# 1-channel ESD Protection Diode

## Features

- Compact die protects from ESD discharges
- This product is full RoHS compliant.
- ESD protection to over 8kV contact discharge per MIL_STD-883 international ESD standard.

## Applications

- LED Lighting
- Modules
- Interface circuits

## Product Description

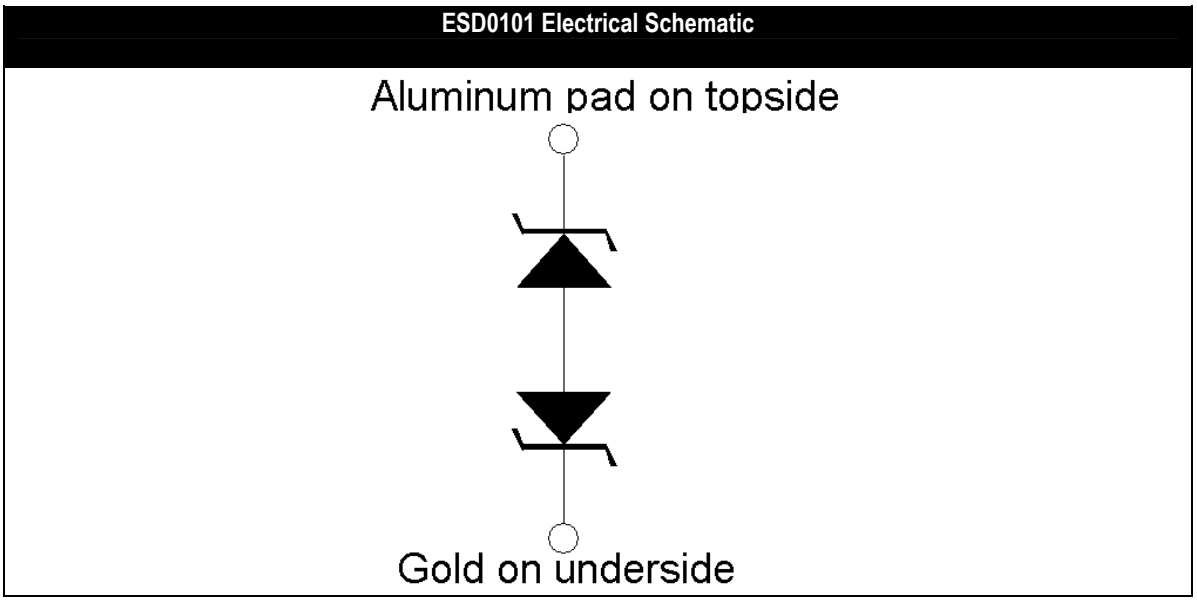
The ESD0101 provides a high level of protection for sensitive parts that may be subjected to electrostatic discharge (ESD). The tiny form factor and single wire-bond requirement mean it can be used in very confined spaces and miniature packages. The electrical 'back-to-back zener' configuration provides symmetrical ESD protection in cases where nodes with AC signals are present. This device is designed and characterized to safely dissipate ESD strikes of at least 8kV, according to the MIL-STD-883 (Method 3015) specification for Human Body Model (HBM) ESD.

Product will be shipped in wafer form. The silicon wafer diameter is 5".

