

Specification Status: Released

BENEFITS

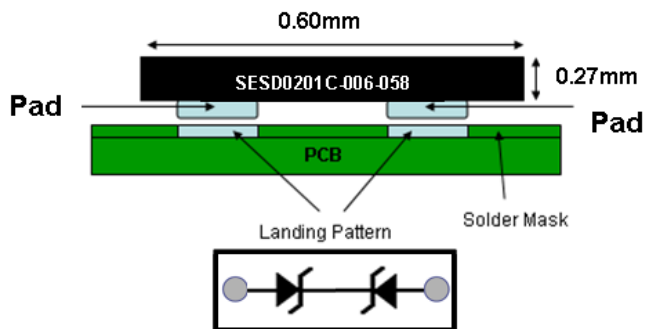
- Small-size bi-directional ESD protection diodes
- Appropriate for ESD protection in space-constrained portable electronics and mobile handsets
- Bi-directional operation allows placement on PCB without orientation constraint
- Helps protect electronic circuits against damage from Electrostatic Discharge (ESD) events
- Assist equipment to pass IEC61000-4-2, level 4 testing
- RoHS compliant and Halogen Free

FEATURES

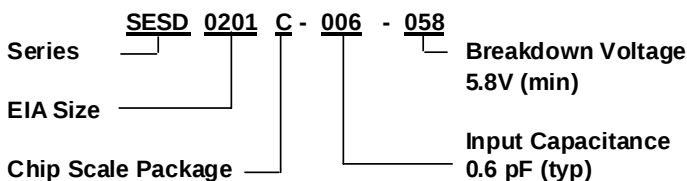
- Ultra-low Input capacitance – 0.6pF (typ)
- Low leakage current – 1.0μA (max)
- Low breakdown voltage – 5.8V (min)
- ESD maximum rating per IEC61000-4-2 standard
 - o ± 8kV contact discharge
 - o ± 15kV air discharge
- Capable of withstanding numerous ESD strikes
- Small package size: 0.60mm x 0.30mm
- Low package height: 0.27mm

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
 - o Less than 0.8dB insertion loss up to 5.0GHz
- Applications requiring ESD performance in an ultra-small package



