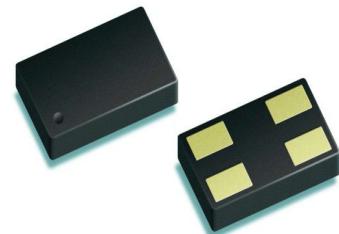


RF ESD Protection Diodes

- ESD protection of RF antenna / interfaces or ultra high speed data lines acc. to:
IEC61000-4-2 (ESD): ± 15 KV (air / contact)
IEC61000-4-4 (EPT): 40 A (5/50 ns)
IEC61000-4-5 (surge): 5 A (8/20 μ s)
- Very low line capacitance: 0.4 pF @ 1 GHz (0.2 pF per diode)
- Ultra low series inductance: 0.4 nH per diode
- Very low clamping voltage
- Ultra small leadless package: 1.2 x 0.8 x 0.39 mm³
- Pb-free (RoHS compliant) package



Applications in anti-parallel configuration

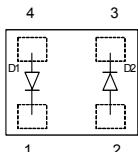
- For low RF signal levels without superimposed DC voltage: e.g. GPS, XM-Radio, Sirius, DVB, DMB, DAB, Remote Keyless Entry

Applications in rail-to-rail configuration

- For high RF signal levels or low RF signal levels with superimposed DC voltage: e.g. HDMI, S-ATA, Gbit Ethernet



ESD0P4RFL



Type	Package	Configuration	Marking
ESD0P4RFL	TSLP-4-7	anti-parallel	E4

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

Parameter	Symbol	Value		Unit
ESD contact discharge ¹⁾	V_{ESD}	15		kV
Peak pulse current ($t_p = 8 / 20 \mu\text{s}$) ²⁾	I_{pp}	5		A
Operating temperature range	T_{op}	$-55 \dots 150$		$^\circ\text{C}$
Storage temperature	T_{stg}	$-65 \dots 150$		

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

Characteristics -

Reverse working voltage ³⁾ $V_R = 50 \text{ V}$	V_{RWM}	-	-	50	V
Reverse current ³⁾ I_R	I_R	-	20	100	nA
Forward clamping voltage ²⁾ $I_{\text{PP}} = 5 \text{ A}$	V_{FC}	-	6	9	V
Diode capacitance ⁴⁾ $V_R = 0 \text{ V}, f = 1 \text{ GHz}$	C_T	-	0.4	-	pF
Series inductance per diode	L_S	-	0.4	-	nH

¹ V_{ESD} according to IEC61000-4-2, only valid in anti-parallel or rail-to-rail connection.

Please refer to the application examples.

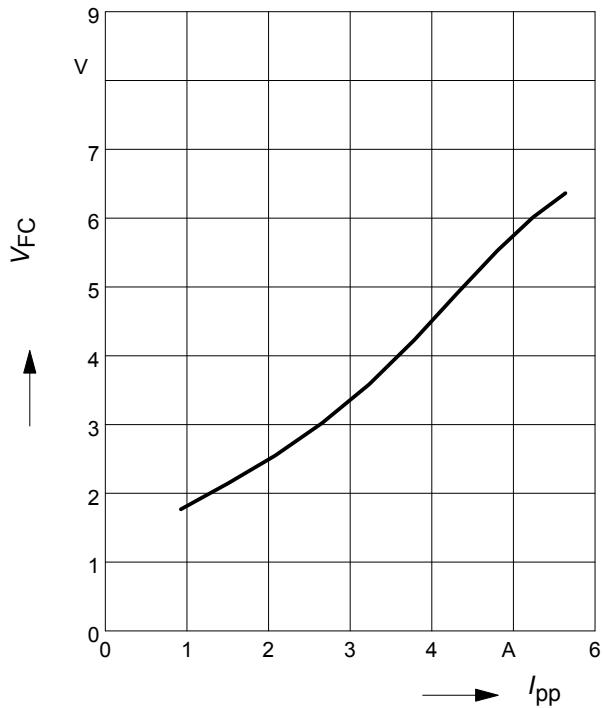
² I_{pp} according to IEC61000-4-5, only valid in anti-parallel or rail-to-rail connection.

