

BGF113

Differential Microphone Filter and ESD Protection

Small Signal Discretes



Never stop thinking

Edition 2009-01-29

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

**© Infineon Technologies AG 2009.
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).

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.

BGF113

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

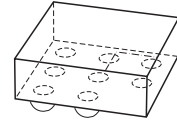
Previous Version: 2008-09-24, V3.0

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

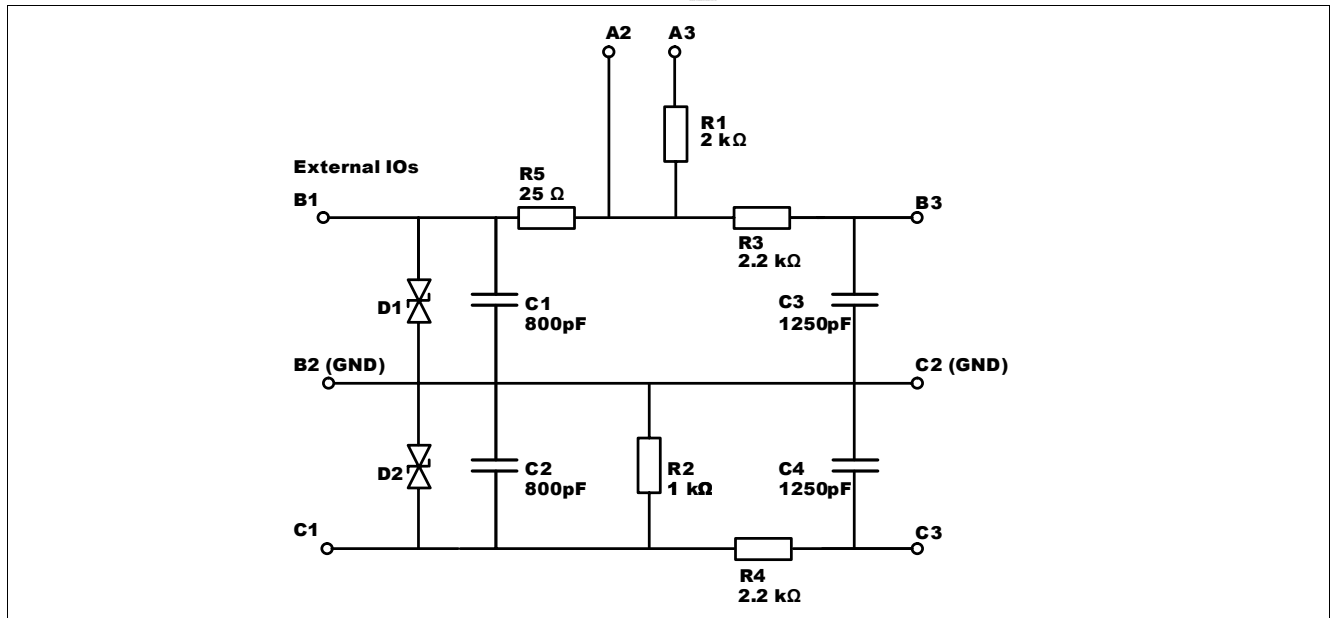


Figure 1 Schematic

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	$V = \pm 3 V$
			0.1	100	μA	$V = \pm 14 V$
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.

