

# BGF100

Microphone Filter and ESD Protection

Small Signal Discretes



Never stop thinking

**Edition 2006-10-17**

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

**© Infineon Technologies AG 2006.  
All Rights Reserved.**

### **Legal Disclaimer**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenhheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

### **Information**

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### **Warnings**

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

---

**BGF100**

**Revision History: 2006-10-17, V2.1**

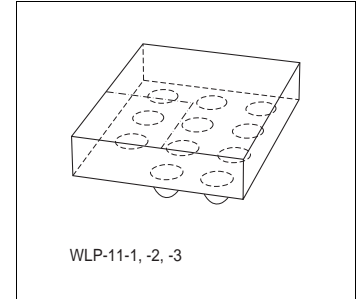
**Previous Version: 2006-01-30**

<b>Page</b>	<b>Subjects (major changes since last revision)</b>
All	Layout conformation

## Microphone Filter and ESD Protection

### Features

- Differential Microphone filter
- Integrated ESD protection up to 15 kV
- Low input impedance
- More than 30 dB stopband attenuation
- Ideal for GSM/UMTS
- Wafer Level Package with SnAgCu solder balls



### Description

The BGF100 is a microphone filter with low pass characteristic offering a very high stop band attenuation up to 6 GHz. It also provides an ESD protection at the input pins up to 15 kV contact discharge. The wafer level package is a green leadfree package with a size of only 1.6 mm × 2.1 mm and a total height of 0.65 mm.

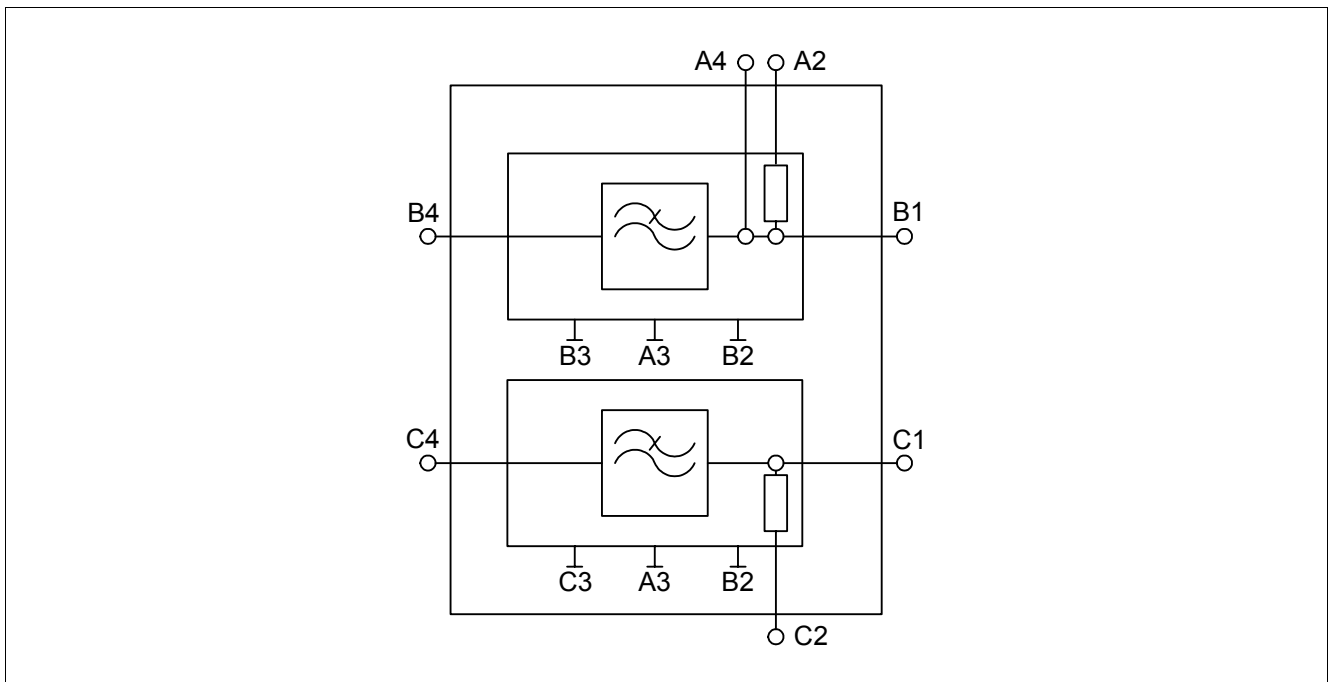


Figure 1 Blockdiagram

Type	Package	Marking	Chip
BGF100	WLP-11-2	BGF100	N0700

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at pin A2 to GND	$V_{A2}$	0		4	V	
Voltage at all other pins to GND	$V_P$	-14		14	V	
Operating temperature range	$T_{OP}$	-40		+85	°C	

