

## SuperESD - ESD05V14T-LC

### 1. Description

The ESD05V14T-LC is Ultra low capacitance double rail-to-rail Electro Static Discharge (ESD) protection diode in a small SOT143 Surface Mounted Device (SMD) plastic package designed to protect two Hi-Speed data lines or high frequency signal lines from the damage caused by ESD and other transients.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±15kV Contact Discharge
  - ±15kV Air Discharge
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Surge) 5A (8/20µs)
- Protect two I/O lines
- Low operating and clamping voltage
- Low leakage current
- Solid-state silicon technology

### 3. Applications

- USB 2.0
- DVI and HDMI interfaces
- Mobile and cordless phones
- Personal Digital Assistants (PDA)
- Digital cameras
- PCs, notebooks, printers and other PC peripherals

### 4. Ordering Information

| Part Number  | Package | Marking | Material     | Packing     | Quantity per reel | Flammability Rating | Reel Size |
|--------------|---------|---------|--------------|-------------|-------------------|---------------------|-----------|
| ESD05V14T-LC | SOT-143 | R05     | Halogen free | Tape & Reel | 3,000 PCS         | UL 94V-0            | 7 inches  |

Table-1 Ordering information

## 5. Pin Configuration and Functions

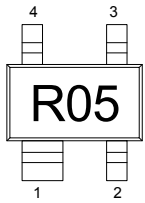
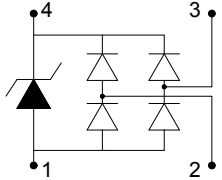
| Pin | Name | Description    | Outline   | Circuit Diagram   |
|-----|------|----------------|---|---|
| 1   | GND  | Connect to GND |  |  |
| 2   | IO   | Connect to IO  |   |   |
| 3   | IO   | Connect to IO  |   |   |
| 4   | Vcc  | Connect to Vcc |   |   |

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°C          | P <sub>pk</sub>  | -    | 75   | W    |
| Peak pulse current (tp=8/20us)@25°C        | I <sub>PP</sub>  | -    | 5    | A    |
| ESD (IEC61000-4-2 air discharge) @25°C     | V <sub>ESD</sub> | -    | ± 15 | kV   |
| ESD (IEC61000-4-2 contact discharge) @25°C | V <sub>ESD</sub> | -    | ± 15 | kV   |
| Junction temperature                       | T <sub>J</sub>   | -    | 150  | °C   |
| Operating temperature                      | T <sub>OP</sub>  | -40  | 125  | °C   |
| Storage temperature                        | T <sub>STG</sub> | -55  | 150  | °C   |
| Lead temperature                           | T <sub>L</sub>   | -    | 260  | °C   |

Table-3 Absolute Maximum rating

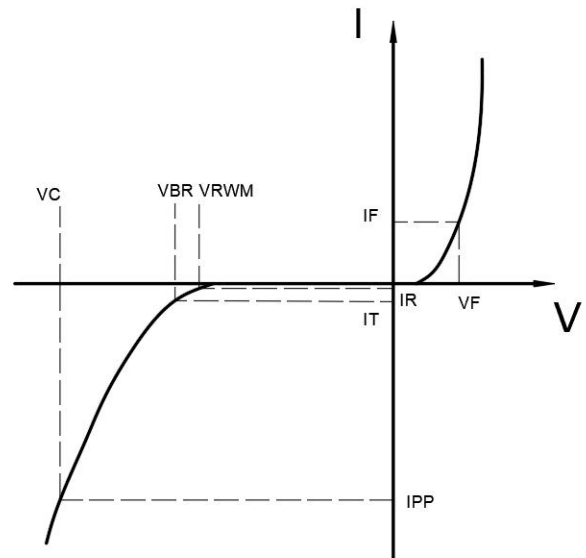
## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

