

## Specification Status: Released

**Not To Be Used For New Designs**

### BENEFITS

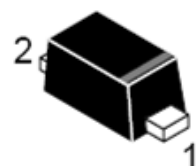
- Small-size ESD protection diode for high speed signals
- Appropriate for ESD protection in space-constrained portable electronics and mobile handsets
- Helps protect electronic circuits against damage from Electrostatic Discharge (ESD) events
- Assist equipment to pass IEC61000-4-2, level 4 testing
- RoHS compliant and Halogen Free

### FEATURES

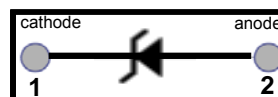
- Ultra-low Input capacitance – 0.5pF (typ)
- Low leakage current – 1.0μA (max)
- Low breakdown voltage – 5.4V (min)
- ESD maximum rating per IEC61000-4-2 standard
  - ± 10kV contact discharge
  - ± 15kV air discharge
- Capable of withstanding numerous ESD strikes
- Small SOD-923 package size: 1.00mm x 0.60mm
- Low package height: 0.40mm (max)

### APPLICATIONS

- Cellular phones and portable electronics
- High speed data lines and low voltage antenna ports
- USB 2.0/3.0, HDMI 1.3/1.4, and DisplayPort
  - Less than 0.5dB insertion loss up to 3.0GHz
- Digital cameras and camcorders
- Applications requiring ESD performance in a small package



**SOD-923**



### PART NUMBERING

Series	SESD	0402	S	005	054	Breakdown Voltage 5.4V (min)
EIA Size						Input Capacitance 0.5 pF (typ)
SOD-923 Package						

### MATERIALS INFORMATION

RoHS Compliant

ELV Compliant

Halogen Free \*

Directive 2000/53/EC  
Compliant

Directive 2002/95/EC  
Compliant



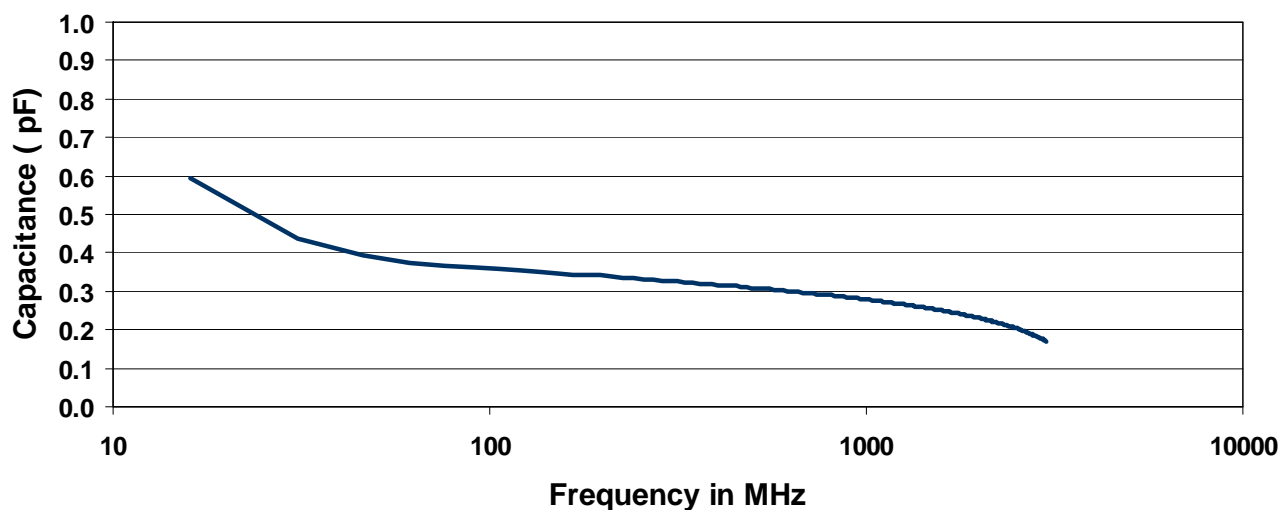
\* Halogen Free refers to: Br≤900ppm, Cl≤900ppm, Br+Cl≤1500ppm  
SOD-923 case epoxy material meets UL 94 V-0  
Terminal finish: 100% Matte Tin (Sn)  
SESD0402S-005-054 device meets MSL-1 Requirements

Device Characteristics @ T = 25°C	Min	Typ	Max	Unit
Input Capacitance @ $V_r = 0V$ , $f = 1MHz$	--	0.5	0.9	pF
Working Reverse Voltage (peak) - $V_{wrv}$	--	--	5.0	V
Breakdown Voltage - $V_{br}$ @ $I_t = 1mA^{(1)}$	5.4	--	--	V
Leakage current @ $V_{wrv} = 5.0V$	--	--	1.0	uA
Total Power Dissipation - $P_d$ (on 30mm x 30mm FR-4)	--	--	150	mW
ESD contact discharge per IEC61000-4-2 standard	--	--	±10	kV
ESD air discharge per IEC61000-4-2 standard	--	--	±15	kV
Temperature Range				
Operating (junction temperature)	-55	to	125	°C
Storage	-55	to	150	°C

