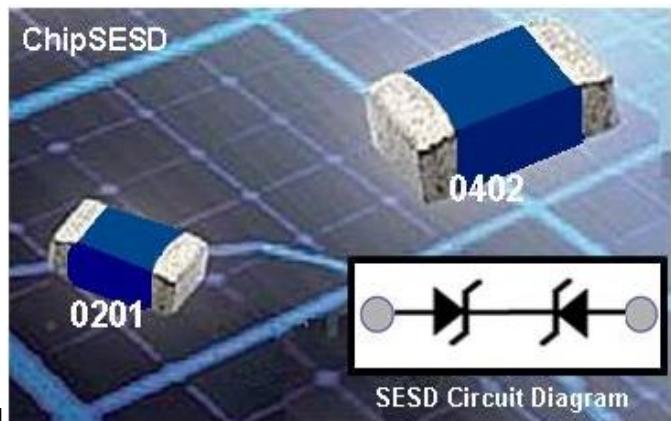


Specification Status: Released

BENEFITS

- Silicon ESD device in an EIA-0402 size rectangular passive component SMT package
- Standard PCB assembly and rework processes
- Bi-directional operation allows placement on PCB without orientation constraint
- Appropriate for ESD protection in space-constrained portable electronics and mobile handsets
- Suitable for +5V operating voltage applications
- 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



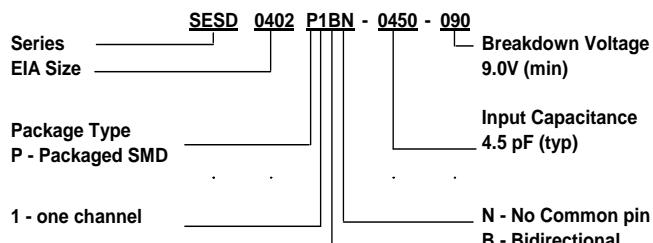
FEATURES

- Input capacitance – 4.5pF (typ)
- Low leakage current – 1.0µA (max)
- Low working reverse voltage – 6.0V (max)
- ESD maximum rating per IEC61000-4-2 standard
 - ± 10kV contact discharge⁽¹⁾
 - ± 16kV air discharge
- Capable of withstanding numerous ESD strikes
- Small package size: 1.10mm x 0.50mm (typ)
- Low package height: 0.50mm (typ)

APPLICATIONS

- Cellular phones and portable electronics
- Digital cameras and camcorders
- USB 2.0 and computer I/O ports
- Notebooks, set top boxes, motherboards
- Applications requiring high ESD performance

PART NUMBERING



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

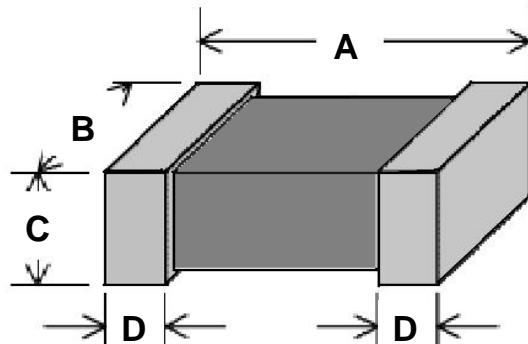
Terminal finish: 100% Matte Tin (Sn)

Device Characteristics @ T = 25°C	Min	Typ	Max	Unit
Input Capacitance @ V _r = 0V, f = 1MHz	--	4.5	5.5	pF
Working Reverse Voltage (peak) - V _{RWM}	--	--	6.0	V
Breakdown Voltage – V _{br} @ I _t = 1mA ⁽²⁾	9.0	11.0	--	V
Leakage current @ V _{RWM} = 6.0V	--	--	1.0	µA
Clamping Voltage @ I _{pp} =2A, t _p =(8/20µs)	--	±10.0	±12.0	V
ESD contact discharge per IEC61000-4-2 standard ⁽¹⁾	--	--	±10	kV
ESD air discharge per IEC61000-4-2 standard	--	--	±16	kV
Operating (T _{junction}) and Storage Temperature Range	-40 to +125			°C

