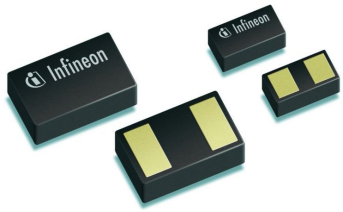
Bi-directional Ultra Low Capacitance TVS Diode



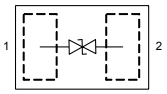
- ESD / transient protection of RF signal lines according to:
  IEC61000-4-2 (ESD): ±20kV (contact)
  IEC61000-4-4 (EFT): 40 A (5 / 50 ns)
  IEC61000-4-5 (Surge): 3 A (8 / 20 µs)
- Extremely small form factor down to 0.62 x 0.32 x 0.31 mm³
- Very low dynamic resistance
- Max. working voltage: ±5.3 V
- Extremely low capacitance: 0.2 pF typ.
- Very low reverse current < 1 nA typ.
- Very low series inductance down to 0.2 nH typ.
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

Applications

- ESD protection of sensitive RF signal lines
- RF antenna protection, frontend module
- GPS, mobile TV, FM radio, RKE, UWB

AEC Qualified RoHS

ESD0P2RF-02LRH
ESD0P2RF-02LS



Type	Package	Configuration	Marking
ESD0P2RF-02LRH	TSLP-2-17	1 line, bi-directional	T
ESD0P2RF-02LS	TSSLP-2-1	1 line, bi-directional	T

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

Parameter	Symbol	Value	Unit
ESD contact discharge[1)], contact	V_{ESD}	20	kV
Peak pulse current (t_p = 8 / 20 µs)[2)]	I_{pp}	3	A
Operating temperature range	T_{op}	-55...125	°C
Storage temperature	T_{stg}	-55...150	

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

[2] I_{pp} according to IEC61000-4-5

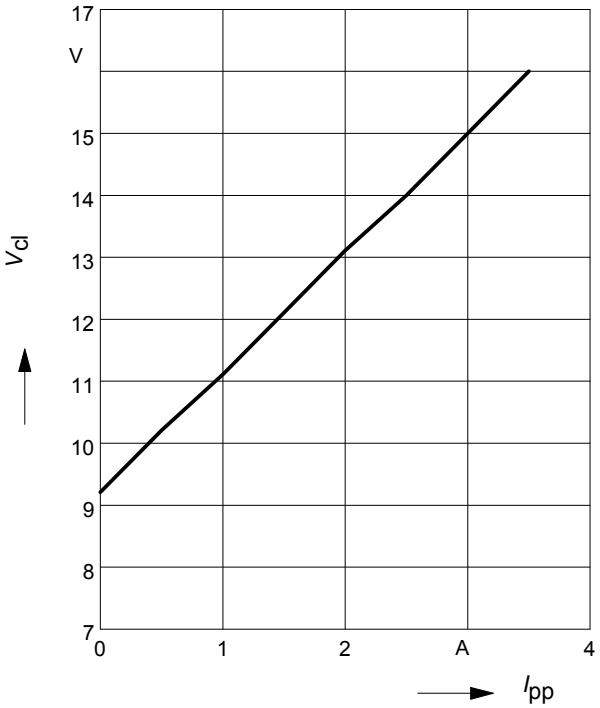
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics -					
Reverse working voltage	V_{RWM}	-5.3	-	5.3	V
Breakdown voltage	$V_{(BR)}$				
$I_{(BR)}$ = 1 mA, from pin 2 to 1		7	-	-	
$I_{(BR)}$ = 1 mA, from pin 1 to 2		7	-	-	
Reverse current	I_R	-	<1	50	nA
V_R = 5.3 V					
Clamping voltage	V_{CL}				V
I_{PP} = 1 A, t_p = 8/20 µs[1)]		-	11	<	
I_{PP} = 3 A, t_p = 8/20 µs[1)]		-	16	21	
Diode capacitance	C_T				pF
V_R = 0 V, f = 1 MHz		-	0.23	0.4	
V_R = 0 V, f = 1 GHz		-	0.2	0.4	
Dynamic resistance (tp=30ns)	R_D	-	1	-	Ω
Series inductance	L_S				nH
ESD0P2RF-02LS		-	0.2	-	
ESD0P2RF-02LRH		-	0.4	-	

