



# 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 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  $\pm 15\text{kV}$ .

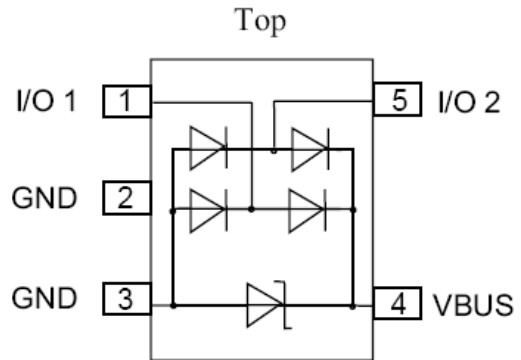
### APPLICATIONS

- ◆ 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

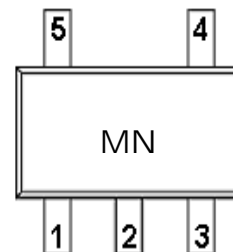
### FEATURES

- ◆ 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		

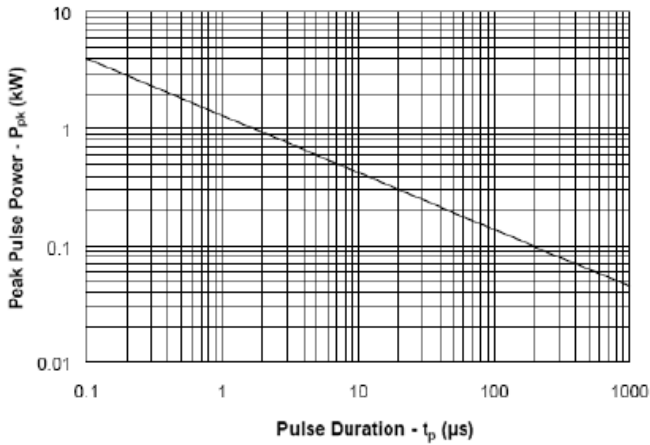


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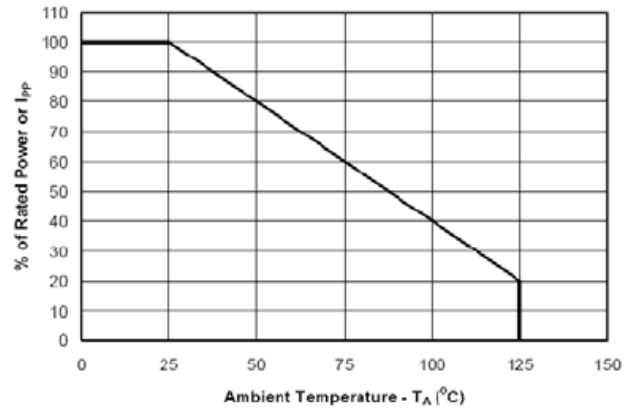
## Ultra Low Capacitance 2-Line ESD Protection Array

### TYPICAL CHARACTERISTICS

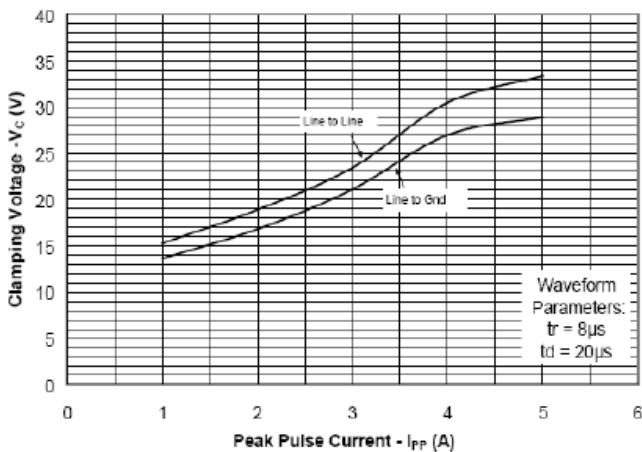
#### Non-Repetitive Peak Pulse Power vs. Pulse Time