Please refer to the application examples.

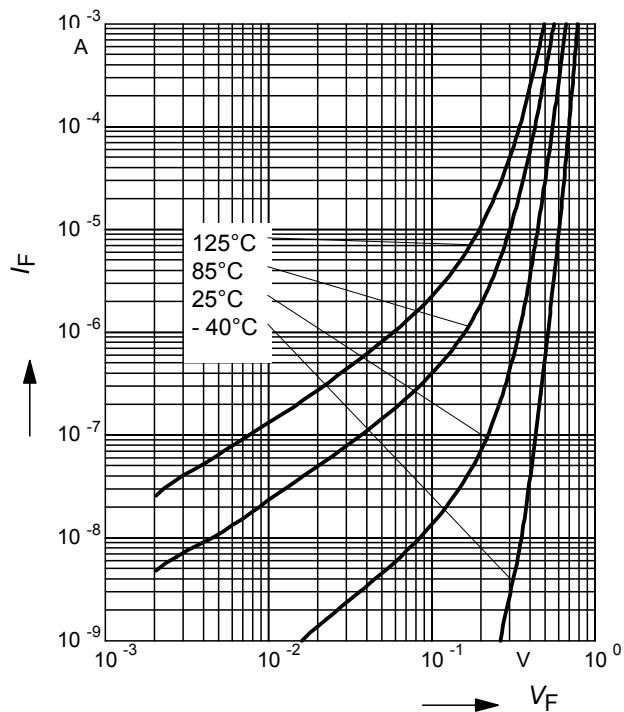
³Only valid in rail-to-rail configuration with $V_{\text{CC}} \leq V_{\text{RWM}}$

⁴Total capacitance line to ground (2 diodes in parallel)

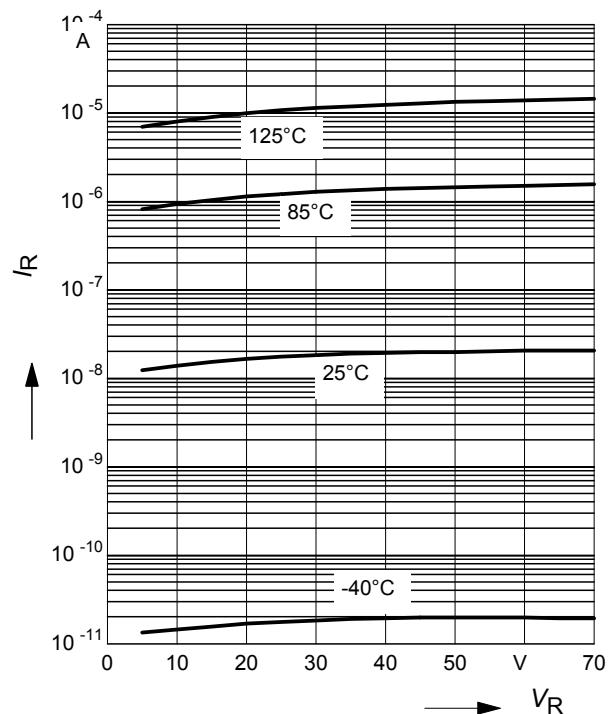
Forward clamping voltage $V_{FC} = f(I_{PP})$
 $t_p = 8 / 20 \mu s$