⁽¹⁾ 10kV @ 50 ± pulses under IEC61000-4-2; 8kV @ 1,000 pulses under IEC61000-4-2

⁽²⁾ V_{br} is measured at test current I_t

DEVICE DIMENSIONS

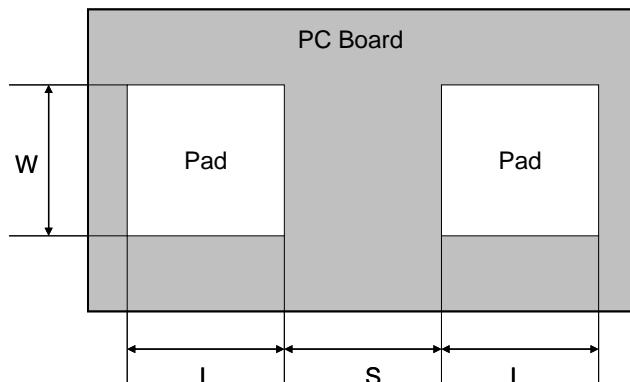


Drawings Not To Scale

Typical	A	B	C	D
mm	1.10 ± 0.1	0.50 ± 0.1	0.50 ± 0.1	0.25 ± 0.15
mils*	43.31 ± 4.0	19.69 ± 4.0	19.69 ± 4.0	9.84 ± 6.0

* Round off approximation

RECOMMENDED LANDING PATTERN:



Typical	L	S	W
mm	0.61 ± 0.05	0.52 ± 0.05	0.50 ± 0.05
mils*	24.0 ± 2.0	21.0 ± 2.0	20.0 ± 2.0

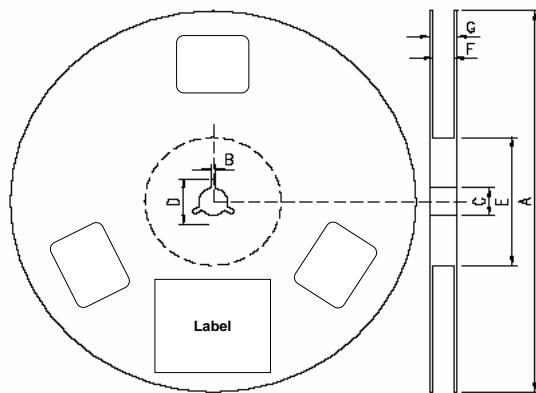
* Round off approximation

- Recommended solder thickness: 150 to 200 μm
- Recommended rework procedure:
 - Soldering iron tip temperature should be less than 350°C
 - Apply iron tip to solder for less than 5 seconds
 - Do not apply solder iron tip to the body of this product directly

PACKAGING

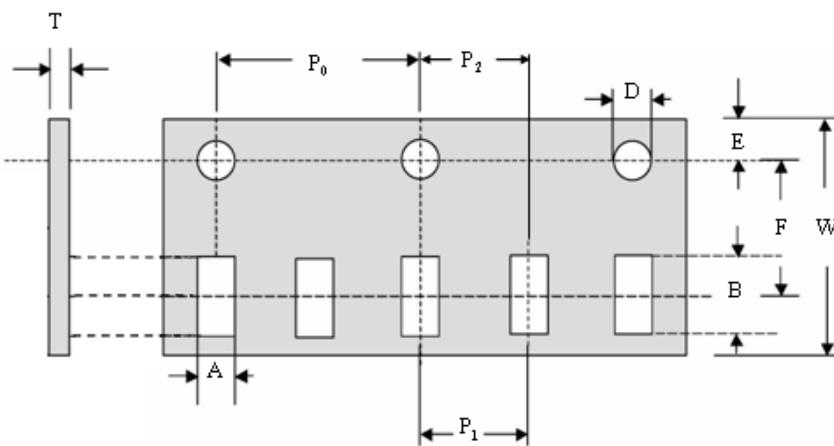
Packaging	Tape & Reel	Standard Box
SESD0402P1BN-0450-090	10,000	50,000

