

# BGF200

Microphone Filter and ESD Protection

Small Signal Discretes



Never stop thinking

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**BGF200**

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

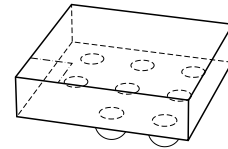
**Previous Version: 2006-03-16**

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

## Microphone Filter and ESD Protection

### Feature

- 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-Bumps



WLP-8-1, -2, -4

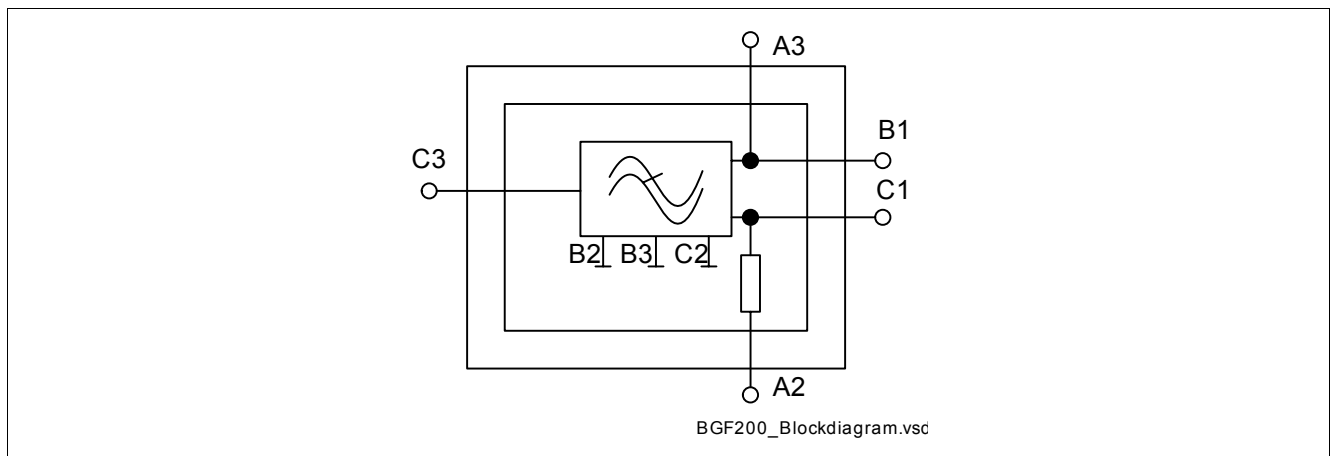


Figure 1 Blockdiagram

### Description

The BGF200 is a microphone filter with low pass characteristic offering a very high stop band attenuation up to 6 GHz. All pins are protected against ESD. The wafer level package is a green package with a size of only 1.6 mm x 1.6 mm and a total height of 0.65 mm.

Type	Package	Marking	Chip
BGF200	WLP-8-4	GF200	N0703

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at pin A2 to GND	$V_{A2}$	0		4.0	V	
Voltage at all other pins to GND	$V_P$	-14		14	V	
Operating temperature range	$T_{OP}$	-40		+85	°C	
Storage temperature range	$T_{STG}$	-65		+150	°C	
Summed up input power for all pins	$P_{IN}$			25	mW	$T_A < 70\text{ °C}$

