

# BGF106C

SIM Card Interface Filter and ESD Protection

Small Signal Discretes



Never stop thinking

**Edition 2009-04-14**

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

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**BGF106C**

**Revision History: 2009-04-14, V2.0**

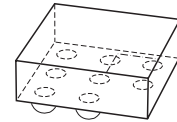
**Previous Version: 2009-03-31, V1.0**

<b>Page</b>	<b>Subjects (major changes since last revision)</b>
all	target status removed
5	<b>Table 1:</b> maximum voltage on all pins increased to 5.5 V

## BGF106C

### Features

- ESD protection circuit and interface filter for SIM cards
- ESD protection according to IEC61000-4-2 for  $\pm 15$  kV contact discharge on external IOs
- Wafer level package with SnAgCu solder balls
- 400  $\mu\text{m}$  solder ball pitch
- RoHS and WEEE compliant package

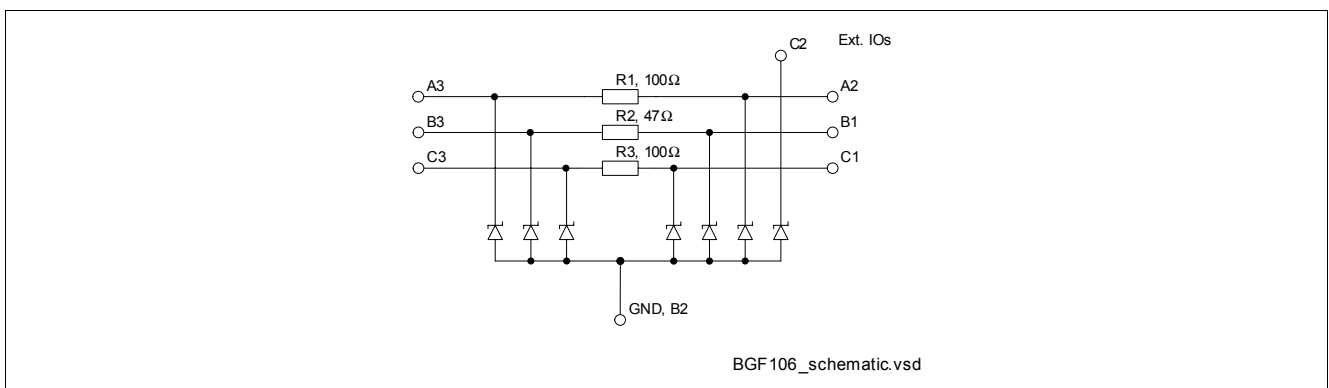


WLP-8-11-N-3D



### Description

BGF106C is an ESD protection circuit and filtering interface for SIM cards. All external IOs are protected against ESD pulses of  $\pm 15$  kV contact discharge according to IEC61000-4-2. The wafer level package is a green lead-free and halogen-free package with a size of only 1.2 mm x 1.2 mm and a total height of 0.6 mm



**Figure 1 Schematic**

Type	Package	Marking	Chip
BGF106C	WLP-8-11	6C	N0727

**Table 1 Maximum Ratings**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	$V_P$	0	–	5.5	V	–
Operating temperature range	$T_{OP}$	-40	–	+85	°C	–
Storage temperature range	$T_{STG}$	-65	–	+150	°C	–
Summed up input power for all pins	$P_{in}$	–	–	60	mW	$T_S < 70\text{ °C}$
<b>Electrostatic discharge according to IEC61000-4-2</b>						
Contact discharge at internal pins A3, B3, C3 to any other pin	$V_{ESD}$	-2	–	2	kV	–
Contact discharge at external pins A2, B1, C1, C2 to GND	$V_{ESD}$	-15	–	15	kV	–

**Table 2 Electrical Characteristics<sup>1)</sup>**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistors $R_1, R_3$	$R_{1,3}$	80	100	120	$\Omega$	–
Resistor $R_2$	$R_2$	37.6	47	56.4	$\Omega$	–
Reverse current of ESD protection diodes	$I_R$	–	1	100	nA	$V = 3\text{ V}$
		–	2	1000	nA	$V = 5\text{ V}$
Breakdown voltage of ESD diodes	$V_{(BR)}$	6.5	7.8	–	V	$I_{(BR)} = 1\text{ mA}$
Line capacitance Capacitance of all lines to GND	$C_T$	–	16.5	20	pF	$V = 0\text{ V}$

