

### 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

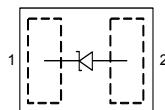


### Applications

- 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 <sup>1)</sup>	$V_{\text{ESD}}$	16	kV
Operating temperature range	$T_{\text{op}}$	-55...125	°C
Storage temperature	$T_{\text{stg}}$	-65...150	

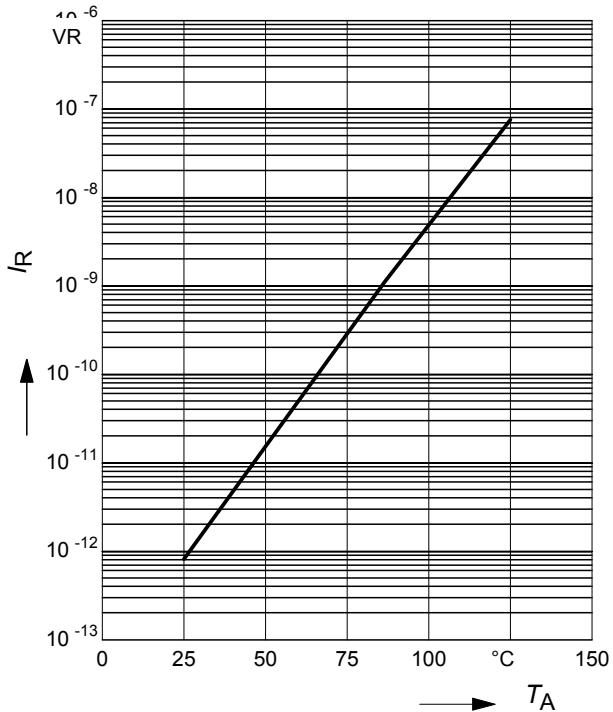
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Characteristics</b>					
Reverse working voltage	$V_{\text{RWM}}$	-	-	5	V
Avalanche breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$ , from pin 2 to 1	$V_{(\text{BR})}$	-	200	-	
Reverse current $V_R = 5 \text{ V}$	$I_R$	-	-	0.1	μA
Clamping voltage <sup>1)</sup> after 30 ns $V_{\text{ESD}} = 8 \text{ kV}$ , contact, from pin 2 to 1	$V_{\text{CL}}$	-	40	-	V
Line capacitance <sup>2)</sup> $V_R = 0 \text{ V}$ , $f = 1.8 \text{ GHz}$ $V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$	$C_T$	-	0.2	0.4	pF
Series inductance	$L_S$	-	0.2	-	nH

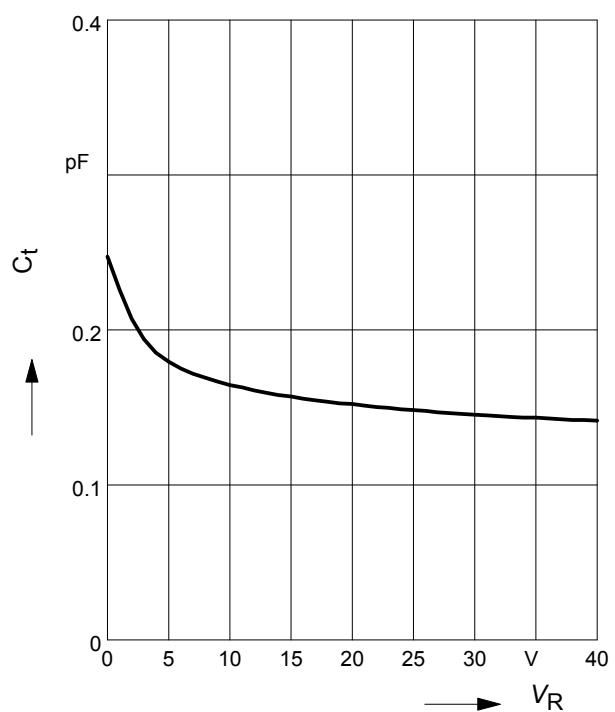
<sup>1)</sup> $V_{\text{ESD}}$  according to IEC61000-4-2

