

# ESDXXV23TS-2C Series

ROHS

## Transient Voltage Suppressors for ESD Protection

### Description

The ESDXXV23TS-2C series is designed to protect voltage sensitive components from ESD and transient voltage events. This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101, it is suitable for use in automotive applications. 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

- ◆ Moisture Sensitivity Level (MSL -1)
- ◆ AEC-Q101 qualified
- ◆ 320~450 Watts Peak Pulse Power per Line (tp=8/20μs)
- ◆ Protects two bidirectional I/O lines
- ◆ Low Clamping Voltage
- ◆ Working Voltages: 3.3V~36V
- ◆ Low leakage current
- ◆ IEC61000-4-4 (EFT): 40A (5/50ns)
- ◆ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact) : 3.3V ~ 15V
- ◆ IEC61000-4-2 (ESD) ±25kV (air), ±20kV (contact) : 18V ~ 36V

### Applications

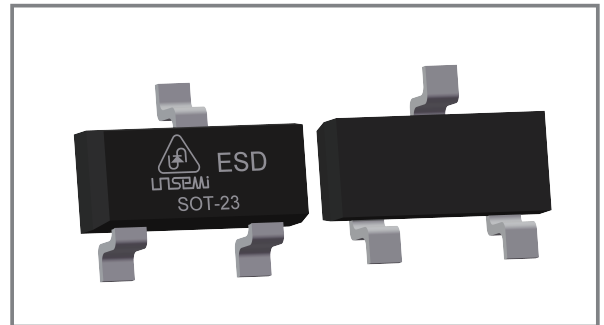
- ◆ RS-232, RS-422 & RS-423 Data Lines
- ◆ Audio/Video Inputs
- ◆ Wireless Network Systems
- ◆ Digit Video Interface (DVI)
- ◆ Medical Sensors
- ◆ Notebook Computers

### Mechanical Characteristics

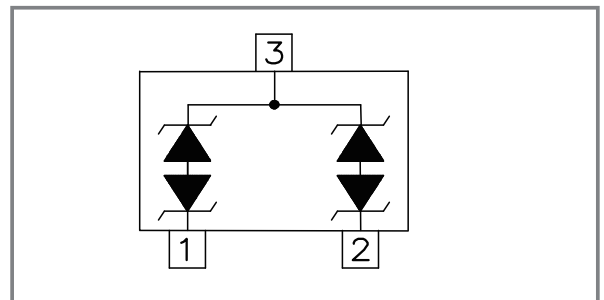
| Parameter                             | Symbol           | Value         | Units |
|---------------------------------------|------------------|---------------|-------|
| Peak Pulse Power (Tp=8/20μs waveform) | P <sub>PP</sub>  | 320~450       | Watts |
| Lead Soldering Temperature            | T <sub>L</sub>   | 260 (10 sec.) | °C    |
| Storage Temperature Range             | T <sub>STG</sub> | -55 to +150   | °C    |
| Operating Junction Temperature Range  | T <sub>J</sub>   | -55 to +150   | °C    |



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### Functional Diagram



### Mechanical Data

- ◆ JEDEC SOT-23 Package
- ◆ Molding Compound Flammability Rating : UL 94V-0
- ◆ Weight 8.0 Milligrams (Approximate)
- ◆ Lead Finish : Lead Free

