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Hipac

High performance passive and actives on chip

BGF106C

SIM Card Interface Filter and ESD Protection

BGF106C

Datasheet

Rev. 3.1, 2013-01-16
Final

Power Management & Multimarket

Revision History Rev. 3.0, 2011-05-13

Page or Item	Subjects (major changes since previous revision)
Rev. 3.1, 2013-01-16	
4	Features updated

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Last Trademarks Update 2011-11-11

1   SIM Card Interface Filter and ESD Protection

1.1   Features

- ESD protection circuit and interface filter for SIM cards
- ESD protection according to IEC61000-4-2 for ±15 kV contact discharge on external IOs
- Wafer level package with SnAgCu solder balls
- 400 μm solder ball pitch
- Pb-free (RoHS compliant) and halogen free package
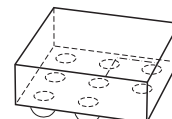
WLP-8-11-N-3D

1.2   Description

BGF106C is an ESD protection circuit and filtering interface for SIM cards. All external IOs are protected against ESD pulses of ±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
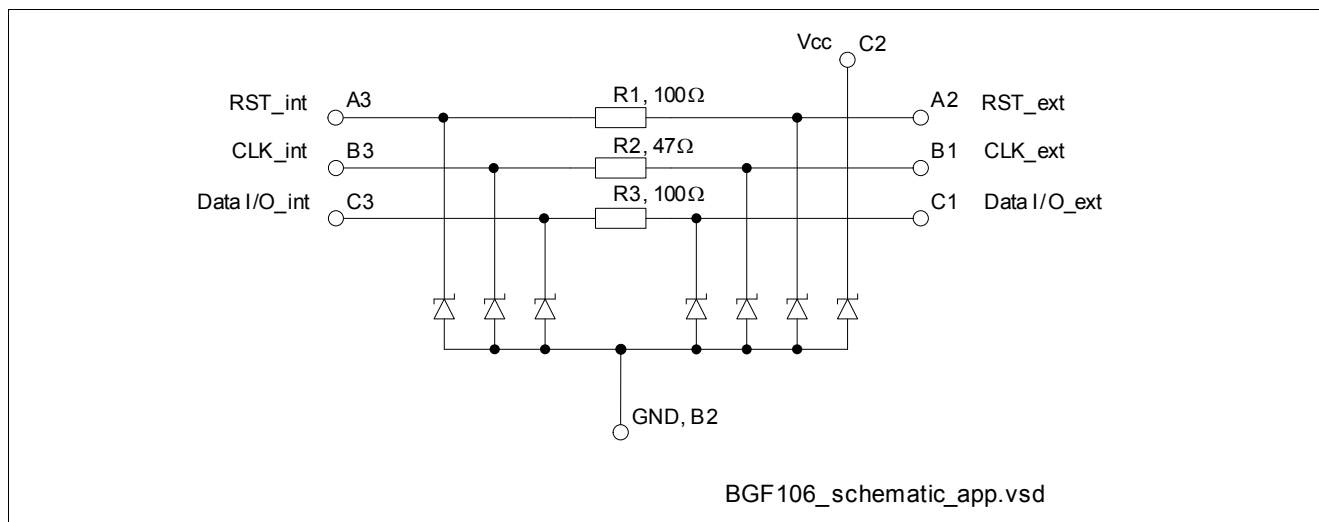

BGF106_schematic_app.vsd

Figure 1-1   Schematic Diagram and Package Configuration

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

2 Characteristics

Table 2-1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note /
		Min.	Typ.	Max.		Test Condition
Voltage at all pins to GND	V_P	0	–	5.5	V	–
Operating temperature range	T_{OP}	-40	–	+85	°	–
Storage temperature range	T_{STG}	-65	–	+150	°C	–
Summed up input power for all pins	P_{in}	–	–	60	mW	T_S < 70 °C
Electrostatic discharge according to IEC61000-4-2						
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	–

Attention: Stresses above the max. values listed here may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the integrated circuit.

