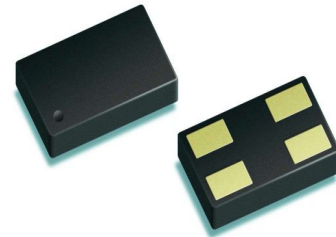


### RF ESD Protection Diodes

- ESD protection of RF antenna / interfaces or ultra high speed data lines acc. to:  
IEC61000-4-2 (ESD):  $\pm 15$  KV (air / contact)  
IEC61000-4-4 (EPT): 40 A (5/50 ns)  
IEC61000-4-5 (surge): 5 A (8/20  $\mu$ 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 mm<sup>3</sup>
- Pb-free (RoHS compliant) package



### Applications in anti-parallel configuration

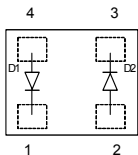
- For low RF signal levels without superimposed DC voltage: e.g. GPS, XM-Radio, Sirius, DVB, DMB, DAB, Remote Keyless Entry

### 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 <sup>1)</sup>	$V_{\text{ESD}}$	15	kV
Peak pulse current ( $t_p = 8 / 20 \mu\text{s}$ ) <sup>2)</sup>	$I_{\text{pp}}$	5	A
Operating temperature range	$T_{\text{op}}$	-55...150	$^\circ\text{C}$
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.	
Characteristics -					
Reverse working voltage <sup>3)</sup>	V <sub>RWM</sub>	-	-	50	V
Reverse current <sup>3)</sup> V <sub>R</sub> = 50 V	I <sub>R</sub>	-	20	100	nA
Forward clamping voltage <sup>2)</sup> I <sub>PP</sub> = 5 A	V <sub>FC</sub>	-	6	9	V
Diode capacitance <sup>4)</sup> V <sub>R</sub> = 0 V, f = 1 GHz	C <sub>T</sub>	-	0.4	-	pF
Series inductance per diode	L <sub>S</sub>	-	0.4	-	nH

<sup>1)</sup> $V_{\text{ESD}}$  according to IEC61000-4-2, only valid in anti-parallel or rail-to-rail connection.

Please refer to the application examples.

<sup>2)</sup> $I_{\text{pp}}$  according to IEC61000-4-5, only valid in anti-parallel or rail-to-rail connection.

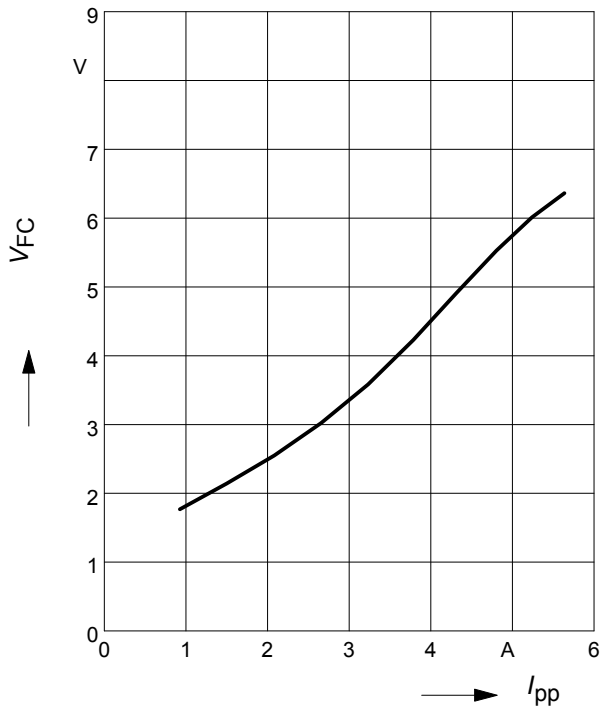
Please refer to the application examples.

