

## Transient Voltage Suppressors Array for ESD Protection

Low Capacitance

### ESDXXV14T-2C

#### Description

The ESDXXV14T-2C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

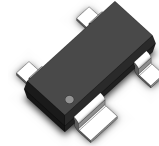
#### Feature

- u 400 Watts Peak Pulse Power per Line (tp=8/20μs)
- u Protects One Bidirectional I/O Lines
- u Low Clamping Voltage
- u Working voltages : 5V, 8V, 12V, 15V, 18V, 24V and 36V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact) : 5V ~ 15V
- u IEC61000-4-2 (ESD) ±25kV (air), ±15kV (contact) : 18V~36V
- u IEC61000-4-4 (EFT) 40A (5/50ns)

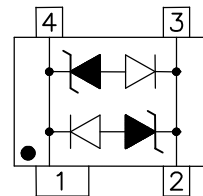
#### Applications

- u Audio/Video Inputs
- u Wireless Network Systems
- u Ethernet - 10/100/100 Base T
- u WAN/LAN Equipment
- u Multi-Protocol Serial Transceivers
- u ADSL Interfaces

#### SOT-143



#### Functional Diagram



#### Mechanical Data

- u JEDEC SOT-143 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 10.0 Milligrams (Approximate)
- u Quantity Per Reel : 3,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

#### Mechanical Characteristics

| Symbol           | Parameter                             | Value       | Units |
|------------------|---------------------------------------|-------------|-------|
| P <sub>PP</sub>  | Peak Pulse Power (tp=8/20μs waveform) | 400         | W     |
| T <sub>L</sub>   | Lead Soldering Temperature            | 260 (10sec) | °C    |
| T <sub>STG</sub> | Storage Temperature Range             | -55 to +150 | °C    |
| T <sub>J</sub>   | Operating Temperature Range           | -55 to +150 | °C    |
|                  | IEC61000-4-4 (EFT)                    | 40          | A     |

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Electrical Characteristics (@ 25 °C Unless Otherwise Specified )

| Part Number  | Device Marking | V <sub>RWM</sub><br>(V)<br>(Max.) | V <sub>B</sub><br>(V)<br>(Min.) | I <sub>T</sub><br>(mA) | V <sub>C</sub><br>@1A<br>(Max.) | V <sub>C</sub> |      | I <sub>R</sub><br>(μA)<br>(Max.) | C<br>(pF)<br>(Typ.) |
|--------------|----------------|-----------------------------------|---------------------------------|------------------------|---------------------------------|----------------|------|----------------------------------|---------------------|
|              |                |                                   |                                 |                        |                                 | (Max.)         | (@A) |                                  |                     |
| ESD05V14T-2C | DT5            | 5                                 | 6                               | 1                      | 9.8                             | 20             | 25   | 1                                | 3                   |
| ESD08V14T-2C | DT8            | 8                                 | 8.5                             | 1                      | 13.4                            | 23             | 23   | 1                                | 3                   |
| ESD12V14T-2C | DTA            | 12                                | 13.3                            | 1                      | 29.0                            | 30             | 13   | 1                                | 3                   |
| ESD15V14T-2C | DTB            | 15                                | 16.7                            | 1                      | 25.0                            | 33             | 10   | 1                                | 3                   |
|              | DTC            | 18                                | 19.5                            | 1                      | 32.0                            | 40             | 9    | 1                                | 3                   |
| ESD24V14T-2C | DTD            | 24                                | 26.7                            | 1                      | 40.0                            | 55             | 6    | 1                                | 3                   |
| ESD36V14T-2C | DTE            | 36                                | 40.0                            | 1                      | 55.0                            | 75             | 4    | 1                                | 3                   |

## Characteristic Curves

Fig1. 8/20μs Pulse Waveform

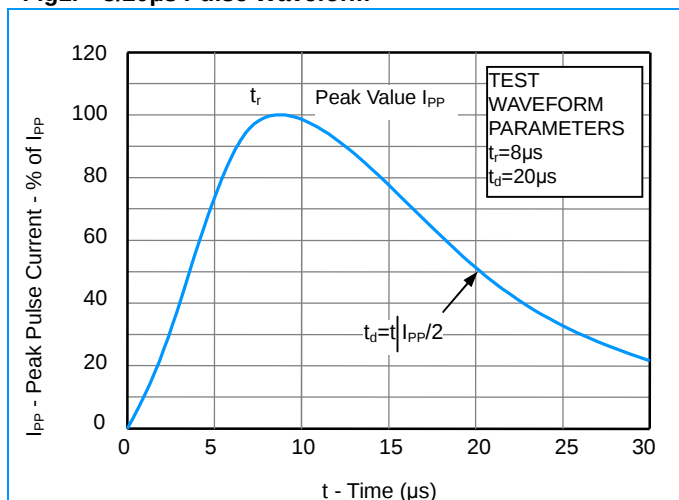


Fig3. ESD Clamping (+8KV Contac per IEC61000-4-2)

