

BGF100

Microphone Filter and ESD Protection

Wireless
Silicon Discretes



Never stop thinking.

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BGF100**Data sheet****Revision History: 2004-09-22**

Previous Version: 2004-01-15

| | |
|------|--|
| Page | Subjects (major changes since last revision) |
|------|--|

| | |
|---|---|
| 5 | Upper limit of capacitances C1 - C6 increased |
|---|---|

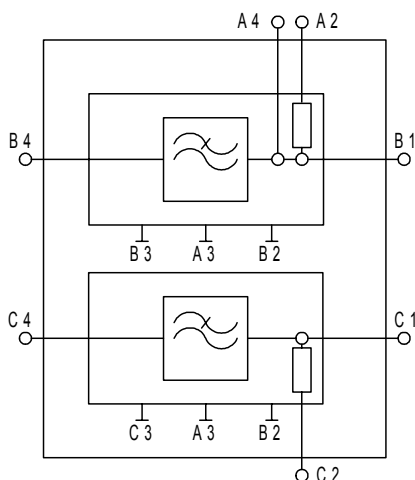
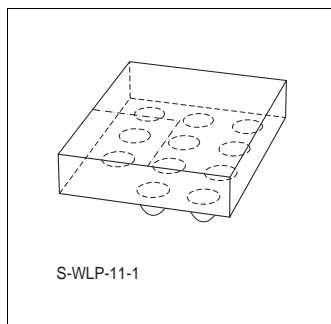
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Microphone Filter and ESD Protection

BGF100

Features

- 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 AgSnCu-Bumps



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 x 2.1 mm and a total height of 0.65 mm.

| Type | Package | Marking | Chip |
|--------|------------|---------|-------|
| BGF100 | S-WLP-11-1 | BGF100 | N0700 |

Maximum Ratings

| Parameter | Symbol | Value | Unit |
|---|-----------|--------------|------|
| Voltage at pin A2 to GND | V_{A2} | 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 |
| Input power at all pins | P_{IN} | 1 | mW |
| Electrostatic discharge according to IEC61000-4-2 | | | |
| Contact discharge at pins B4 to B3, C4 to C3 | V_{43} | 15 | kV |
| Contact discharge between all other pins | V_{ESD} | 2 | |

Electrical Characteristics at $T_A=25^{\circ}\text{C}$

| Parameter | Symbol | min. | typ. | max. | Unit |
|---|-----------|------|------|------|----------|
| Resistors | | | | | |
| R1, R2 | $R_{1,2}$ | 45 | 50 | 55 | Ω |
| R3, R4 | $R_{3,4}$ | 950 | 1000 | 1050 | |
| R5, R6 | $R_{5,6}$ | 1980 | 2200 | 2420 | |
| Resistor matching | | | | | |
| R3, R4 | R_M | -1 | | +1 | % |
| Capacitances | | | | | |
| C1 - C6 | C | 800 | 1000 | 1350 | pF |
| Substrate leakage currents, $V = 3\text{ V}$ | | | | | |
| Pin B4 to A3 or C4 to A3 | I | | | 100 | nA |
| Insertion loss ¹⁾ | IL | 30 | | | dB |
| Pins B4 to B1 or C4 to C1 | | | | | |
| $f = 0.1 \dots 6\text{ GHz}$, $Z_S=Z_L=50\ \Omega$ | | | | | |

¹⁾ Insertion loss (see also fig. 2) strongly depends upon source and load impedance. For RF test purposes a 50 Ω environment is used.

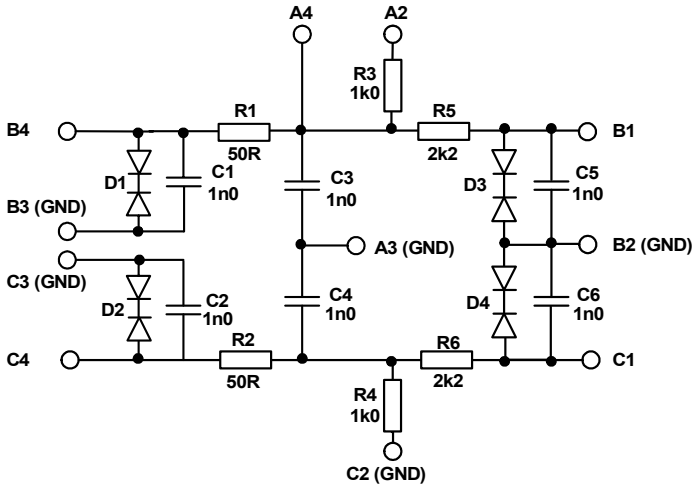


Fig.1: Schematic

Transducer Gain $|S_{21}|^2 = f(f)$

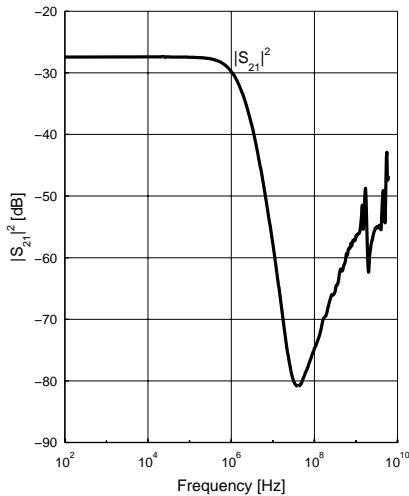
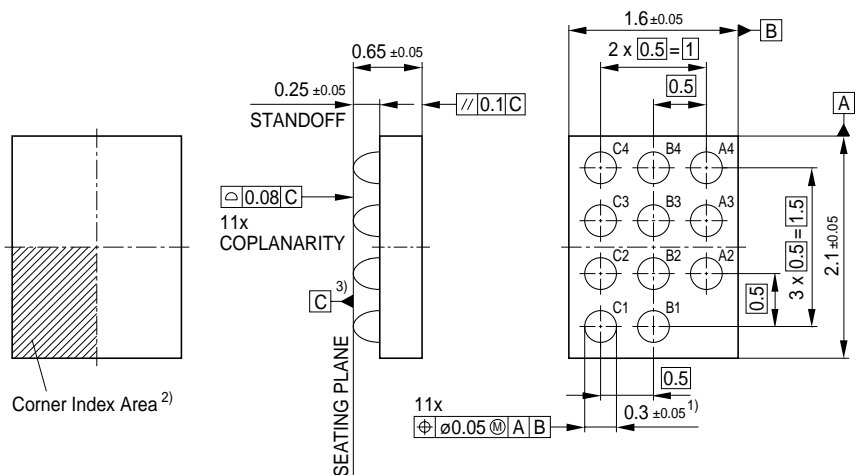


Fig.2: Insertion loss, $Z_S = Z_L = 50 \Omega$

Package Outline



- 1) Dimension is measured at the maximum ball diameter, parallel to primary datum C
- 2) Identified by marking
- 3) Primary datum C and seating plane are defined by the domed crowns of the balls

S-WLP-11-1