



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 ±15kV air discharge as well as ±8kV 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 ±15kV.

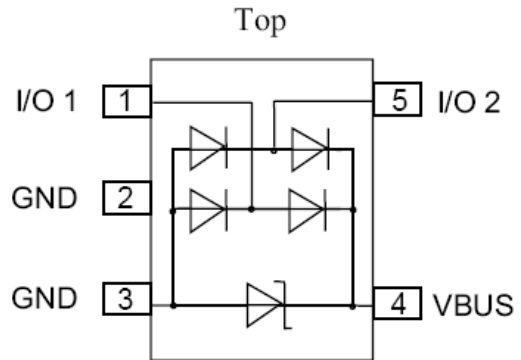
APPLICATIONS

- ◆ 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

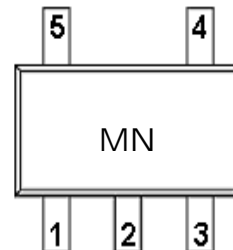
FEATURES

- ◆ Transient protection for data lines to IEC 61000-4-2 (ESD) ±15kV (air) ±8kV (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



SPE6V8UN

Ultra Low Capacitance 2-Line ESD Protection Array

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 | | |

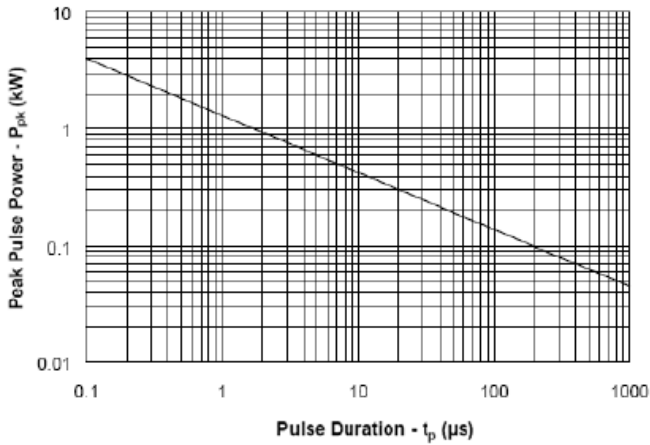


SPE6V8UN

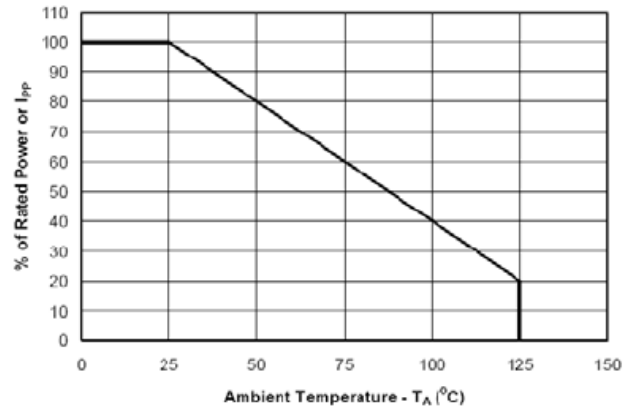
Ultra Low Capacitance 2-Line ESD Protection Array

TYPICAL CHARACTERISTICS

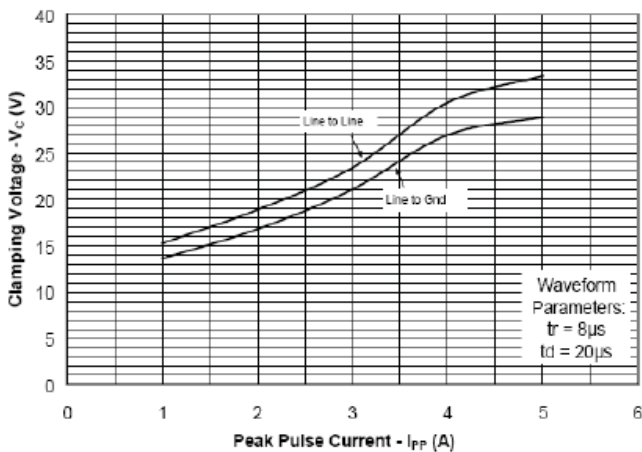
Non-Repetitive Peak Pulse Power vs. Pulse Time