**Table 1 Maximum Ratings (cont'd)**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Storage temperature range	$T_{STG}$	-65		+150	°C	
Input power at all pins	$P_{IN}$			1	mW	
<b>Electrostatic Discharge According to IEC61000-4-2</b>						
Contact discharge at pins B4 to B3, C4 to C3	$V_E$	-15		15	kV	
Contact discharge between all other pins	$V_I$	-2		2	kV	

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

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistors $R_1, R_2$	$R_{1,2}$	45	50	55	$\Omega$	
Resistors $R_3, R_4$	$R_{3,4}$	950	1000	1050	$\Omega$	
Resistors $R_5, R_6$	$R_{5,6}$	1980	2200	2420	$\Omega$	
Resistor Matching $R_3, R_4$	$R_M$	-1		+1	%	
Capacitances $C_1$ to $C_6$	$C$	800	1000	1350	pF	
Substrate leakage currents, Pin B4 to A3 or C4 to A3	$I$			100	nA	$V = 3\text{ V}$
Insertion loss <sup>2)</sup> Pins B4 to B1 or C4 to C1	$IL$	30			dB	$f = 0.1 \dots 6\text{ GHz}$ , $Z_S = Z_L = 50\ \Omega$

 1) at  $T_A = 25\text{ °C}$ 

 2) Insertion loss (see also [Figure 3](#)) strongly depends upon source and load impedance. For RF test purposes a  $50\ \Omega$  environment is used.

