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BGF106C

SIM Card Interface Filter and ESD Protection

BGF106C

Datasheet

Rev. 3.1, 2013-01-16
Final

Power Management & Multimarket

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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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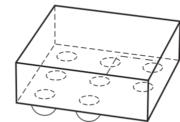
1 SIM Card Interface Filter and ESD Protection

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

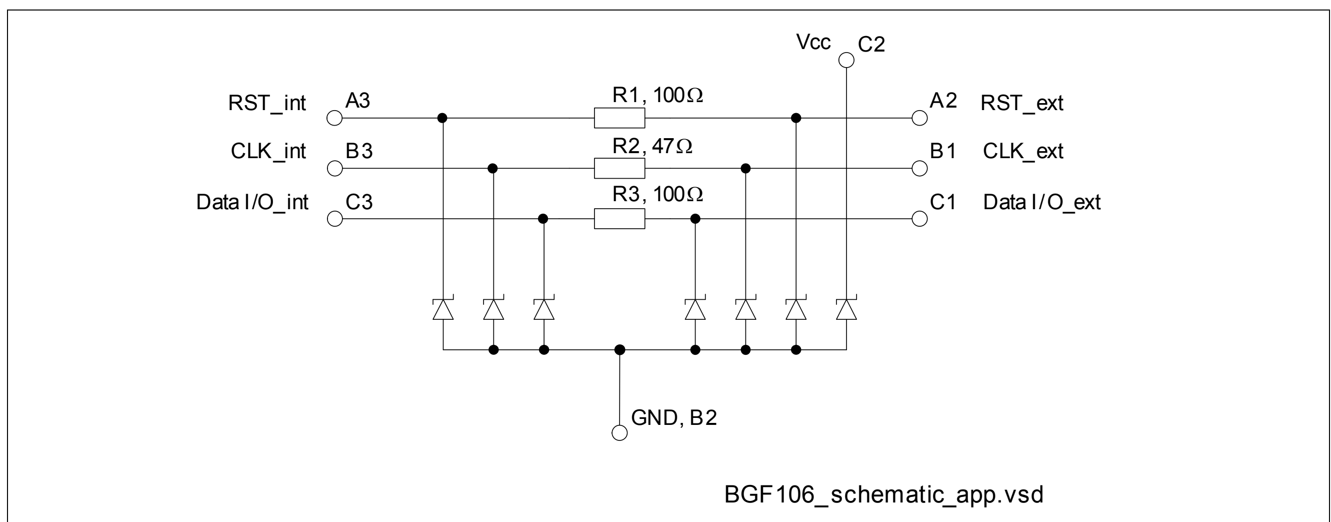


Figure 1-1 Schematic Diagram and Package Configuration

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

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2 Characteristics

Table 2-1 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	°	–
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 / Test Condition
		Min.	Typ.	Max.		
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