2.1 Electrical Characteristics

Table 2-2 Electrical Characteristics[1]

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

1) at T_A = 25 °C
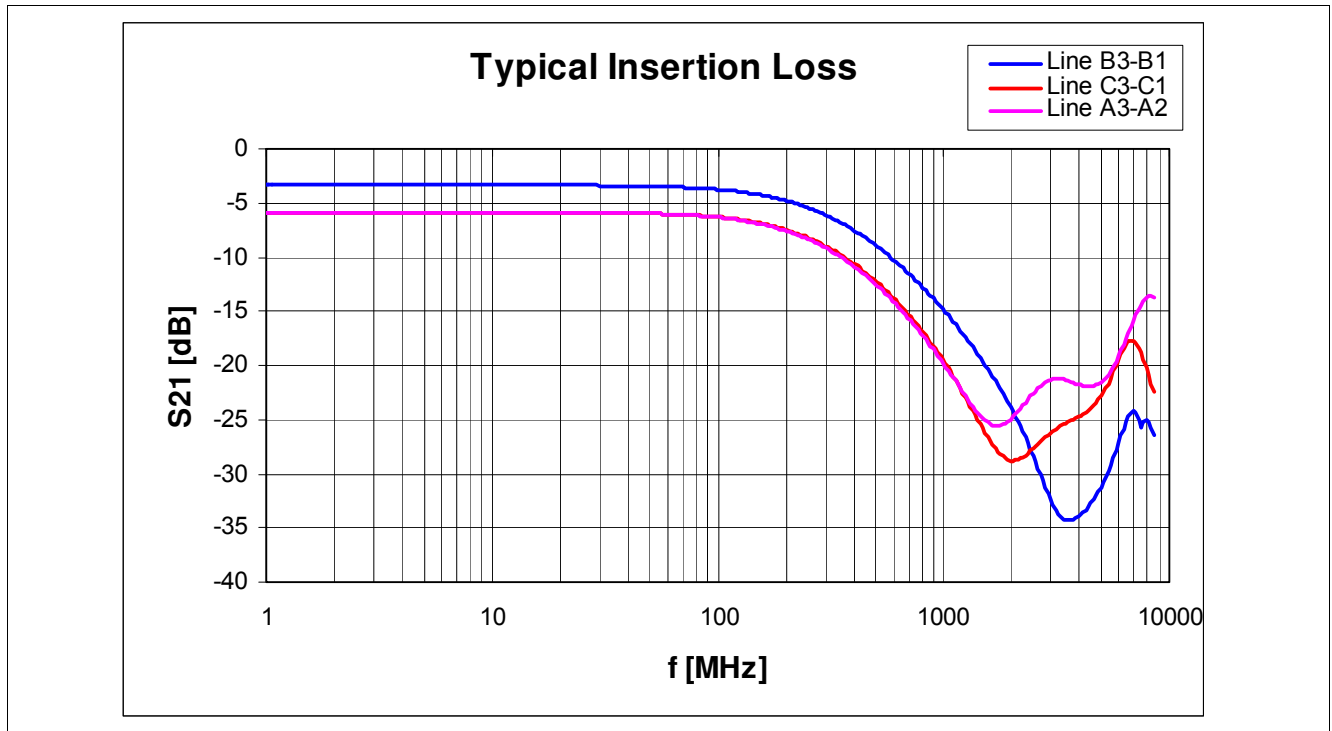
3 Typical Characteristics

