

Transient Voltage Suppressors Array for ESD Protection

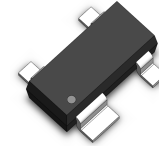
Low Capacitance

ESDXXV14T-LK Series

Description

The ESDXXV14T-LK 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.

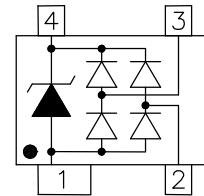
SOT-143



Feature

- u 500 Watts Peak Pulse Power per Line (tp=8/20µs)
- u Protects two I/O lines
- u Low clamping voltage
- u Working voltages : 5V and 12V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)

Functional Diagram



Applications

- u USB Power & Data Line Protection
- u Ethernet 10BaseT
- u I²C Bus Protection
- u Video Line Protection
- u T1/E1 secondary IC Side Protection
- u Microcontroller Input Protection
- u ISDN S/T Interface
- u WAN/LAN Equipment

Mechanical Characteristics

- 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 _{PP} | Peak Pulse Power (tp=8/20µs waveform) | 500 | W |
| T _L | Lead Soldering Temperature | 260 (10sec) | °C |
| T _{STG} | Storage Temperature Range | -55 to +150 | °C |
| T _J | Operating Temperature Range | -55 to +150 | °C |
| | IEC61000-4-2 (ESD) | Air Discharge ±15 | KV |
| | | Contact Discharge ±8 | |
| | IEC61000-4-4 (EFT) | 40 | A |

Transient Voltage Suppressors Array for ESD Protection

Low Capacitance

ESDXXV14T-LK Series

Electrical Characteristics (@ 25°C Unless Otherwise Specified)

| Part Number | Device Marking | V _{RWM} (V) (Max.) | V _B (V) (Min.) | I _T (mA) | V _C @1A (Max.) | V _C | | I _R (μA) (Max.) | C (pF) (Typ.) |
|--------------|----------------|-----------------------------|---------------------------|---------------------|---------------------------|----------------|------|----------------------------|---------------|
| | | | | | | (Max.) | (@A) | | |
| ESD05V14T-LK | LK5 | 5 | 6 | 1 | 9.8 | 23 | 25 | 5 | 5 |
| ESD12V14T-LK | LKD | 12 | 13.3 | 1 | 18 | 30 | 15 | 1 | 5 |

Characteristic Curves

Fig1. 8/20μs Pulse Waveform

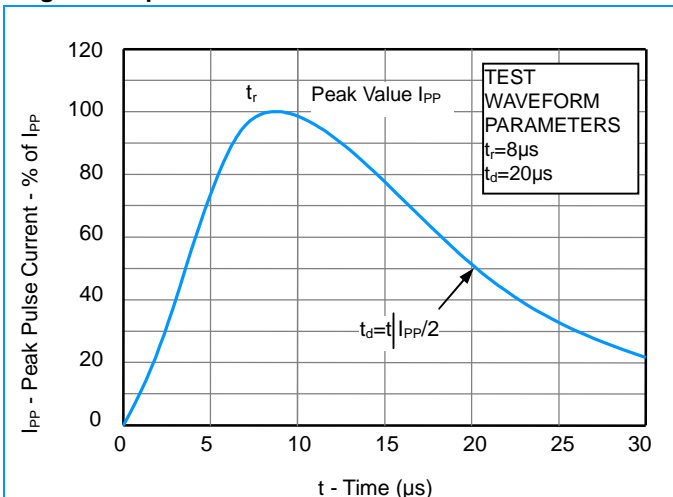


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

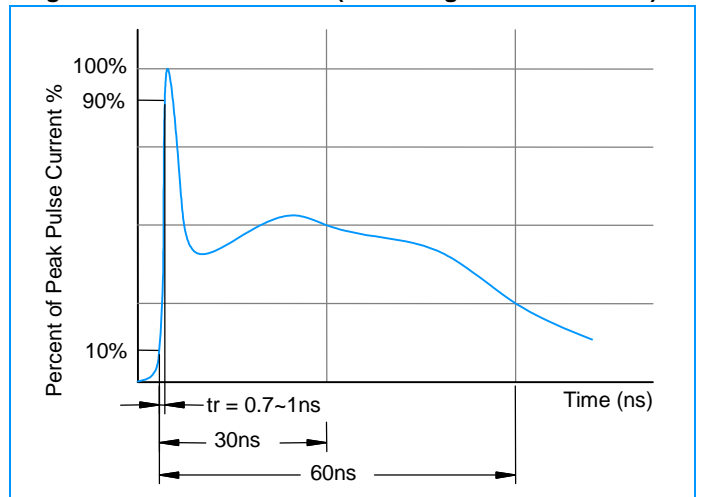


Fig3. ESD Clamping (+8KV Contac per IEC61000-4-2)