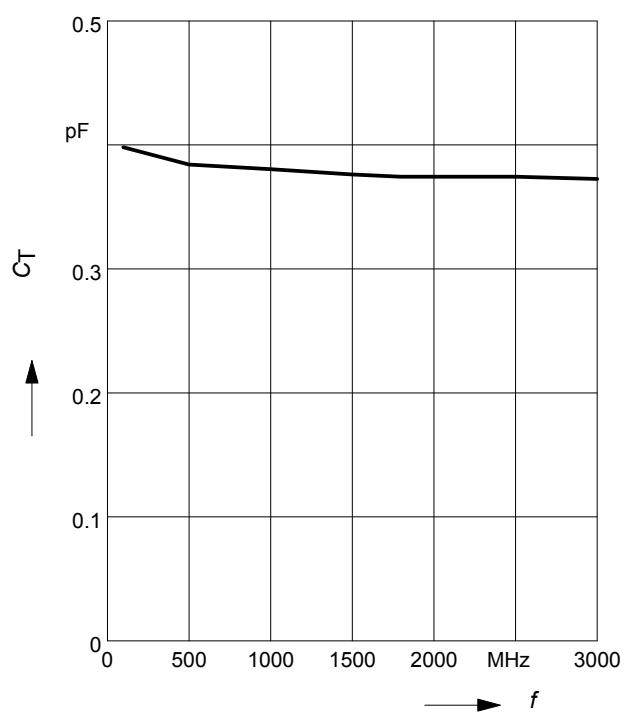
Forward current $I_F = f(V_F)$
leakage in anti-parallel configuration



Reverse current $I_R = f(V_R)$
 T_A = Parameter
leakage in rail-to-rail configuration

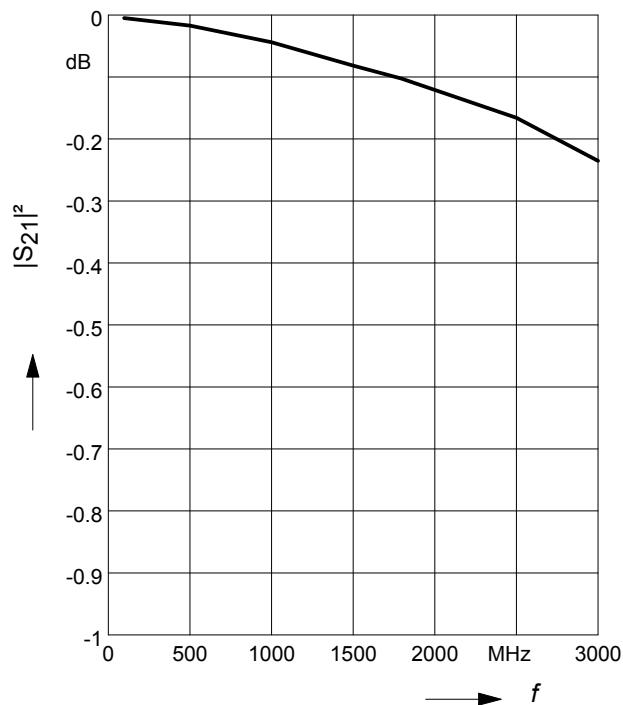


Line capacitance $C_T = f(f)$
 $V_R = 0 \text{ V}$



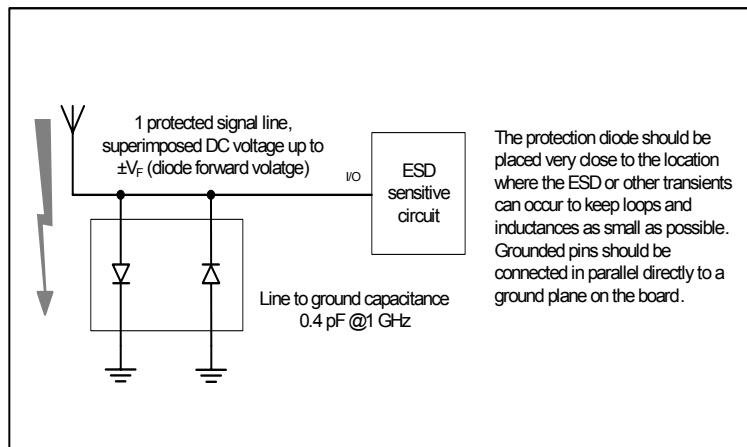
Insertion loss $I_L = -|S_{21}|^2 = f(f)$