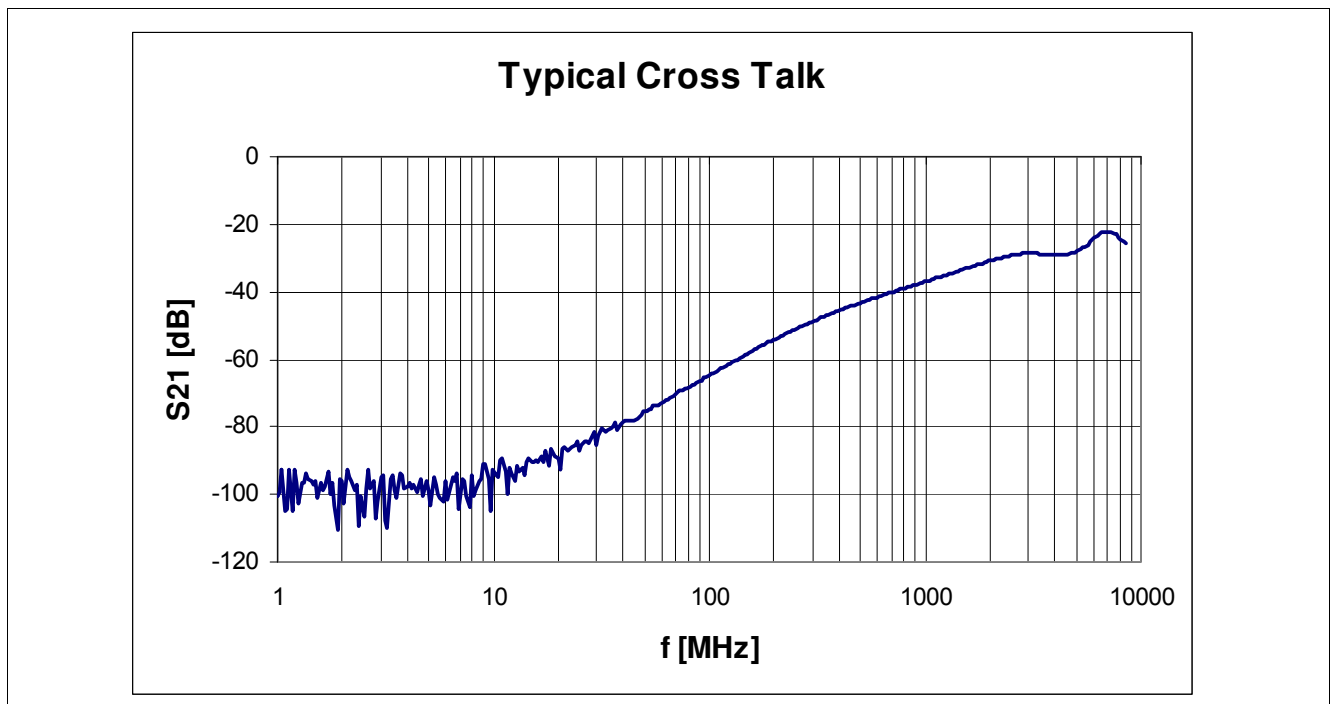**Figure 3-1 Insertion loss,** $Z_S = Z_L = 50\ \Omega$

Figure 3-2 Cross talk, $Z_S = Z_L = 50\ \Omega$ (all unused input and output pins are terminated with $50\ \Omega$)
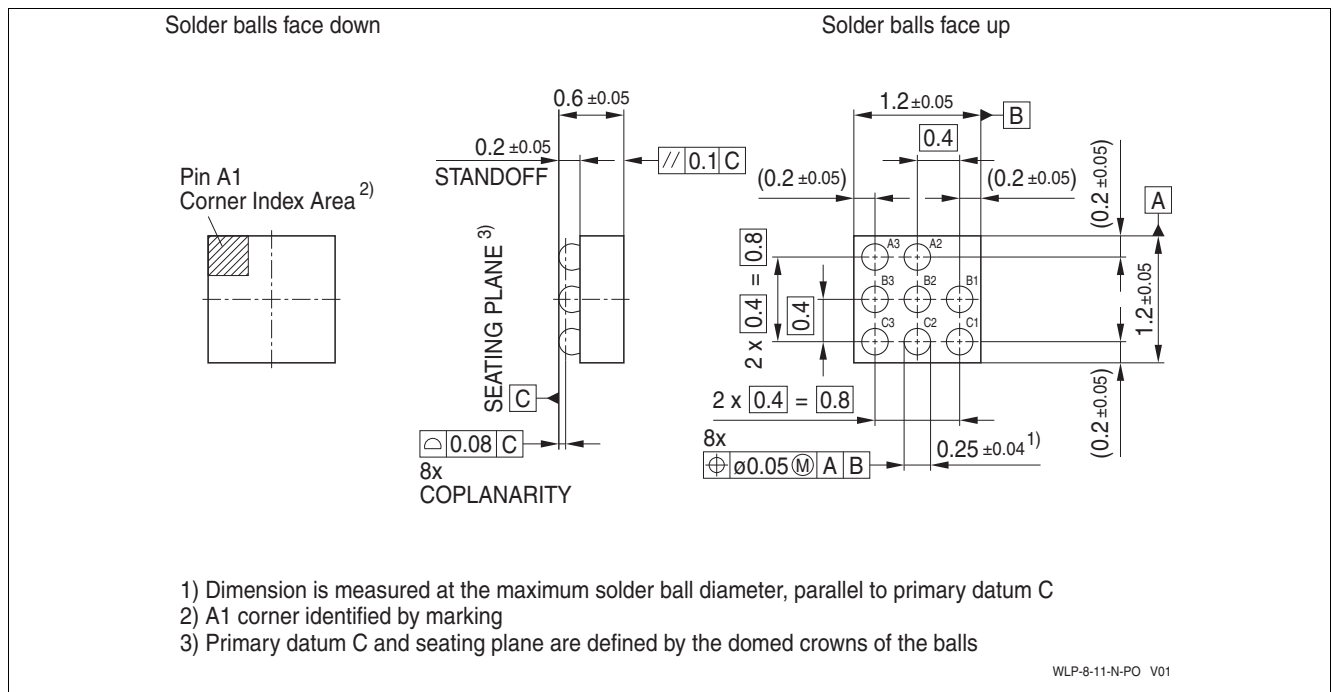
4 Package

