

## Transient Voltage Suppressors Array for ESD Protection

### ESD05V56T-5L

#### Description

The ESD05V56T-5L 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.

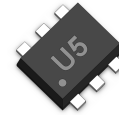
#### Feature

- u 100 Watts Peak Pulse Power per Line (tp=8/20μs)
- u Protects up to four / five I/O lines
- u Ultra-small package (1.6X1.6X0.55mm), requires less than 2.9mm<sup>2</sup> of PCB area
- u Working voltages : 5V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)

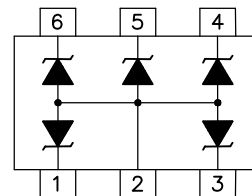
#### Applications

- u Cellular Handsets & Accessories
- u Cordless Phones
- u Personal Digital Assistants (PDA's)
- u Portable Instrumentation
- u Notebooks & Handhelds
- u Digital Cameras
- u MP3 Players

SOT-563



#### Functional Diagram



#### Mechanical Data

- u JEDEC SOT-563 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 3.0 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) | 100         | 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    |
|                  | IEC61000-4-2 (ESD)                    |             |       |
|                  | Air Discharge                         | ±15         | KV    |
|                  | Contact Discharge                     | ±8          |       |
|                  | 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) |                                  |                     |
| ESD05V56T-5L | U5             | 5                                 | 6                               | 1                      | 9.8                             | 12             | 5    | 1                                | 30                  |

Fig1. 8/20μs Pulse Waveform

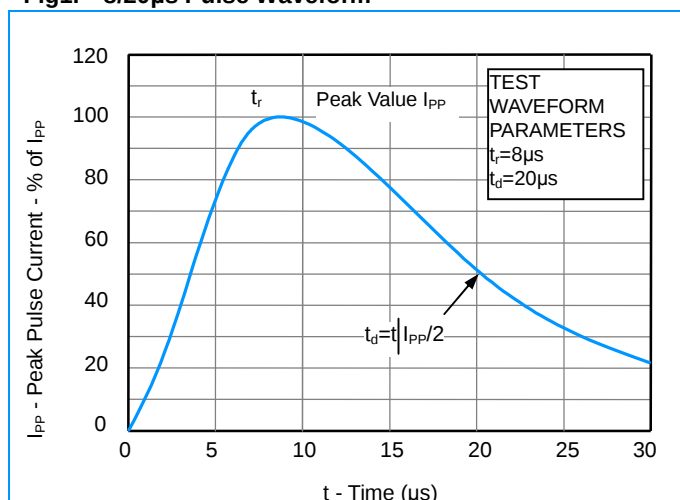


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

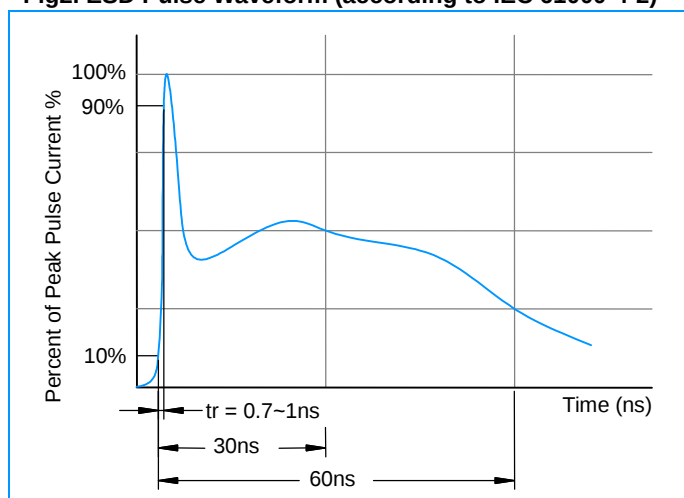
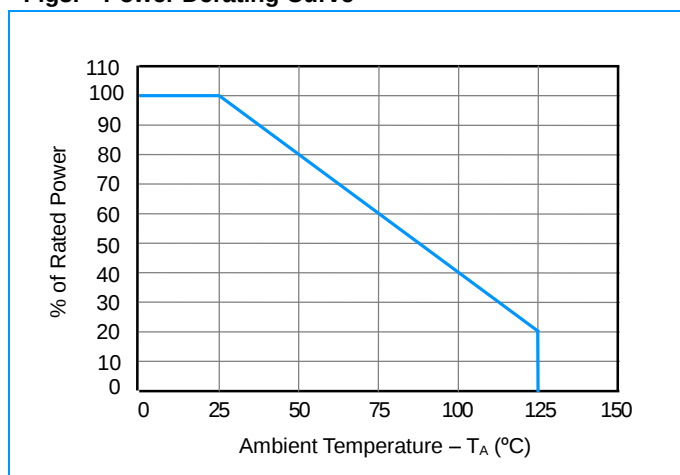