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3 Typical Characteristics

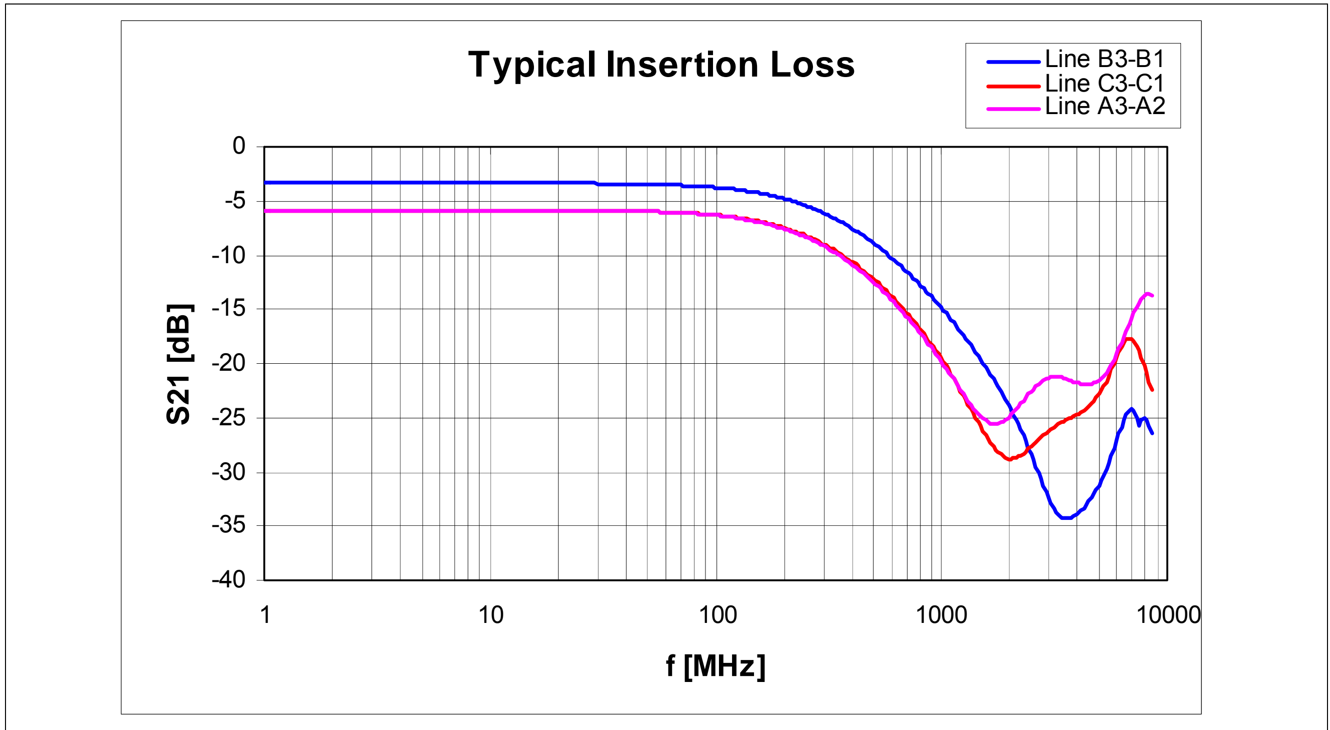

Figure 3-1 Insertion loss, Z_S=Z_L=50 Ω