PART NUMBERING



MATERIALS INFORMATION

RoHS Compliant

ELV Compliant

Halogen Free *

Directive 2000/53/EC
Compliant

Directive 2002/95/EC
Compliant

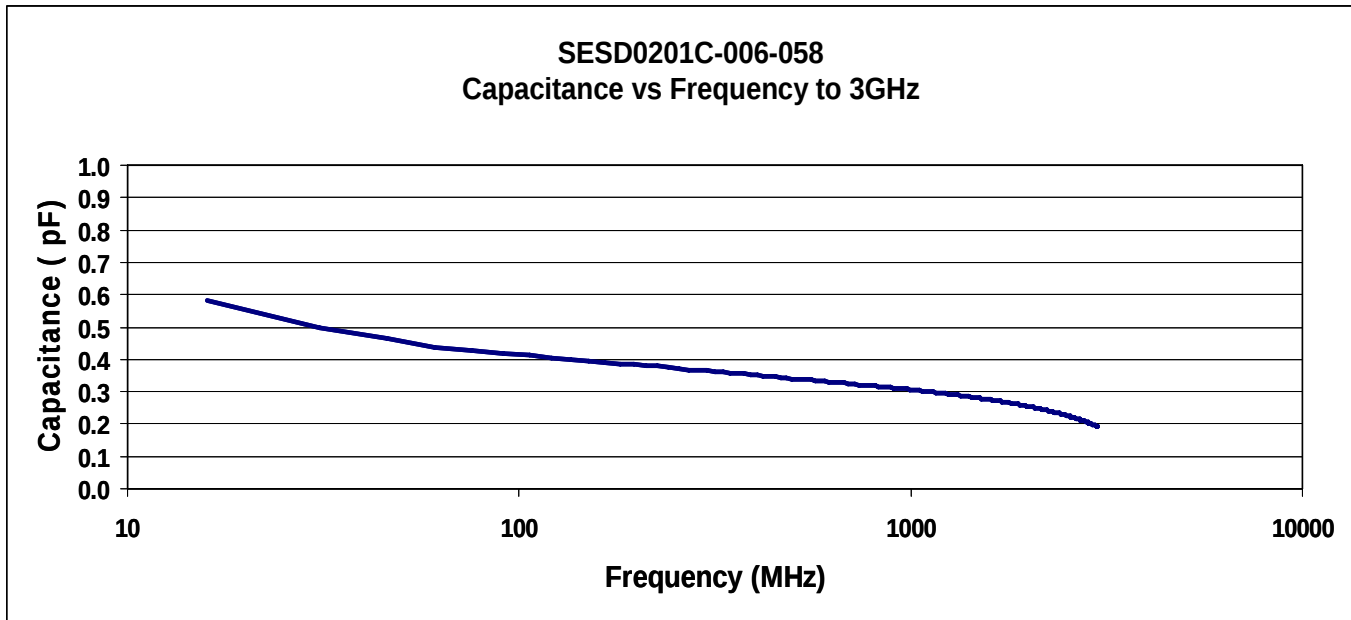
HF

* Halogen Free refers to: Br≤900ppm, Cl≤900ppm, Br+Cl≤1500ppm

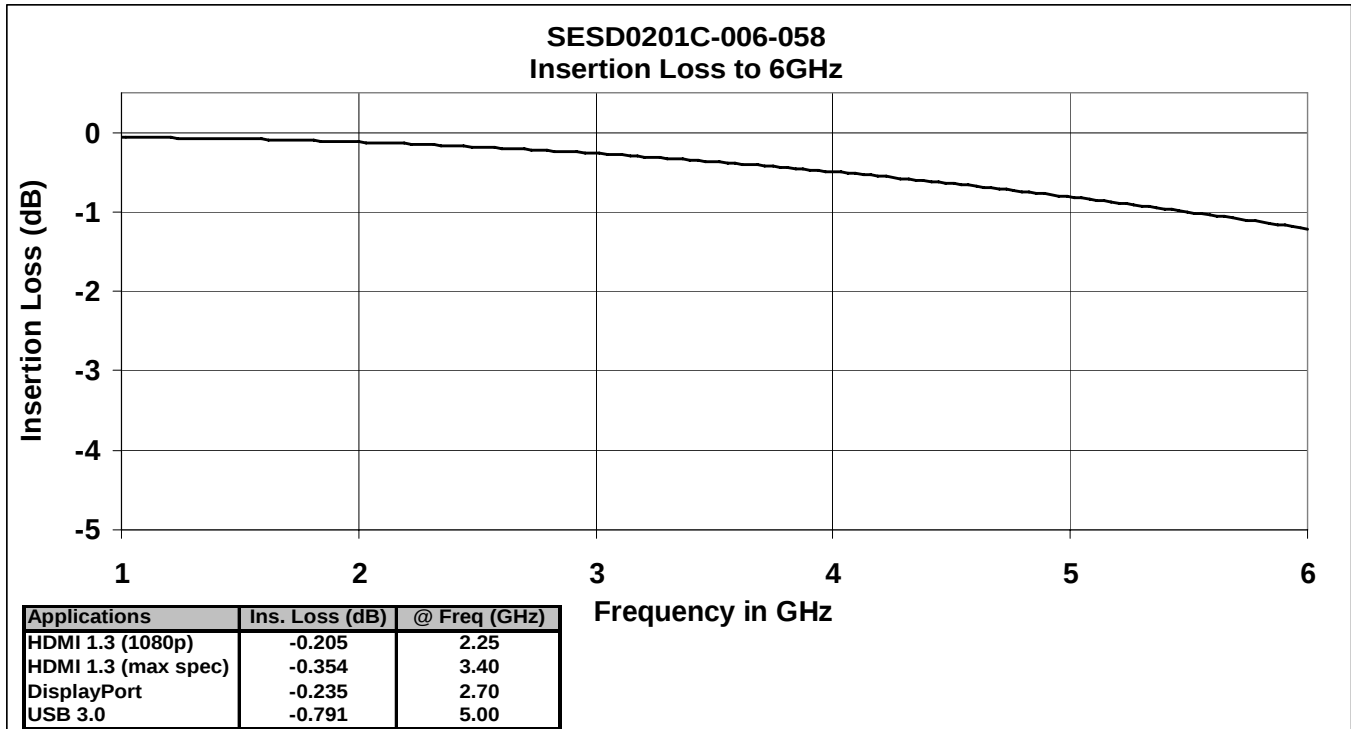
Device Characteristics @ T = 25°C	Min	Typ	Max	Unit
Input Capacitance @ $V_r = 0V$, $f = 1MHz$	--	0.6	0.9	pF
Working Reverse Voltage (peak) - V_{wrv}	--	--	5.0	V
Breakdown Voltage - V_{br} @ $I_t = 1mA^{(1)}$	5.8	--	--	V
Leakage current @ $V_{wrv} = 5.0V$	--	--	1.0	uA
Total Power Dissipation - P_d (on 30mm x 30mm FR-4)	--	--	250	mW
ESD contact discharge per IEC61000-4-2 standard	--	--	±8	kV
ESD air discharge per IEC61000-4-2 standard	--	--	±15	kV
Operating ($T_{junction}$) and Storage Temperature Range	-40 to +125			°C

