SPE9X5VU

Ultra Low Capacitance Single-Line ESD Protection Array

DESCRIPTION

The SPE9X5VU is an ESD transient voltage suppression component which provides a very high level of protection for sensitive electronic components that may be subjected to electrostatic discharge (ESD).
It is particularly well-suited for cellular phones, portable device, digital cameras, power supplies and many other portable applications because of its small package and low weight. The SPE9X5VU is Uni-directional, Safely dissipate ESD strikes of Level 4, IEC61000-4-2, exceeding the maximum requirement. Using the MILSTD-883 (Method 3015) specification for Human Body Model (HBM) ESD, the device provides protection for contact discharges to greater than +/-10KV.
The SPE9X5VU is available in a WBFBP-02C package with peak reverse working voltage of 5 voltages.

APPLICATIONS

- Cellular Handsets and Accessories
- Cordless Phone
- PDA
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- MP3 Player

FEATURES

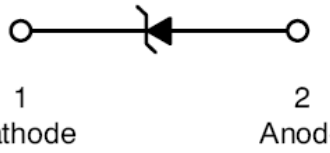
- Transient protection for data lines to

  IEC 61000-4-2 (ESD)
  ±15kV (air)
  ±8kV (contact)

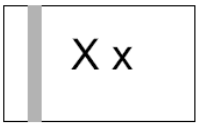
  IEC 61000-4-4 (EFT)
  40A (5/50ns)

- Protects single I/O lines
- Working voltage: 5V
- Low leakage current
- Low operating and clamping voltages
- Small Body Outline: 1.0 x 0.6 x 0.5mm

PIN CONFIGURATION (FBP-02C)



PART MARKING



X= Date Code
x = Specific Device Code

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ORDERING INFORMATION

Part Number	Package	Part Marking
SPE9X5VUBP02RGB	FBP-02C	Xx

※ SPE9X5VUBP02RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ 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 ICE 61000 – 4 – 2 (Air)	Vpp	±15	KV
ESD per ICE 61000 – 4 – 2 (Contact)	Vpp	±10	KV
Operating Junction Temperature	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
Lead Soldering Temperature	T_L	260 (10sec)	℃

ELECTRICAL CHARACTERISTICS

(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Reverse Stand – Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	It = 1mA	6			V
Reverse Leakage Current	I_R	V_{RWM} = 5V , T=25℃			1	μA
Clamping Voltage	V_C	Ipp = 1A , tp = 8/20 μs			8	V
Junction Capacitance	Cj	Between I/O Pin and GND V_R = 0V , f = 1MHz		0.5	0.9	pF

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TYPICAL CHARACTERISTICS

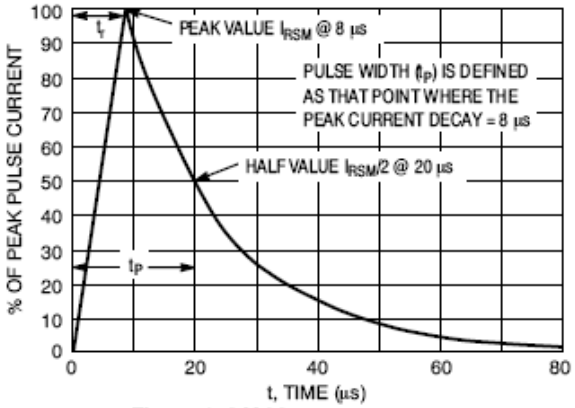

Figure 1. 8 X 20 µs Pulse Waveform

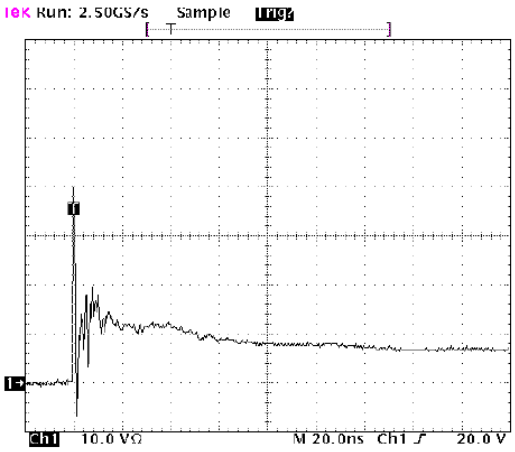

Figure 2. ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000−4−2

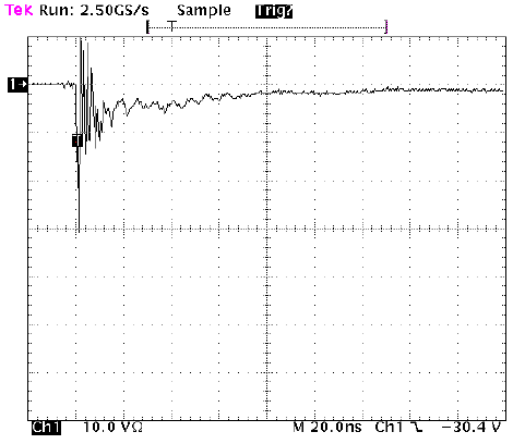

Figure 3. ESD Clamping Voltage Screenshot
Negative 8 kV Contact per IEC61000−4−2

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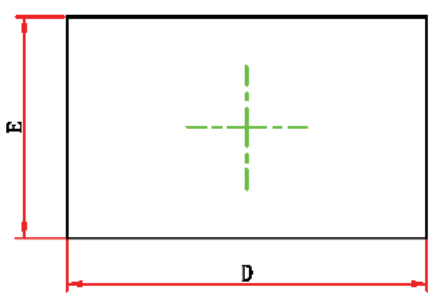
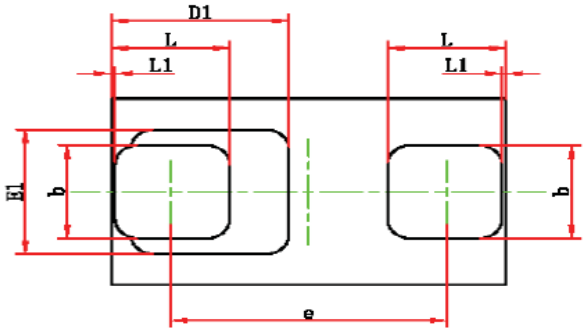
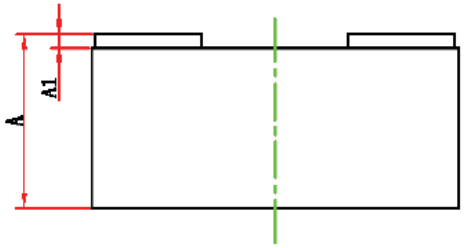
FBP-02C PACKAGE OUTLINE



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0.010	0.070	0.000	0.003
D	0.95	1.050	0.037	0.011
E	0.550	0.650	0.022	0.026
D1	0.450REF		0.018REF	
E1	0.400REF		0.016REF	
b	0.275	0.325		0.013
e	0.675	0.725		0.029
L	0.275	0.325		0.013
L1	0.010REF		0.000REF	

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