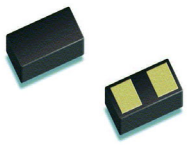
Ultra-Low Capacitance TVS Diode

- 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

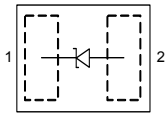


Applications

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

RoHS

ESD5V0H1U-02LS



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

Maximum Ratings at T_A = 25°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°C, unless otherwise specified

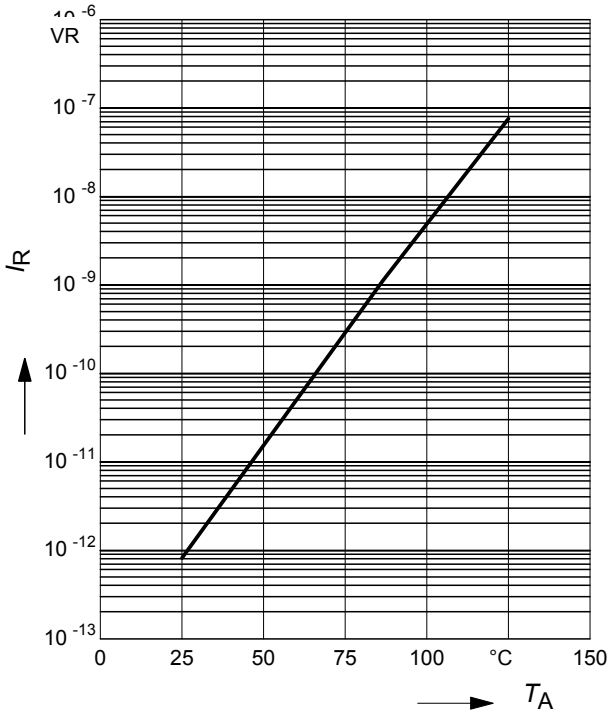
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Reverse working voltage	V_{RWM}	-	-	5	V
Avalanche breakdown voltage $I_{(BR)}$ = 1 mA, from pin 2 to 1	$V_{(BR)}$	-	200	-	
Reverse current V_R = 5 V	I_R	-	-	0.1	µA
Clamping voltage[1)] after 30 ns V_{ESD} = 8 kV, contact, from pin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