<sup>3)</sup>Only valid in rail-to-rail configuration with  $V_{\text{CC}} \leq V_{\text{RWM}}$

<sup>4)</sup>Total capacitance line to ground (2 diodes in parallel)

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

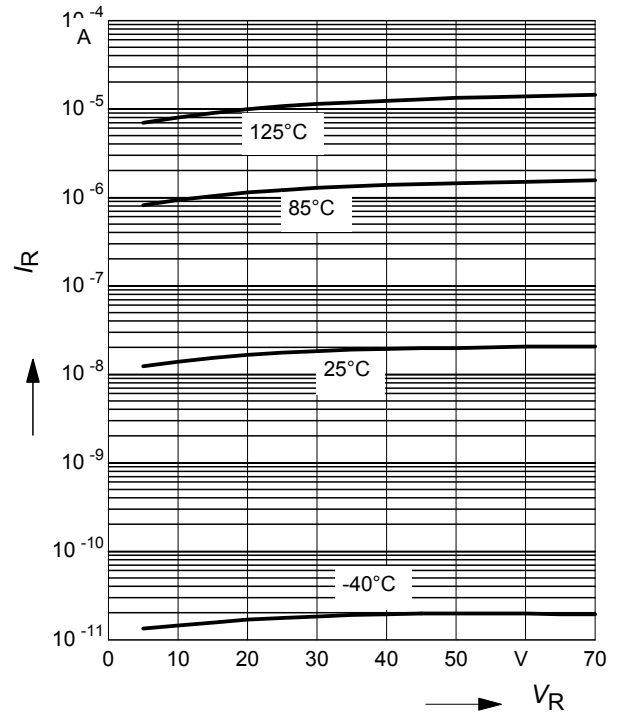
$t_p = 8 / 20 \mu s$



**Reverse current**  $I_R = f(V_R)$

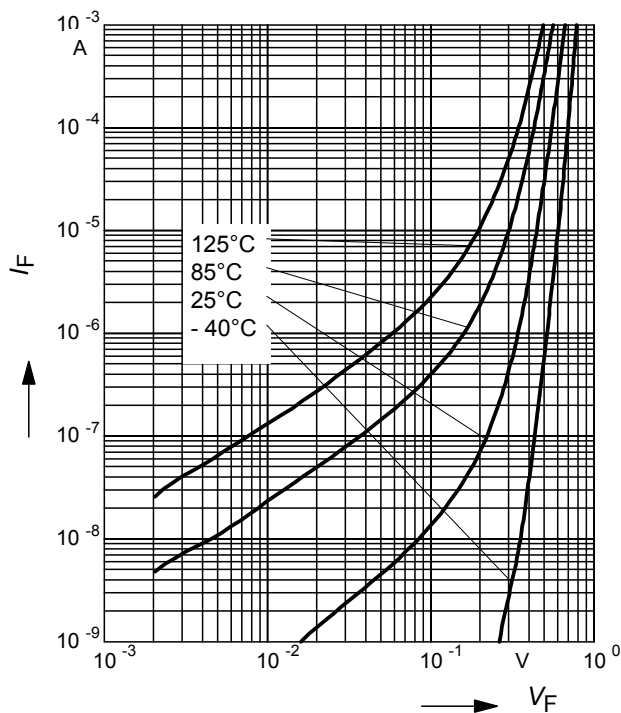