Fig3. Power Derating Curve



## Transient Voltage Suppressors Array for ESD Protection

### ESD05V56T-5L

#### Characteristic Curves

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

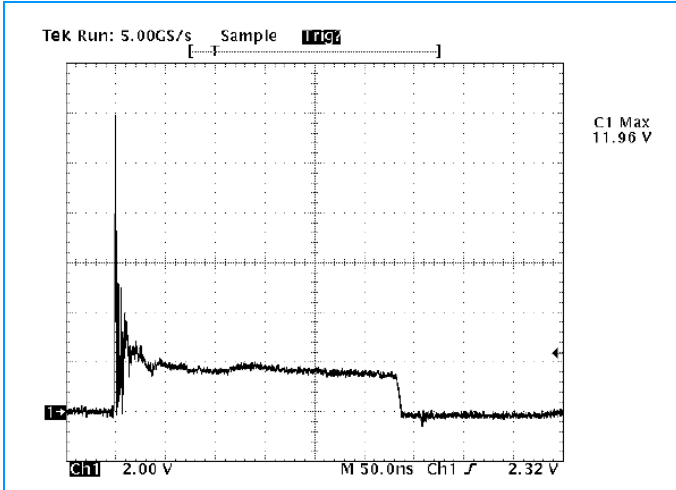
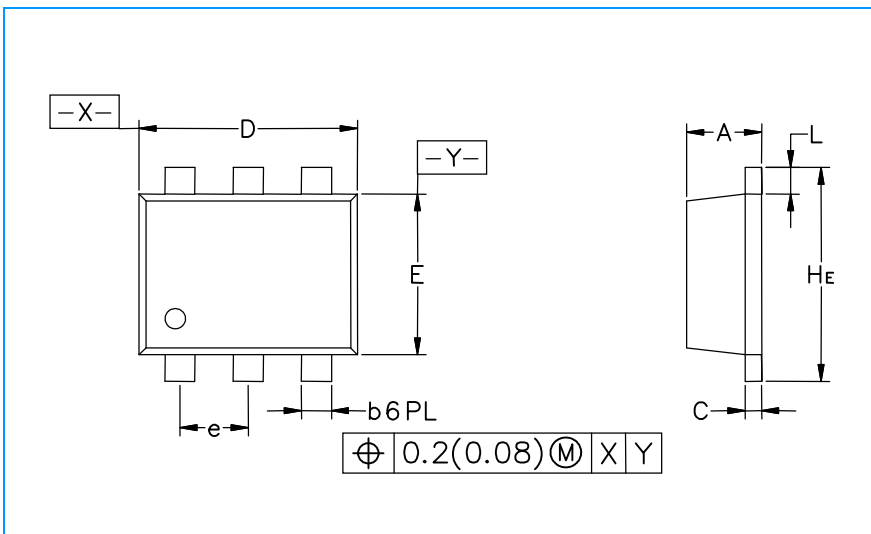
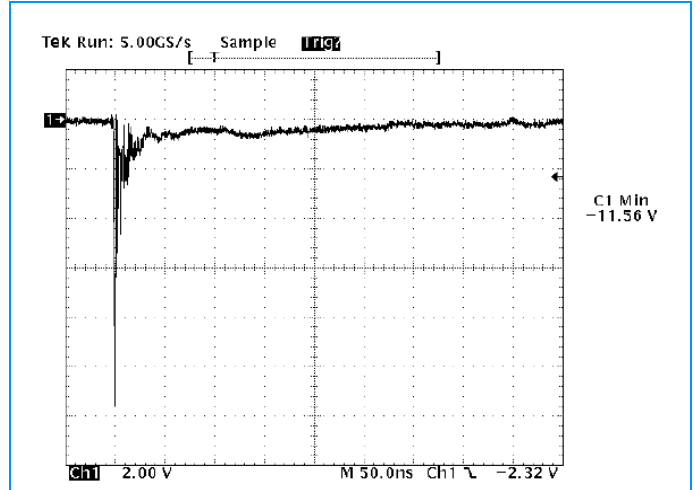
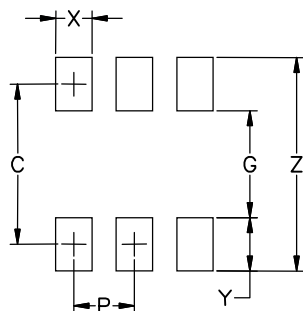


Fig5. ESD Clamping (-8KV Contac per IEC61000-4-2)



| Symbol         | Inches   |       |       | Millimeters |      |      |
|----------------|----------|-------|-------|-------------|------|------|
|                | Min.     | Nom.  | Max.  | Min.        | Nom. | Max. |
| A              | 0.020    | 0.021 | 0.023 | 0.50        | 0.55 | 0.60 |
| b              | 0.007    | 0.009 | 0.011 | 0.17        | 0.22 | 0.27 |
| C              | 0.003    | 0.005 | 0.007 | 0.08        | 0.12 | 0.18 |
| D              | 0.059    | 0.062 | 0.066 | 1.50        | 1.60 | 1.70 |
| E              | 0.043    | 0.047 | 0.051 | 1.10        | 1.20 | 1.30 |
| e              | 0.02 BSC |       |       | 0.5 BSC     |      |      |
| L              | 0.004    | 0.008 | 0.012 | 0.10        | 0.20 | 0.30 |
| H <sub>E</sub> | 0.059    | 0.062 | 0.067 | 1.50        | 1.60 | 1.70 |

#### Soldering Footprint



| Symbol | Inches | Millimeters |
|--------|--------|-------------|
| C      | 0.0531 | 1.35        |
| G      | 0.0354 | 0.90        |
| P      | 0.0197 | 0.50        |
| X      | 0.0118 | 0.30        |
| Y      | 0.0177 | 0.45        |
| Z      | 0.0709 | 1.80        |