[1] I_{pp} according to IEC61000-4-5

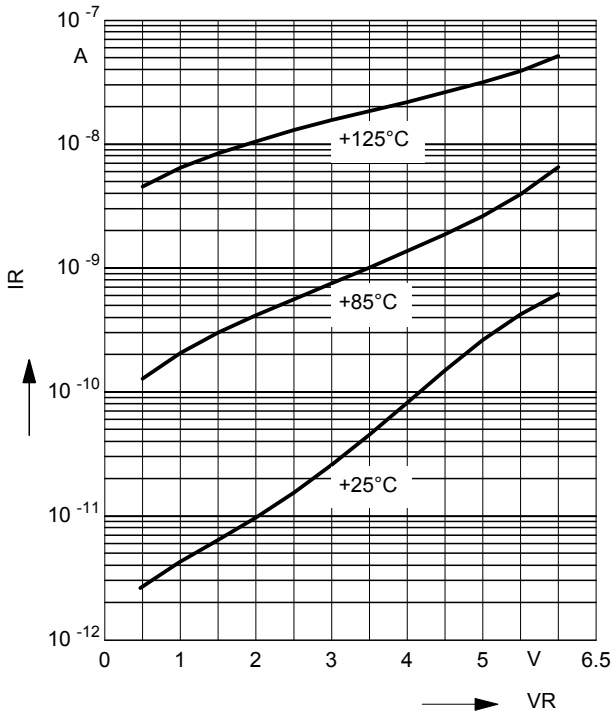
Clamping voltage, $V_{cl} = f(I_{pp})$

t_p = 8 / 20 µs



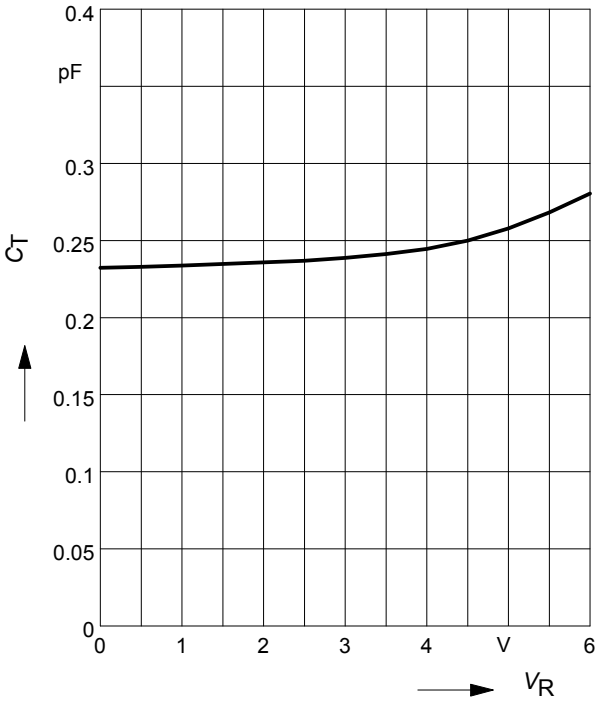
Reverse current $I_R = f(V_R)$

T_A = Parameter



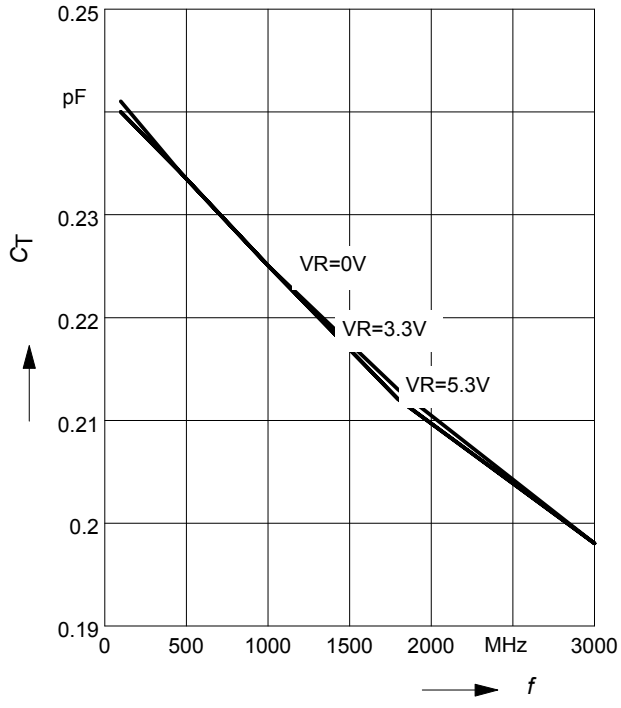
Diode capacitance $C_T = f(V_R)$

f = 1MHz



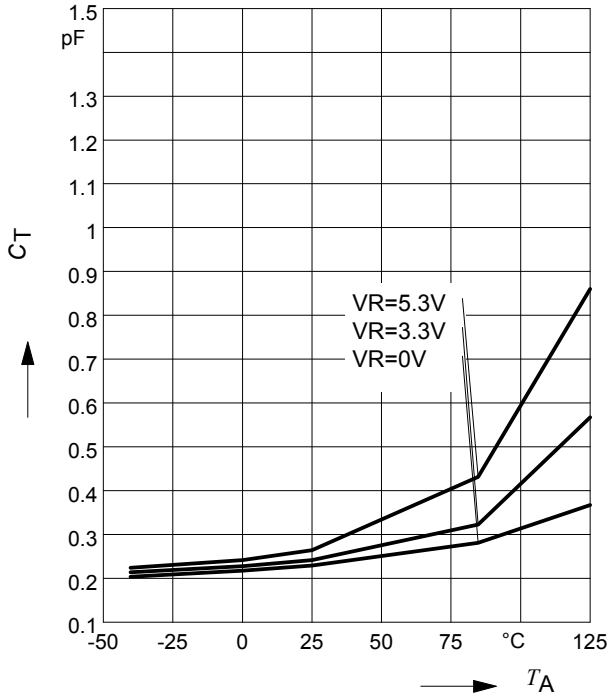
Line capacitance $C_T = f$ (f)