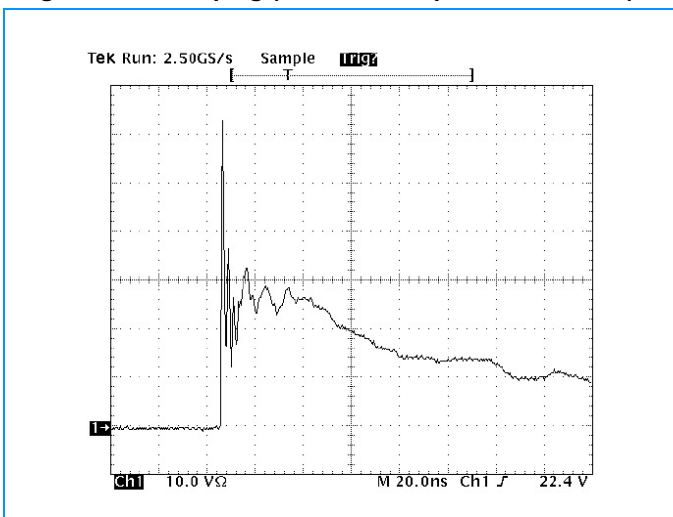
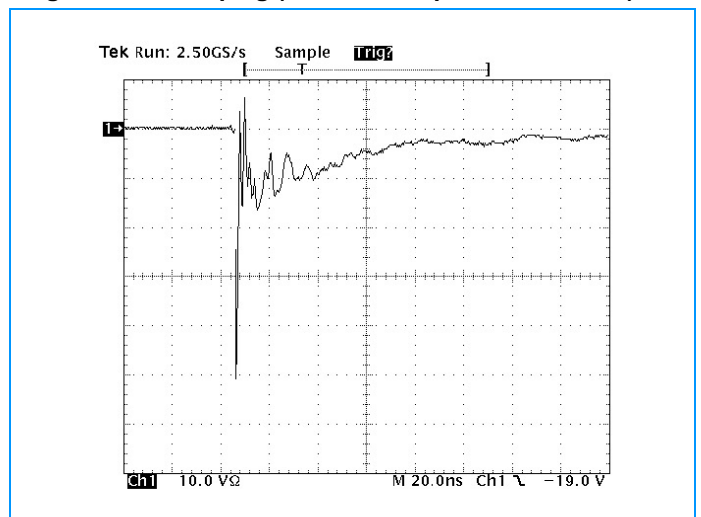


Fig4. ESD Clamping (-8KV Contac per IEC61000-4-2)

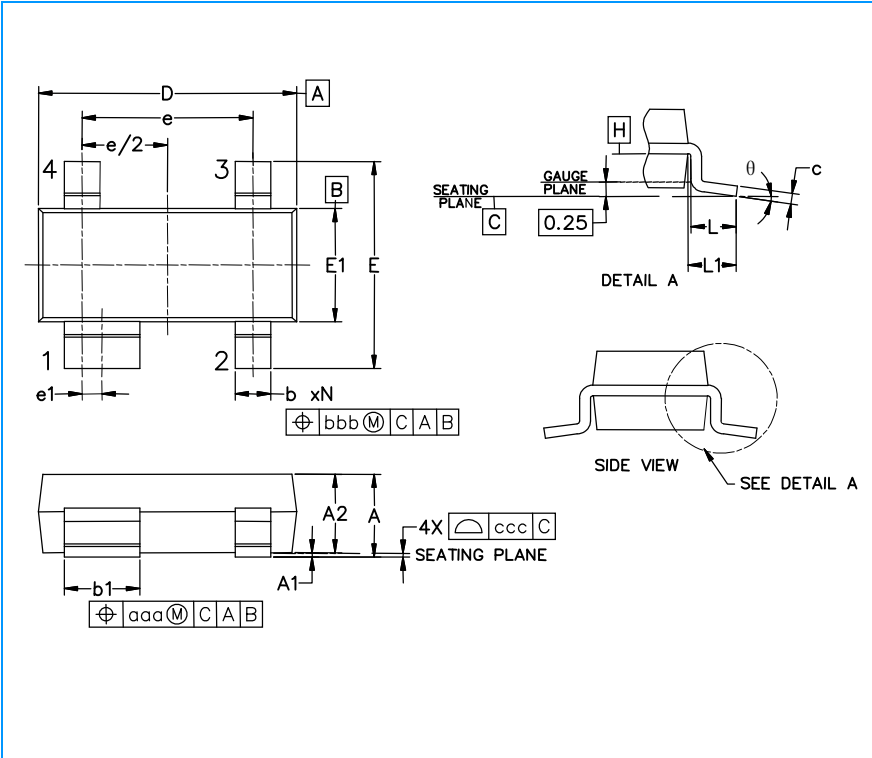


Transient Voltage Suppressors Array for ESD Protection

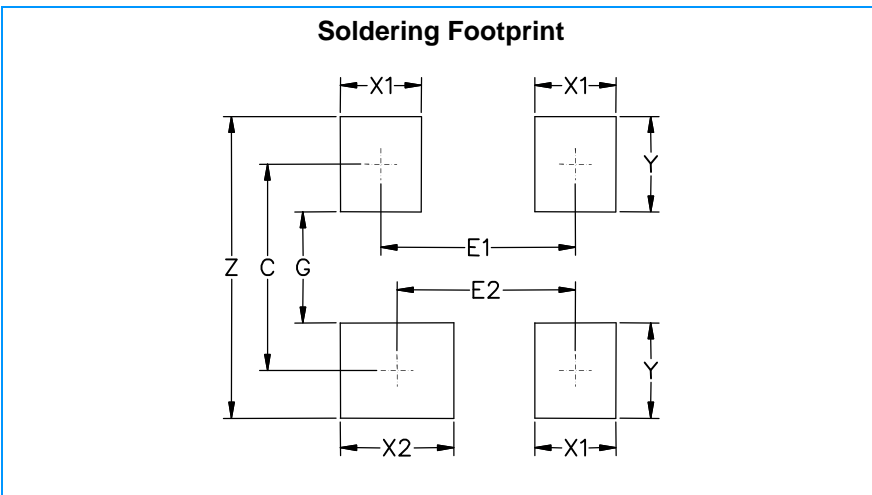
Low Capacitance

ESDXXV14T-LK Series

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 | | |



| 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 |