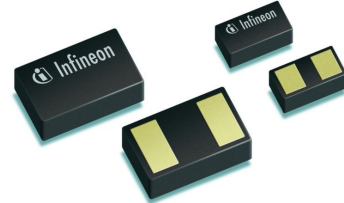
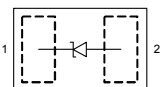


**Silicon TVS Diode**

- ESD / transient protection of data and power lines in low voltage applications according to:  
IEC61000-4-2 (ESD):  $\pm 25$  kV (air) 20 kV (contact)  
IEC61000-4-4 (EFT): 50 A / 2.5 kV (5/50 ns)  
IEC61000-4-5 (surge): 5.5 A / 66 W (8/20  $\mu$ s)
- Small form factor (0402 inch):  
1.0 x 0.6 x 0.4 mm<sup>3</sup>
- Uni-directional, working voltage up to 5.3 V
- Ultralow clamping voltage, protects against both positive and negative ESD strikes
- Ultralow dynamic resistance **0.27 $\Omega$**
- Very fast response time
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101


**Applications**

- Digital interfaces (medium speed)
- Vcc protection
- Keypad, trackball protection, camera, displays in:  
mobile communications (smartphone, camera phone & added functions e.g. mobile TV)
- Digital consumer & computer electronics:  
laptops, PC, laserjet printer, photo printer, scanner, input devices (mouse, keyboard, remote control ...)
- Industrial: security systems, sensors, white goods.


**ESD5V3S1U-02LRH**


Type	Package	Configuration	Marking
ESD5V3S1U-02LRH	TSLP-2-17	1 line, uni-directional	E2

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

Parameter	Symbol	Value	Unit
ESD air / contact discharge <sup>1)</sup>	$V_{\text{ESD}}$	25 / 20	kV
Peak pulse current ( $t_p = 8 / 20 \mu\text{s}$ ) <sup>2)</sup>	$I_{\text{pp}}$	5.5	A
Peak pulse power ( $t_p = 8 / 20 \mu\text{s}$ ) <sup>2)</sup>	$P_{\text{pk}}$	66	W
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

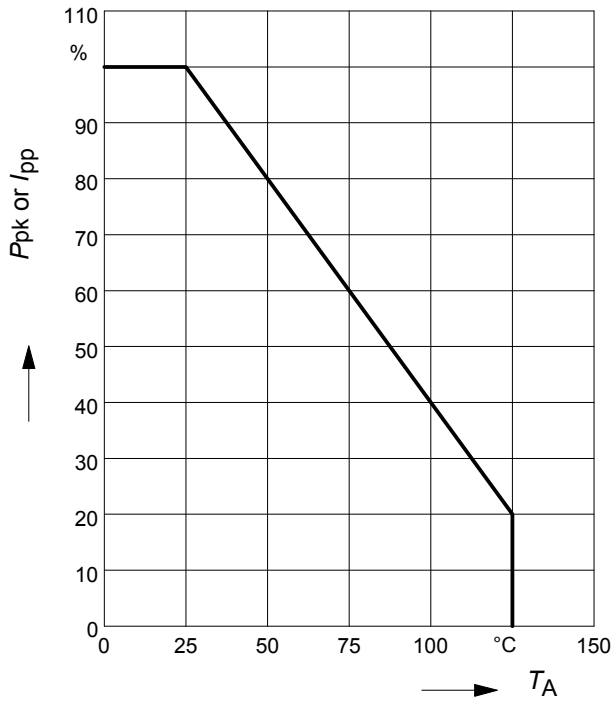
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>Characteristics</b>					
Reverse working voltage	$V_{\text{RWM}}$	-	-	5.3	V
Breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$	$V_{(\text{BR})}$	5.7	-	-	
Reverse current $V_R = 3.3 \text{ V}$	$I_R$	-	-	0.1	$\mu\text{A}$
Clamping voltage $I_{\text{PP}} = 1 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup> $I_{\text{PP}} = 3.5 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup> $I_{\text{PP}} = 5.5 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup>	$V_{\text{CL}}$	-	7 8 9	9 10 11	V
Forward clamping voltage $I_{\text{PP}} = 1 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup> $I_{\text{PP}} = 3.5 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup> $I_{\text{PP}} = 5.5 \text{ A}, t_p = 8/20 \mu\text{s}$ <sup>2)</sup>	$V_{\text{FC}}$	-	1.2 2 2.5	2 3 3.5	
Diode capacitance $V_R = 0 \text{ V}, f = 1 \text{ MHz}$ $V_R = 2.5 \text{ V}, f = 1 \text{ MHz}$	$C_T$	-	35 20	40 -	
Dynamic resistance <sup>3)</sup> ( $t_p = 30 \text{ ns}$ )	$R_D$	-	0.27	-	$\Omega$

