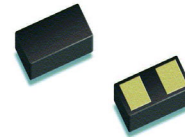


Ultra-Low Capacitance TVS Diode

- Avalanche diode with low clamping / trigger voltage designed for replacement of polymer suppressor devices
- ESD / transient protection of high-speed data lines exceeding
IEC61000-4-2 (ESD): 16 kV (contact)
IEC61000-4-4 (EFT): 2.5 kV / 50 A (5/50 ns)
- No degradation or shifting of characteristics even after 1000 ESD pulses and lower peak voltage than polymer devices
(see curve on page 4)
- Very low capacitance: 0.2 pF typ. @ 1.8 GHz
- Smallest form factor: 0.6 x 0.3 x 0.3 mm
- Working voltage: 5 V (can be extended to 60 V)
- Response time typ. < 0.5 ns @ 8 kV
- Pb-free (RoHS) compliant) package

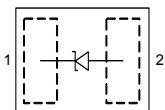


Applications

- 10/100/1000 Ethernet
- HDMI & DVI Interfaces
- Mobile communication and LCD displays
- Consumer products (STB, MP3, DVD, DSC...)
- Notebooks and desktop computers, peripherals



ESD5V0H1U-02LS



| Type | Package | Configuration | Marking |
|----------------|-----------|-------------------------|---------|
| ESD5V0H1U-02LS | TSSLP-2-1 | 1 line, uni-directional | P |

Maximum Ratings at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|-------------------------------------|------------------|-----------|------------------|
| ESD contact discharge ¹⁾ | V_{ESD} | 16 | kV |
| Operating temperature range | T_{op} | -55...125 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -65...150 | |

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

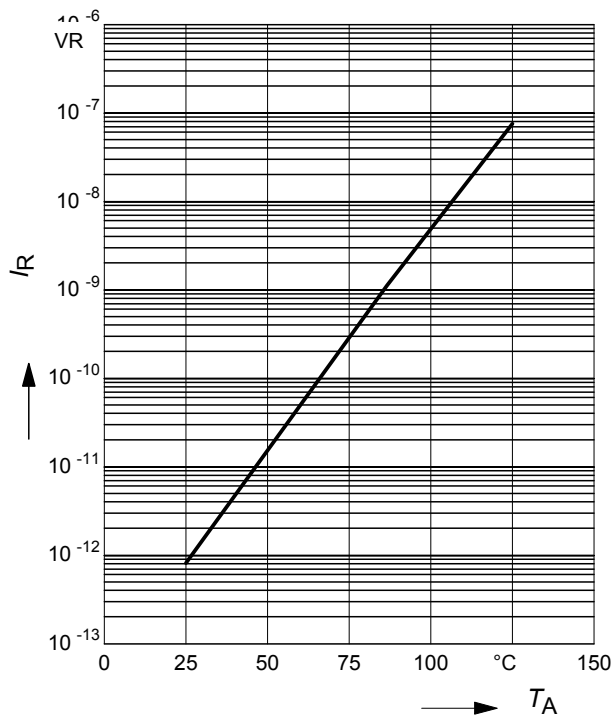
| Parameter | Symbol | Values | | | Unit |
|--|-------------------|--------|-------------|-------------|---------------|
| | | min. | typ. | max. | |
| Characteristics | | | | | |
| Reverse working voltage | V_{RWM} | - | - | 5 | V |
| Avalanche breakdown voltage $I_{\text{(BR)}} = 1 \text{ mA}$, from pin 2 to 1 | $V_{\text{(BR)}}$ | - | 200 | - | |
| Reverse current $V_{\text{R}} = 5 \text{ V}$ | I_{R} | - | - | 0.1 | μA |
| Clamping voltage ¹⁾ after 30 ns $V_{\text{ESD}} = 8 \text{ kV}$, contact, from pin 2 to 1 | V_{CL} | - | 40 | - | V |
| Line capacitance ²⁾ $V_{\text{R}} = 0 \text{ V}$, $f = 1.8 \text{ GHz}$ $V_{\text{R}} = 0 \text{ V}$, $f = 1 \text{ MHz}$ | C_{T} | - - | 0.2 0.27 | 0.4 0.42 | pF |
| Series inductance | L_{S} | - | 0.2 | - | |