### Electrostatic Discharge According to IEC61000-4-2<sup>1)</sup>

Between pins C3 and B3	$V_E$	-15		15	kV	
Between all other pins	$V_I$	-2		2	kV	

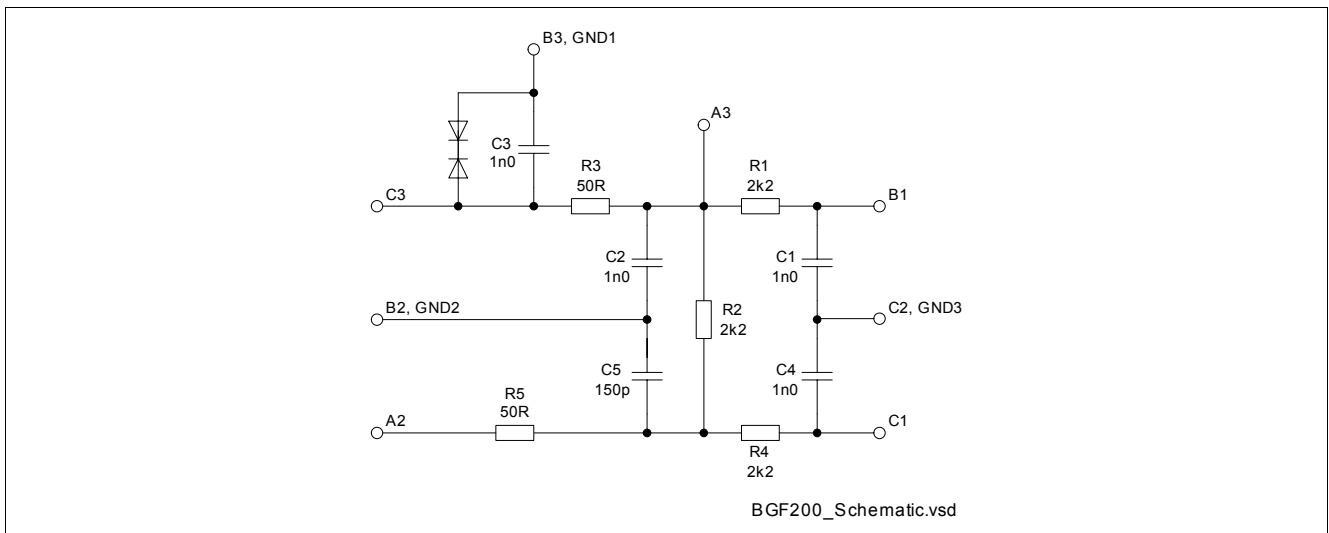
1) Contact discharge

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

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistors $R_1, R_2, R_4$	$R_{1,2,4}$	2090	2200	2310	$\Omega$	
Resistor $R_3, R_5$	$R_{3,5}$	47.5	50	52.5	$\Omega$	
Capacitances $C_1, C_2, C_3, C_4$	$C_{1,2,3,4}$	800	1000	1350	pF	
Capacitances $C_5$	$C_5$	120	150	200	pF	
Substrate leakage currents all pins to GND	$I$			100	nA	$V_R = 3\text{ V}$
Insertion loss <sup>2)</sup> pins $C_3$ to $B_1, C_1$	$IL$	30			dB	$F = 0.1... 6\text{ GHz}$ , $Z_S = Z_L = 50\ \Omega$