$T_A = \text{Parameter}$

leakage in rail-to-rail configuration



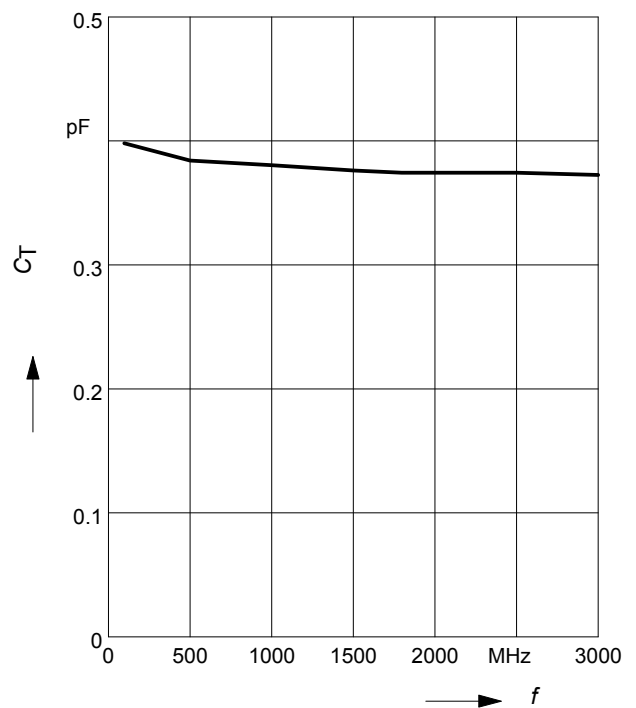
**Forward current**  $I_F = f(V_F)$

leakage in anti-parallel configuration



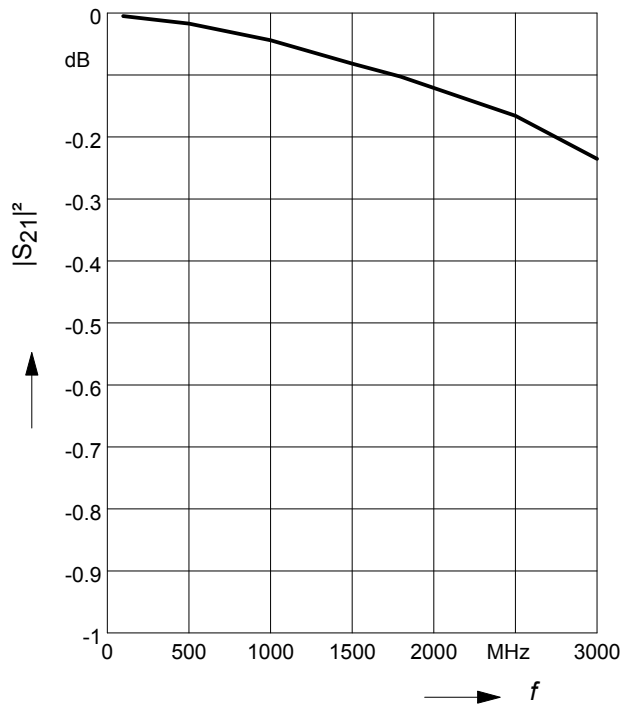
**Line capacitance**  $C_T = f(f)$

$V_R = 0 V$



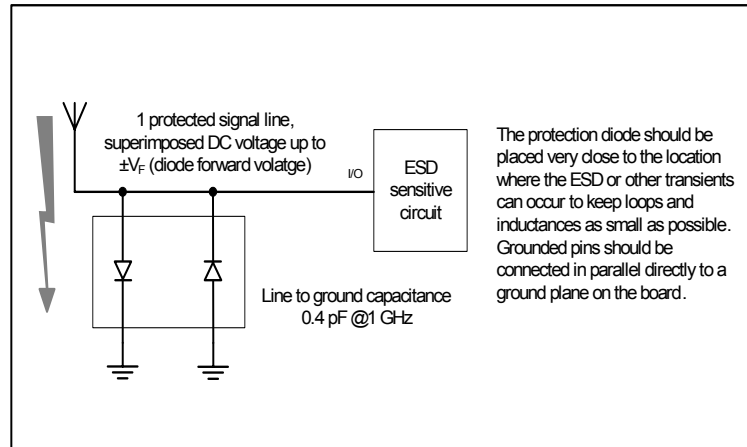
Insertion loss  $I_L = -|S_{21}|^2 = f(f)$