<sup>2)</sup>Total capacitance line to ground

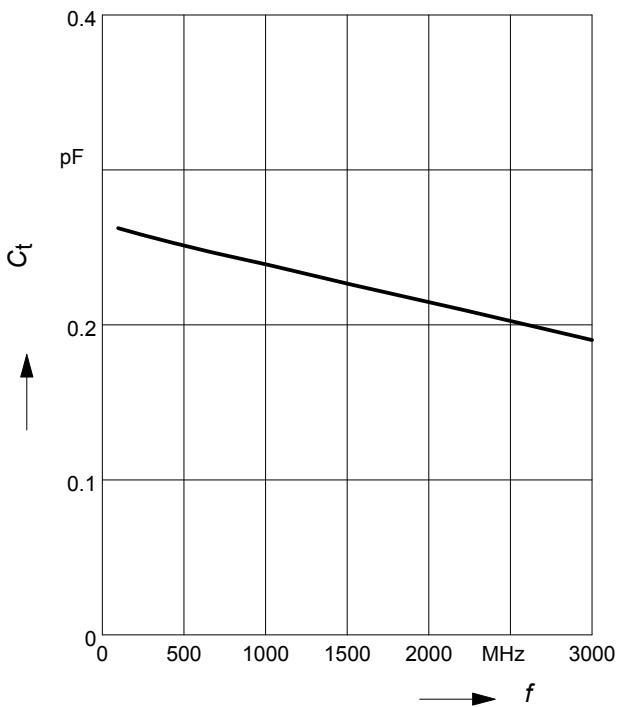
**Reverse current  $I_R = f (T_A)$**   
 $V_R = 5 \text{ V}$