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

<sup>2)</sup>  $I_{\text{pp}}$  according to IEC61000-4-5

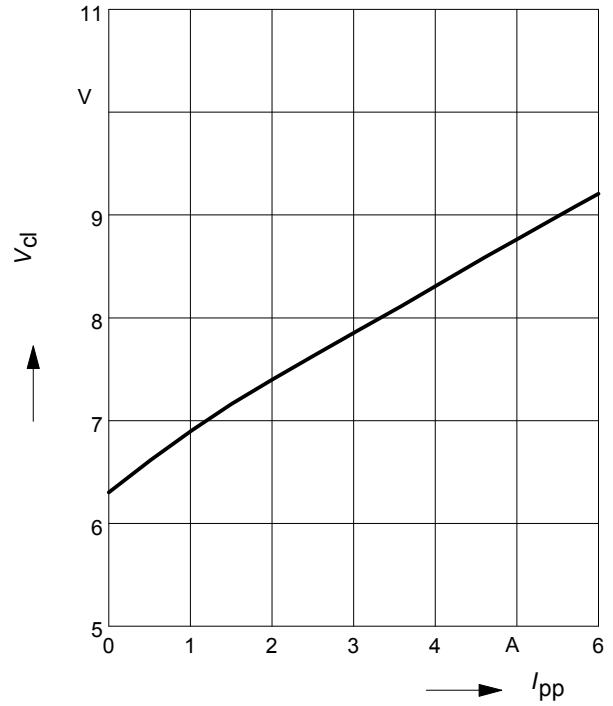
<sup>3)</sup> according to TLP tests

Power derating curve  $P_{pk} = f(T_A)$



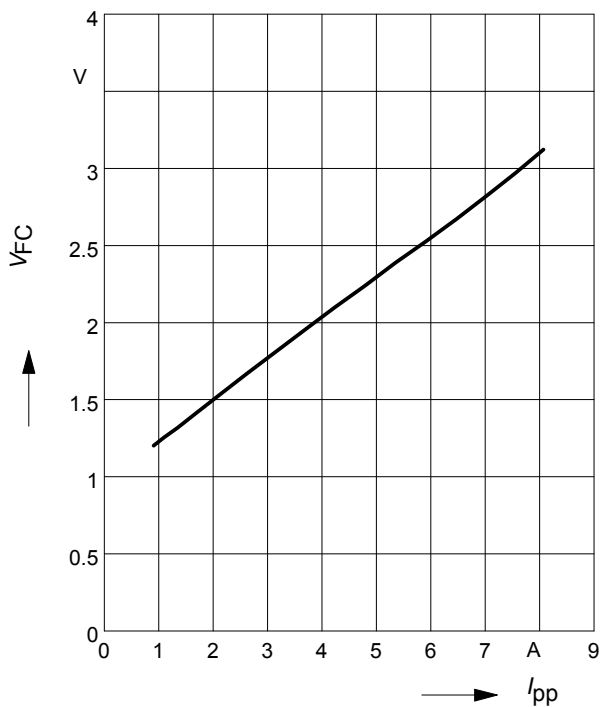
Clamping voltage,  $V_{cl} = f(I_{pp})$

