

BGF113

Differential Microphone Filter and ESD Protection

Small Signal Discretes



Never stop thinking

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BGF113

Revision History: 2009-01-29, V3.1

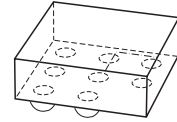
Previous Version: 2008-09-24, V3.0

Page	Subjects (major changes since last revision)
6	Figure 2 and Figure 3 updated

BGF113

Features

- Differential microphone filter
- Integrated ESD protection up to 15 kV contact discharge according to IEC61000-4-2
- More than 40 dB stopband attenuation at 1 GHz
- Wafer Level Package with SnAgCu solder balls
- RoHS and WEEE compliant package
- 400 μm solder ball pitch



WLP-8-6-3D



Description

BGF113 is a differential microphone filter with low pass characteristic offering a high stop band attenuation up to 6 GHz. External pins are protected against 15 kV contact discharge according to IEC61000-4-2. The wafer level package is a green leadfree package with a size of 1.16 mm x 1.16 mm and a total height of 0.60 mm.

Type	Package	Marking	Chip
BGF113	WLP-8-6	GF113	N0728

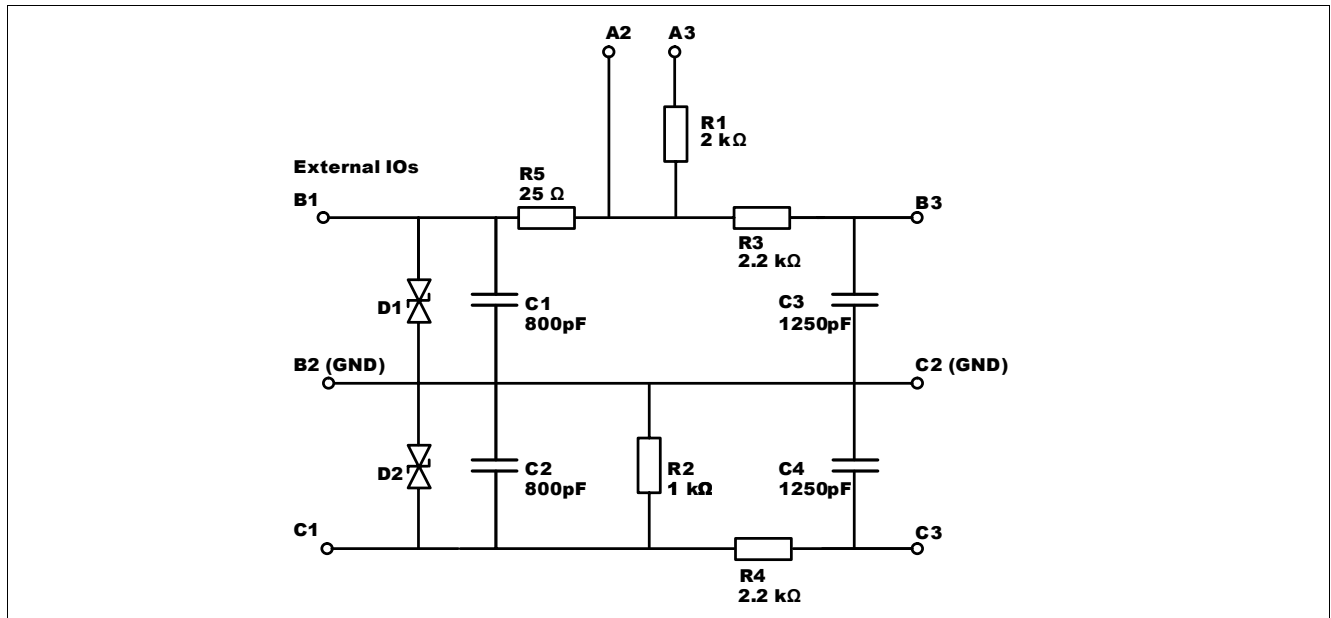


Figure 1 Schematic

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	V_P	0	–	4	V	–
Operating temperature range	T_{OP}	-40	–	85	°C	–
Storage temperature range	T_{STG}	-65	–	150	°C	–
Input power at all pins	P_{IN}	–	–	60	mW	@ +70 °C
Electrostatic Discharge According to IEC61000-4-2						
Contact discharge from pin B1 or C1 to GND	V_{EXT}	-15	–	15	kV	–
Contact discharge between all other pins	V_{INT}	-2	–	2	kV	–

