

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

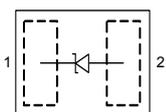


Applications

- 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	°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

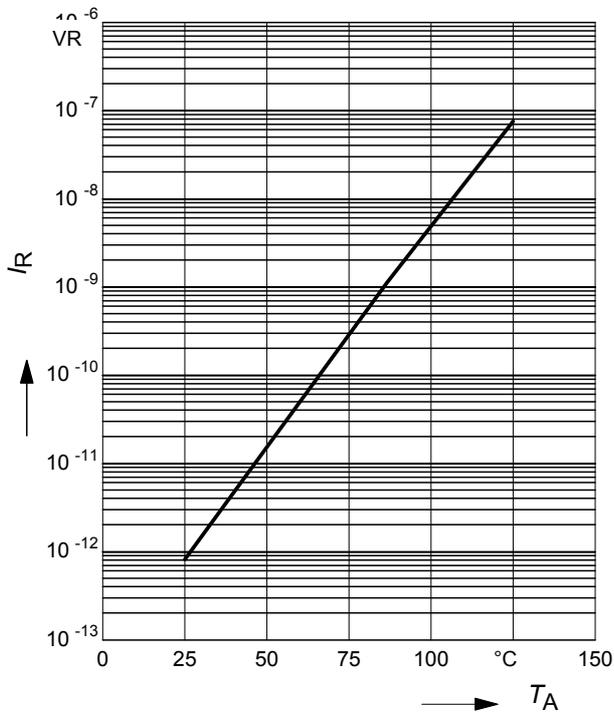
Reverse working voltage	V_{RWM}	-	-	5	V
Avalanche breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$, from pin 2 to 1	$V_{(\text{BR})}$	-	200	-	
Reverse current $V_{\text{R}} = 5 \text{ V}$	I_{R}	-	-	0.1	µA
Clamping voltage ¹⁾ after 30 ns $V_{\text{ESD}} = 8 \text{ kV}$, contact, from pin 2 to 1	V_{CL}	-	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	0.4	pF
		-	0.27	0.42	
Series inductance	L_{S}	-	0.2	-	nH