### Electrical Characteristics @ 25°C Unless Otherwise Specified )

| Part Number    | Device Marking | V <sub>RWM</sub> (V) (Max.) | V <sub>BR</sub> (V) (Min.) | I <sub>T</sub> (mA) | V <sub>c</sub> @1A (Max.) | V <sub>c</sub> |      | I <sub>R</sub> (uA) (Max.) | C (pF) (Typ.) |
|----------------|----------------|-----------------------------|----------------------------|---------------------|---------------------------|----------------|------|----------------------------|---------------|
|                |                |                             |                            |                     |                           | (Max.)         | (@A) |                            |               |
| ESD3.3V23TS-2C | C03            | 3.3                         | 4.0                        | 1.0                 | 7.5                       | 16             | 25   | 40                         | 200           |
| ESD05V23TS-2C  | C05            | 5.0                         | 6.0                        | 1.0                 | 9.8                       | 17             | 24   | 1                          | 150           |
| ESD08V23TS-2C  | C08            | 8.0                         | 8.5                        | 1.0                 | 13.4                      | 20             | 18   | 1                          | 100           |
| ESD12V23TS-2C  | C12            | 12.0                        | 13.3                       | 1.0                 | 20                        | 30             | 13   | 1                          | 50            |
| ESD15V23TS-2C  | C15            | 15.0                        | 16.7                       | 1.0                 | 25                        | 36             | 11   | 1                          | 45            |
| ESD18V23TS-2C  | C18            | 18.0                        | 20.0                       | 1.0                 | 30                        | 40             | 8    | 1                          | 42            |
| ESD24V23TS-2C  | C24            | 24.0                        | 26.7                       | 1.0                 | 45                        | 50             | 7    | 1                          | 40            |
| ESD36V23TS-2C  | C36            | 36.0                        | 40.0                       | 1.0                 | 65                        | 75             | 6    | 1                          | 25            |

### Characteristic Curves

Fig1. 8/20μs Pulse Waveform

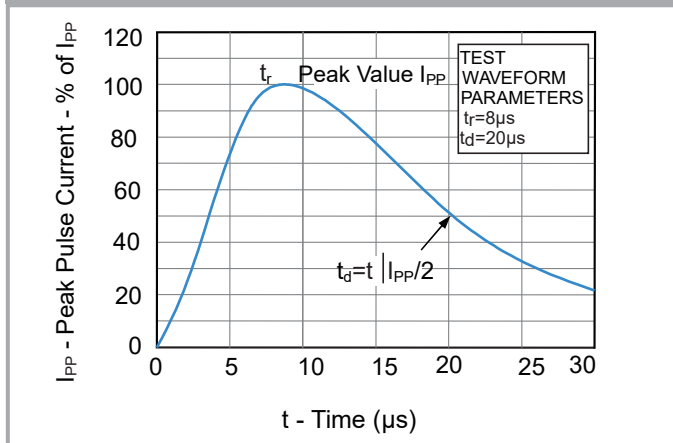


Fig2. Power Rating Derating Curve

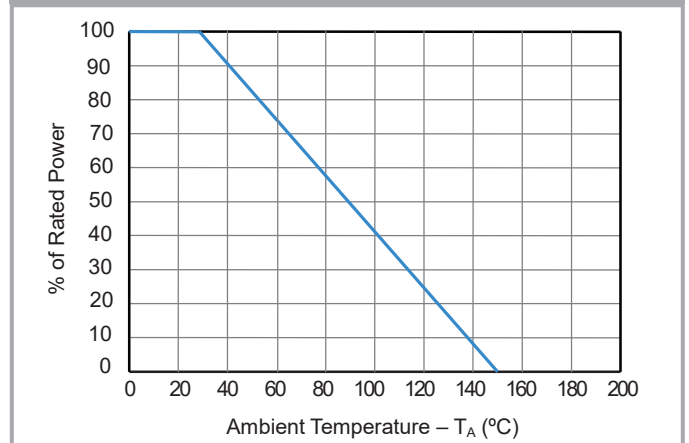
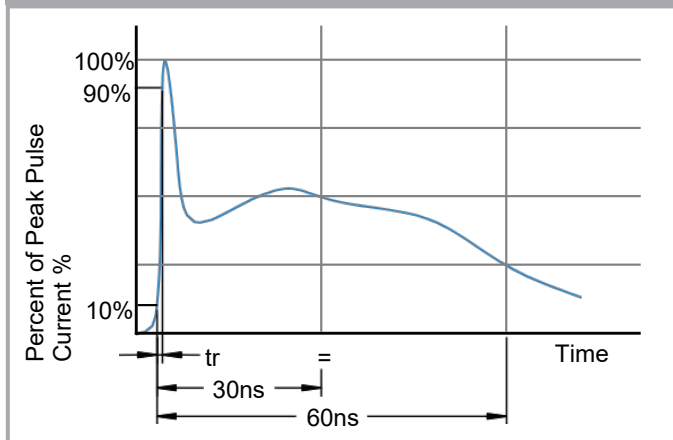
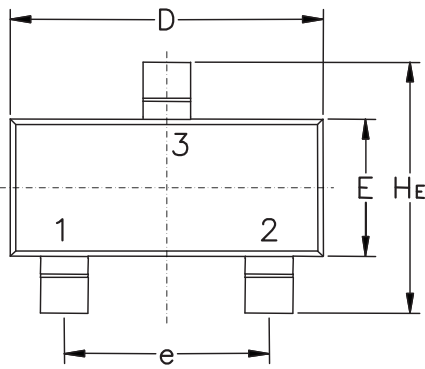