¹⁾ V_{ESD} according to IEC61000-4-2

²⁾Total capacitance line to ground

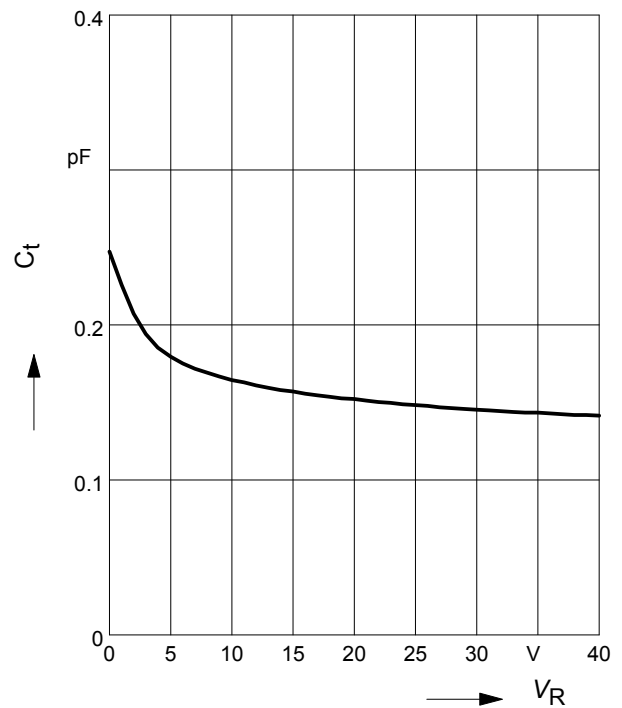
Reverse current $I_R = f(T_A)$

$V_R = 5\text{ V}$



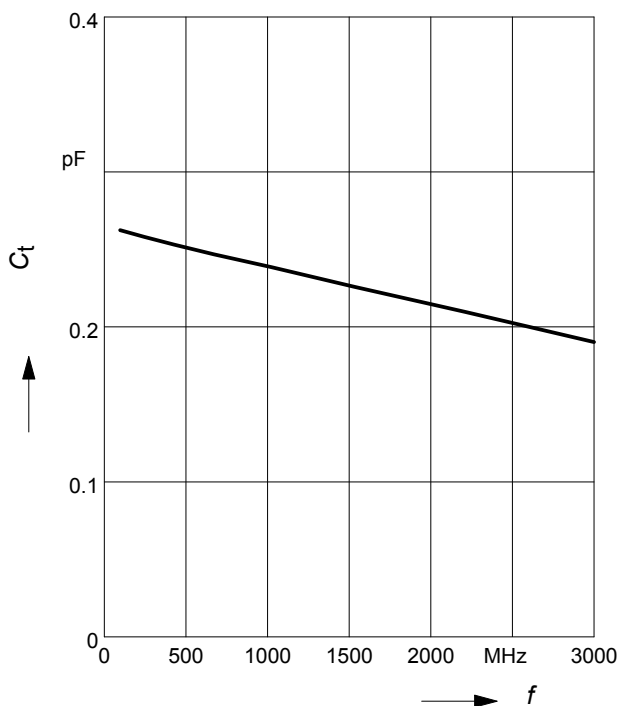
Diode capacitance $C_T = f(V_R)$

$f = 1\text{ GHz}$

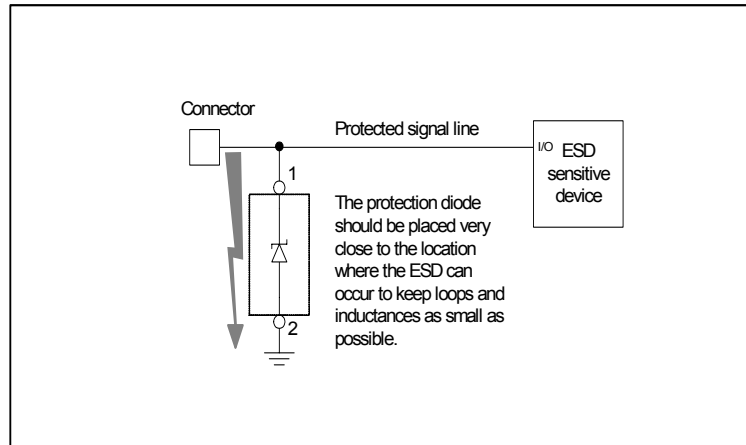


Line capacitance $C_T = f(f)$

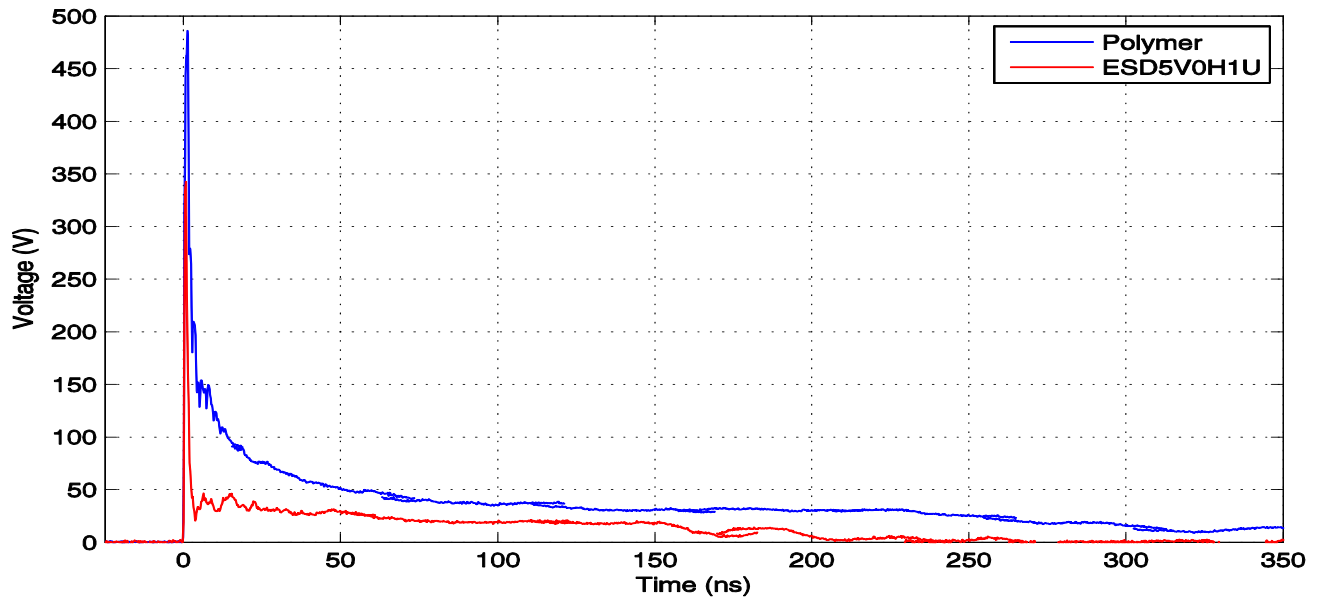
$V_R = 0\text{ V}$



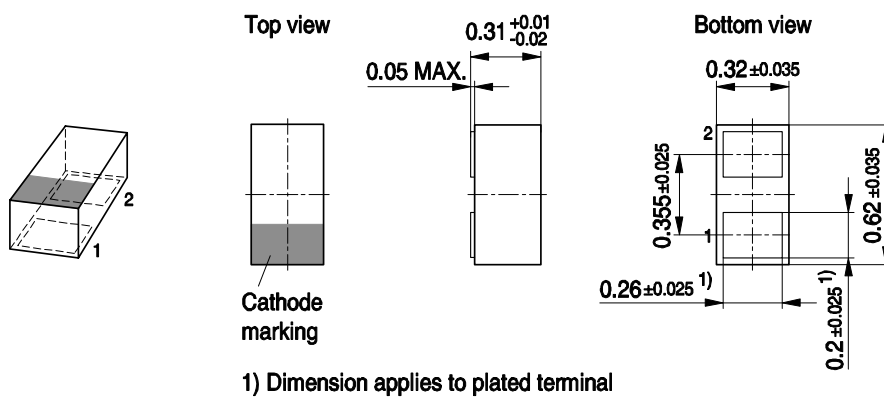
Application example
single channel, uni-directional



