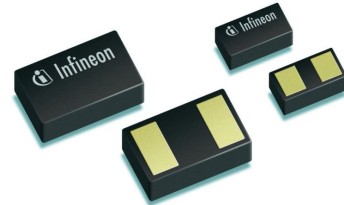
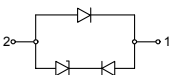


Ultra-Low Capacitance TVS Diode

- ESD / transient protection of high-speed data lines exceeding
IEC61000-4-2 (ESD): ± 20 kV (air / contact)
IEC61000-4-4 (EFT): 2.5 kV/50 A (5/50 ns)
IEC61000-4-5 (surge): 3 A (8/20 μ s)
- Extremely small form factor down to 0.62 x 0.32 x 0.31 mm³
- Max. working voltage: 3.3 V
- Very low reverse current: < 1 nA typ.
- Extremely low capacitance: 0.4 pF typ.
- Very low clamping voltage: 12 V typ. at positive transients, 4 V typ. at negative transients
- Very low series inductance down to 0.2 nH typ.
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101


Applications

- USB 2.0, 10/100/1000 Ethernet, Firewire, DVI, HDMI, S-ATA
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals


ESD3V3U1U-02LS
ESD3V3U1U-02LRH


Type	Package	Configuration	Marking
ESD3V3U1U-02LRH	TSLP-2-7	1 line, uni-directional	E3
ESD3V3U1U-02LS	TSSLP-2-1	1 line, uni-directional	Z

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

Parameter	Symbol	Value	Unit
ESD (air / contact) discharge ¹⁾	V_{ESD}	20	kV
Peak pulse current ($t_p = 8 / 20 \mu\text{s}$) ²⁾	I_{pp}	3	A
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}	-	-	3.3	V
Breakdown voltage $I_{\text{(BR)}} = 1 \text{ mA}$, from pin 1 to 2	$V_{\text{(BR)}}$	5	-	-	
Reverse current $V_{\text{R}} = 3.3 \text{ V}$, from pin 1 to 2	I_{R}	-	< 1	50	nA
Clamping voltage $I_{\text{PP}} = 1 \text{ A}$, $t_p = 8/20 \mu\text{s}^2$, from pin 1 to 2 $I_{\text{PP}} = 3 \text{ A}$, $t_p = 8/20 \mu\text{s}^2$, from pin 1 to 2	V_{CL}	-	10 12	13 15	V
Forward clamping voltage $I_{\text{PP}} = 1 \text{ A}$, $t_p = 8/20 \mu\text{s}^2$, from pin 2 to 1 $I_{\text{PP}} = 3 \text{ A}$, $t_p = 8/20 \mu\text{s}^2$, from pin 2 to 1	V_{FC}	-	2 4	4 6	
Line capacitance ³⁾ $V_{\text{R}} = 0 \text{ V}$, $f = 1 \text{ MHz}$	C_{T}	-	0.4	0.6	
Series inductance ESD3V3U1U-02LS ESD3V3U1U-02LRH	L_{S}	-	0.2 0.4	-	nH