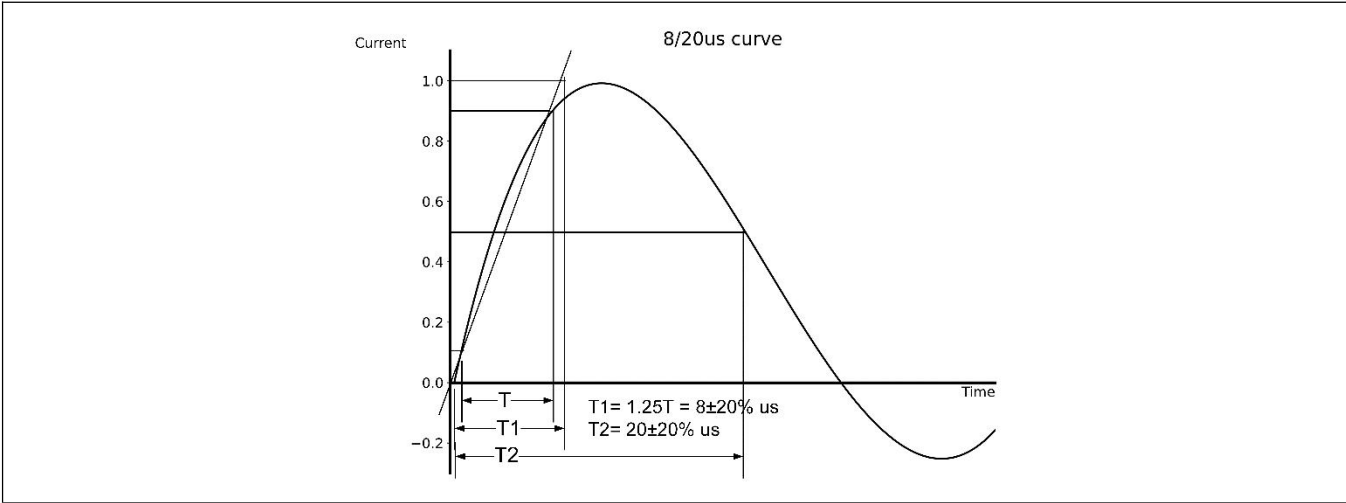
| Parameter                 | Symbol    | Conditions                                | Min. | Typ. | Max. | Units   |
|---------------------------|-----------|---|------|------|------|---------|
| Reverse Stand-off Voltage | $V_{RWM}$ |   |      |      | 5    | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T=1mA$                                 | 6    |      |      | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM}=5V$                              |      |      | 1    | $\mu A$ |
| Clamping Voltage          | $V_C$     | $I_{PP}=1A$ ; $t_p=8/20\mu s$             |      | 10   |      | V       |
| Clamping Voltage          | $V_C$     | $I_{PP}=5A$ ; $t_p=8/20\mu s$             |      | 15   |      | V       |
| Junction Capacitance      | $C_J$     | $V_R=0V$ ; $f=1MHz$<br>I/O pin to I/O pin |      | 0.6  |      | pF      |
| Junction Capacitance      | $C_J$     | $V_R=0V$ ; $f=1MHz$<br>I/O pin to GND     |      | 1.2  |      | pF      |

Table-4 Electrical Characteristics

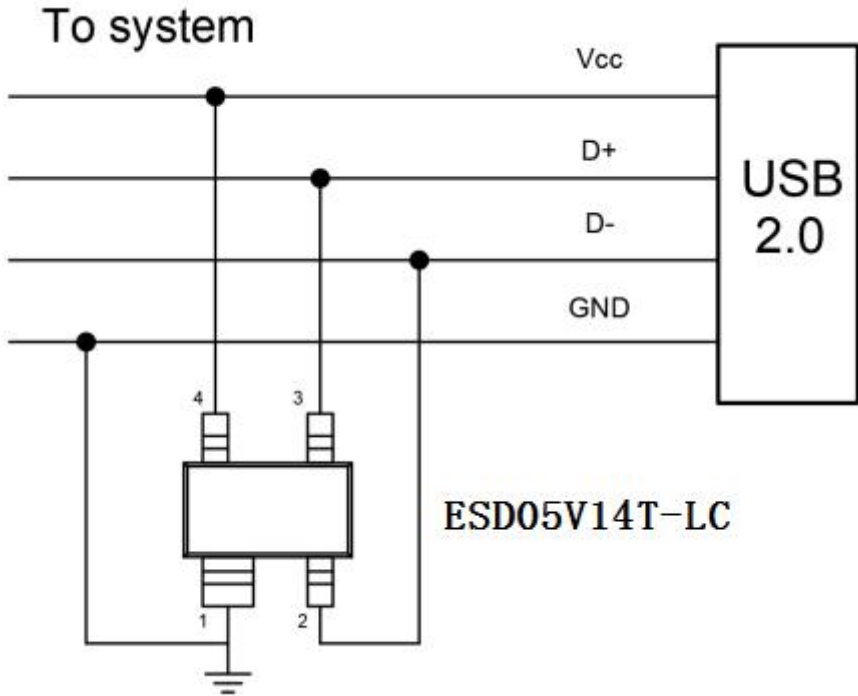
| Symbol    | Parameters                          |
|-----------|-------------------------------------|
| $V_{RWM}$ | Peak Reverse Working Voltage        |
| $I_R$     | Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$           |
| $I_T$     | Test Current                        |
| $I_{PP}$  | Maximum Reverse Peak Pulse Current  |
| $V_C$     | Clamping Voltage @ $I_{PP}$         |
| $I_F$     | Forward Current                     |
| $V_F$     | Forward Voltage @ $I_F$             |