⁽¹⁾ V_{br} is measured at test current I_t

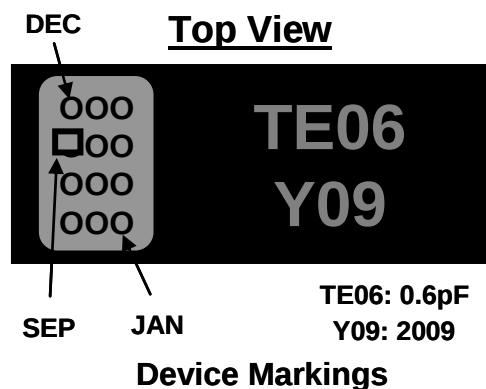
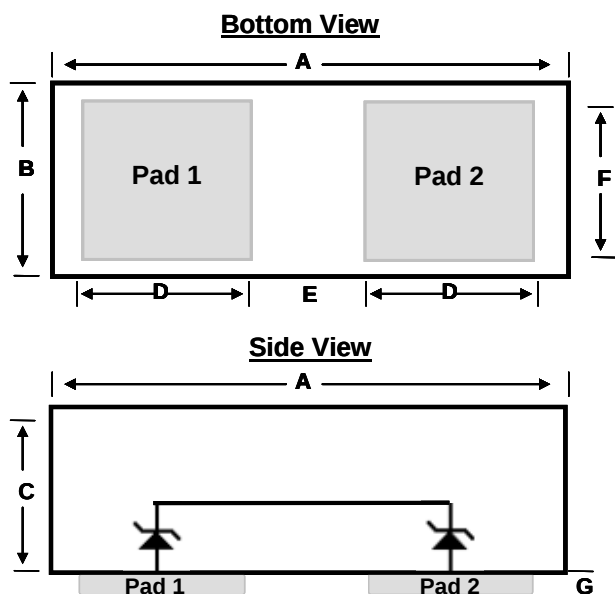
LINE CAPACITANCE vs FREQUENCY



INSERTION LOSS



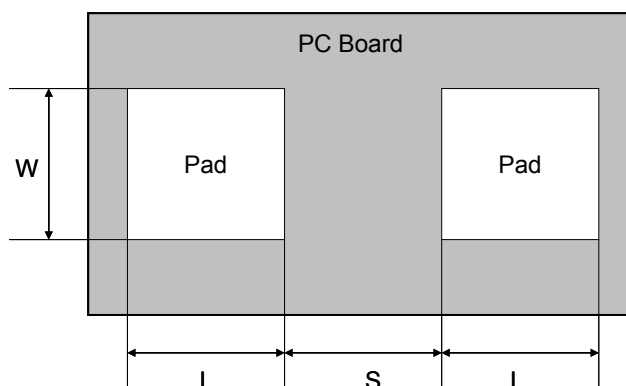
DEVICE DIMENSIONS



Drawings Not To Scale

	A	B	C	D	E	F	G
mm	0.60 ± 0.03	0.30 ± 0.03	0.27 ± 0.03	0.15 ± 0.03	0.25 ± 0.03	0.25 ± 0.03	0.005 (max)
mils*	23.62 ± 1.20	11.81 ± 1.20	10.63 ± 1.20	5.91 ± 1.20	9.84 ± 1.20	9.84 ± 1.20	0.197 (max)