[1] V_{ESD} according to IEC61000-4-2

[2] Total capacitance line to ground

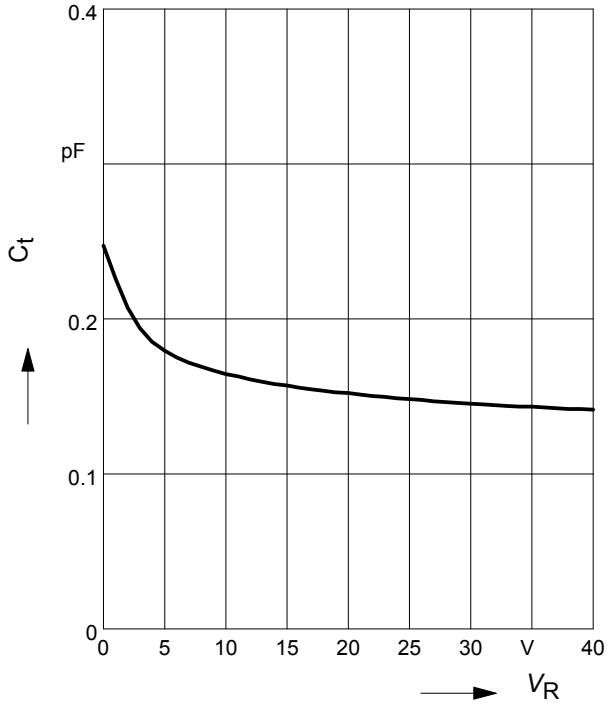
Reverse current $I_R = f(T_A)$

V_R = 5 V



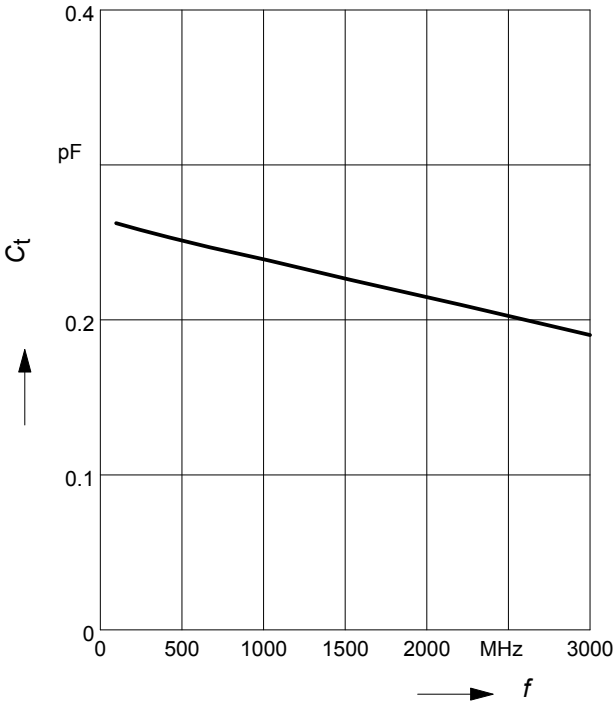
Diode capacitance $C_T = f(V_R)$

f = 1GHz



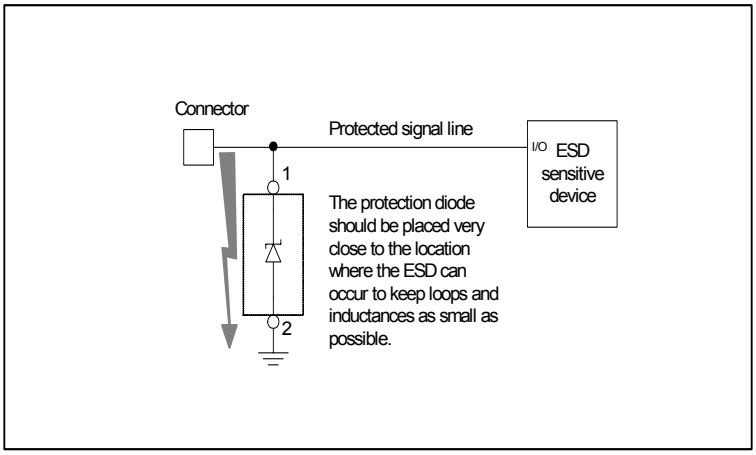
Line capacitance $C_T = f(f)$

V_R = 0 V

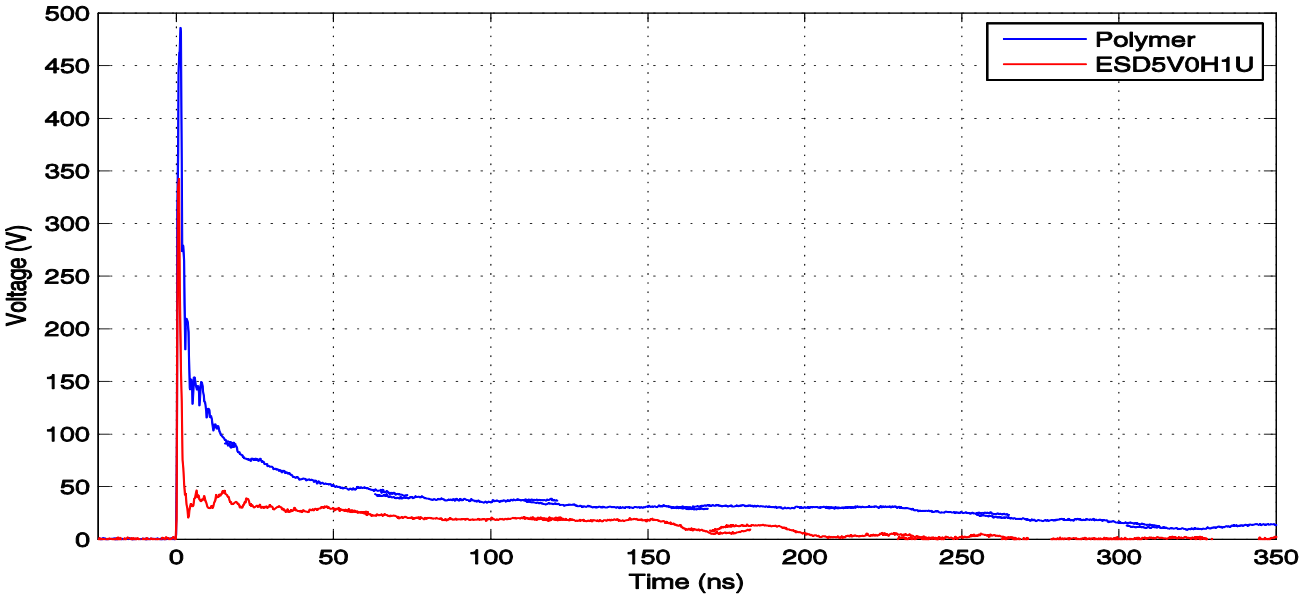


Application example

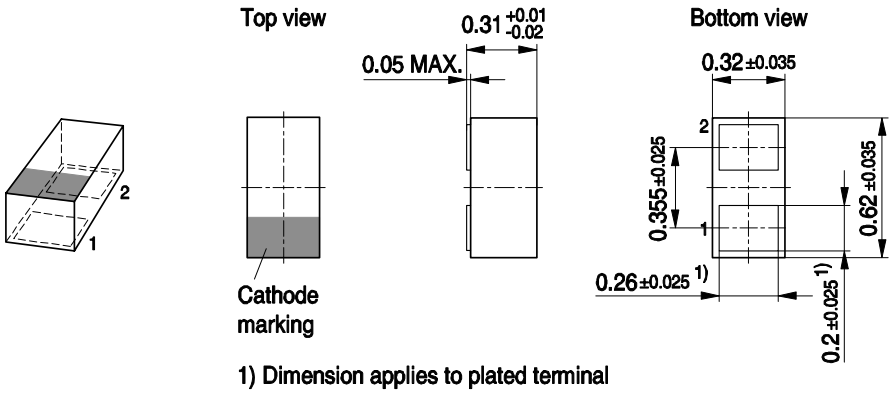