Table 2 Electrical Characteristics¹⁾

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistor R_1	R_1	1900	2000	2100	Ω	–
Resistor R_2	R_2	800	1000	1200	Ω	–
Resistors R_3, R_4	$R_{3,4}$	1760	2200	2640	Ω	–
Resistors R_5	R_5	20	25	30	Ω	–
Capacitors C_1, C_2	$C_{1,2}$	640	800	960	pF	–
Capacitors C_3, C_4	$C_{3,4}$	1000	1250	1500	pF	–
Leakage currents ESD diodes to GND	I_R	–	0.1	100	nA	$V = \pm 3 \text{ V}$
			0.1	100	μA	$V = \pm 14 \text{ V}$
Insertion loss ²⁾ Pins B1 to B3 or C1 to C3	IL	20			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 2](#)) strongly depends upon source and load impedance and GND connection on the circuit board. For RF test purposes a 50Ω environment is used.

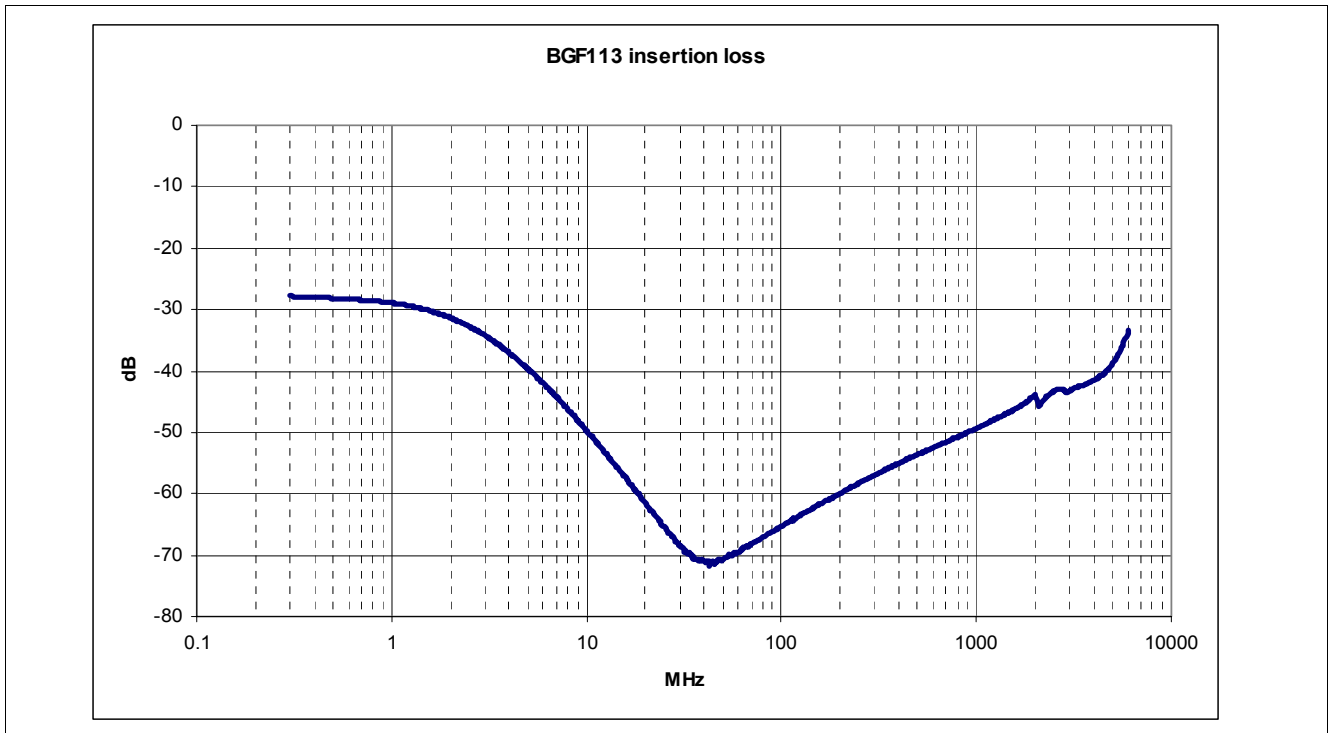


Figure 2 Insertion loss B1 - B3 or C1 - C3, $Z_S = Z_L = 50 \Omega$

