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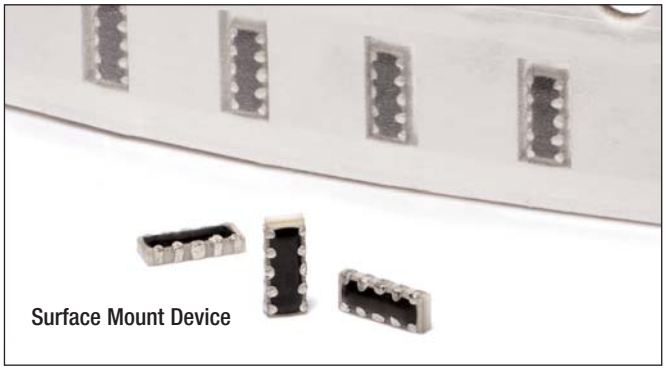
Four-Channel ESD Suppressor
PolySurg™ 42510ESDA-TR1



Surface Mount Device

Description

The Eaton 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)

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
- DVI
- HDMI

Part Numbering System: 4 2510 ESDA- TR1

- 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

Electrical Specifications

Characteristic	Value/Range
Rated Voltage (max)	12V
Leakage Current (max @ 12Vdc)	0.01µA
Trigger Voltage (V_t)	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 $1V_{rms}$

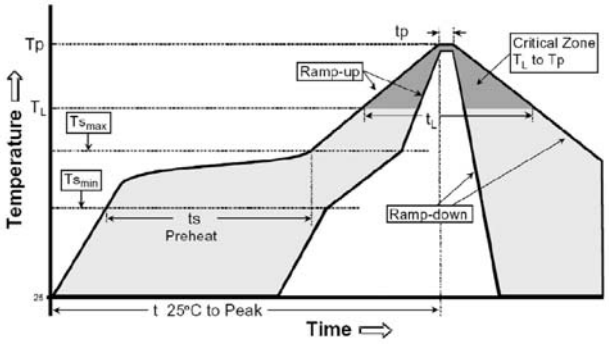
Environmental Specifications

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. max
- Peak reflow temperatures and durations:
  - IR Reflow = 260°C max for 20 sec. max
  - Wave Solder = 260°C max for 10 sec. max

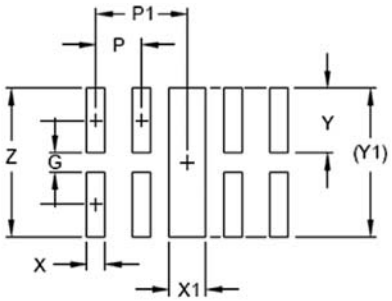
Recommended IR Reflow Profile



Design Considerations

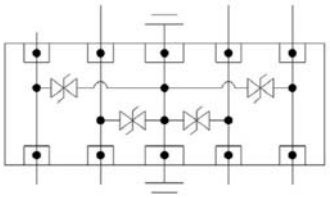
- Follow the soldering recommendations to avoid deforming product
- Do not use high temperature, high humidity or corrosive atmospheres (sulfide and chloride gas) that could damage the solderability
- Moisture Sensitivity Level (MSL) according to J-STD-020 standard: Level 2 (Floor Life 1 year under <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

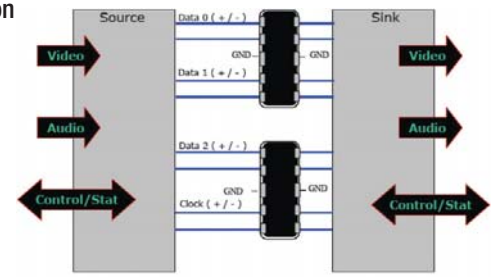


G	P	P_1	X	X_1	Y	Y_1	Z
0.2	0.5	1	0.2	0.3	0.6	1.4	1.4
Note: Print solder 0.01~0.015mm thick.							

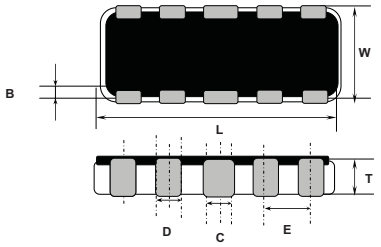
Circuit Schematic



HDMI Application

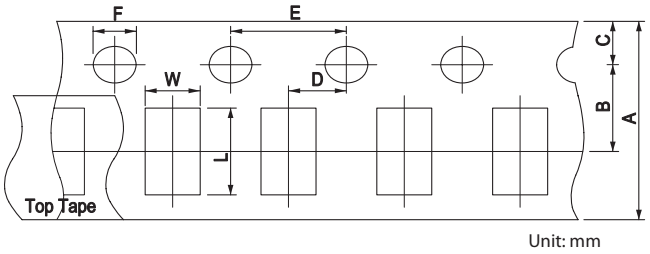


Dimensions - mm



B	C	D	E	L	T	W
0.2 ±0.1	0.3 ±0.05	0.2 ±0.05	0.5 ±0.05	2.5 ±0.1	0.5 ±0.1	1.0 ±0.1

Tape and Reel Packaging Specifications - mm



Unit: mm

A	B	C	D	E	F	L	W
8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	2.00 ±0.05	4.00 ±0.10	1.50 ±0.10	2.90 ±0.20	1.40 ±0.20