¹⁾ V_{ESD} according to IEC61000-4-2

²⁾Total capacitance line to ground

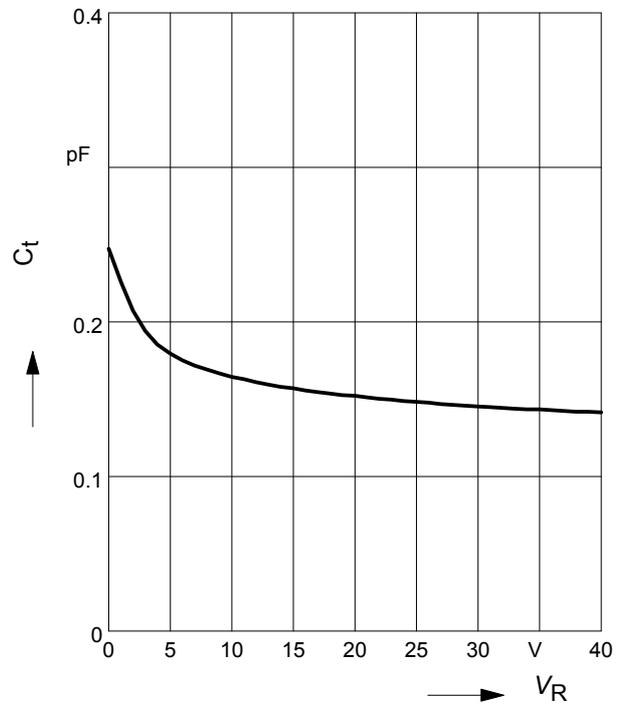
Reverse current $I_R = f(T_A)$

$V_R = 5\text{ V}$



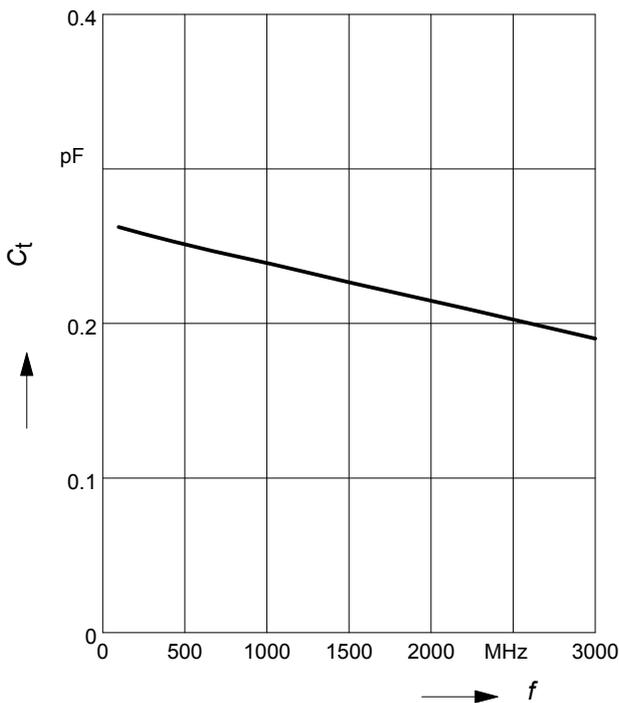
Diode capacitance $C_T = f(V_R)$

$f = 1\text{ GHz}$

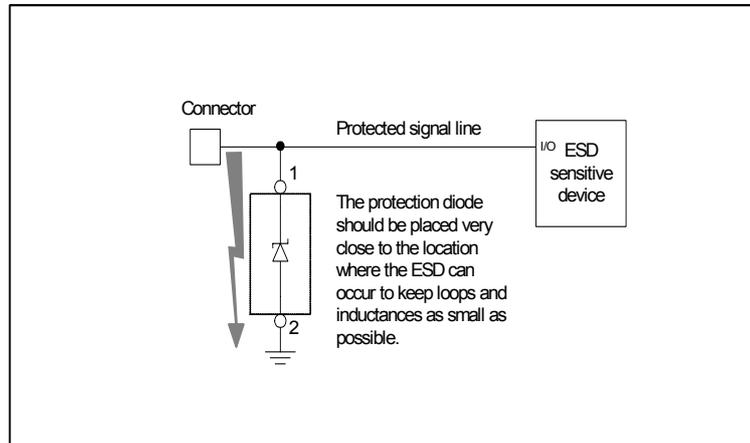


Line capacitance $C_T = f(f)$

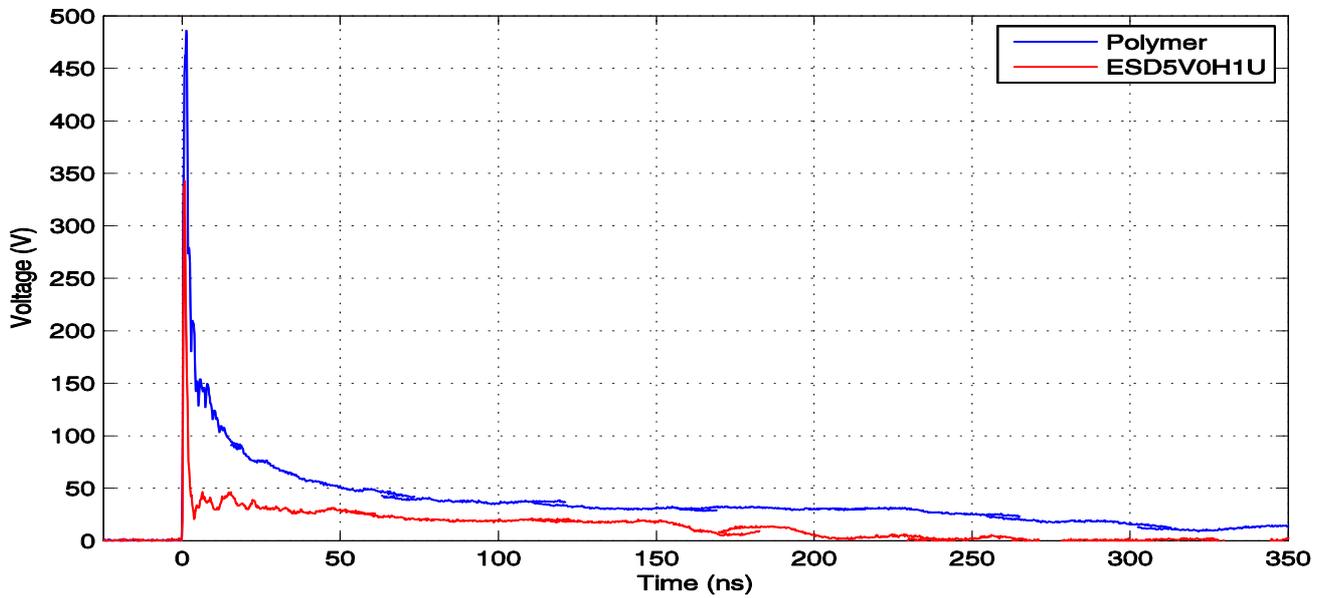
$V_R = 0\text{ V}$



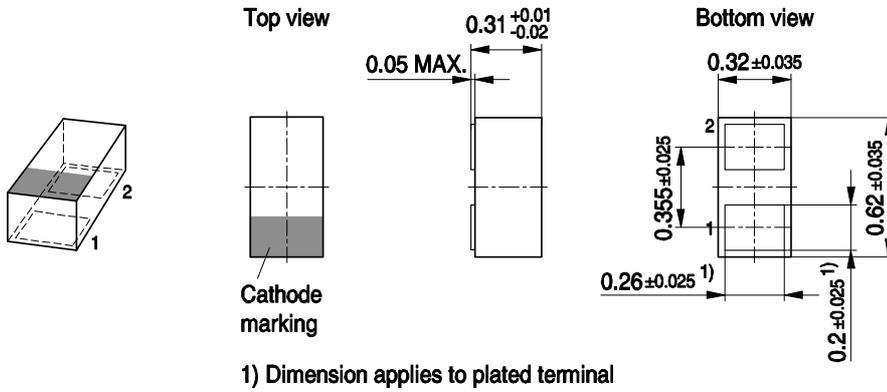
Application example
single channel, uni-directional