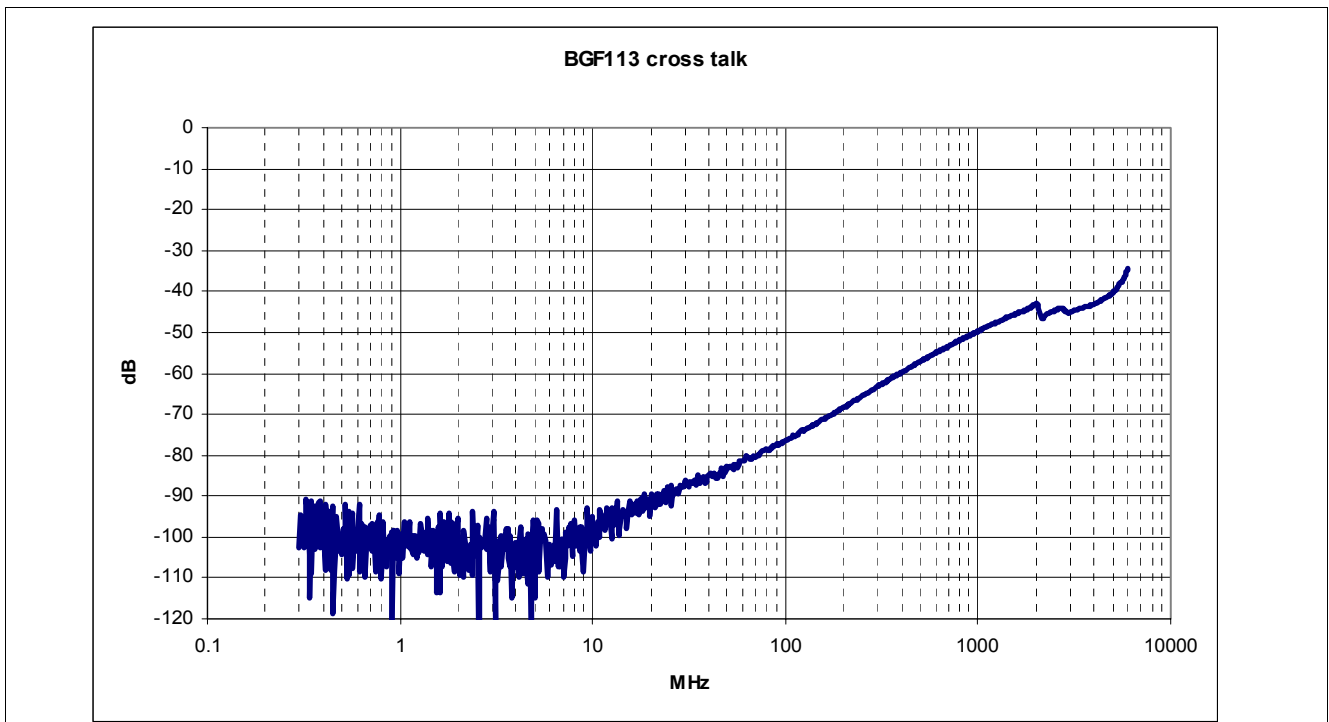


Figure 3 Cross talk B1 - C3 or C1 - B3, $Z_S = Z_L = 50 \Omega$

Package outlines

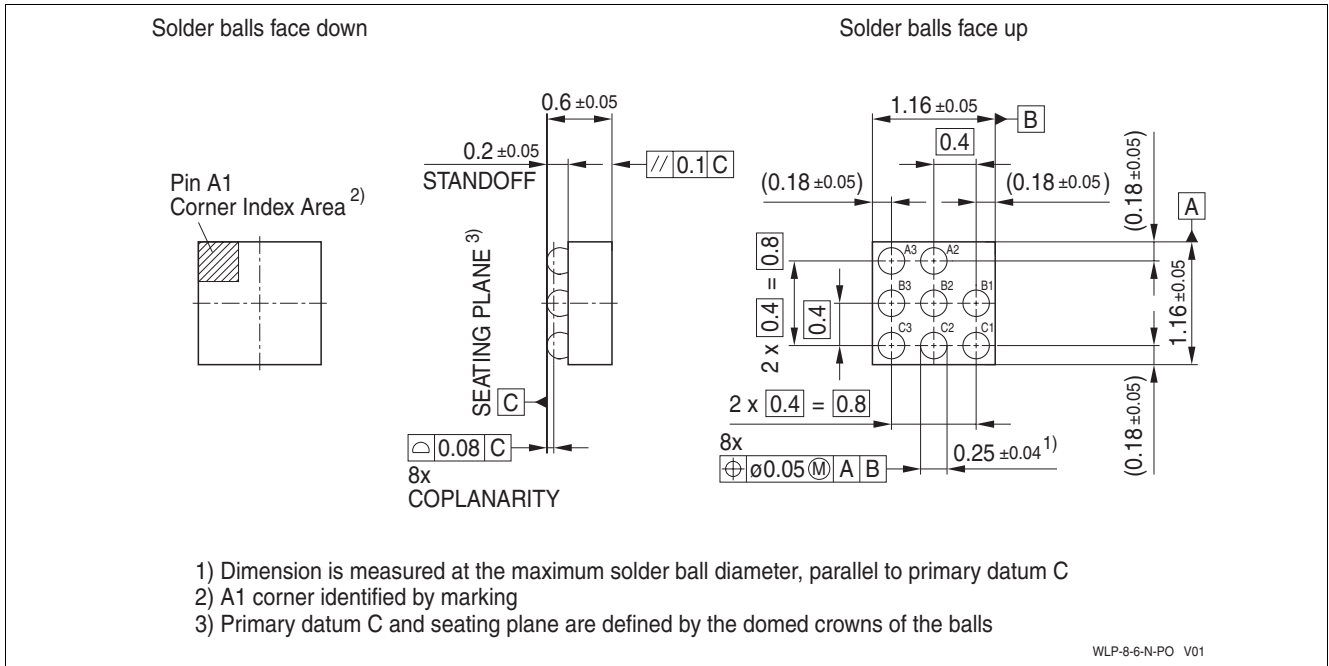


Figure 4 WLP-8-6 (dimensions in mm)

Tape and reel specification

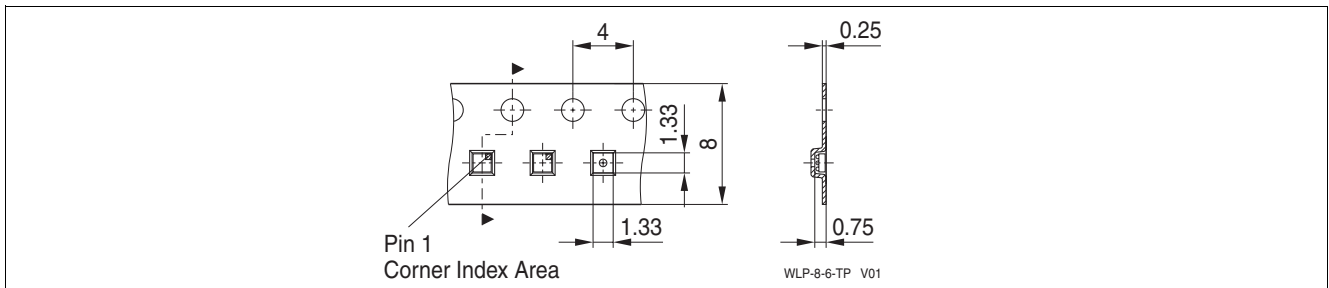


Figure 5 Tape for WLP-8-6 (dimensions in mm)

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