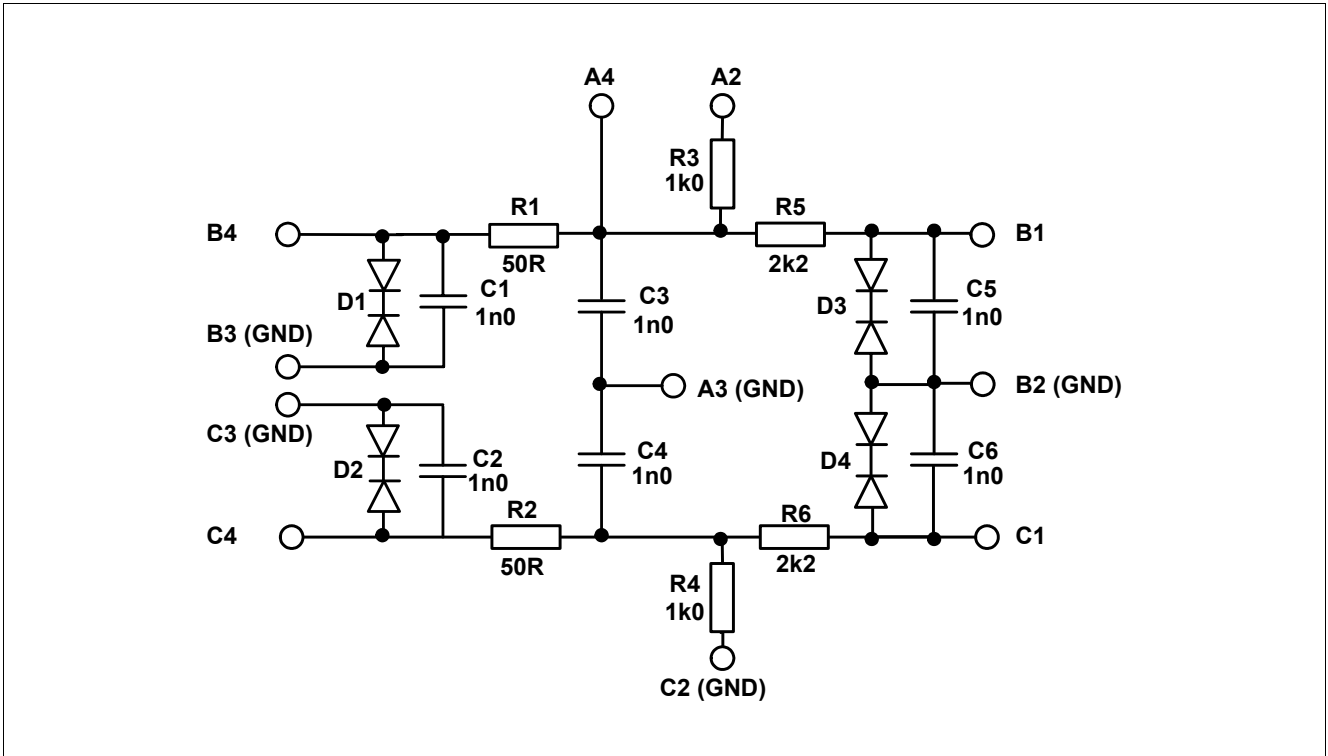


Figure 2 Schematic

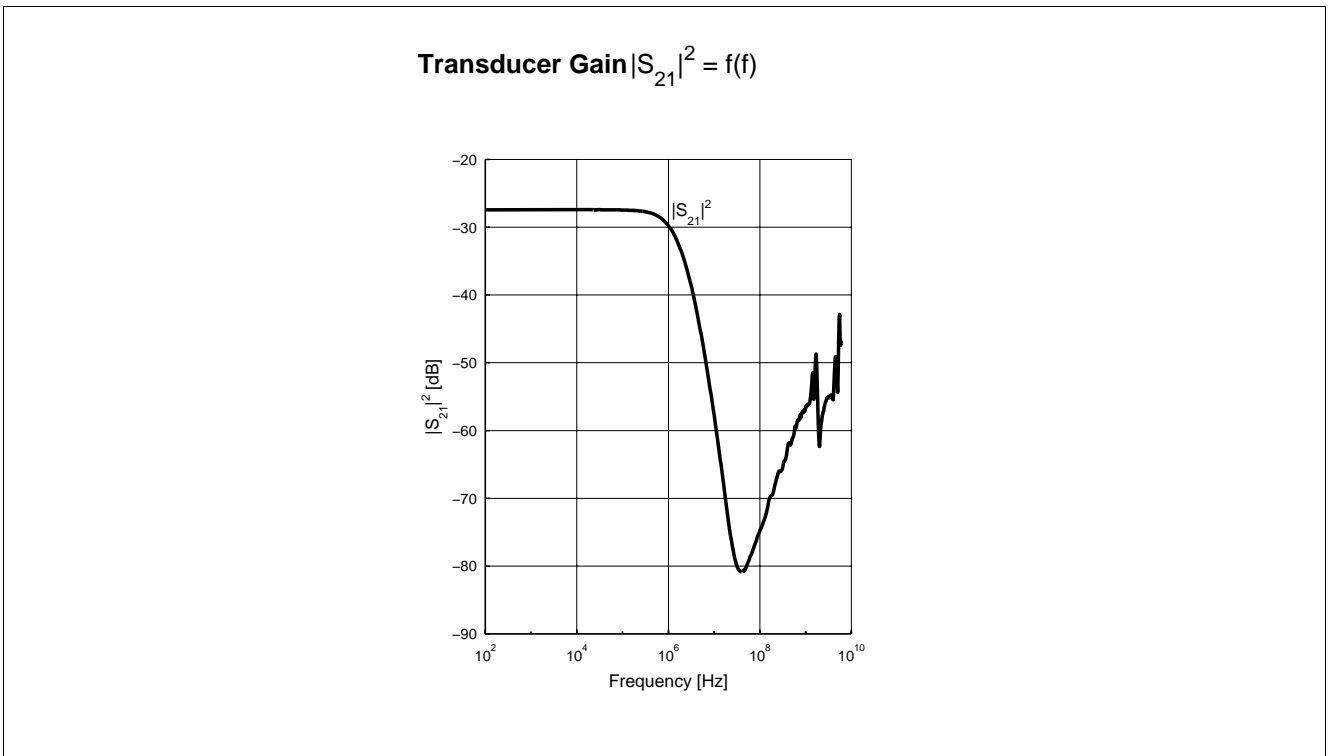


Figure 3 Insertion Loss ( $Z_S = Z_L = 50 \Omega$ )