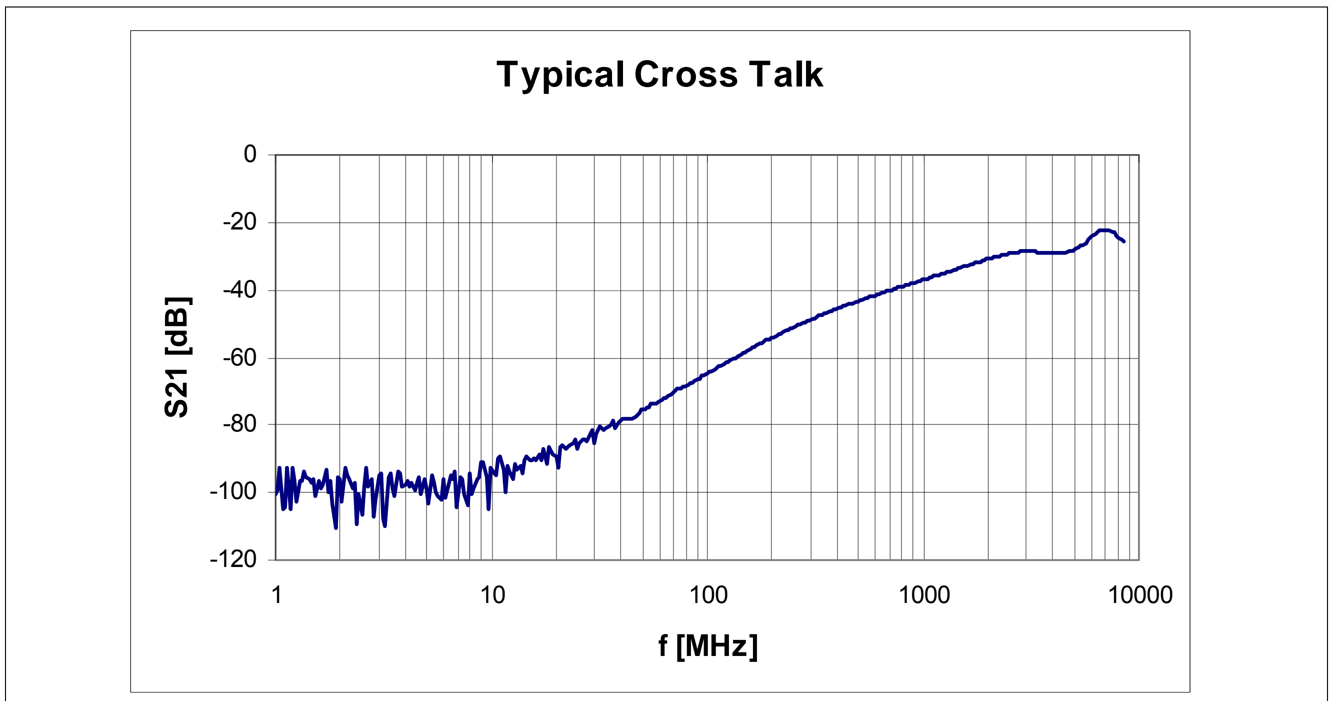

Figure 3-2 Cross talk, Z_S=Z_L=50 Ω (all unused input and output pins are terminated with 50 Ω)