REEL DIMENSIONS



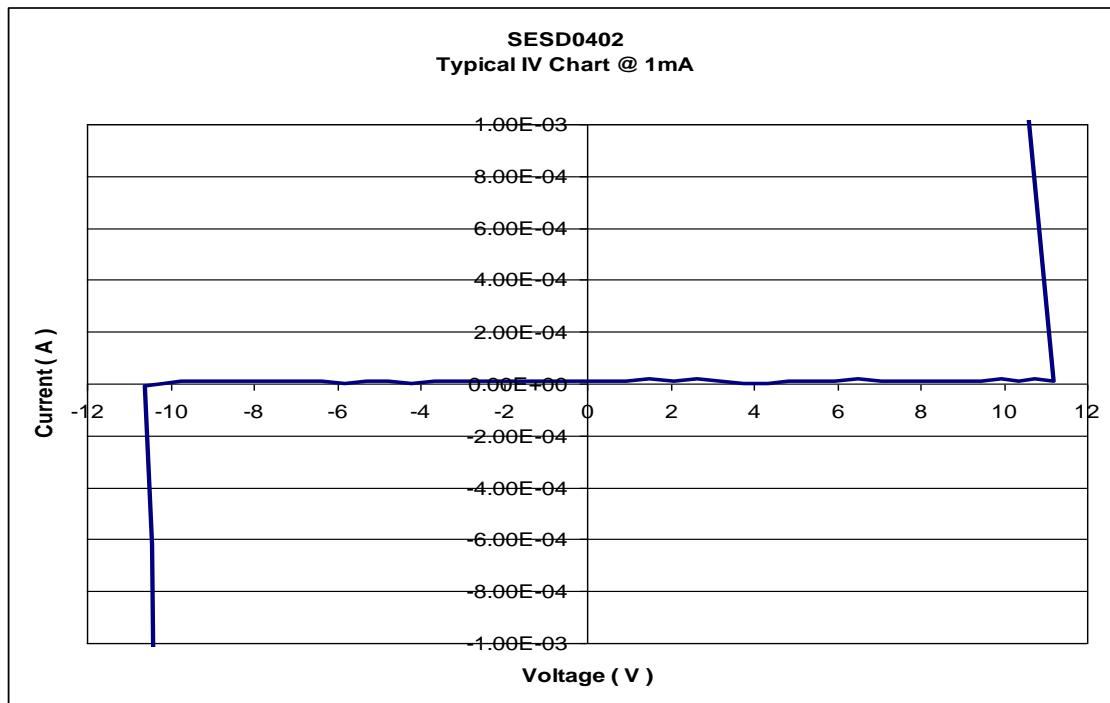
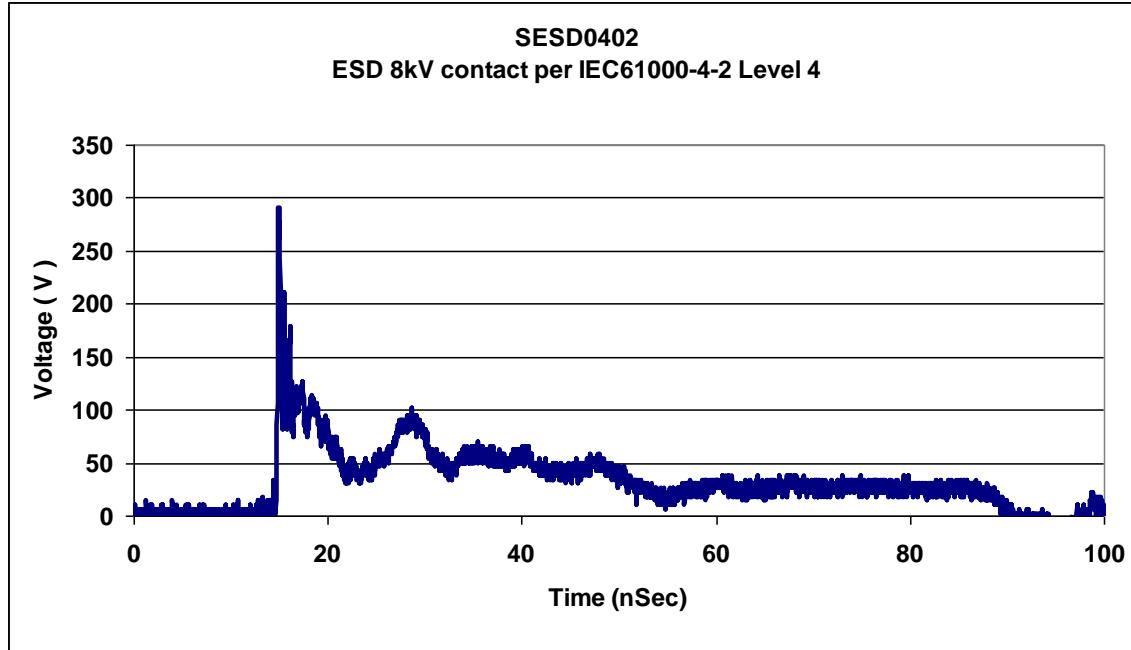
Dimension	A	B	C	D	E	F	G
(mm)	178.0 ± 2.0	2.0 ± 0.5	13.0 ± 0.5	21.0 ± 0.8	62.0 ± 1.5	9.0 ± 0.5	13.0 ± 1.0