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



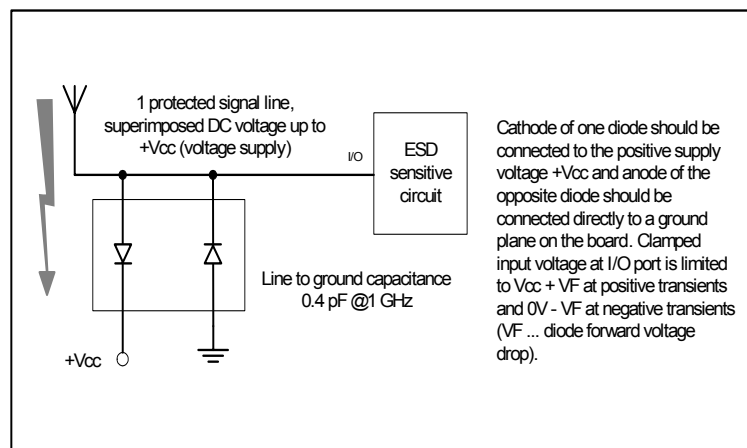
## 1. Application example ESD0P4RFL

1 RF signal channel, anti-parallel configuration

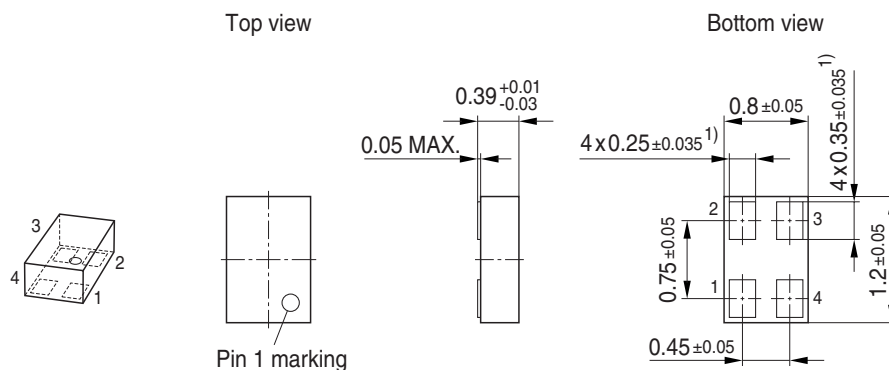


## 2. Application example ESD0P4RFL

1 RF signal channel, rail-to-rail configuration



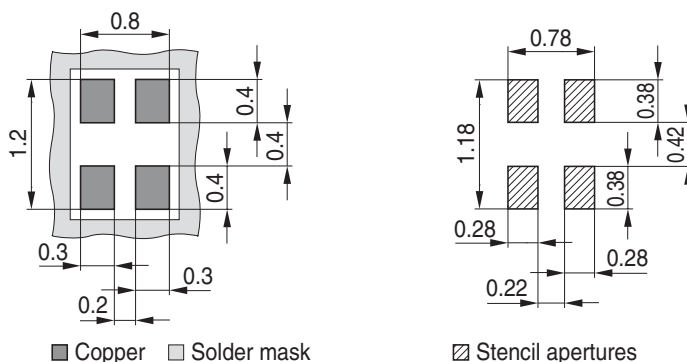
## Package Outline



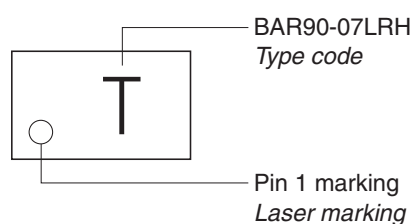
1) Dimension applies to plated terminal

## Foot Print

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

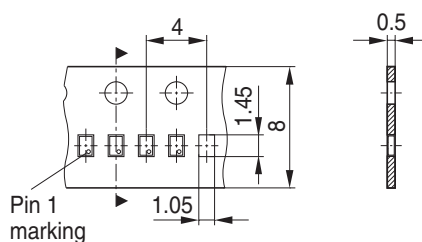


## Marking Layout (Example)



## Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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