



# SPE0588

## Ultra Low Capacitance Single-Line ESD Protection Array

### DESCRIPTION

The SPE0588 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 SPE0588 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 SPE0588 is available in a SOD-523 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)

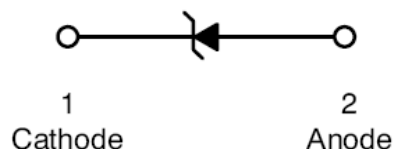
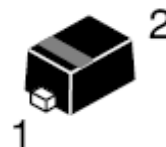
±8kV (contact)

IEC 61000-4-4 (EFT)

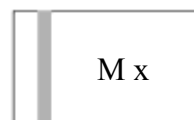
40A (5/50ns)

- ◆ Protects single I/O lines
- ◆ Working voltage: 5V
- ◆ Low leakage current
- ◆ Low operating and clamping voltages

### PIN CONFIGURATION ( SOD-523 )



### PART MARKING



M= Month Code  
x=Specific Device Code



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### ORDERING INFORMATION

Part Number	Package	Part Marking
SPE0588D52RGB	SOD-523	Mx

M=Month Code (A~Z)

※ SPE0588D52RGB : 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	250	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	±10	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
Reverse Breakdown Voltage	VBR	It = 1mA	6			V
Reverse Leakage Current	IR	VRWM = 5V , T=25°C			1	μA
Clamping Voltage	Vc	Ipp = 1A , tp = 8/20 μs			8	V
Junction Capacitance	Cj	Between I/O Pin and GND VR = 0V , f = 1MHz		0.5	0.9	pF



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### TYPICAL CHARACTERISTICS

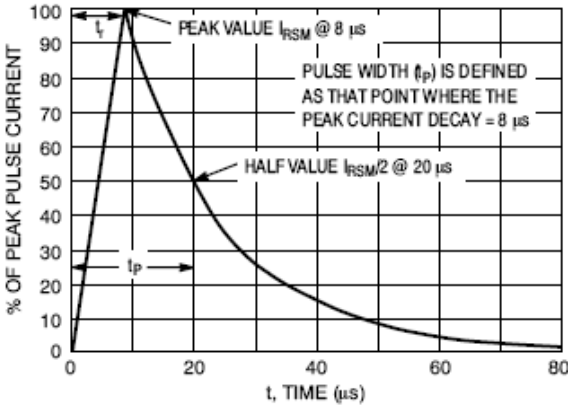


Figure 1. 8 X 20 µs Pulse Waveform

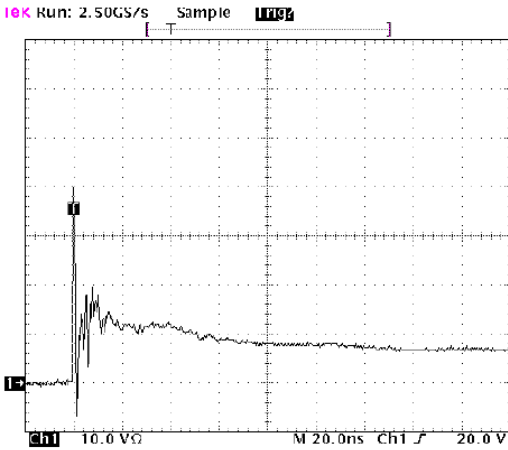


Figure 2. ESD Clamping Voltage Screenshot Positive 8 kV Contact per IEC61000-4-2

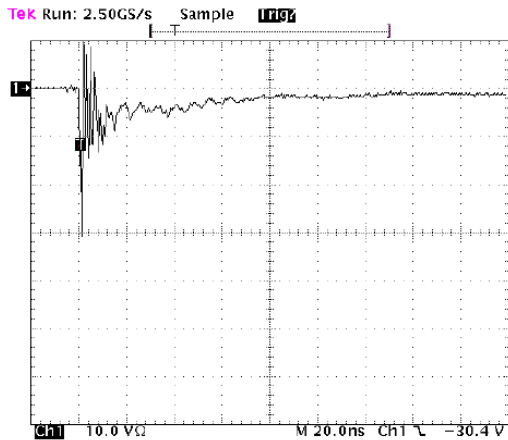


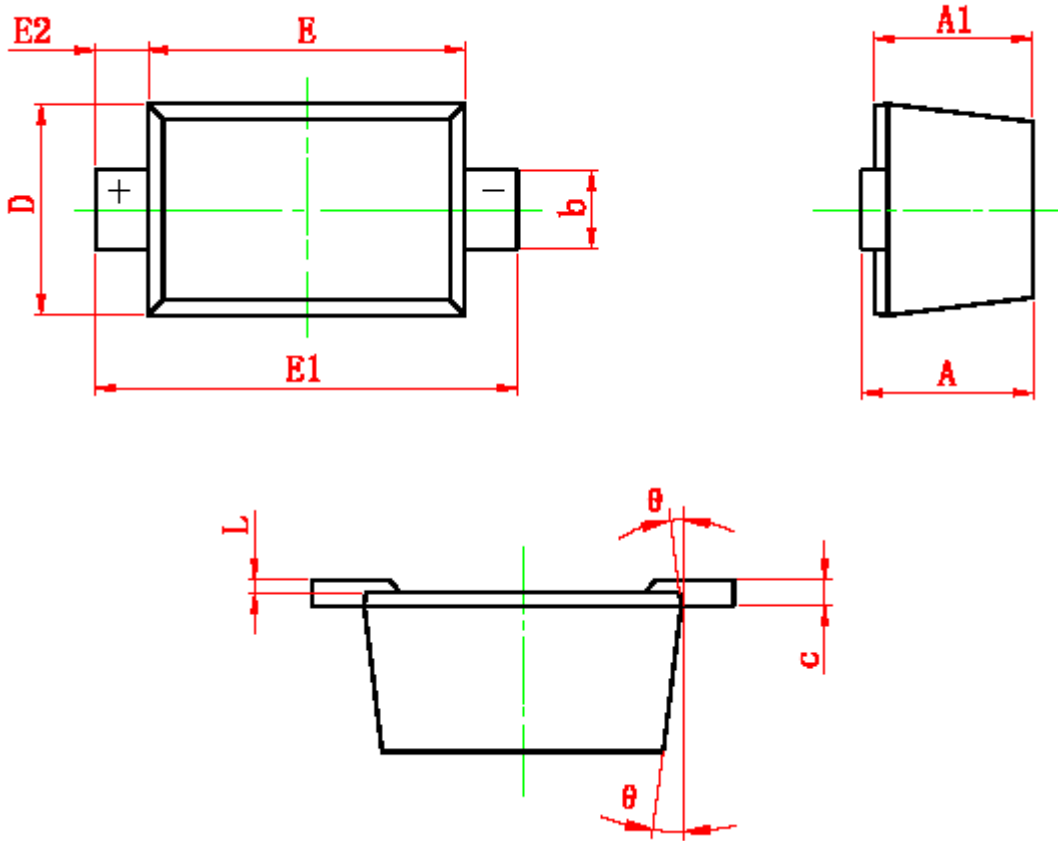
Figure 3. ESD Clamping Voltage Screenshot Negative 8 kV Contact per IEC61000-4-2



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### SOD-523 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.500	0.700	0.020	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
$\theta$	7° REF		7° REF	



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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

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