$t_p = 8 / 20 \mu s$



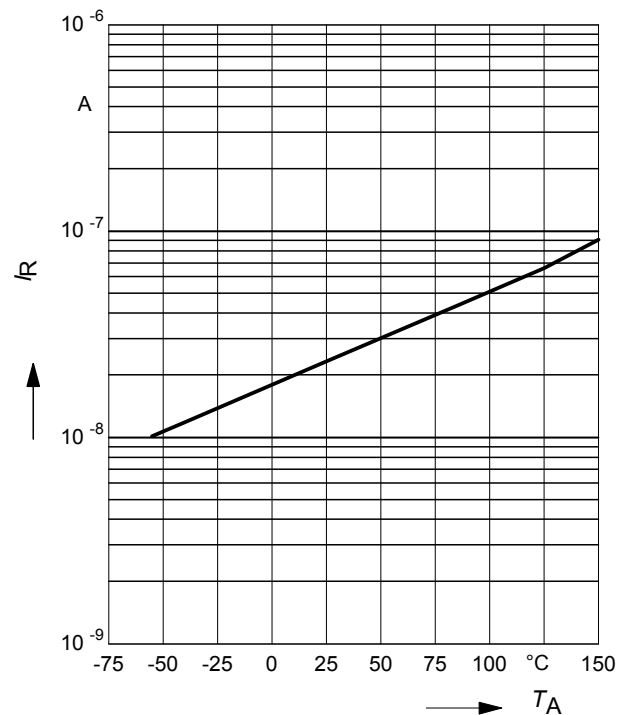
Forward clamping voltage  $V_{FC} = f(I_{PP})$

$t_p = 8 / 20 \mu s$



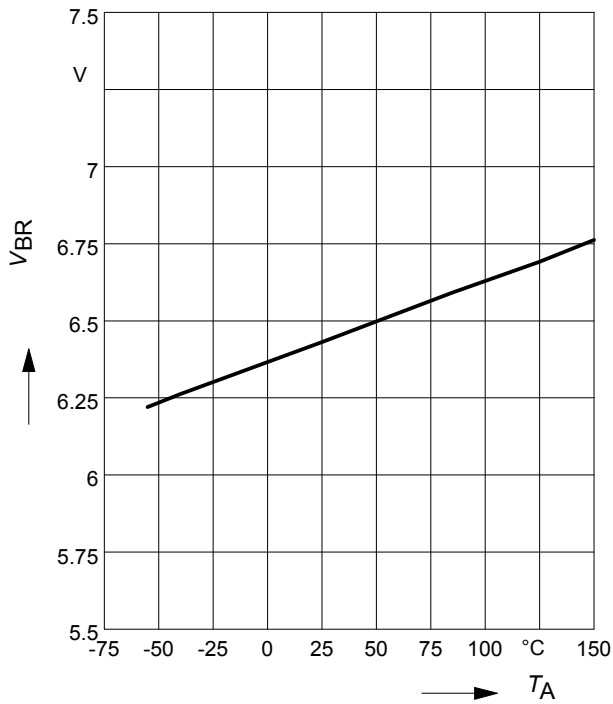
Reverse current  $I_R = f(T_A)$

$V_R = 3.3 V$



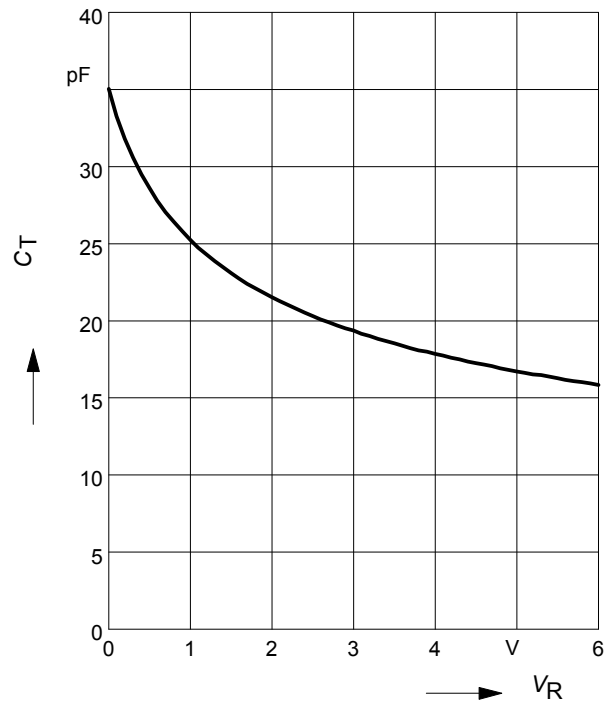
**Breakdown voltage**  $V_{BR} = f(T_A)$