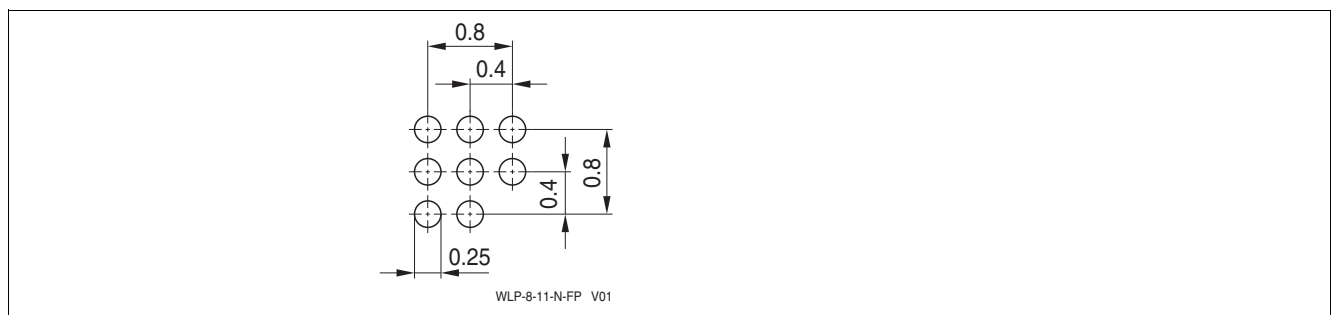**Figure 4-1   WLP-8-11 Package outline (dimension in mm)**

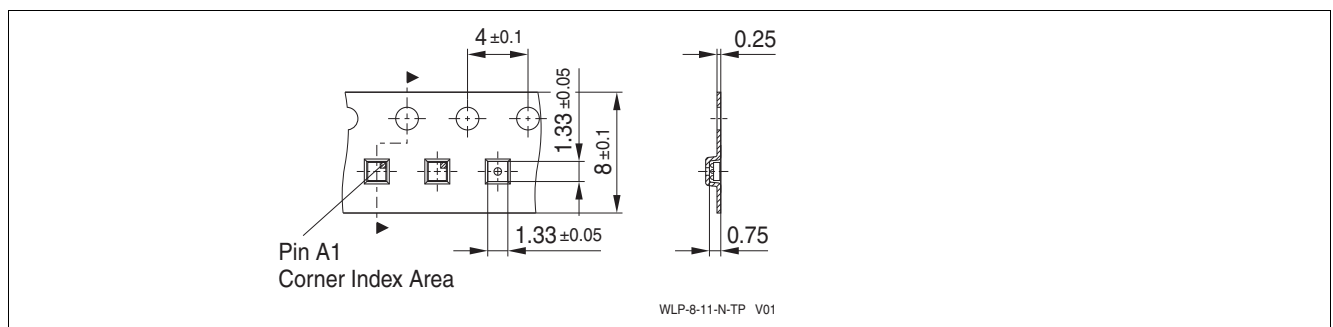**Figure 4-2   WLP-8-11 Footprint (dimension in mm)**

Figure 4-3   WLP-8-11 Packing (dimension in mm)