single channel, uni-directional



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)



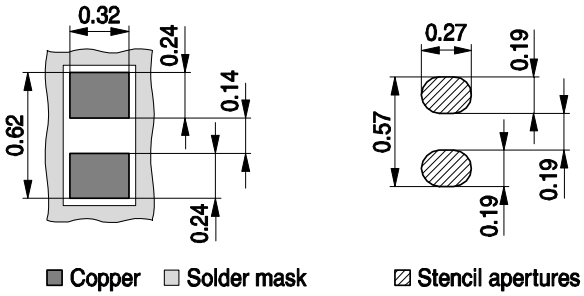
Package Outline



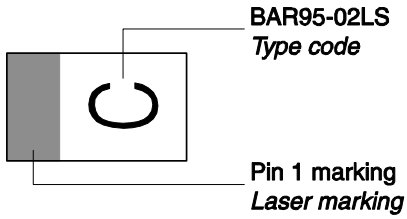
1) Dimension applies to plated terminal

Foot Print

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

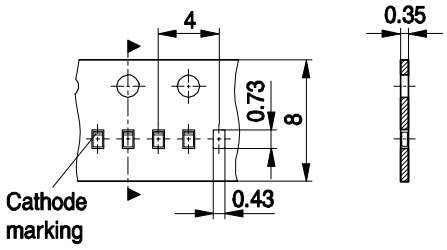


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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