$V_R = 0 \text{ V}$, $Z = 50 \Omega$



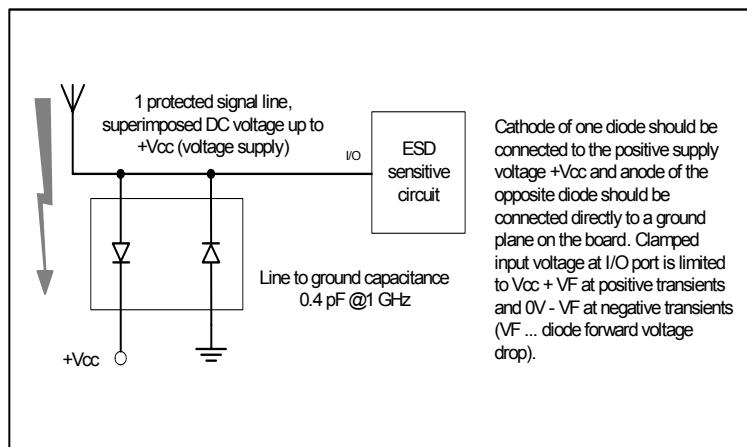
1. Application example ESD0P4RFL

1 RF signal channel, anti-parallel configuration



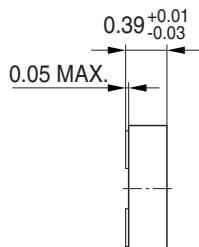
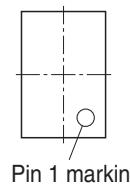
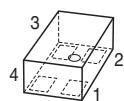
2. Application example ESD0P4RFL

1 RF signal channel, rail-to-rail configuration



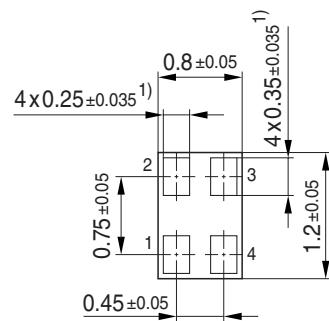
Package Outline

Top view



Pin 1 marking

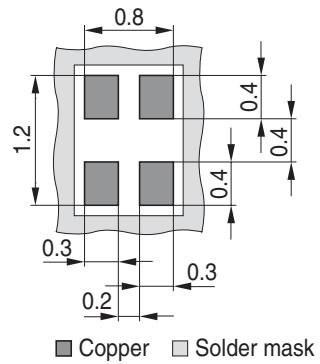
Bottom view



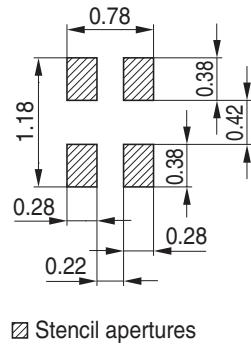
1) Dimension applies to plated terminal

Foot Print

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

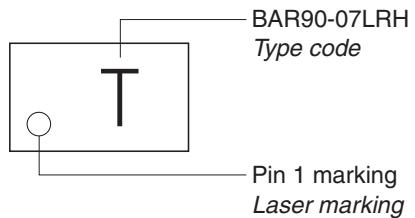


■ Copper □ Solder mask



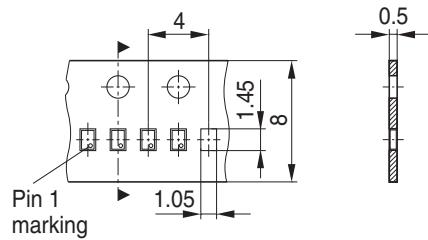
□ Stencil apertures

Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



Edition 2009-11-16

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Infineon Technologies AG
81726 Munich, Germany

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