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4 Package

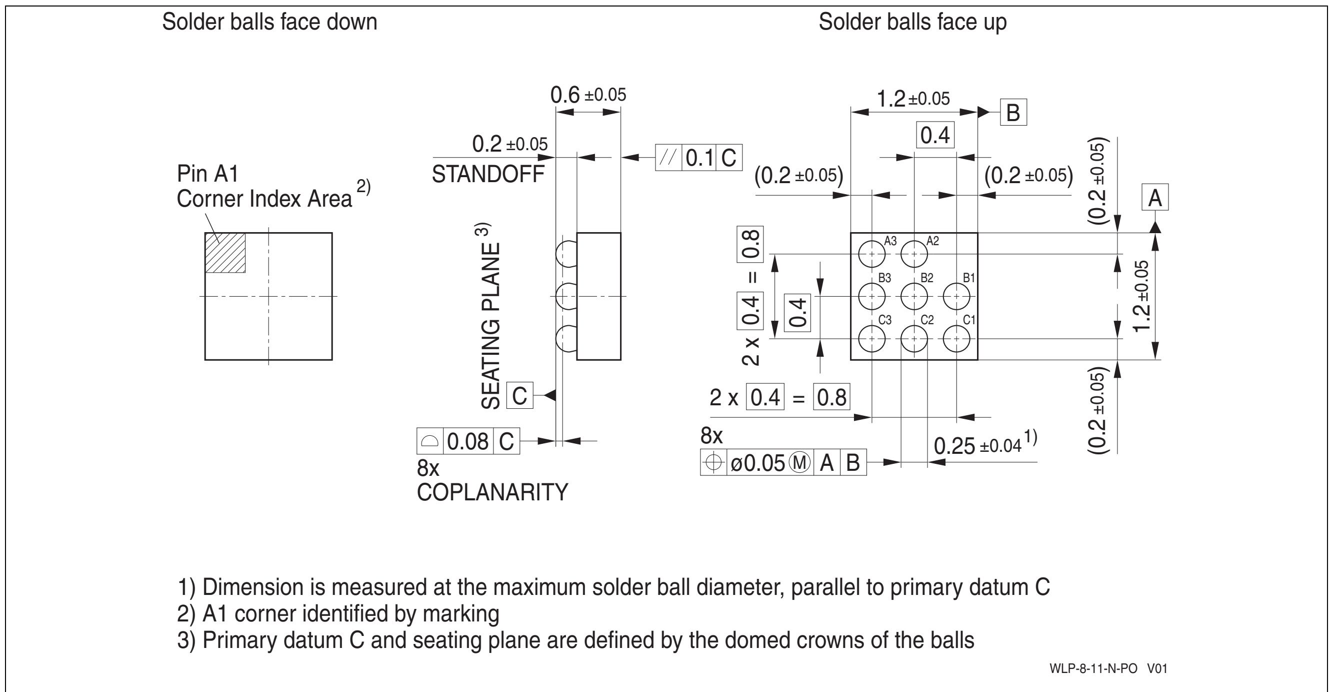

Figure 4-1 WLP-8-11 Package outline (dimension in mm)

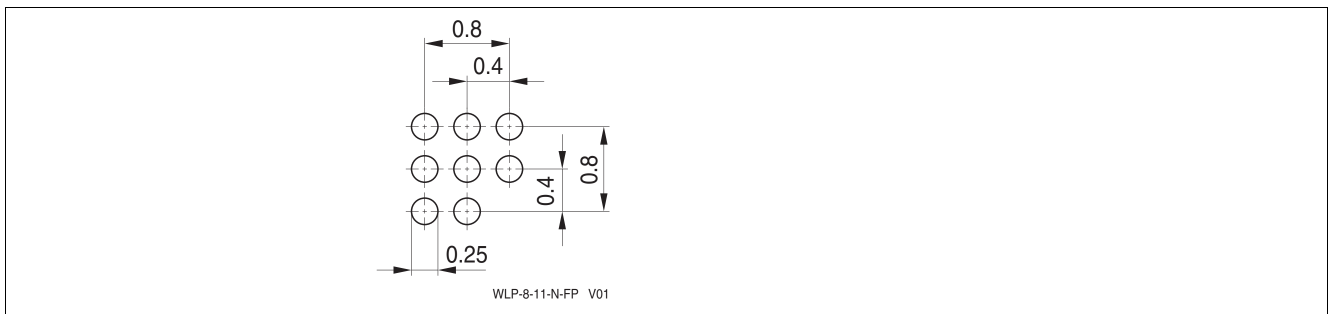

Figure 4-2 WLP-8-11 Footprint (dimension in mm)

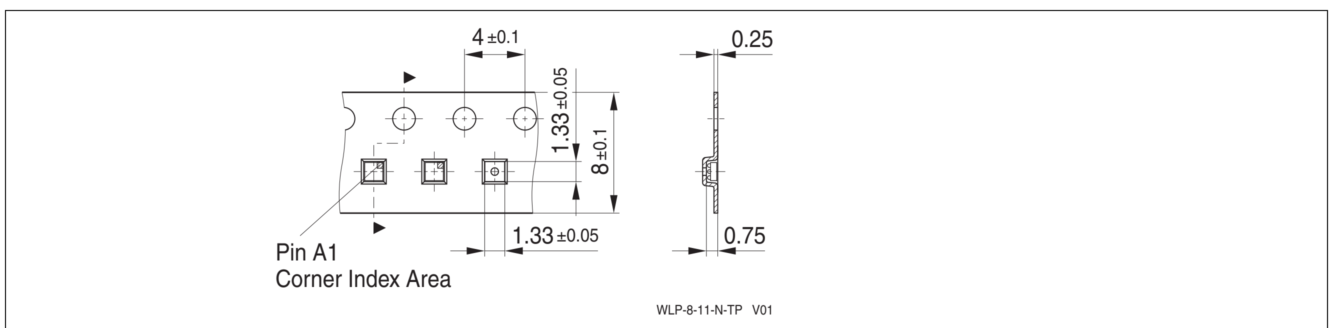

Figure 4-3 WLP-8-11 Packing (dimension in mm)

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