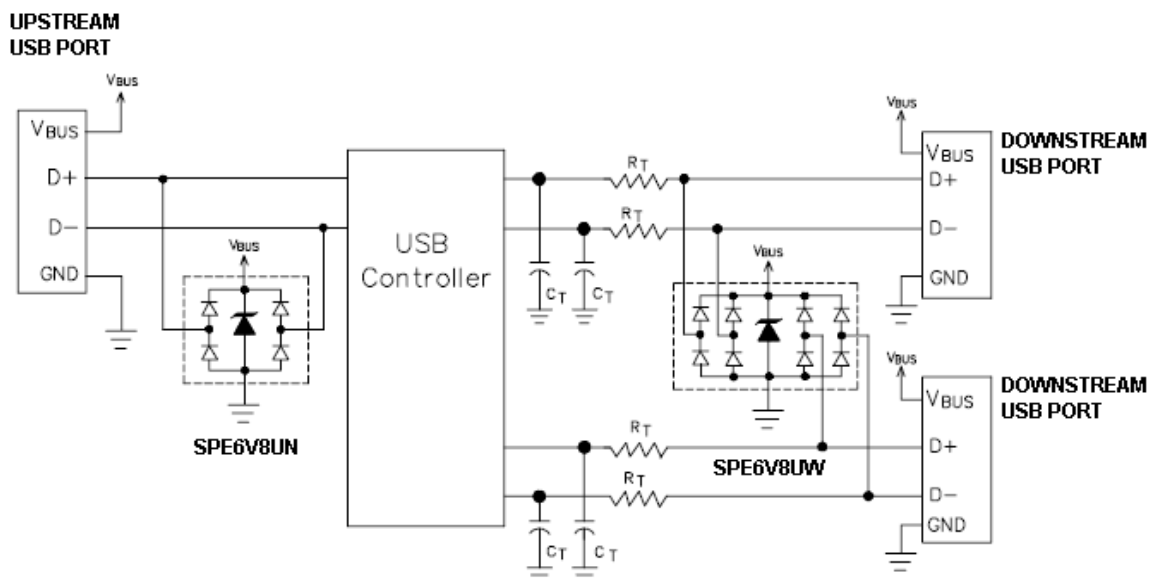


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APPLICATION NOTE

SPE6V8UN Device Connection for USB Port



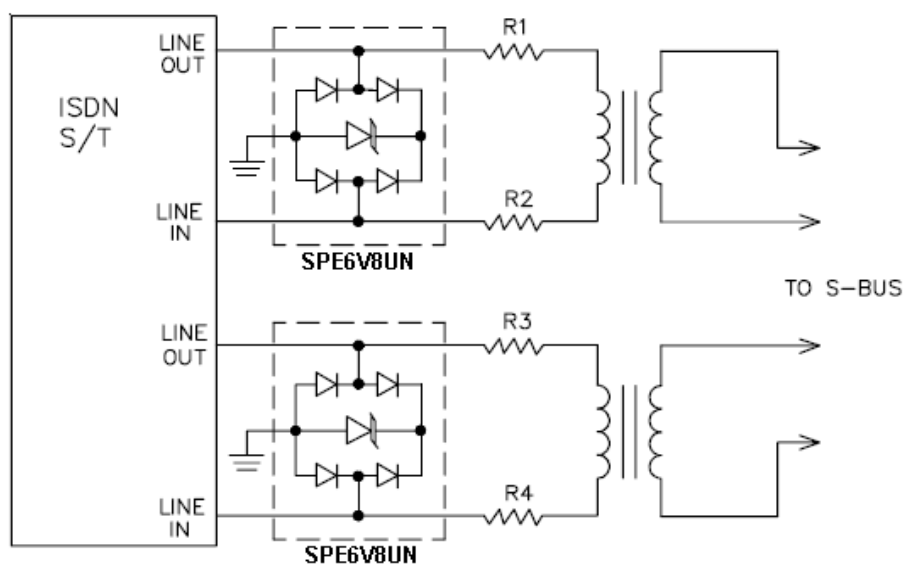
Universal Serial Bus ESD Protection

SPE6V8UN Device Connection for ISDN S/T



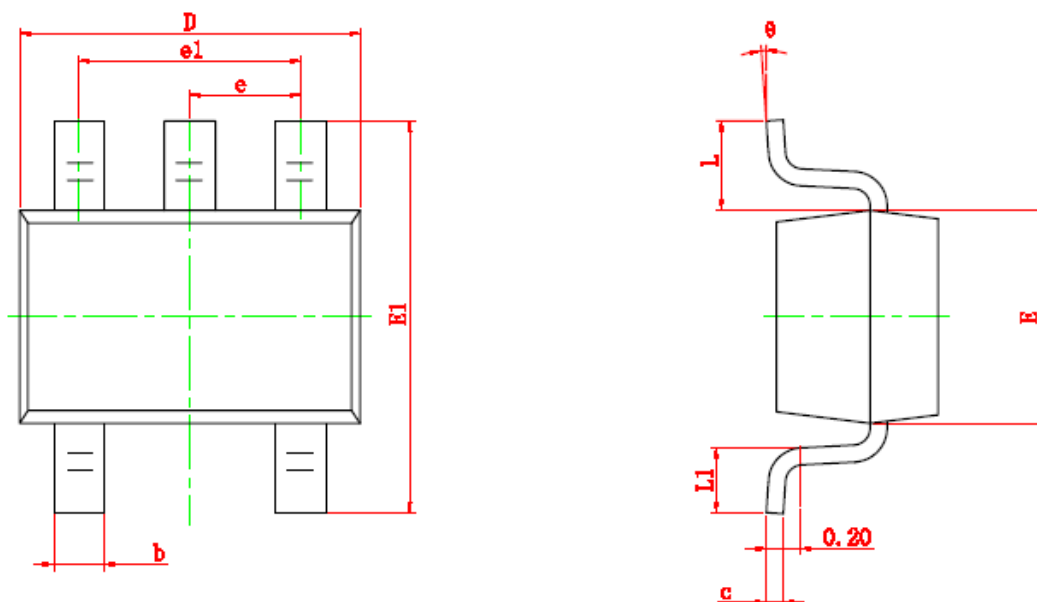
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ISDN S/T Interface Protection

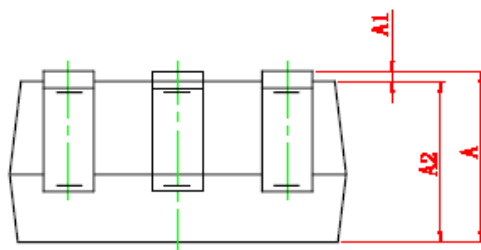
SOT-353 PACKAGE OUTLINE





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Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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