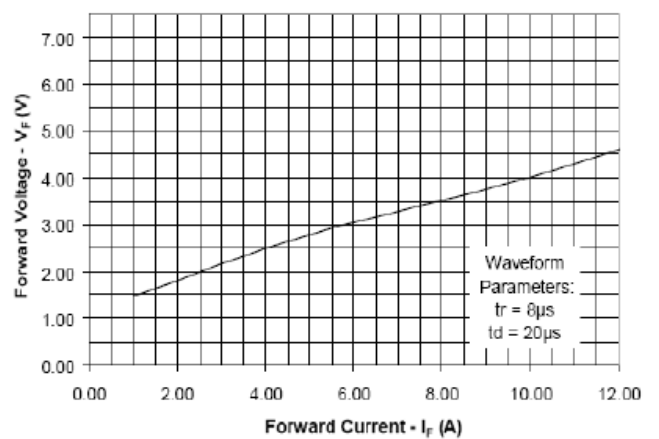
Power Derating Curve



Clamping Voltage vs. Peak Pulse Current



Forward Voltage vs. Forward Current



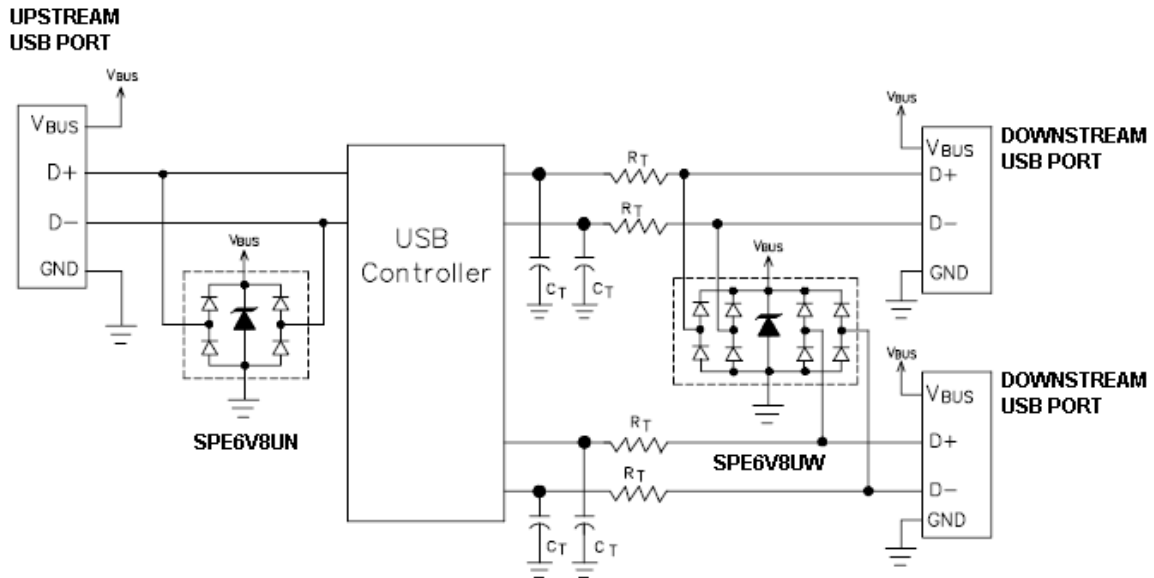


SPE6V8UN

Ultra Low Capacitance 2-Line ESD Protection Array

APPLICATION NOTE

SPE6V8UN Device Connection for USB Port



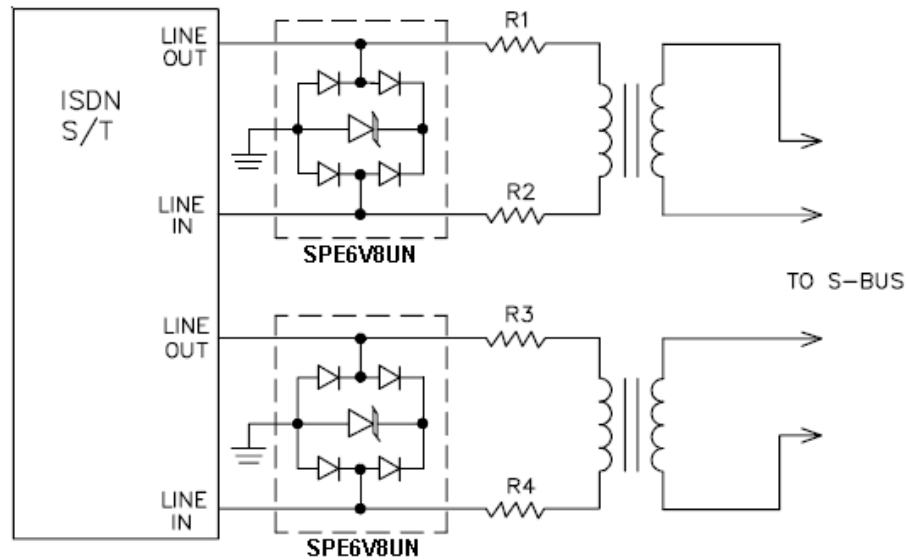
Universal Serial Bus ESD Protection

SPE6V8UN Device Connection for ISDN S/T



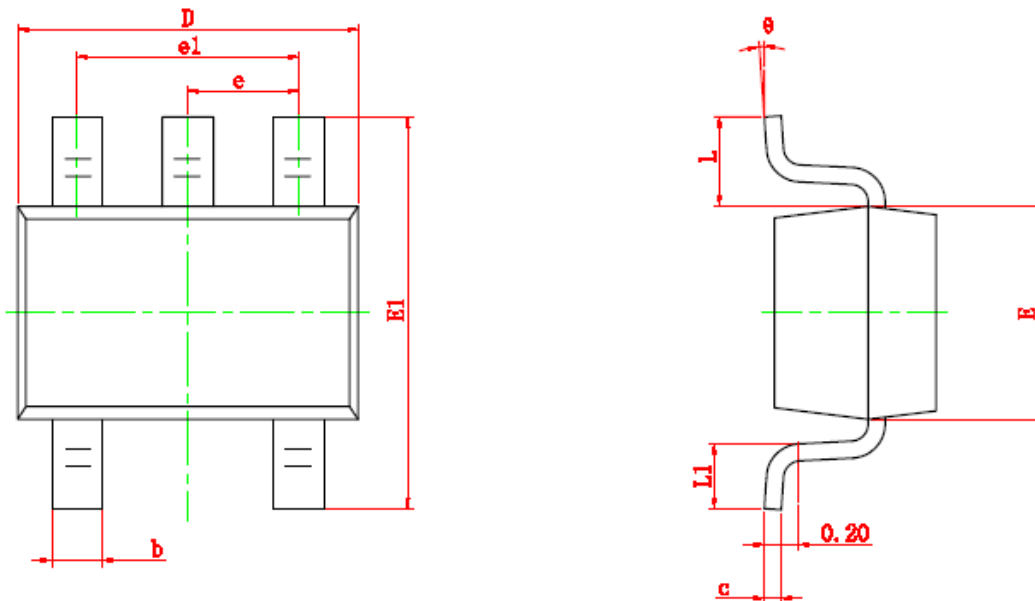
SPE6V8UN

Ultra Low Capacitance 2-Line ESD Protection Array



ISDN S/T Interface Protection

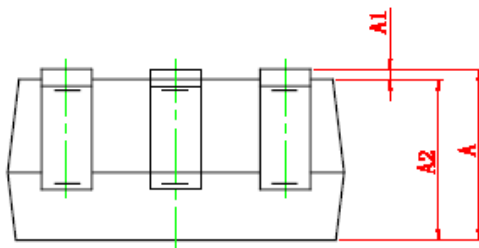
SOT-353 PACKAGE OUTLINE





SPE6V8UN

Ultra Low Capacitance 2-Line ESD Protection Array



| 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° |



SPE6V8UN

Ultra Low Capacitance 2-Line ESD Protection Array

Information provided is alleged to be exact and consistent. SYNC Power Corporation presumes no responsibility for the penalties of use of such information or for any violation of patents or other rights of third parties which may result from its use. No license is granted by allegation or otherwise under any patent or patent rights of SYNC Power Corporation. Conditions mentioned in this publication are subject to change without notice. This publication surpasses and replaces all information previously supplied. SYNC Power Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of SYNC Power Corporation.

©The SYNC Power logo is a registered trademark of SYNC Power Corporation

©2004 SYNC Power Corporation – Printed in Taiwan – All Rights Reserved

SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan, 115, R.O.C

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

©<http://www.syncpower.com>