7. Typical Characteristic

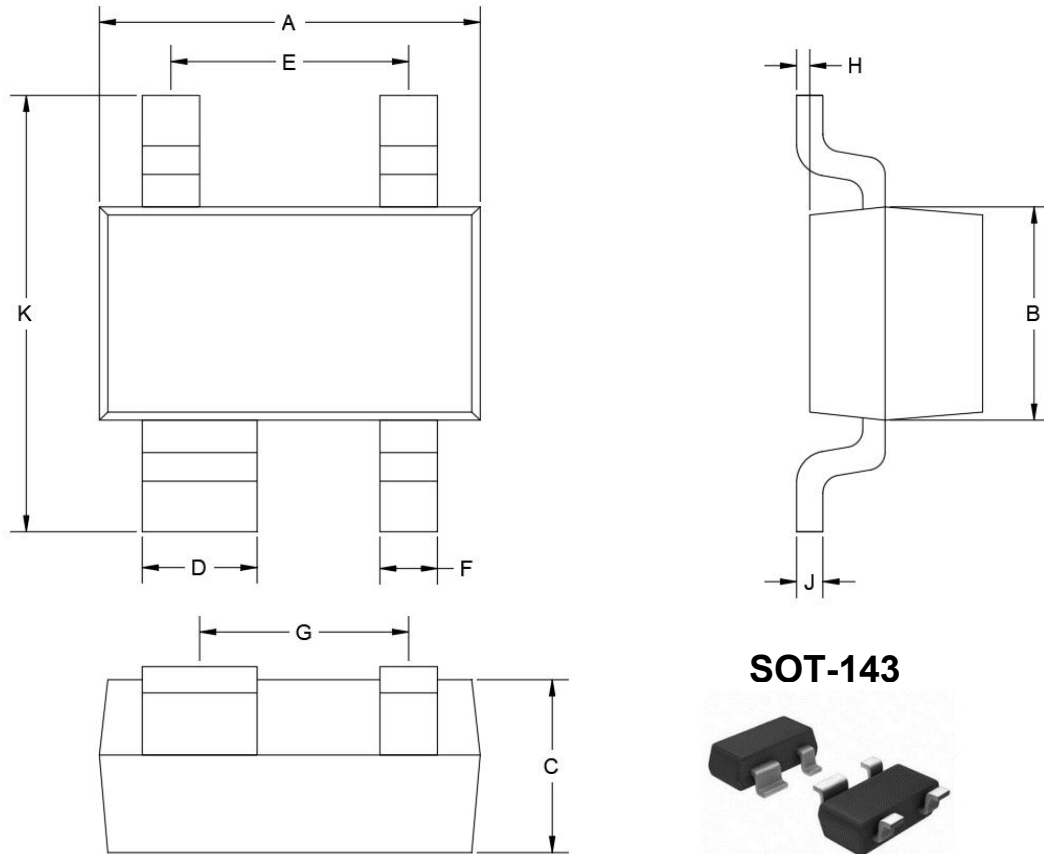


8. Typical Application

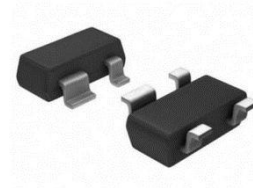


Typical Interface Application

9. Dimension



**SOT-143**

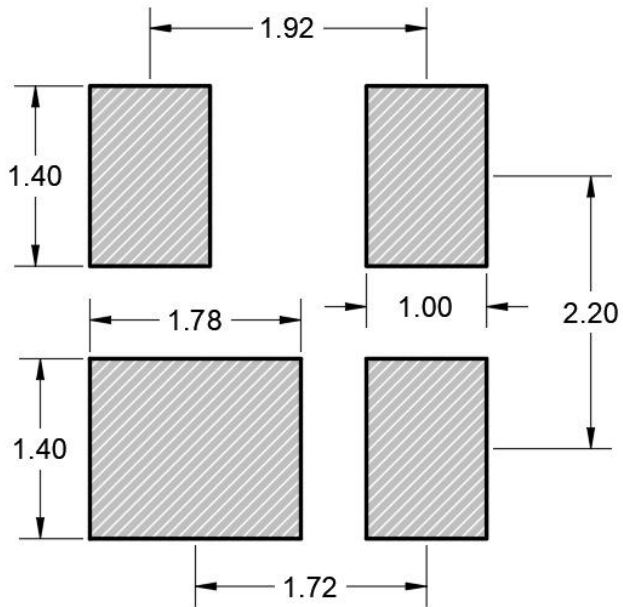


All dimension in millimeters

| Symbol | A    | B    | C    | D    | E    | F    | G    | H    | J    | K    |
|--------|------|------|------|------|------|------|------|------|------|------|
| Min    | 2.70 | 1.10 | 0.90 | 0.78 | 1.80 | 0.37 | 1.59 | 0.02 | 0.05 | 2.20 |
| Max    | 3.10 | 1.50 | 1.10 | 0.88 | 2.00 | 0.43 | 1.79 | 0.10 | 0.15 | 2.60 |

Table-5 Product dimensions

## 10. Recommended Land Pattern

**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference only

**DISCLAIMER**

ELECSUPER SUPERESD PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with ElecSuper products. You are solely responsible for

- (1) selecting the appropriate ElecSuper products for your application;
- (2) designing, validating and testing your application;
- (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements.

These resources are subject to change without notice. ElecSuper grants you permission to use these resources only for development of an application that uses the ElecSuper products described in the resource. Other reproduction and display of these resources are prohibited. No license is granted to any other ElecSuper intellectual property right or to any third party intellectual property right. ElecSuper disclaims responsibility