1) at  $T_A = 25\text{ °C}$

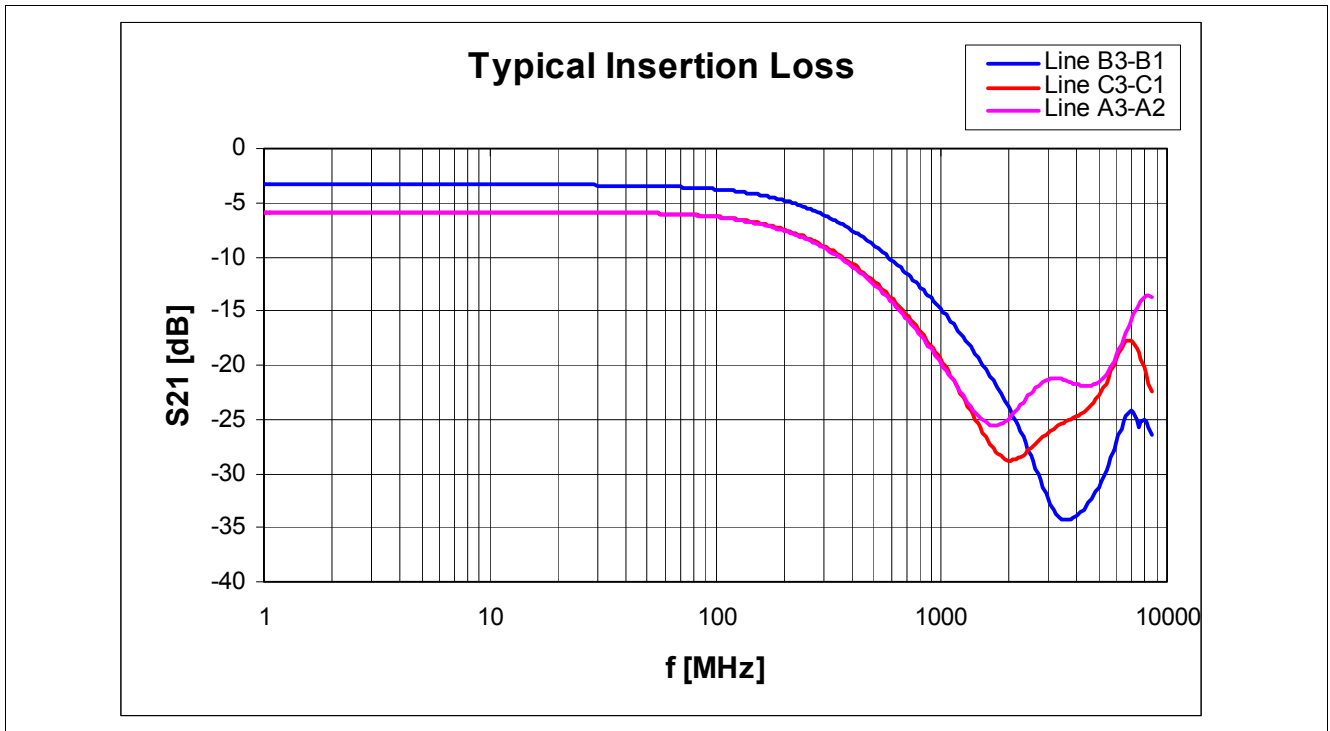


Figure 2 Insertion loss,  $Z_S=Z_L=50 \Omega$

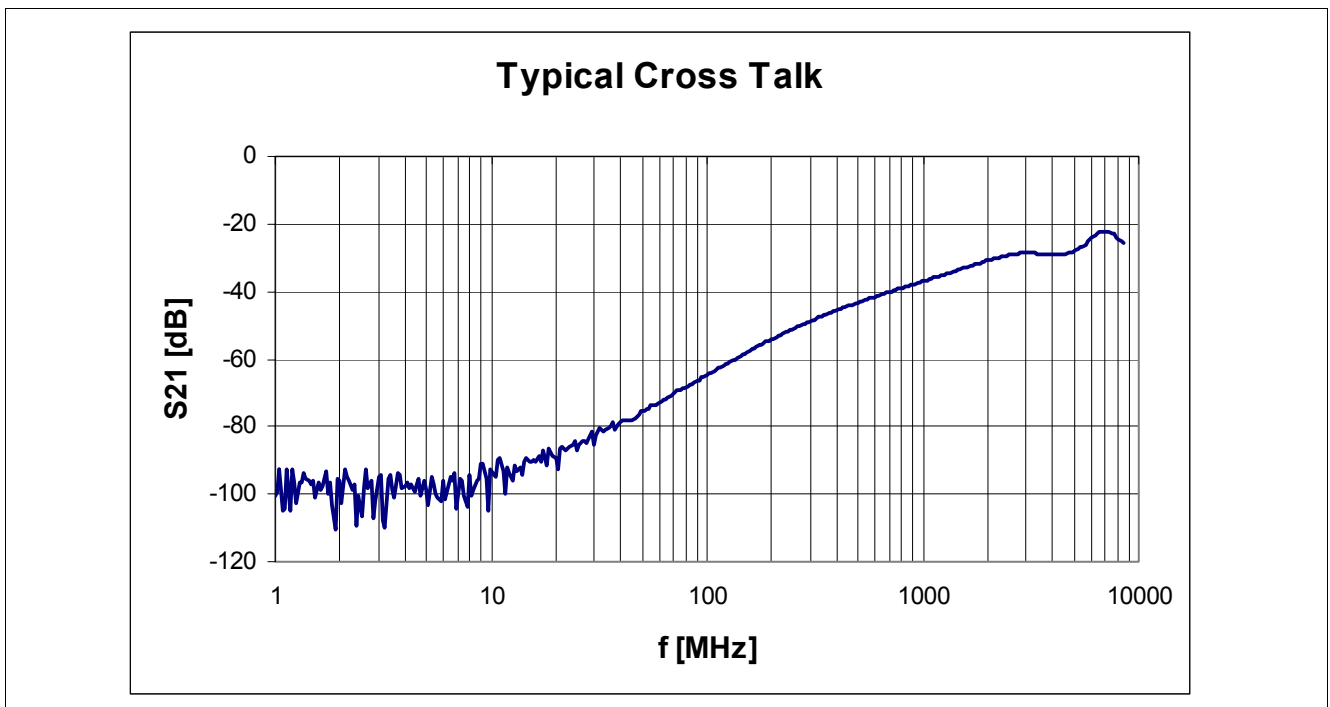
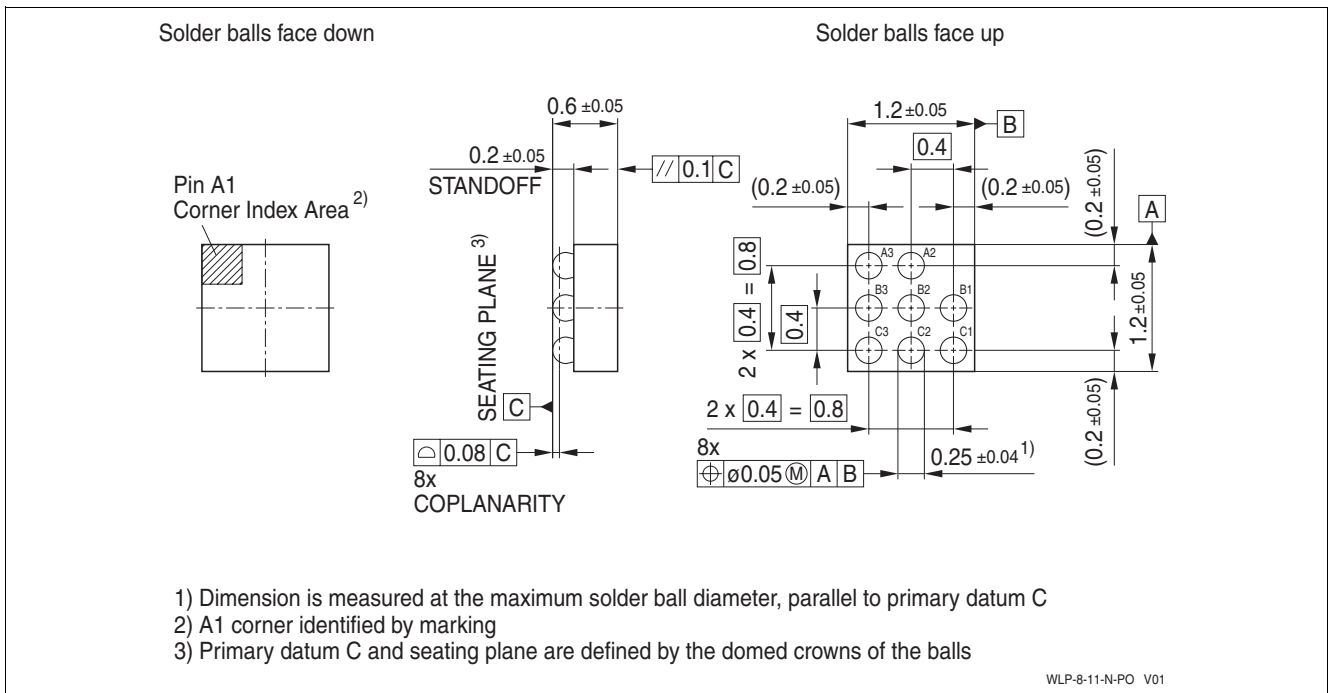