Package Outlines

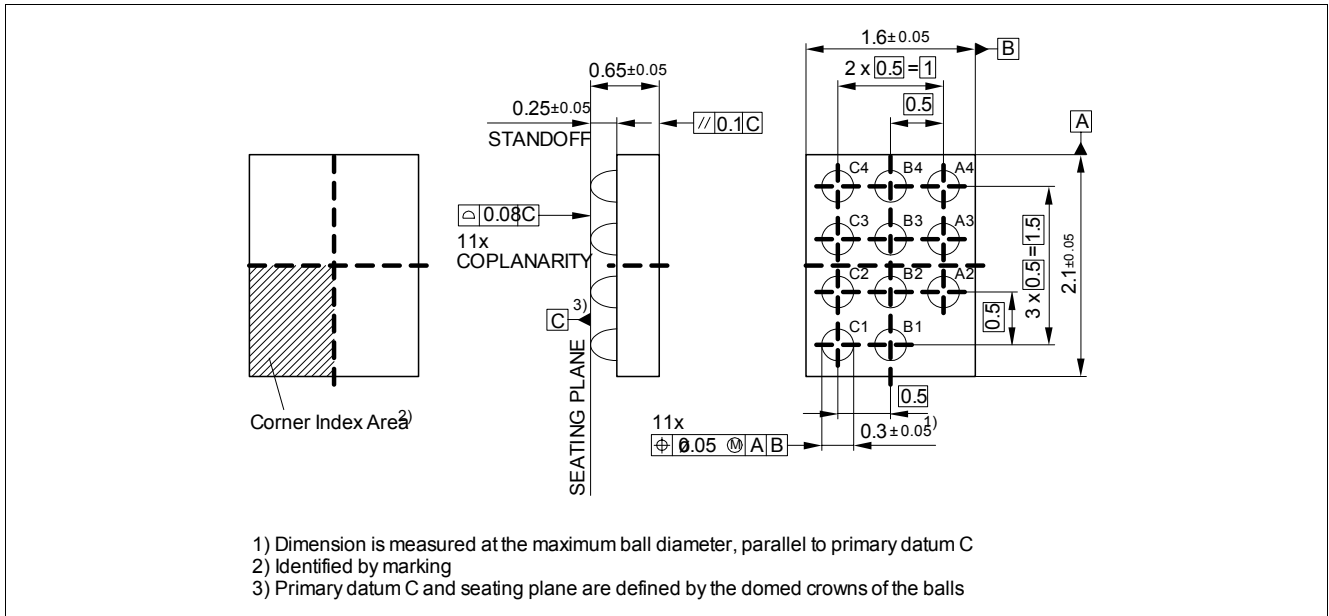


Figure 4 WLP-11-2

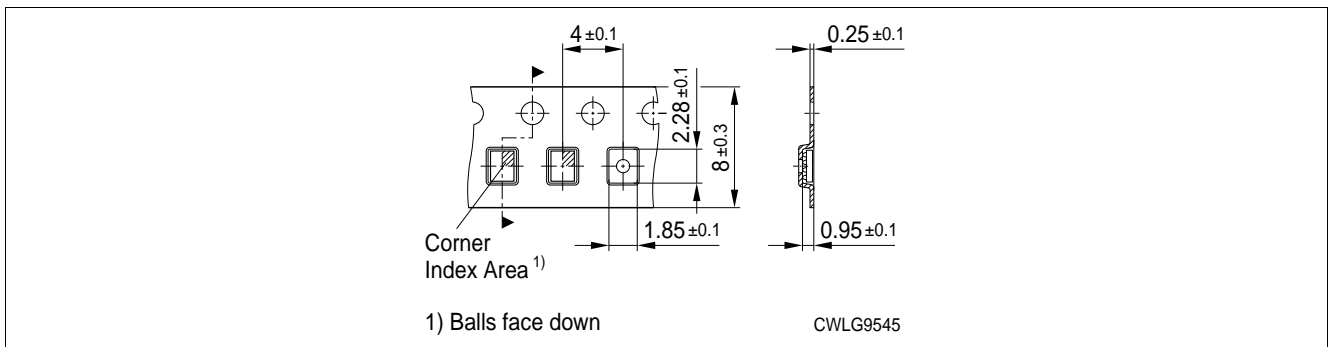


Figure 5 Tape for WLP-11-2

Dimensions in mm

You can find all of our packages, sorts of packing and others in our Infineon Internet Page "Products": <http://www.infineon.com/products>.