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)

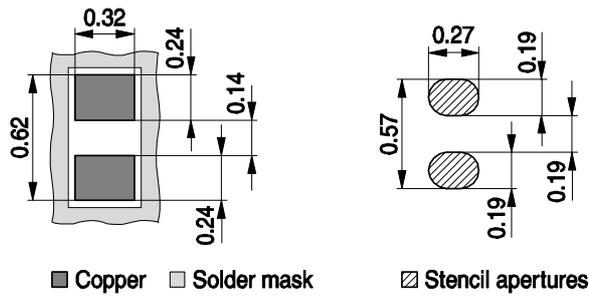


Package Outline

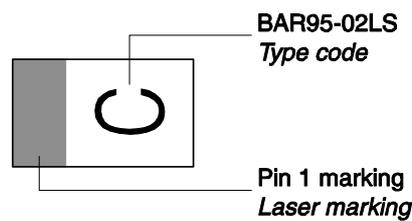


Foot Print

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

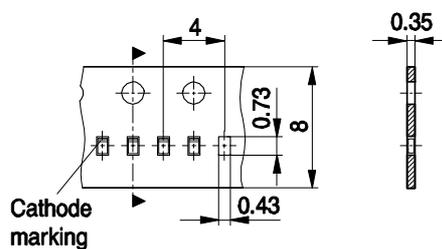


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



Edition 2009-11-16

**Published by
Infineon Technologies AG
81726 Munich, Germany**

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