<sup>(1)</sup>  $V_{br}$  is measured at test current  $I_t$

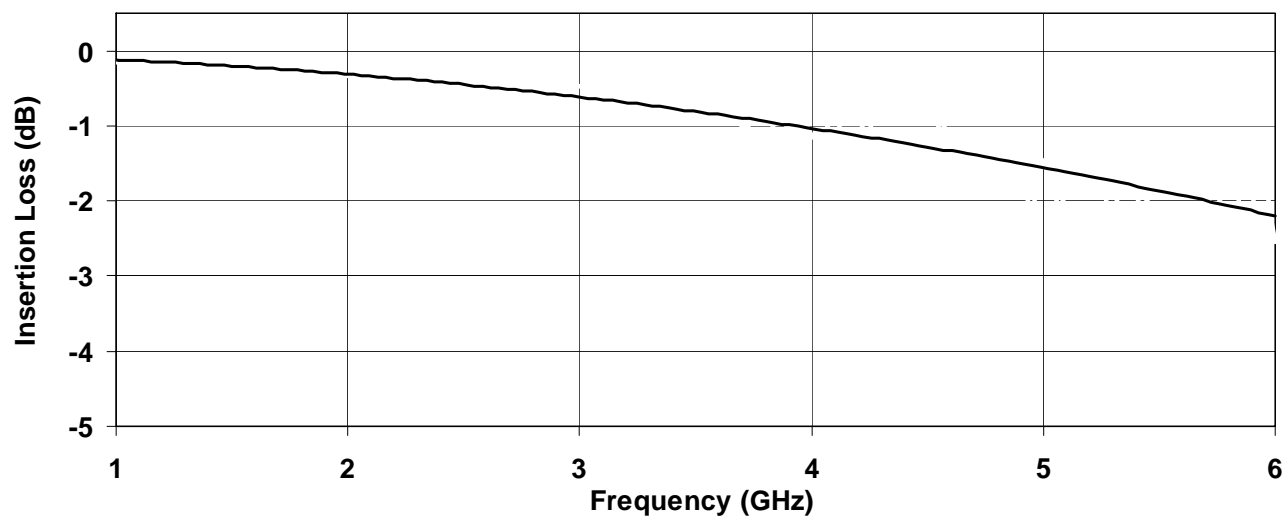
## LINE CAPACITANCE VS FREQUENCY

**SESD0402S-005-054**  
Capacitance vs Frequency to 3GHz



## INSERTION LOSS

**SESD0402S-005-054**  
Insertion Loss to 6GHz



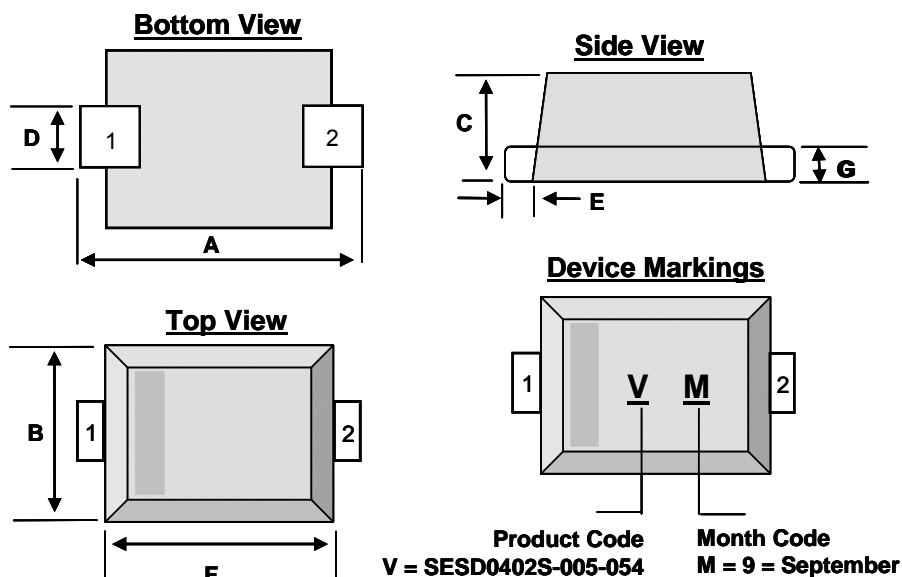
## ESD Protector Overvoltage Protection Device

**PENDING OBSOLESCENCE**

PRODUCT: SESD0402S-005-054

DOCUMENT: SCD27717  
REV LETTER: D  
REV DATE: APRIL 1, 2013  
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### DEVICE DIMENSIONS