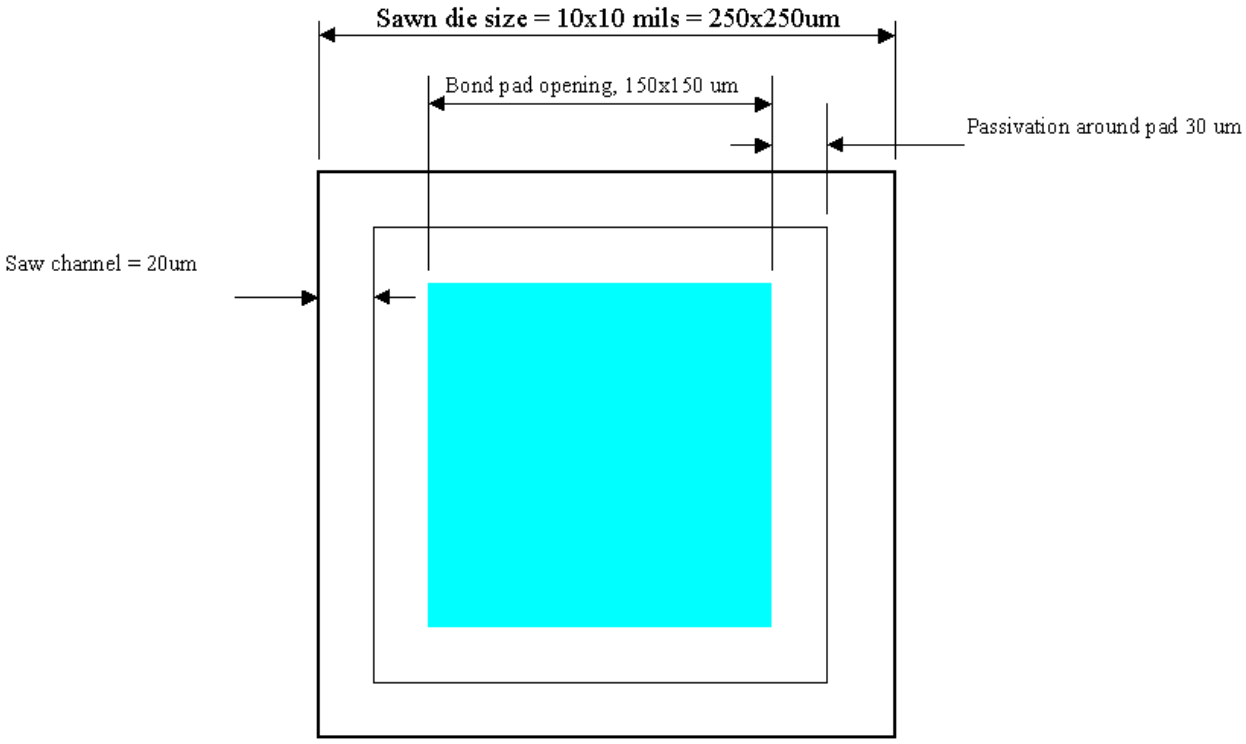
| | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|
| Leakage current at V=4V, 25°C | | <1 | | µA |
| Signal Clamp Voltage at 25°C:<br>Positive Clamp, 10mA<br>Negative Clamp, 10mA | | <br>30<br>-30 | | <br>V<br>V |
| ESD withstand voltage*:<br>Human Body Model (MIL-STD-883, method 3015) | <br>± 8 | | | <br>kV |
| ESD withstand voltage*:<br>Contact Discharge Method (IEC 61000-4-2) | <br>± 2 | <br>± 4 | | <br>kV |
| Clamping voltage during ESD discharge*<br>MIL-STD-883 (Method 3015), 4kV | | +30<br>-30 | | <br>V |
| Diode Input Capacitance * | | 150 | | pF |
| Temperature Range:<br>Operating<br>Storage | <br>-40<br>-65 | | <br>150<br>150 | <br>°C |

* This parameter is guaranteed by design. Not 100% tested.

| Ordering Part No. | No. of channels | Package Type | RoHS Compliant | Back Metal (Typical thickness) |
|---|---|---|---|---|
| **ESD0101-01WR1** | **1** | **Wafer-form** | **Yes** | **Ti/Au (550A/2,500A)** |
| **ESD0101-01WR2** | **1** | **Wafer-form** | **Yes** | **Ti/Ag (550A/5,000A)** |
| **ESD0101-01WR3** | **1** | **Wafer-form** | **Yes** | **Ti/Ni/AuSn (550A/2,000A/3um)** |




## Device Dimensions



| Mechanical specifications: | | Unit |
|---|---|---|
| Die composition | Silicon wafer, n+ doped. | |
| Die shape | Square | |
| Length | 250 (after saw) | µm |
| Width | 250 (after saw) | µm |
| Thickness | 8 +/-1 | mils |
| Saw street widths (space between each diode chip on the wafer) | 80 (X-direction)<br>80 (Y-direction) | µm |
| Top pad length | 150 | µm |
| Top pad width | 150 | µm |
| Top pad composition | Aluminum | |
| Back metal (underside of ESD die) | Gold | |

**Wafer Array** (saw step = 290 µm x 290 µm)