CARRIER TAPE DIMENSIONS



Dimension	A	B	D	E	F	W
(mm)	0.58 ± 0.03	1.20 ± 0.03	1.55 ± 0.05	1.75 ± 0.05	3.5 ± 0.05	8.0 ± 0.1

Dimension	P ₀	P ₁	P ₂	T
(mm)	4.0 ± 0.1	2.0 ± 0.05	2.0 ± 0.05	0.60 ± 0.03

FIGURE 1: TYPICAL IV CURVE**FIGURE 2: ESD CLAMPING VOLTAGE – 8kV Contact**



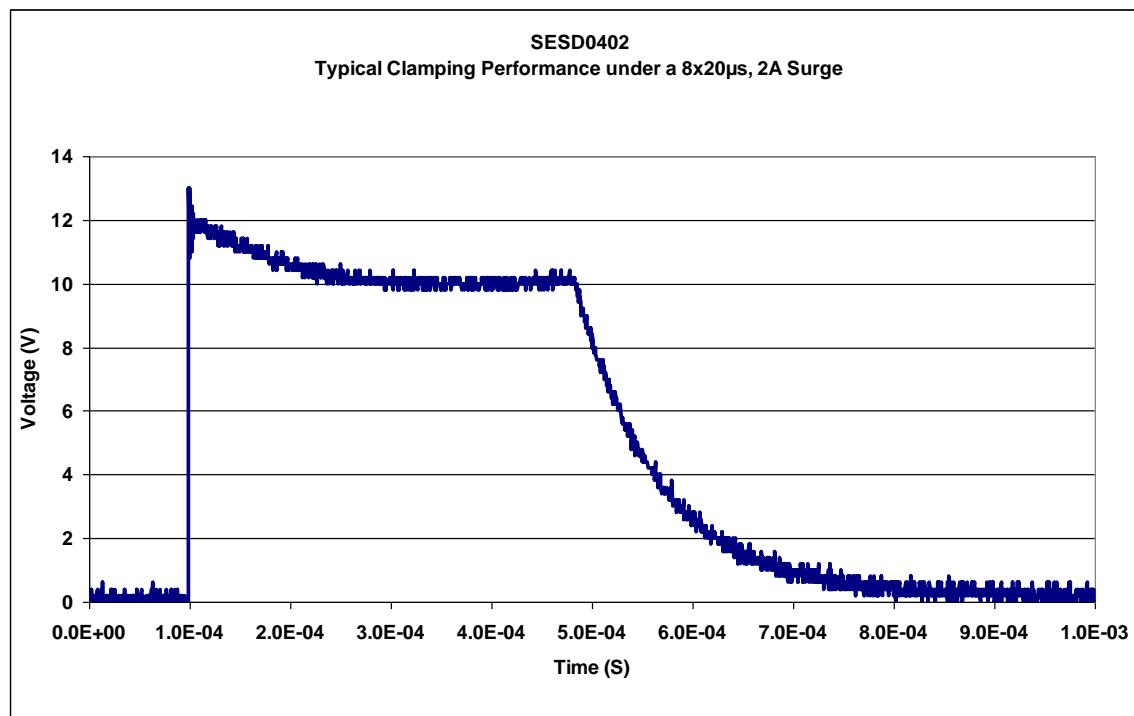
Expertise Applied | Answers Delivered

ChipSESD
Silicon ESD Protector
Overvoltage Protection Device
Circuit Protection Products

PRODUCT: SESD0402P1BN-0450-090

DOCUMENT: SCD27764
REV LETTER: B
REV DATE: JULY 26, 2016
PAGE NO.: 5 OF 5

FIGURE 3: ESD CLAMPING VOLTAGE – 8x20μs, 2A Surge



Littelfuse products are not designed for, and shall not be used for, any purpose (including, without limitation, automotive, military, aerospace, medical, life-saving, life-sustaining or nuclear facility applications, devices intended for surgical implant into the body, or any other application in which the failure or lack of desired operation of the product may result in personal injury, death, or property damage) other than those expressly set forth in applicable Littelfuse product documentation. Warranties granted by Littelfuse shall be deemed void for products used for any purpose not expressly set forth in applicable Littelfuse documentation. Littelfuse shall not be liable for any claims or damages arising out of products used in applications not expressly intended by Littelfuse as set forth in applicable Littelfuse documentation. The sale and use of Littelfuse products is subject to Littelfuse Terms and Conditions of Sale, unless otherwise agreed by Littelfuse.