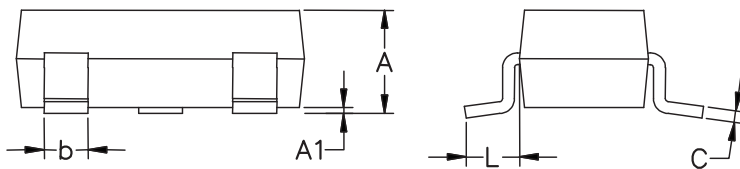
Fig3. ESD Pulse Waveform (according to IEC61000-4-2)



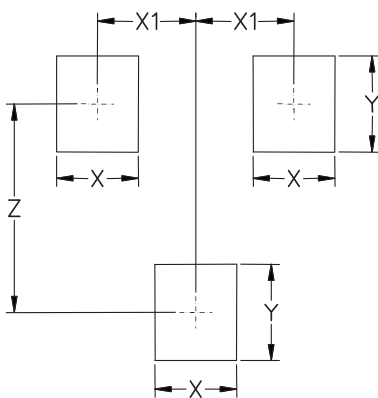
## SOT-23 Package Outline & Dimensions



| Symbol | Millimeters |      |      | Inches |       |       |
|--------|-------------|------|------|--------|-------|-------|
|        | Min.        | Nom. | Max. | Min.   | Nom.  | Max.  |
| A      | 0.10        | 0.15 | 0.20 | 0.004  | 0.006 | 0.008 |
| A1     | 0.01        | 0.06 | 0.10 | 0.001  | 0.002 | 0.004 |
| b      | 0.30        | 0.44 | 0.50 | 0.012  | 0.017 | 0.020 |
| C      | 0.09        | 0.13 | 0.18 | 0.003  | 0.005 | 0.007 |
| D      | 2.80        | 2.90 | 3.04 | 0.110  | 0.114 | 0.120 |
| E      | 1.00        | 1.10 | 1.10 | 0.039  | 0.043 | 0.043 |
| e      | 1.78        | 1.90 | 2.04 | 0.070  | 0.075 | 0.081 |
| L      | 0.35        | 0.54 | 0.69 | 0.014  | 0.021 | 0.027 |
| HE     | 2.50        | 2.10 | 2.10 | 0.098  | 0.083 | 0.083 |



### Soldering Footprint



| Symbol | Millimeters | Inches |
|--------|-------------|--------|
| X      | 0.80        | 0.031  |
| X1     | 0.91        | 0.037  |
| Y      | 0.90        | 0.035  |
| Z      | 2.50        | 0.098  |

## Ordering Information

| Device               | Package | Quantity      | Reel Size |
|----------------------|---------|---------------|-----------|
| ESDXXV23TS-2C Series | SOT-23  | 3,000pcs/Reel | 7 inch    |

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