**Diode capacitance  $C_T = f (V_R)$**   
 $f = 1 \text{ GHz}$

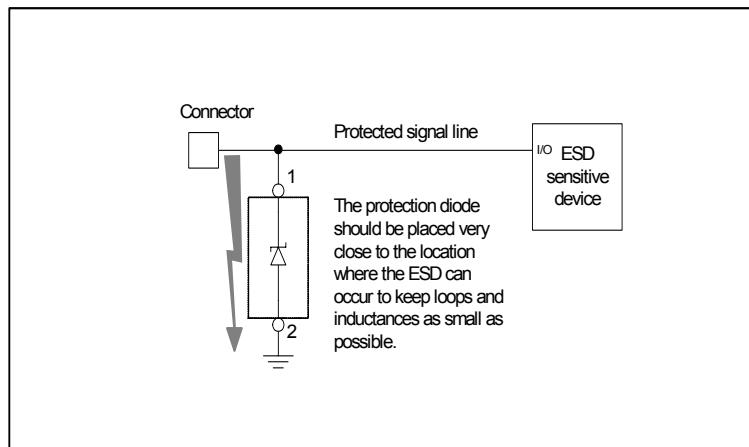


**Line capacitance  $C_T = f (f)$**   
 $V_R = 0 \text{ V}$

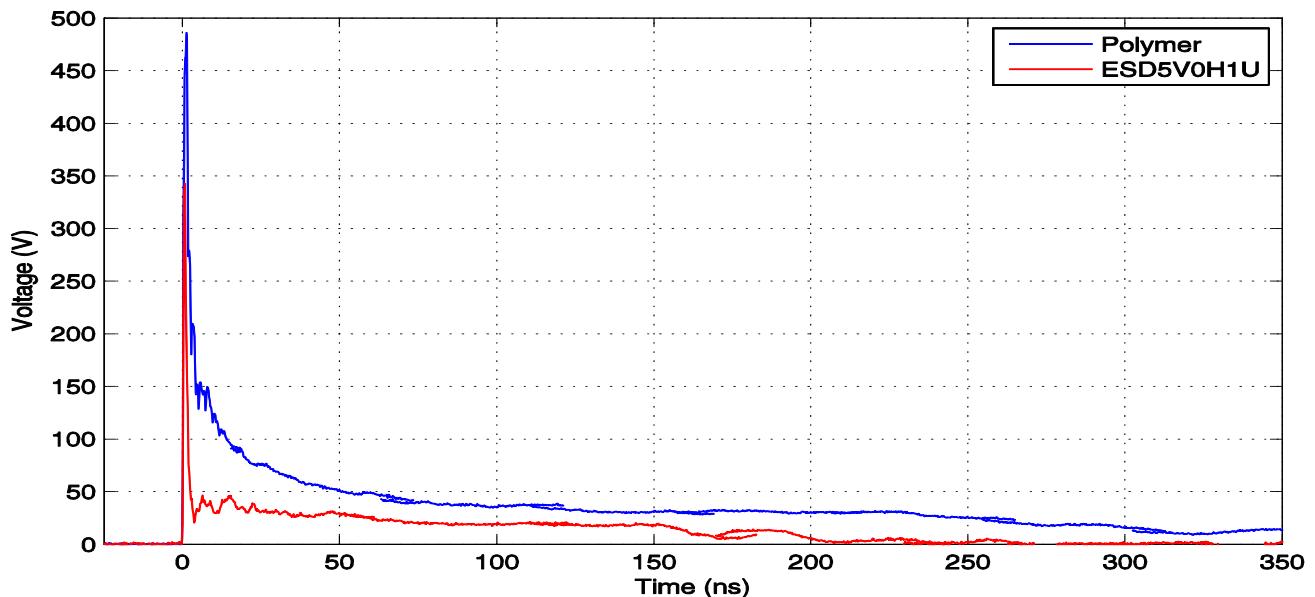


## Application example

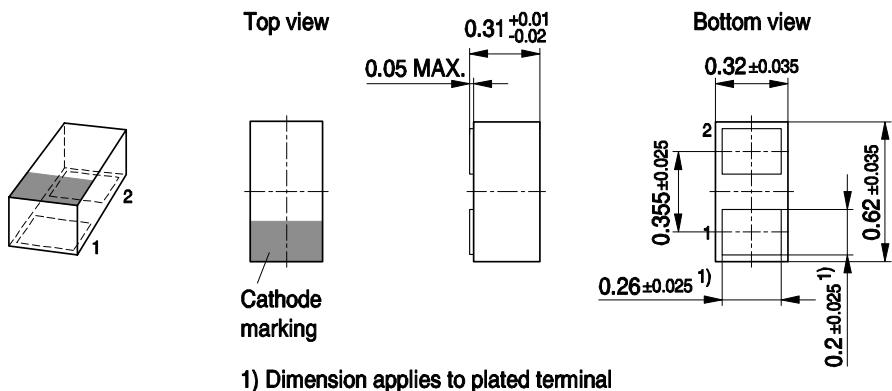
single channel, uni-directional



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)

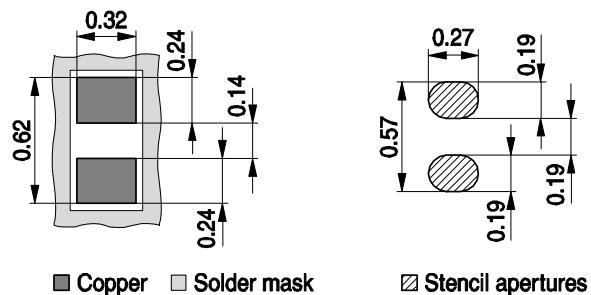


## Package Outline

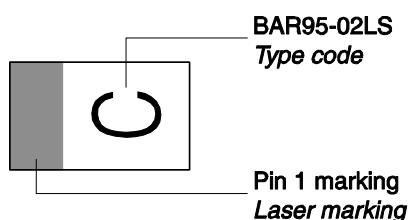


## Foot Print

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

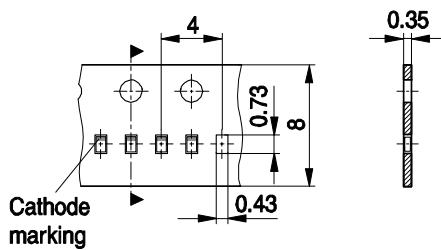


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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