Clamping voltage at real ESD event according to IEC61000-4-2, 8 kV
 contact discharge: comparison with polymer suppressor.
 ESD gun: C=150pF/R=330Ω... with 6 GHz oscilloscope (50Ω)

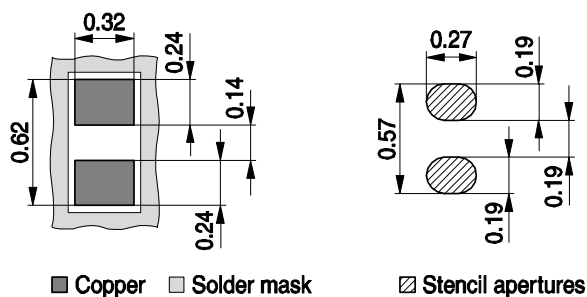


Package Outline

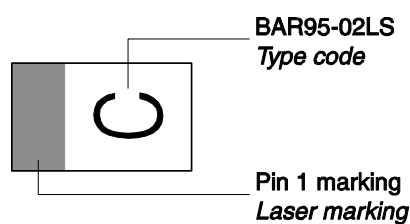


Foot Print

For board assembly information please refer to Infineon website "Packages"

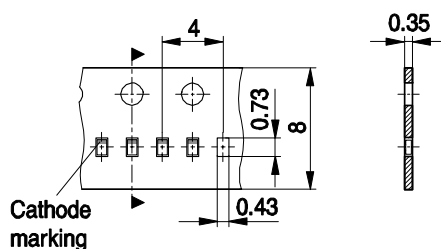


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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