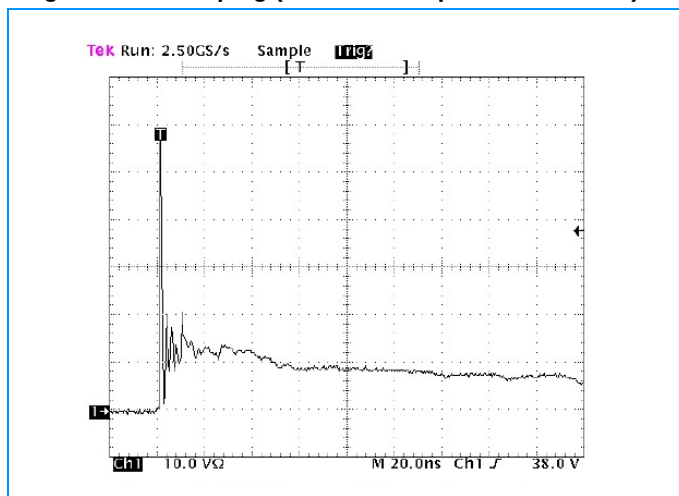


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

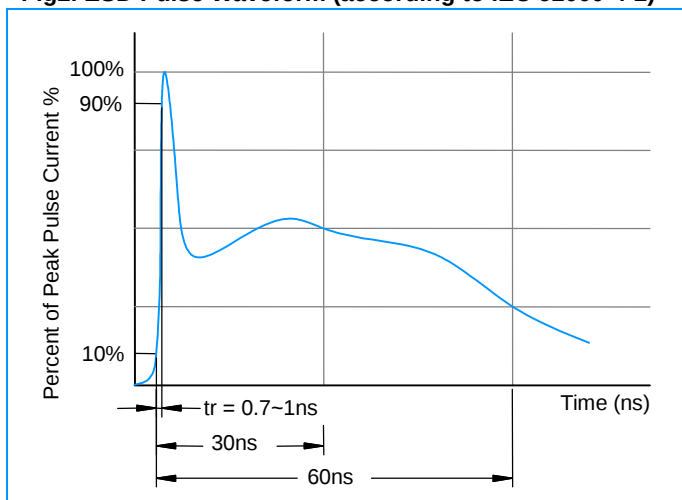
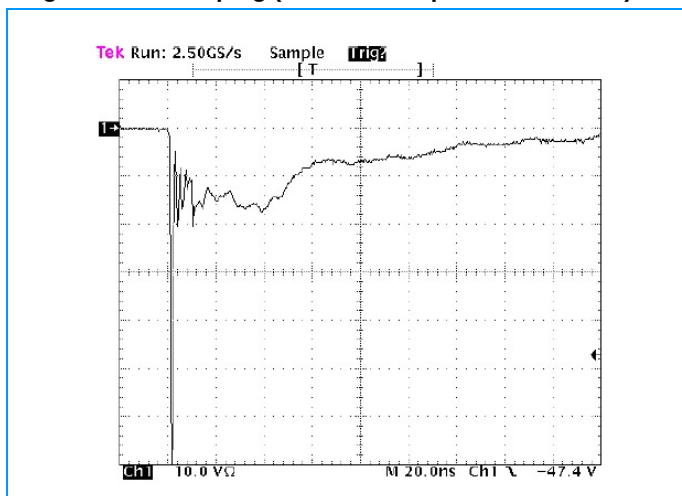


Fig4. ESD Clamping (-8KV Contac per IEC61000-4-2)

