

Four-Channel ESD Suppressor PolySurg™ 42510ESDA-TR1



2510

ESDA-

<u>TR1</u>



Description

The Cooper Bussmann[®] PolySurg[™] 42510ESDA four-channel array ESD suppressor protects sensitive electronic circuits from the threat of electrostatic discharge (ESD) without distorting data signals. This protection is a result of its ultra-low capacitance (0.1pF typical) that is well suited for HDMI ESD protection applications.

Features

- Halogen free, lead free and RoHS compliant for global applications
- Ultra-low capacitance (0.1pF typical) ideally suited for protecting high speed data applications
- Provides ESD protection with fast response time (<1ns) allowing equipment to pass the IEC 61000-4-2 Level 4 test
- Four (4) channel array
- Zero signal distortion
- Low leakage current (<0.01µA typical)

Electrical Specifications				
Characteristic	Value/Range			
Rated Voltage (max)	12V			
Leakage Current (max @ 12Vdc)	0.01µA			
Trigger Voltage (Vt)	300V Typical			
Clamping Voltage (V _C)	30V Typical			
Capacitance (Cp) @1MHz*	0.1pF Typical			
Response Time	<1ns			
ESD Voltage Capability, IEC 61000-4-2 Contact Discharge Mode	8kV			
ESD Voltage Capability, IEC 61000-4-2 Air Discharge Mode	15kV			
ESD Withstand Pulses	100 Times Minimal			

 * Note, Capacitance measured with $1V_{TMS}$

Applications

Applied to a high speed signal interface, the 42510ESDA protects:

- Digital video equipment
- Mobile phone
- GPS Antenna
- Bluetooth communication equipment antenna circuit
- IEEE-1394
- DVIHDMI

Part Numbering System:

- Four channel SIN 1 chip —
- 2.5x1.0mm footprint size
- ESDA ESD Suppressor -
- Tape and reel packaging code -

Packaging

• Supplied in tape and reel packaging, 5000 parts per seven inch (178mm) reel per EIA Standard 481-1

Ordering Information

Catalog Number	Description			
42510ESDA-TR1	5000 suppressors in paper tape on a 7 inch (178mm) reel			

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Environmental Specifications					
Characteristic	Value				
Load Humidity	+85°C/90%RH with rated voltage for 1000 hrs				
Thermal Shock	-40°C to +85°C, 30 minute cycle, 5 cycles				
Moisture Resistance Test	J-STD-020 Standard: Level 2				
	(1 year floor life under 30°C/65%RH conditions				
Operating Temperature Range	-40°C to +85°C (-40°F to 185°F)				
Storage Temperature Range	-55°C to +125°C (-67°F to +257°F)				





Soldering Recommendations

- Compatible with lead and lead-free solder reflow processes
- · Hand soldering soldering tip should not directly touch part -
- 280°C max for 3 sec. maxPeak reflow temperatures and durations:
- IR Reflow = 260° C max for 20 sec. max
- Wave Solder = 260° C max for 10 sec. max

Recommended IR Reflow Profile



Design Considerations

- Follow the soldering recommendations to avoid deforming product
- Do not use high temperature, high humidity or corrosive atmospheres (sulfide and chloride gas) that could damage the solderability
- Moisture Sensitivity Level (MSL) according to J-STD-020 standard: Level 2 (Floor Life 1 year under <30°C/65%RH conditions)
- Solderability requirement according to IPC/JEDEC J-STD-002C, Test D, Test B1
- Use Sn/Ag/Cu (96.5/3.0/0.5) or equivalent solder and activated flux #5 or equivalent.

Recommended Pad Layout - mm



Circuit Schematic











В	C	D	E	L	Т	W
0.2	0.3	0.2	0.5	2.5	0.5	1.0
±0.1	±0.05	±0.05	±0.05	±0.1	±0.1	±0.1

Tape and Reel Packaging Specifications - mm



А	В	C	D	E	F	L	W
8.0	0 3.50	1.75	2.00	4.00	1.50	2.90	1.40
±0.3	30 ±0.05	±0.10	±0.05	±0.10	±0.10	±0.20	±0.20

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