1) at  $T_A = 25\text{ }^\circ\text{C}$

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**

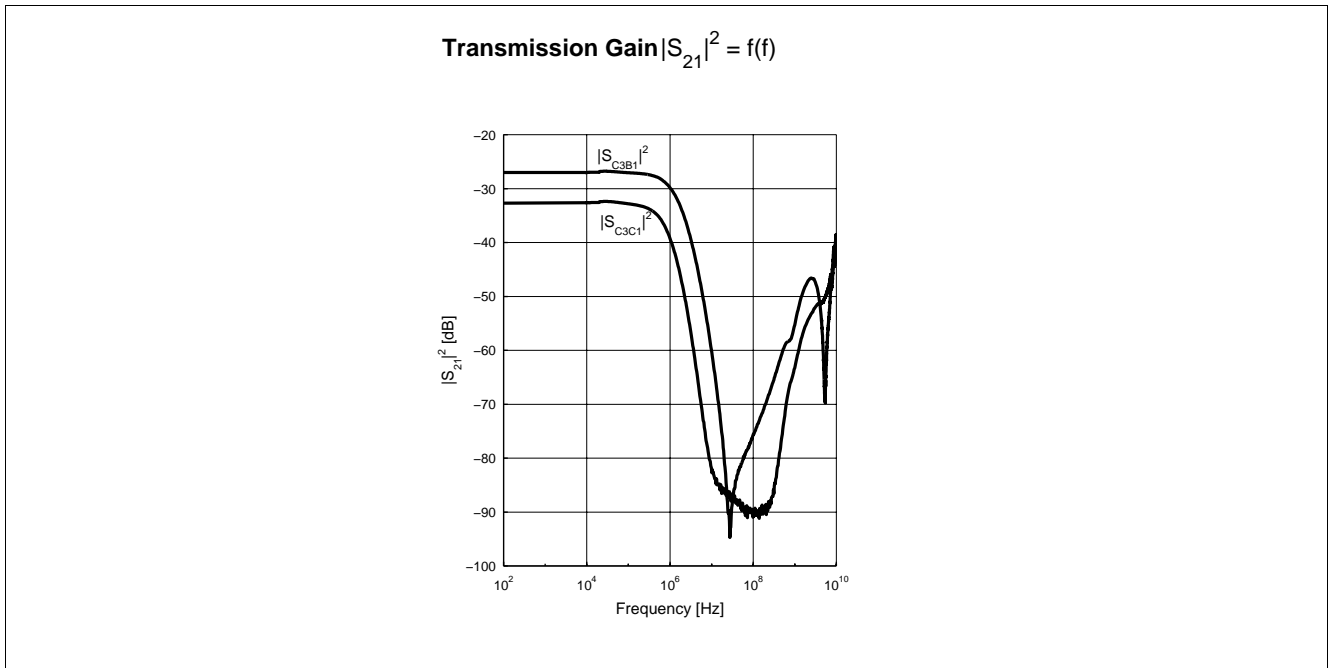


Figure 3 Transmission C3 - B1, C3 - C1

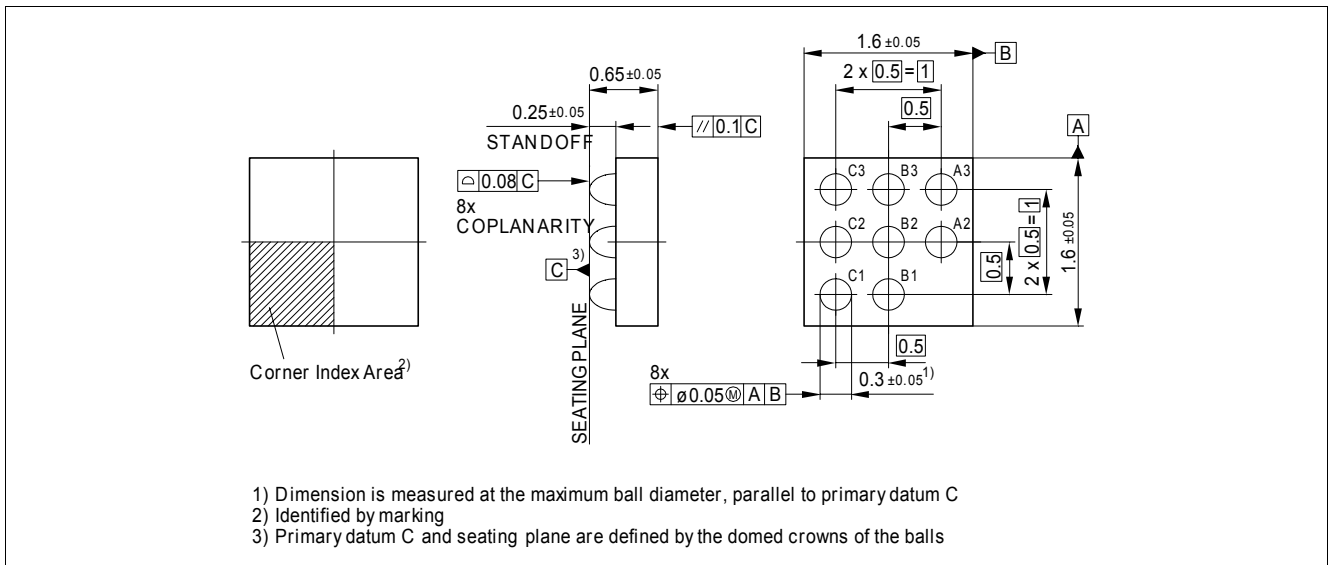


Figure 4 Package Outline WLP-8-4

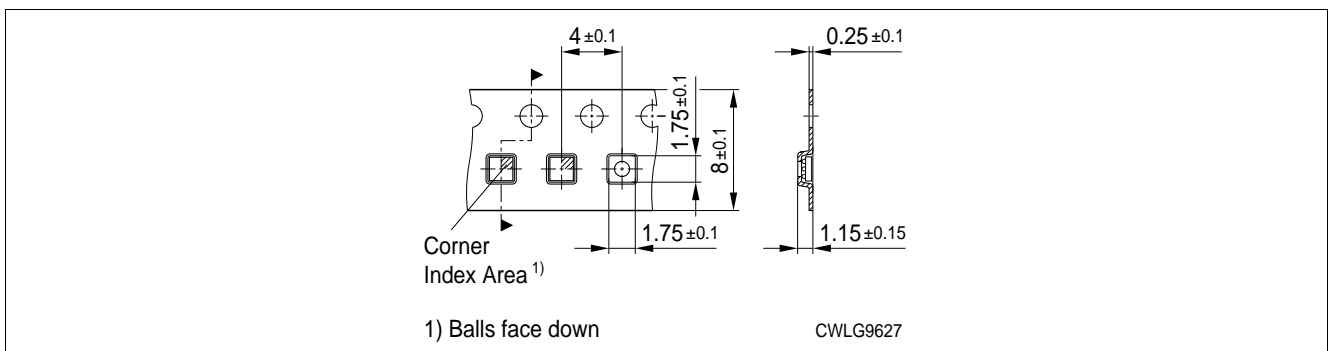


Figure 5 Tape for WLP-8-4