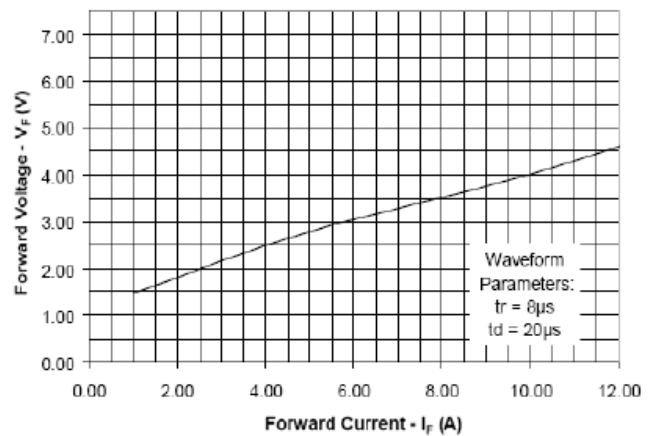
#### Power Derating Curve



#### Clamping Voltage vs. Peak Pulse Current



#### Forward Voltage vs. Forward Current



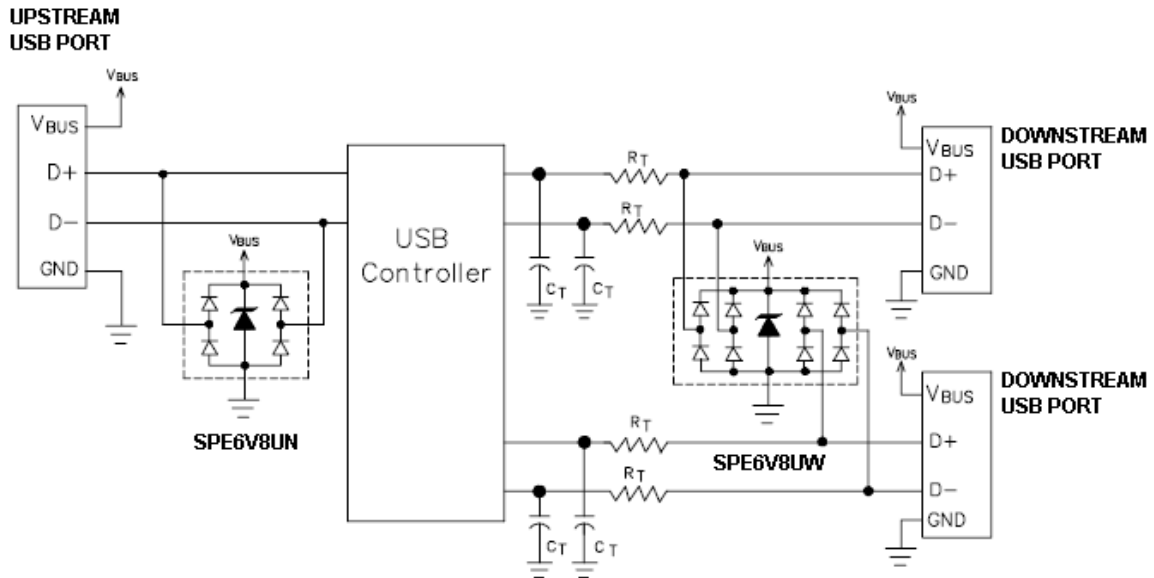


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### APPLICATION NOTE

#### SPE6V8UN Device Connection for USB Port



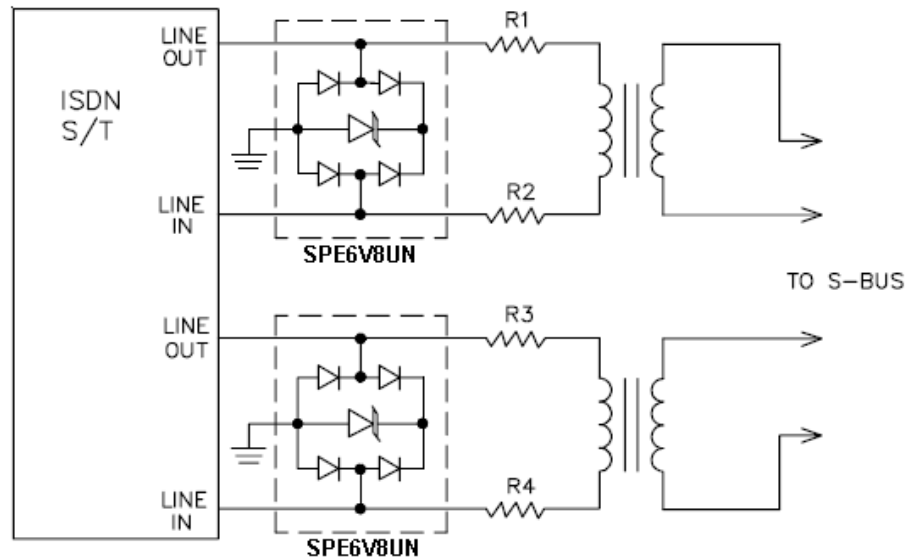