V_R = Parameter

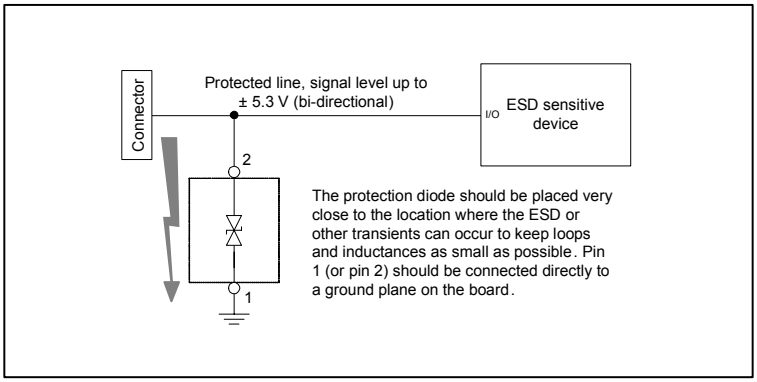


Line capacitance $C_T = f(T_A)$

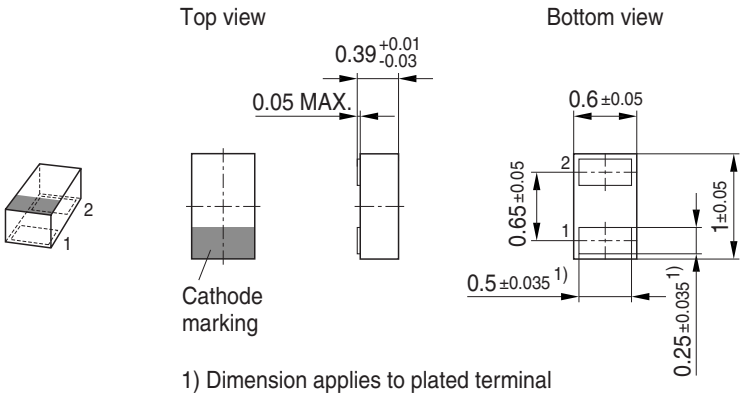
V_R = Parameter, f = 1 MHz



Application example ESD0P2RF...
1 line, bi-directional



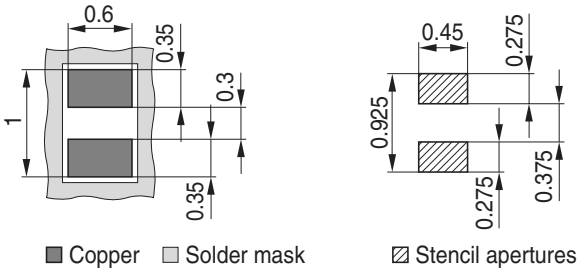
Package Outline



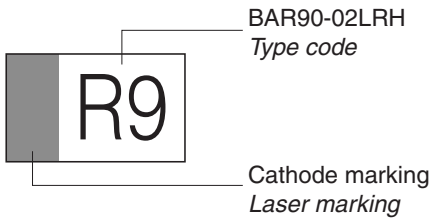
1) Dimension applies to plated terminal

Foot Print

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

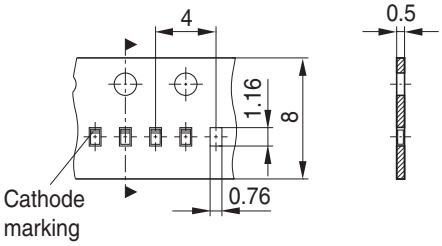


Marking Layout (Example)

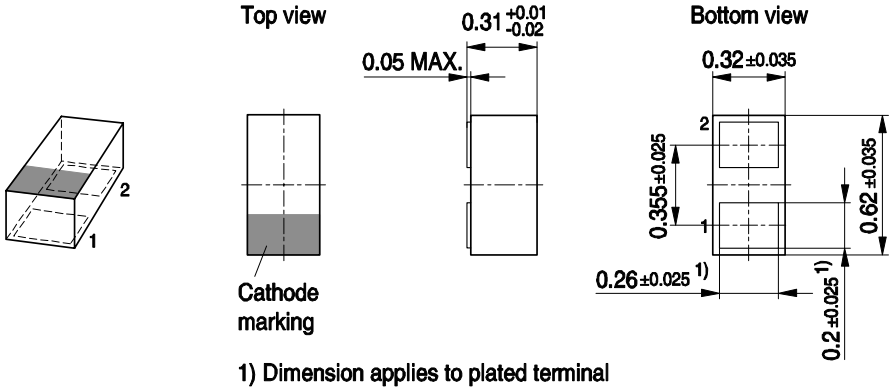


Standard Packing

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