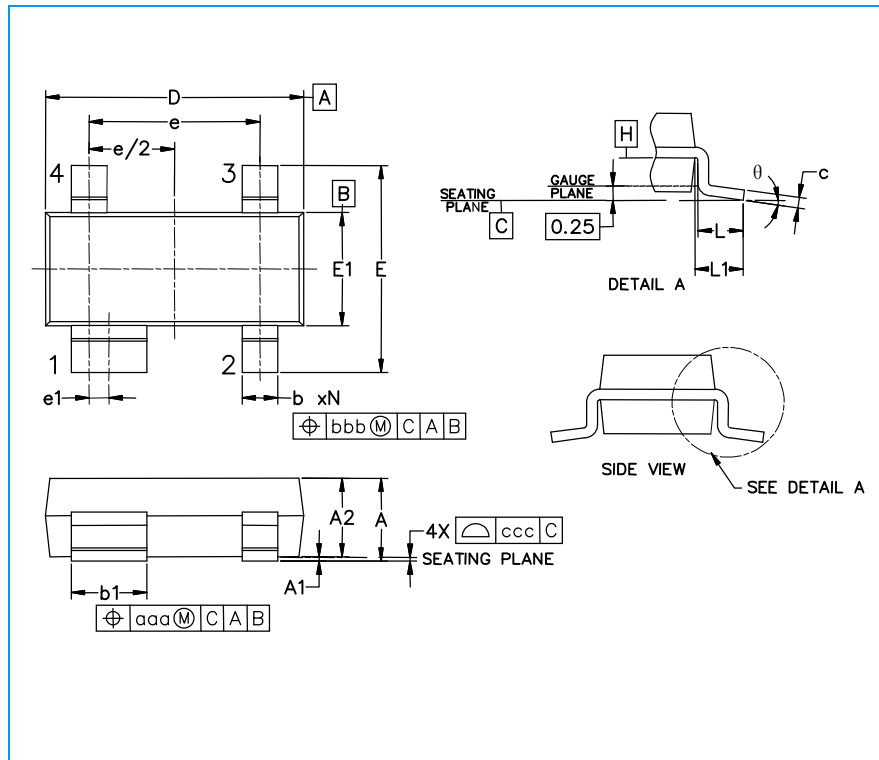


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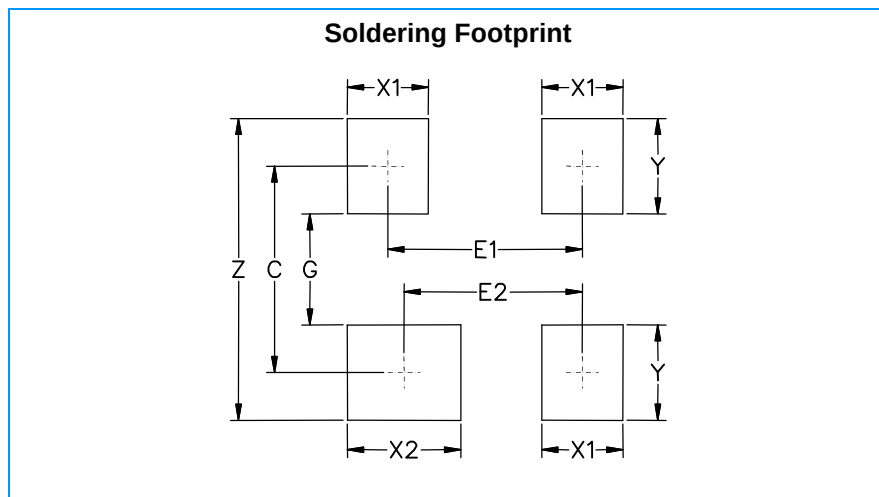
## ESDXXV14T-2C

### SOT-143 Package Outline & Dimensions



| Symbol | Inches  |       |       | Millimeters |      |      |
|--------|---------|-------|-------|-------------|------|------|
|        | Min.    | Nom.  | Max.  | Min.        | Nom. | Max. |
| A      | 0.031   | -     | 0.048 | 0.80        | -    | 1.22 |
| A1     | 0.000   | -     | 0.008 | 0.013       | -    | 0.15 |
| A2     | 0.020   | 0.035 | 0.042 | 0.75        | 0.90 | 1.07 |
| b      | 0.011   | -     | 0.020 | 0.30        | -    | 0.51 |
| b1     | 0.029   | -     | 0.037 | 0.76        | -    | 0.94 |
| c      | 0.003   | -     | 0.008 | 0.08        | -    | 0.20 |
| D      | 0.110   | 0.114 | 0.120 | 2.80        | 2.90 | 3.04 |
| E      | 0.082   | 0.093 | 0.104 | 2.10        | 2.37 | 2.64 |
| E1     | 0.047   | 0.051 | 0.055 | 1.20        | 1.30 | 1.40 |
| e      | 0.075   |       |       | 1.92 BSC    |      |      |
| e1     | 0.008   |       |       | 0.20 BSC    |      |      |
| L      | 0.015   | 0.020 | 0.024 | 0.40        | 0.50 | 0.60 |
| L1     | (0.021) |       |       | (0.54)      |      |      |
| N      | 4       |       |       | 4           |      |      |
| θ      | 0°      | -     | 8°    | 0°          | -    | 8°   |
| aaa    | 0.006   |       |       | 0.15        |      |      |
| bbb    | 0.008   |       |       | 0.20        |      |      |
| ccc    | 0.004   |       |       | 0.10        |      |      |

### Soldering Footprint



| Symbol | Inches  | Millimeters |
|--------|---------|-------------|
| C      | (0.087) | (2.20)      |
| E1     | 0.076   | 1.92        |
| E2     | 0.068   | 1.72        |
| G      | 0.031   | 0.80        |
| X1     | 0.039   | 1.00        |
| X2     | 0.047   | 1.20        |
| Y      | 0.055   | 1.40        |
| Z      | 0.141   | 3.60        |