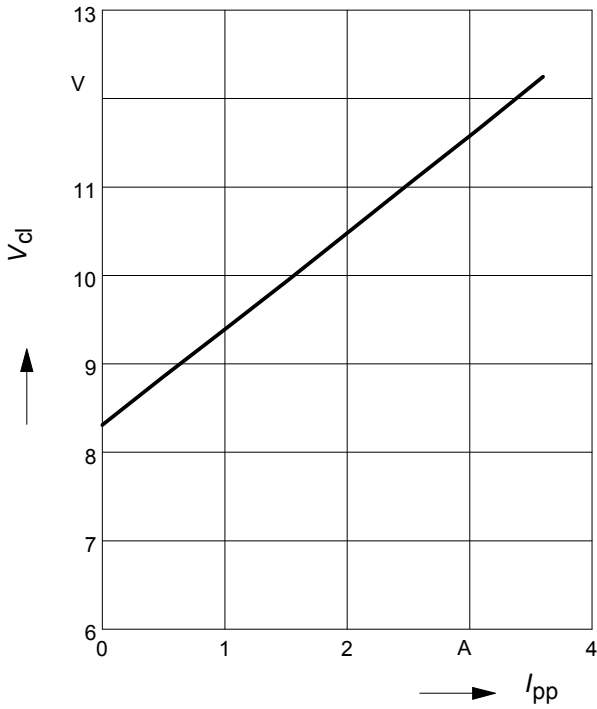
¹⁾ V_{ESD} according to IEC61000-4-2

²⁾ I_{pp} according to IEC61000-4-5

³⁾Total capacitance line to ground

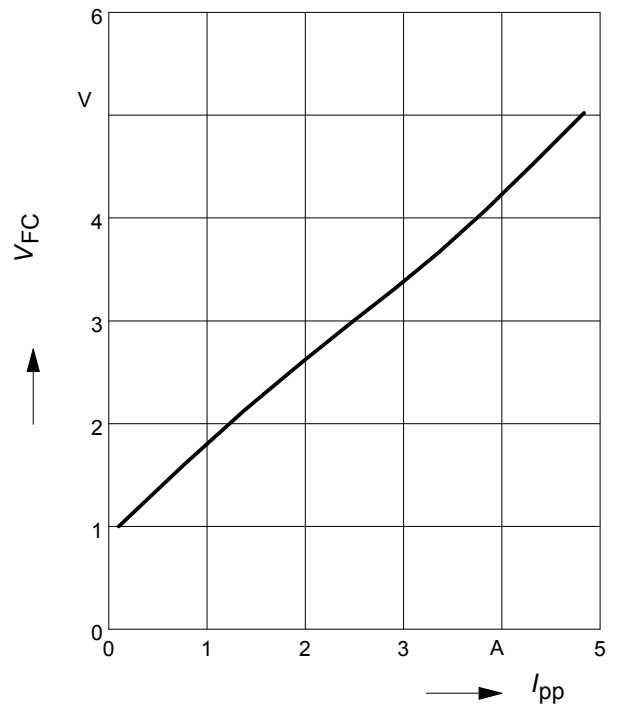
Clamping voltage, $V_{cl} = f(I_{pp})$

$t_p = 8 / 20 \mu s$, from pin 1 to 2



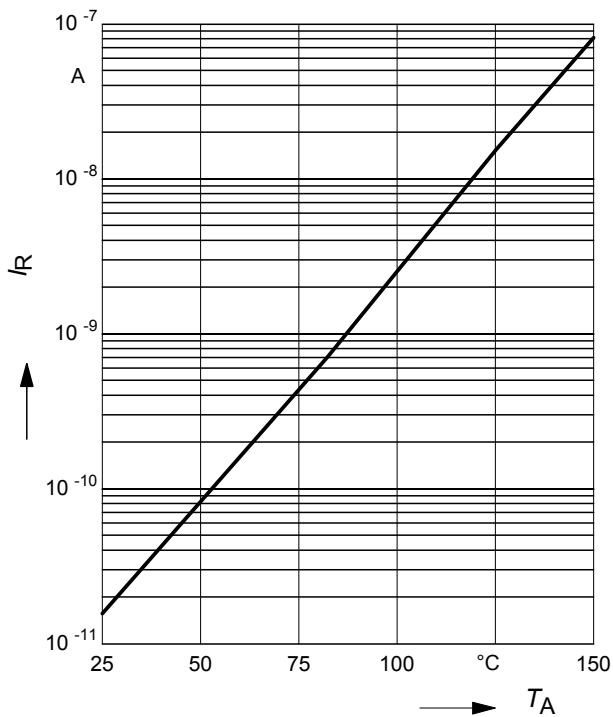
Forward clamping voltage $V_{FC} = f(I_{PP})$