$I_R = 1 \text{ mA}$

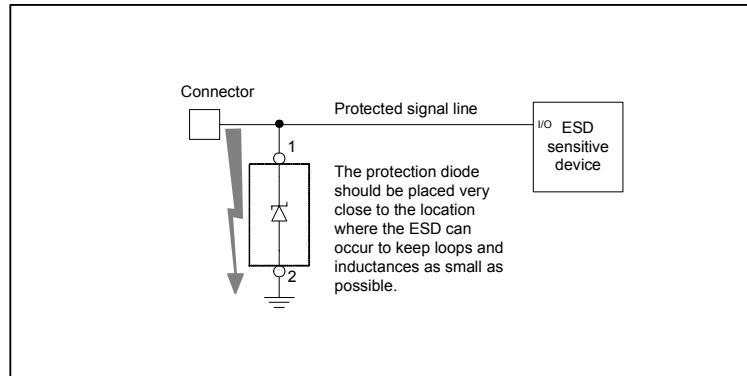


**Diode capacitance**  $C_T = f(V_R)$

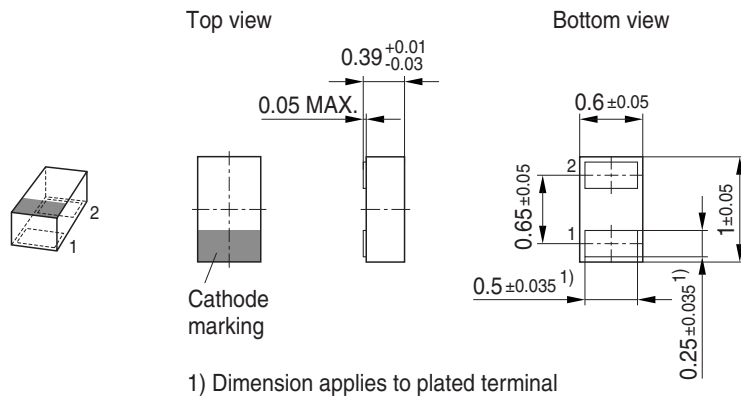
$f = 1 \text{ MHz}$



**Application example**  
single channel, uni-directional

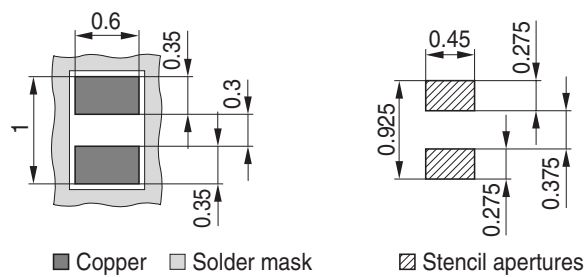


### Package Outline

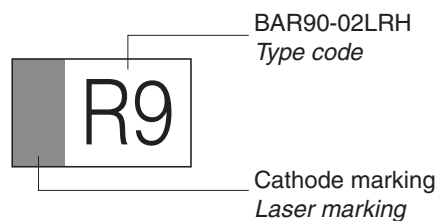


### Foot Print

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

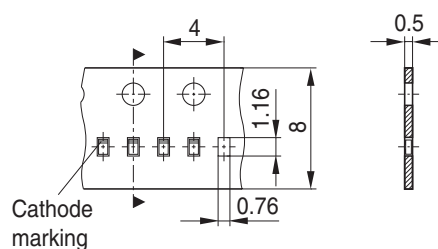


### Marking Layout (Example)



### Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel  
 Reel ø330 mm = 50.000 Pieces/Reel (optional)



**Edition 2009-11-16**

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

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