for, and you will fully indemnify ElecSuper and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources. ElecSuper's products are provided subject to ElecSuper's Terms of Sale or other applicable terms available either on [www.elecsuper.com](http://www.elecsuper.com) or provided in conjunction with such ElecSuper products. ElecSuper's provision of these resources does not expand or otherwise alter ElecSuper's applicable warranties or warranty disclaimers for ElecSuper products.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [ESD Suppressors / TVS Diodes](#) category:*

*Click to view products by [ElecSuper](#) manufacturer:*

Other Similar products are found below :

[60KS200C](#) [D18V0L1B2LP-7B](#) [D5V0F4U5P5-7](#) [NTE4902](#) [P4KE27CA](#) [P6KE11CA](#) [P6KE8.2A](#) [SA60CA](#) [SA64CA](#) [SMBJ12CATR](#)  
[SMBJ33CATR](#) [SMBJ6.5A](#) [SMBJ8.0A](#) [ESD101-B1-02ELS E6327](#) [ESD112-B1-02EL E6327](#) [ESD7451N2T5G](#) [19180-510](#) [CPDT-5V0USP-](#)  
[HF](#) [3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [JANTX1N6126A](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [SCM1293A-04SO](#)  
[ESD200-B1-CSP0201 E6327](#) [SM12-7](#) [CEN955 W/DATA](#) [VESD12A1A-HD1-GS08](#) [CPDQC5V0-HF](#) [D1213A-01LP4-7B](#) [ESD101-B1-02EL](#)  
[E6327](#) [AOZ8808DI-03](#) [5KP15A](#) [5KP48A](#) [5KP90A](#) [ESD3V3D7-TP](#) [15KPA36A-LF](#) [P4KE56CA](#) [P4KE68A](#) [P4KE91CATR](#) [P6KE120A](#)  
[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)