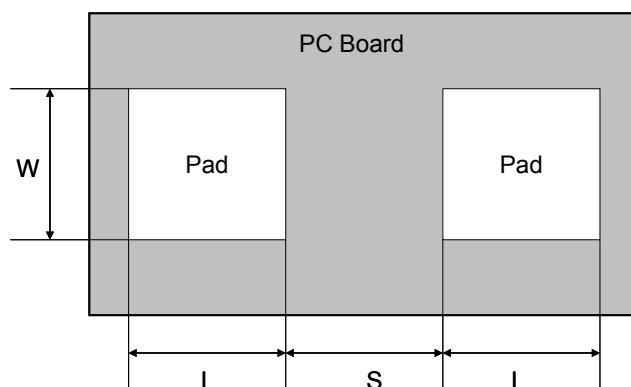


*Drawings Not To Scale*

	A	B	C	D	E	F	G
mm	1.00 ± 0.01	0.60 ± 0.01	0.37 ± 0.03	0.20 ± 0.05	0.10 ± 0.05	0.80 ± 0.05	0.12 ± 0.05
mils*	39.37 ± 0.40	23.62 ± 0.40	14.57 ± 1.20	7.87 ± 2.00	3.94 ± 2.00	31.50 ± 2.00	4.72 ± 2.00

\* Round off approximation

### RECOMMENDED LANDING PATTERN:



	L	S	W
mm	0.30 ± 0.01	0.60 ± 0.01	0.40 ± 0.01
mils*	11.8 ± 0.4	23.6 ± 0.4	15.7 ± 0.4

\* Round off approximation

## ESD Protector Overvoltage Protection Device

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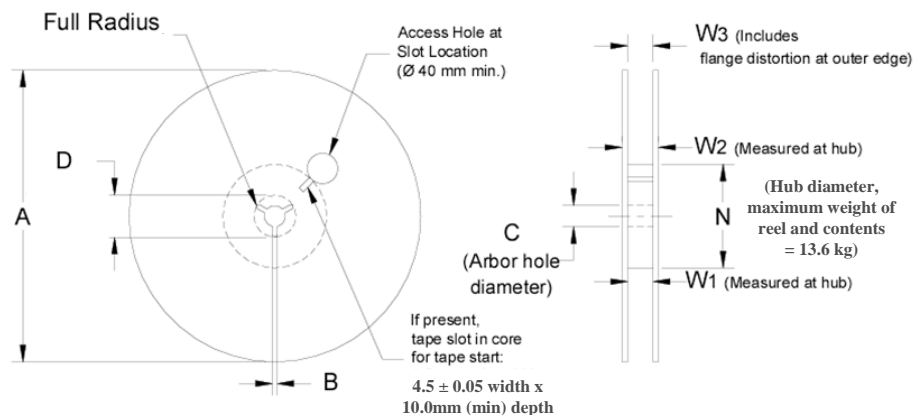
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### Packaging

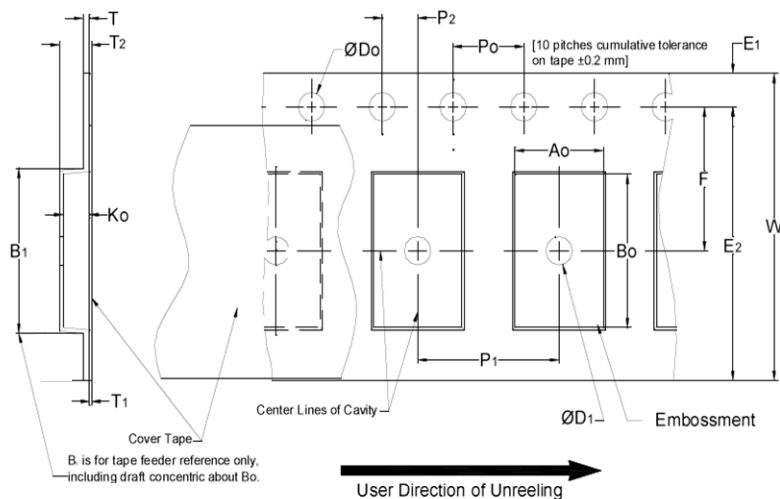
Device Packaging	Tape & Reel Quantity	Standard Box (MOQ)	Standard Box (POQ)
SOD-923 (0402)	8,000	16,000 (2 reels)	80,000 (10 reels)

### Reel Dimensions



EIA Size	A	B	C	D	N	W <sub>1</sub>	W <sub>2</sub>	W <sub>3</sub>
mm	178 (max)	1.60 (min)	13.0 ± 0.2	20.2 (min)	50.0 (min)	9.15 ± 0.75	14.4 (max)	10.9 (max)

### Embossed Carrier Tape Dimensions



- **Leader & Trailer:**
  - Leader tape: 400mm (min)
  - Trailer tape: 160mm (min)

Tape Dim	A <sub>0</sub>	B <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	E <sub>1</sub>	E <sub>2</sub>	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	W
mm	0.66 ± 0.05	1.06 ± 0.05	1.60 (max)	1.00 (min)	1.75 ± 0.10	5.85 (min)	3.50 ± 0.05	4.00 ± 0.10	2.00 ± 0.05	2.00 ± 0.10	8.00 ± 0.30
Thickness	B <sub>1</sub>	K <sub>0</sub>	T	T <sub>1</sub>	T <sub>2</sub>						
mm	1.06 ± 0.05	0.48 ± 0.05	0.60 (max)	0.10 (min)	1.05 ± 0.03						



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