

ESD Protection for Highly Sensitive Electronic Circuits

Introducing the TVSA Series of Low Capacitance Transient Voltage Suppressors for ESD Protection in Discrete 0201 and 0402 SMD Packages

- **Low Clamping Voltages**

The TVSA Series utilizes solid state silicon avalanche diode technology to provide superior protection against electrostatic discharge (ESD) for very sensitive ICs.

- **Bi-Directional**

With a schematic equivalent to two avalanche diodes opposing one another in series with a capacitor in parallel, the bi-directional TVSA Series protects against unwanted positive and negative voltage spikes.

- **Space Savings**

The discrete 0201 and 0402 SMD packages save precious PCB space while giving designers flexibility in device placement for superior ESD protection schemes.

- **Low Leakage Currents**

Reduce power consumption with low leakage currents.

- **ESD Protection**

The TVSA provides ESD protection as specified by the IEC 61000-4-2 Level 4 test, due to its quick response time of under 1ns.

- **Environmentally Friendly**

Cooper Bussmann offers ESD suppressors that are RoHS compliant, lead free and halogen free, making them a great choice for any global application.



TVSA Specifications*



Catalog Symbols: TVSA02V05C004 (0201 size)
TVSA04V05C006 (0402 size)

Technology:

- Transient voltage suppression via solid-state silicon-avalanche diode technology

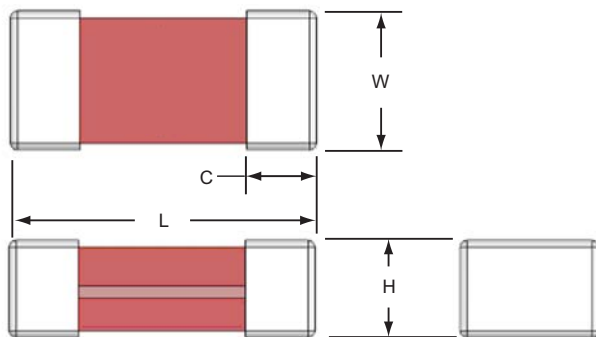
Electrical Characteristics:

- Reverse Stand-off Voltage: 5Vdc
- Reverse Breakdown Voltage: 10Vdc
- Capacitance: 4pF (0201)
6pF (0402)

ESD Capability:

- IEC61000-4-2 Direct Discharge: 8kV
- IEC61000-4-2 Air Discharge: 15kV

Dimensions - mm:



Size	L	W	H	C
0201	0.60±0.05	0.30±0.05	0.30±0.05	0.20±0.10
0402	1.00±0.15	0.50±0.10	0.50±0.10	0.25±0.15

Environmental Specifications	
Characteristic	Value
Bias Humidity:	+40°C, 90% RH for 1000 hours
Thermal Shock:	-40°C to +85°C, 30 minute cycle, 5 cycles
Operating Temperature Range:	-40°C to +85°C
Storage Temperature Range:	-40°C to +85°C



Typical Applications:

- Computers and peripherals
- Digital still cameras
- Cell phones
- Medical equipment
- DVD Players
- MP3/Multimedia players
- LCD TV / Monitor
- External storage
- DSL Modems
- Set top boxes
- Docking systems

Design Considerations:

The location in the circuit for the TVSA Series has to be carefully determined. For better performance, the device should be placed as close to the signal input as possible and ahead of any other component. Due to the high current associated with an ESD event, it is recommended to use a "0-stub" pad design (pad directly on the signal/data line and second pad directly on common ground).

* For more details, see Data Sheet 4072 online at www.cooperbussmann.com/elx

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