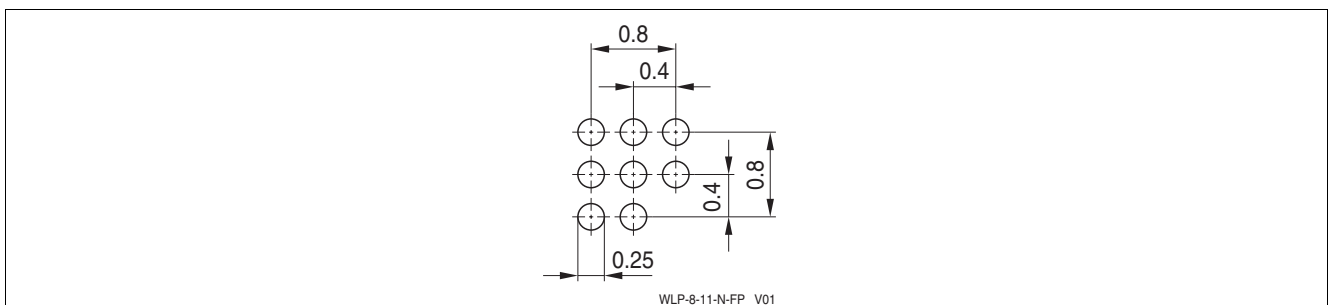
Figure 3 Cross talk,  $Z_S=Z_L=50 \Omega$  (all unused input and output pins are terminated with  $50 \Omega$ )

**Package Outlines**



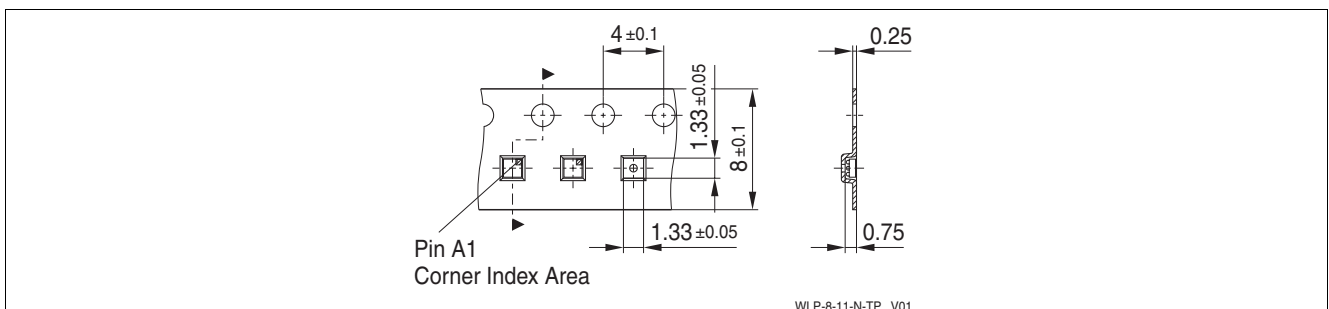
**Figure 4 WLP-8-11 (Wafer Level Package)**

**Footprint**



**Figure 5 Recommended PCB pad design for reflow soldering**

**Tape**



**Figure 6 Tape for BGF106C / WLP-8-11**

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