# SuperESD - UDD32C12L01-ES

## 1. Description

The UDD32C12L01-ES Series are ultra-low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and smart phones. This series is available bidirectional configurations. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers a ultra-low capacitance and low leakage current in a miniature SOD-323 package.

## 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- 400W Peak pulse Power (8/20us)
- RoHS compliance
- Bidirectional configuration
- Ultra-low Capacitance: 0.8pF (Typical)
- Low clamping voltage
- Protects one power or I/O

## 3. Applications

- Interfaces
  - USB 2.0/1.1
  - GPIO
  - Ethernet 10/100/1000 Mbps
  - Audio
- End Equipment
  - Industrial and Serve Robots
  - Laptops and Desktops
  - TV and Monitors
  - Wearables

## 4. Ordering Information

| Part Number | Package | Material | Packing | Quantity per reel | Flammability Rating | Reel Size |
|---|---|---|---|---|---|---|
| UDD32C12L01-ES | SOD-323 | DC | Tape & Reel | 3000 PCS | UL 94V-0 | 7 inches |

Table-1 Ordering information

## 5. Pin Configuration and Functions

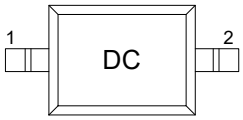
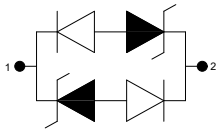
| Pin | Name | Description | Outline | Circuit Diagram |
|---|---|---|---|---|
| 1 | IO | Connect to IO |   |   |
| 2 | IO | Connect to IO | | |

Table-2 Pin configuration

## 6. Specification

### 6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

| Parameters | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|
| Peak pulse power (tp=8/20us)@25℃ | $P_{pk}$ | - | 400 | W |
| Peak pulse current (tp=8/20us)@25℃ | $I_{PP}$ | | Refer to Table-5 | A |
| ESD (IEC61000-4-2 air discharge) @25℃ | $V_{ESD}$ | - | ±30 | kV |
| ESD (IEC61000-4-2 contact discharge) @25℃ | $V_{ESD}$ | - | ±30 | kV |
| Junction temperature | $T_J$ | - | 150 | ℃ |
| Operating temperature | $T_{OP}$ | -40 | 125 | ℃ |
| Storage temperature | $T_{STG}$ | -55 | 150 | ℃ |
| Lead temperature | $T_L$ | - | 260 | ℃ |

Table-3 Absolute Maximum rating

## 6.2. Electrical Characteristics

| Symbol | Description |
|---|---|
| $V_{RWM}$ | Rated reverse stand-off voltage |
| $V_{BR}$ | Minimum breakdown voltage @$I_T$ = 1mA |
| $V_{CL}$ | Typical Clamping voltage |
| $I_{PP}$ | Maximum peak pulse current |
| $I_R$ | Reverse leakage current @$V_{RWM}$ |
| $C_O$ | Typical line capacitance ($V_{IO}$=0V, $V_{P-P}$ = 30mV, f = 1MHz) |