### Universal Serial Bus ESD Protection

#### SPE6V8UN Device Connection for ISDN S/T



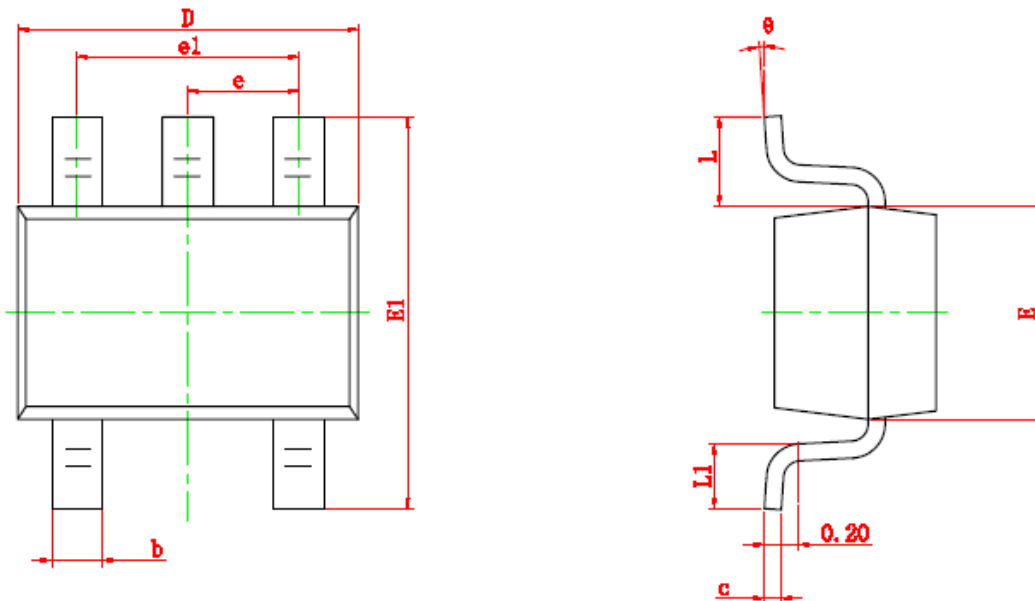
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ISDN S/T Interface Protection

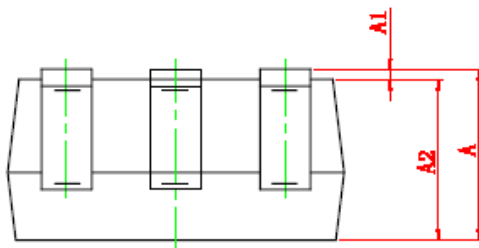
### SOT-353 PACKAGE OUTLINE





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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
$\theta$	0°	8°	0°	8°



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