$t_p = 8 / 20 \mu s$, from pin 2 to 1



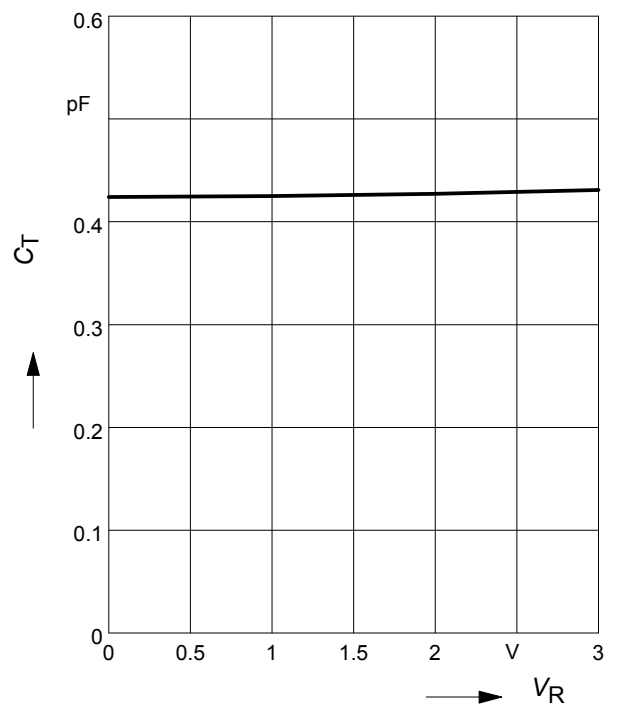
Reverse current $I_R = f(T_A)$

$V_R = 3.3 V$, from pin 1 to 2



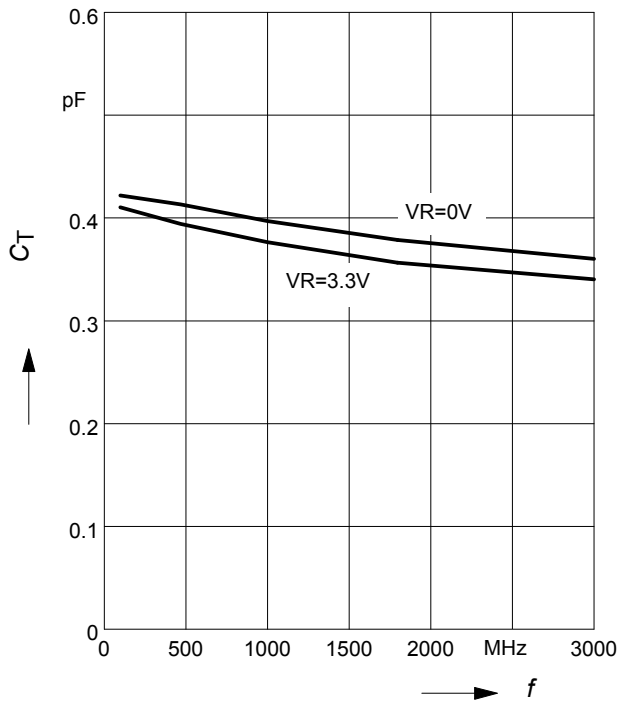
Line capacitance $C_T = f(V_R)$

$f = 1 MHz$, from pin 1 to 2



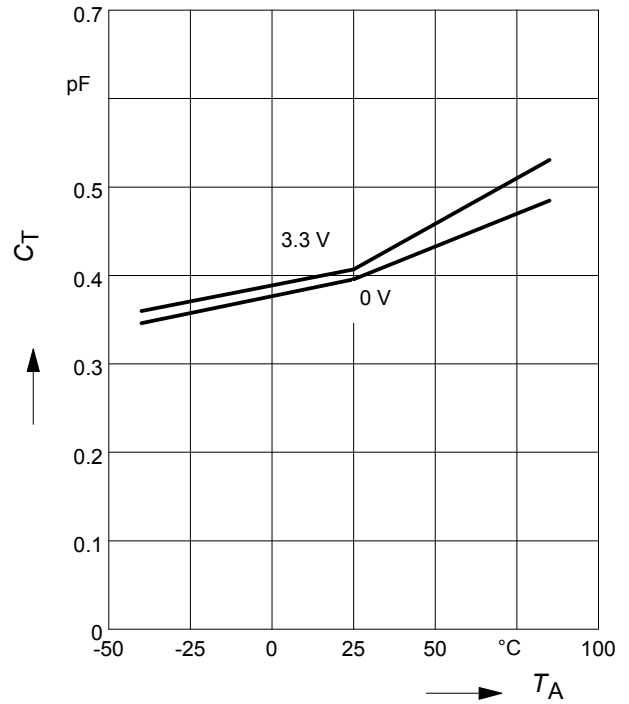
Line capacitance $C_T = f(f)$

$V_R =$ parameter, from pin 1 to 2



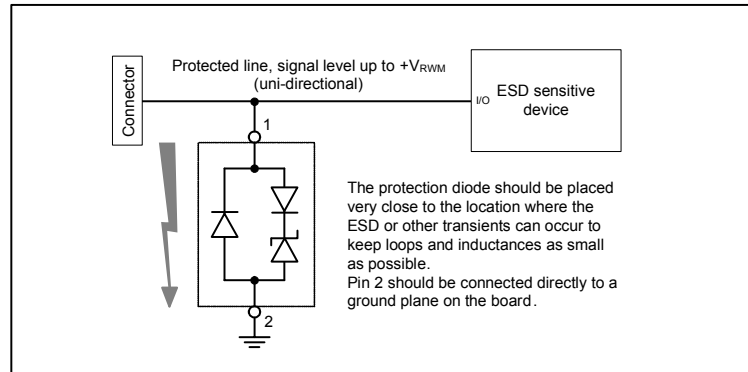
Line capacitance $C_T = f(T_A)$

$V_R = 0V, f = 1\text{ MHz}$

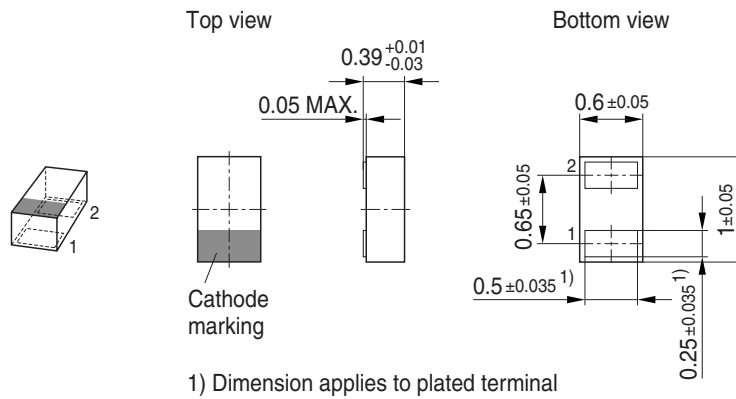


Application example ESD3V3U1U...