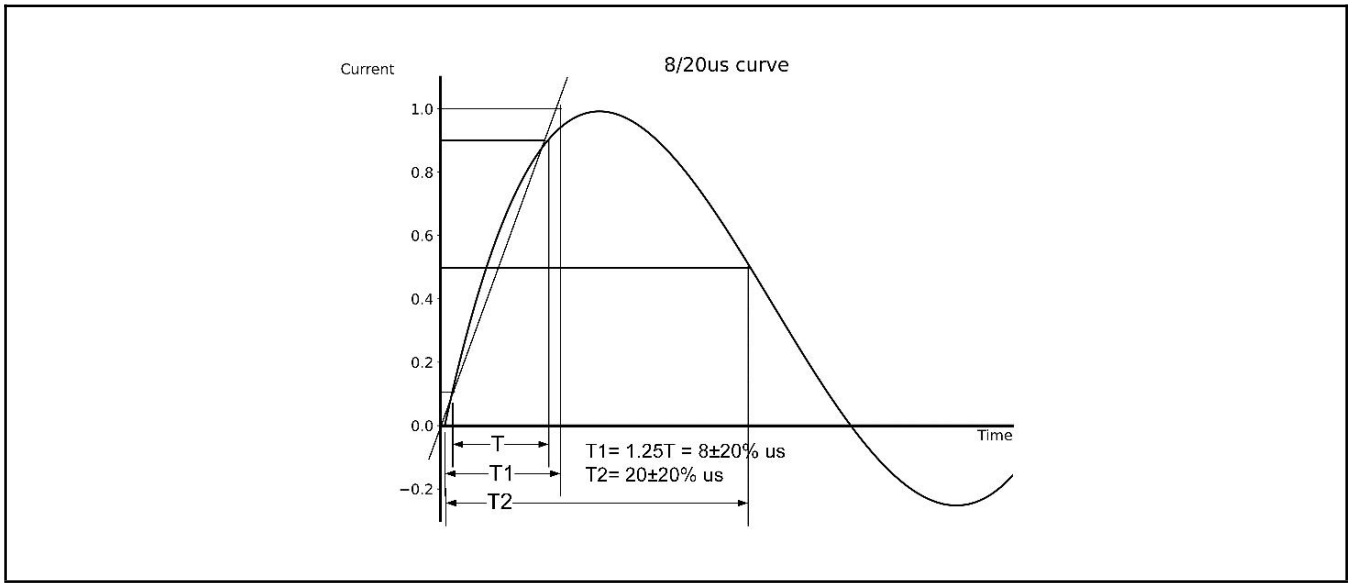
Table-4 Parameters Description

At TA = 25℃ unless otherwise noted

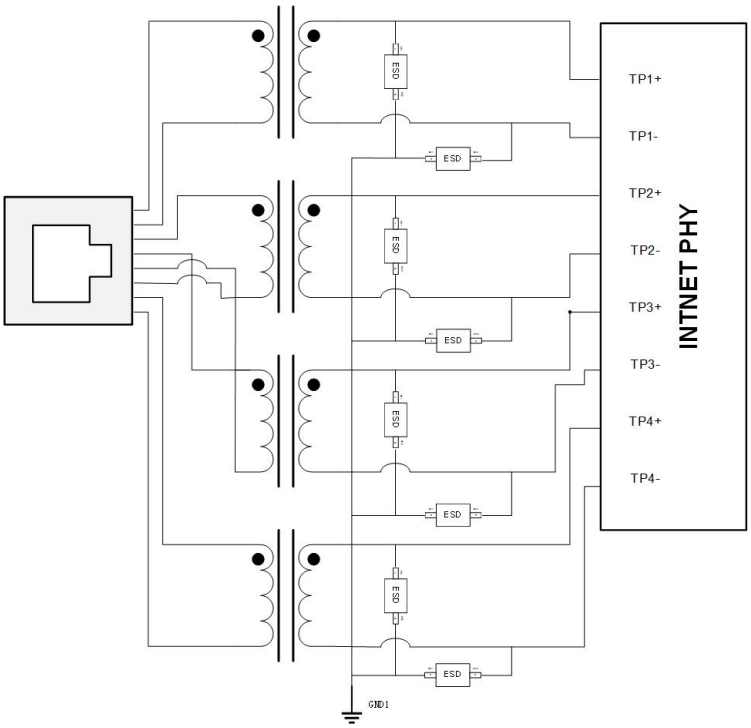
| Part Number | $V_{RWM}$ (Max.) | $V_{BR}$(Min.) | $V_{CL}$@I=1A (Typ.) | $I_{PP}$ (Max.) | $V_{CL}$@I=$I_{PP}$ (Typ.) | $I_R$ (Max.) | $C_O$(Typ.) |
|---|---|---|---|---|---|---|---|
| | (V) | (V) | (V) | (A) | (V) | (uA) | (pF) |
| UDD32C12L01-ES | 12.0 | 13.3 | 17.0 | 7.0 | 24.0 | 1.0 | 0.8 |