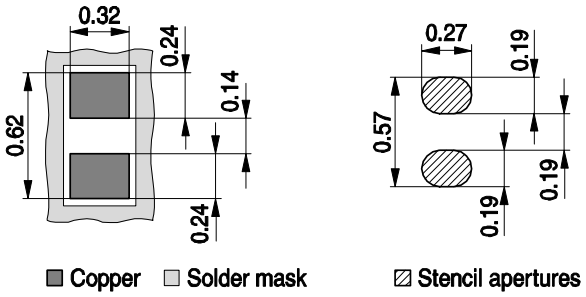
Package Outline



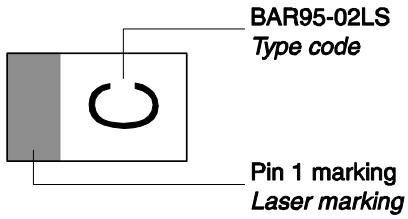
1) Dimension applies to plated terminal

Foot Print

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

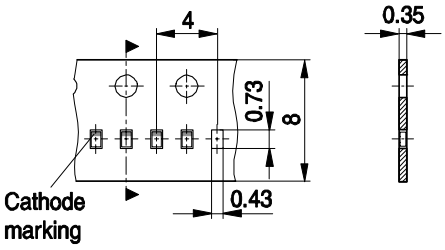


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



Edition 2006-02-01
Published by
Infineon Technologies AG
81726 München, Germany

Attention please!

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (**www.infineon.com**).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.
Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system.
Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.