1-channel, uni-directional

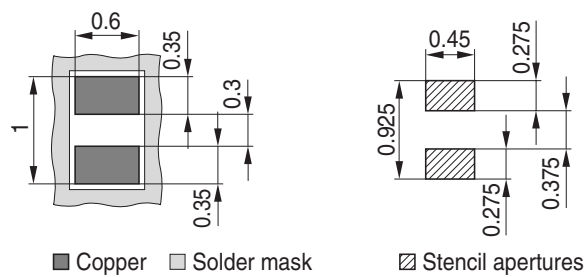


Package Outline

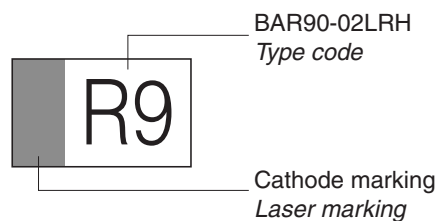


Foot Print

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

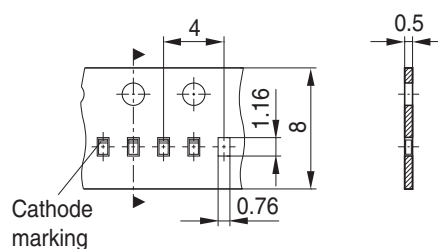


Marking Layout (Example)

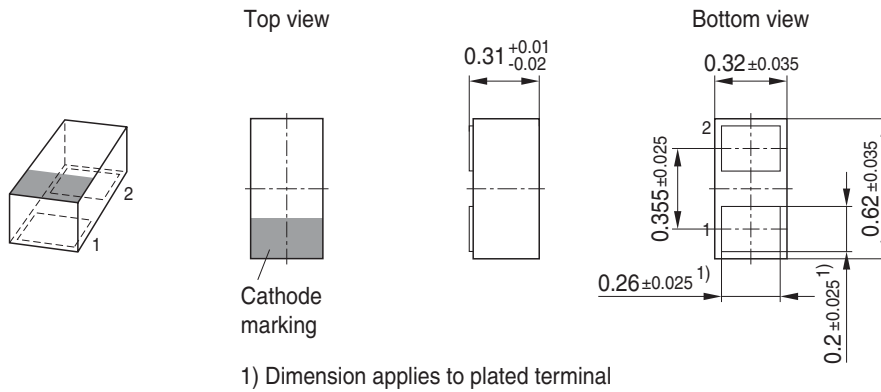


Standard Packing

Reel $\varnothing 180 \text{ mm} = 15.000 \text{ Pieces/Reel}$
 Reel $\varnothing 330 \text{ mm} = 50.000 \text{ Pieces/Reel (optional)}$

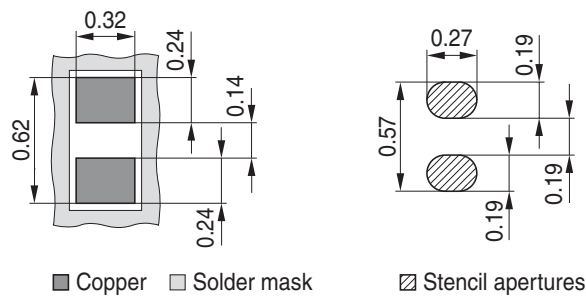


Package Outline

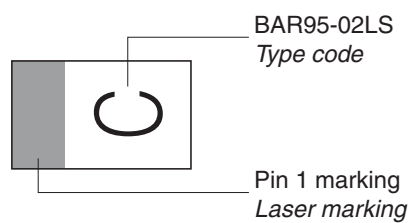


Foot Print

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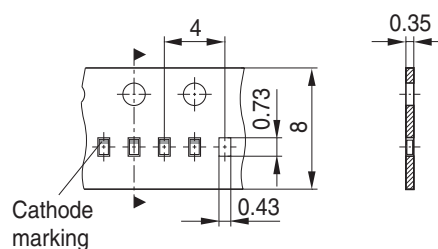


Marking Layout



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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