RECOMMENDED LANDING PATTERN:



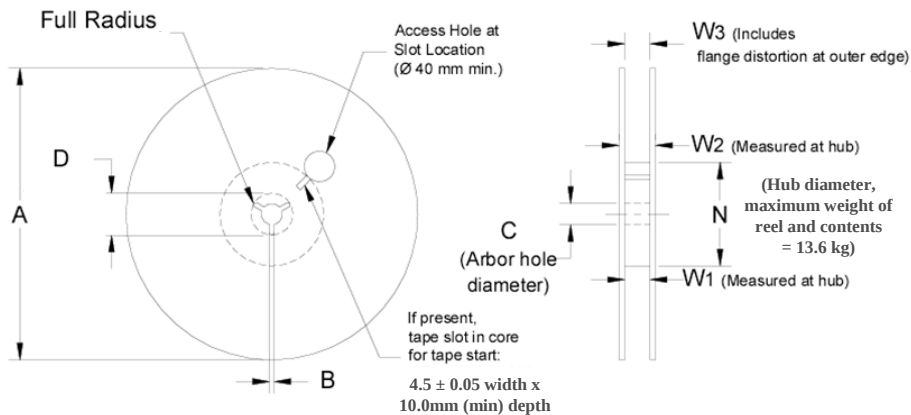
	L	S	W
mm	0.28 ± 0.01	0.19 ± 0.01	0.30 ± 0.01
mils*	11.0 ± 0.4	7.5 ± 0.4	11.8 ± 0.4

* Round off approximation

Packaging

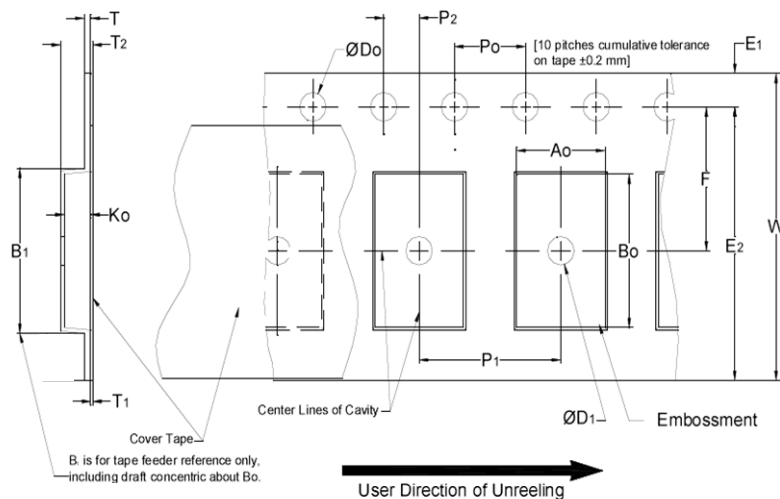
Device Packaging	Tape & Reel Quantity	Standard Box (MOQ)	Standard Box (POQ)
0201 CSP	5,000	10,000 (2 reels)	50,000 (10 reels)

Reel Dimensions



EIA Size	A	B	C	D	N	W ₁	W ₂	W ₃
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:**
 - o Leader tape: 400mm (min)
 - o Trailer tape: 160mm (min)

Tape Dim	A ₀	B ₀	D ₀	D ₁	E ₁	E ₂	F	P ₀	P ₁	P ₂	W
mm	0.37 ± 0.03	0.67 ± 0.03	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 ₁	K ₀	T	T ₁	T ₂
mm	0.67 ± 0.03	0.35 ± 0.03	0.60 (max)	0.10 (min)	1.05 ± 0.03

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