Table-5 Electrical Characteristics for All Series

## 7. Typical Characteristic

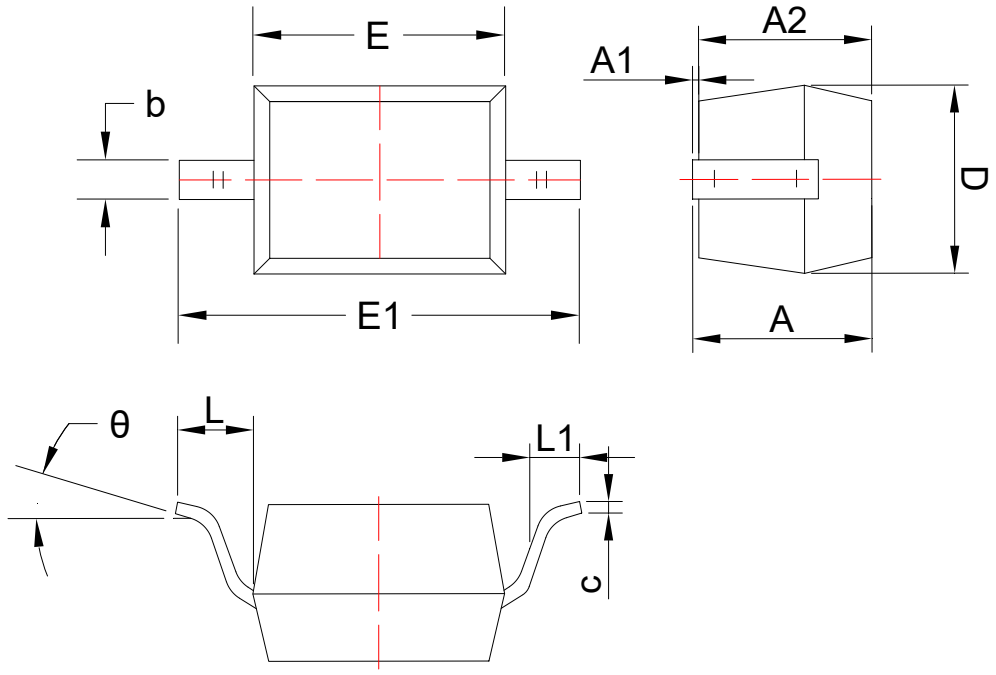



## 8. Typical Application



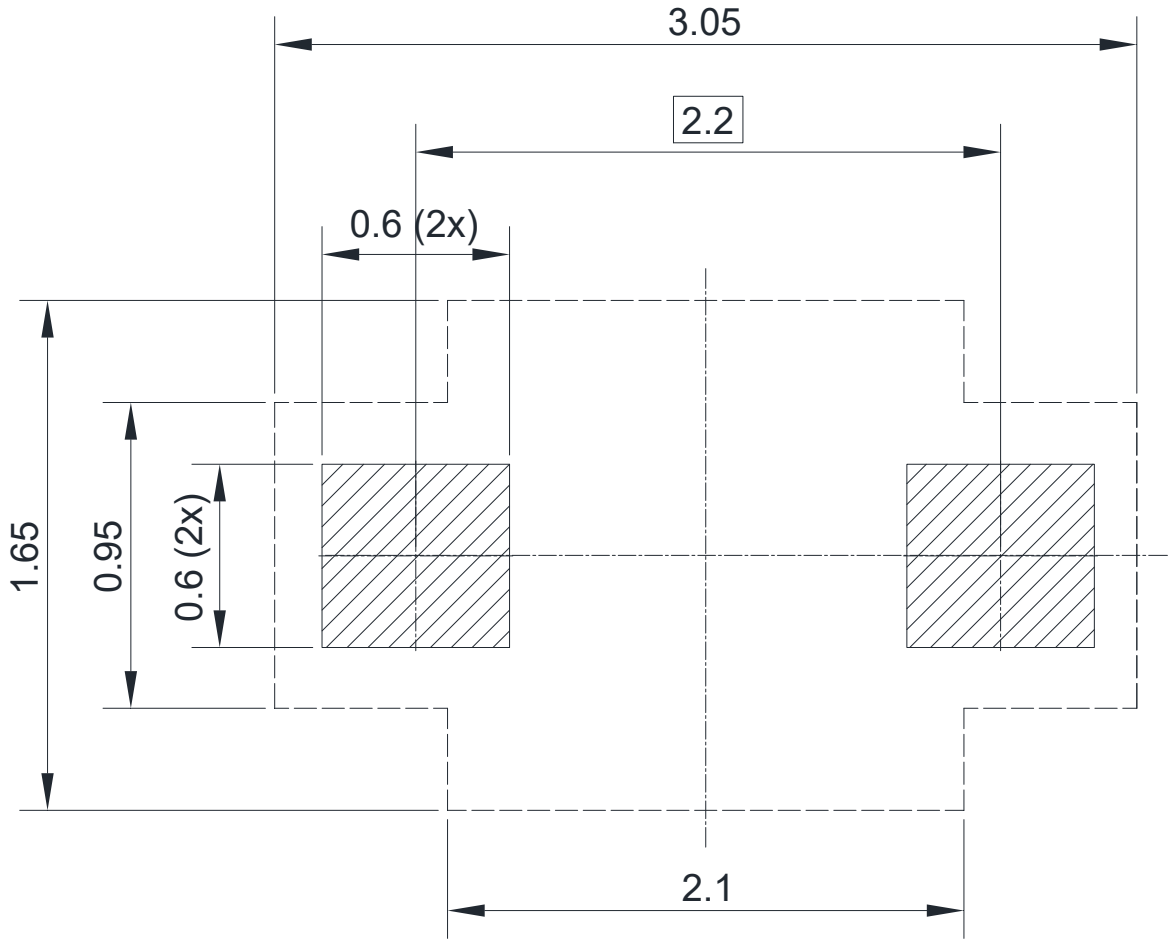

Pic-3 Typical Internet 1G Interface Application

## 9. Dimension (SOD-323)




| Symbol | Dimensions in Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 0.80 | 1.00 |
| A1 | 0.00 | 0.14 |
| A2 | 0.66 | 0.97 |
| b | 0.25 | 0.35 |
| c | 0.08 | 0.18 |
| D | 1.20 | 1.40 |
| E | 1.55 | 1.80 |
| E1 | 2.50 | 2.80 |
| L | 0.475REF | |
| L1 | 0.25 | 0.40 |
| θ | 0° | 8° |

## 10. Recommended Soldering Footprint




DIMENSIONS: MILLIMETERS

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