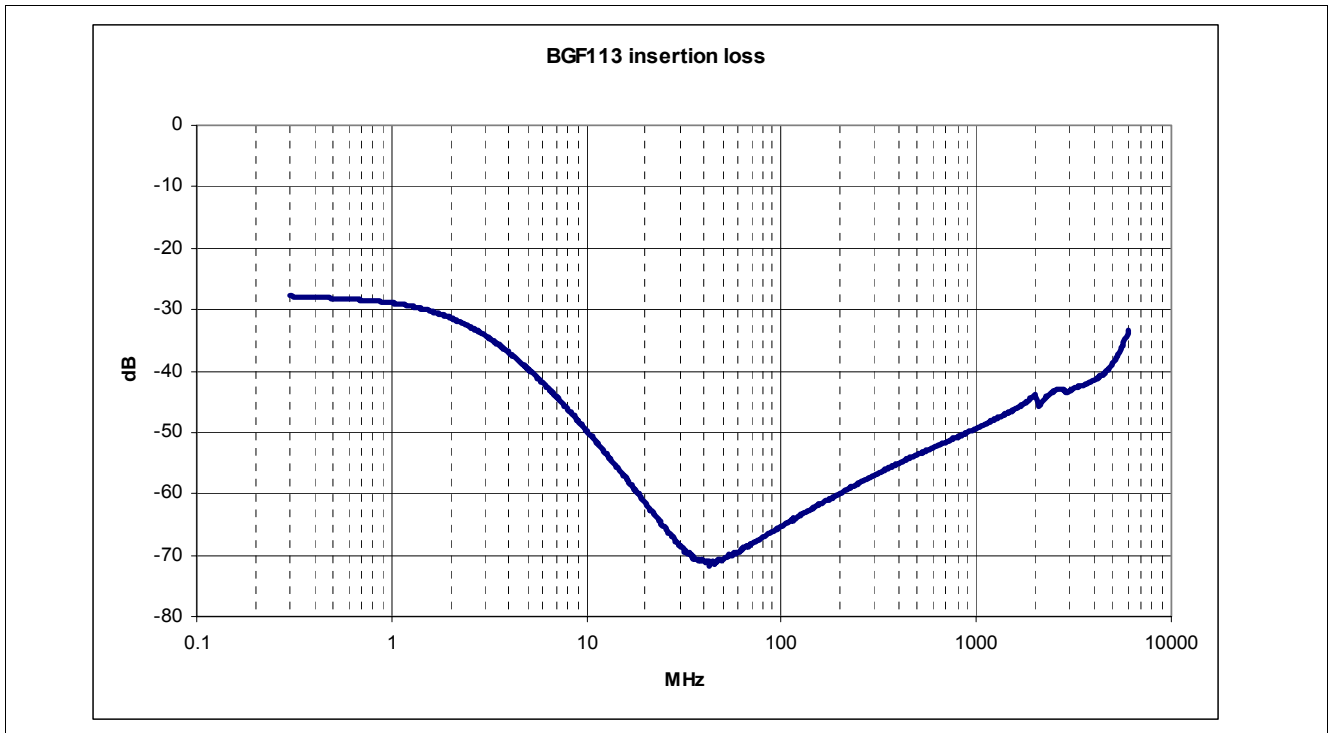


Figure 2 Insertion loss B1 - B3 or C1 - C3, $Z_S = Z_L = 50 \Omega$

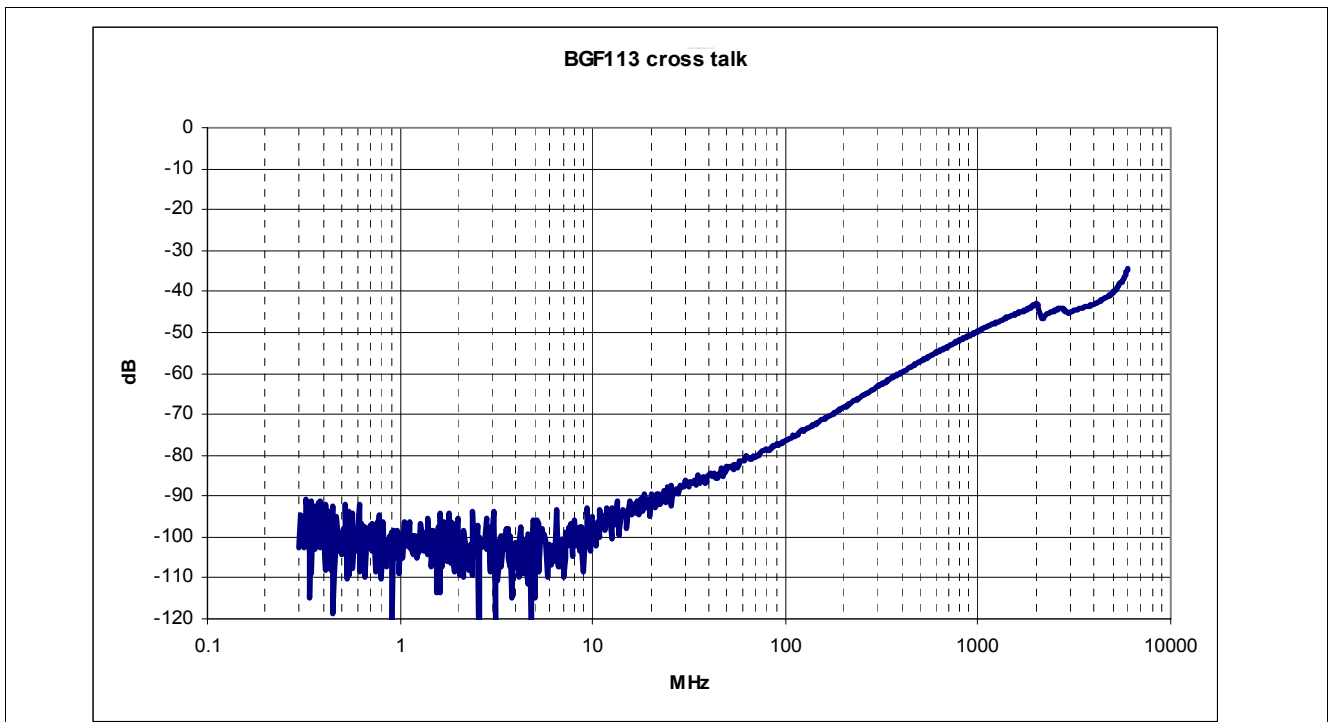


Figure 3 Cross talk B1 - C3 or C1 - B3, $Z_S = Z_L = 50 \Omega$

Package outlines

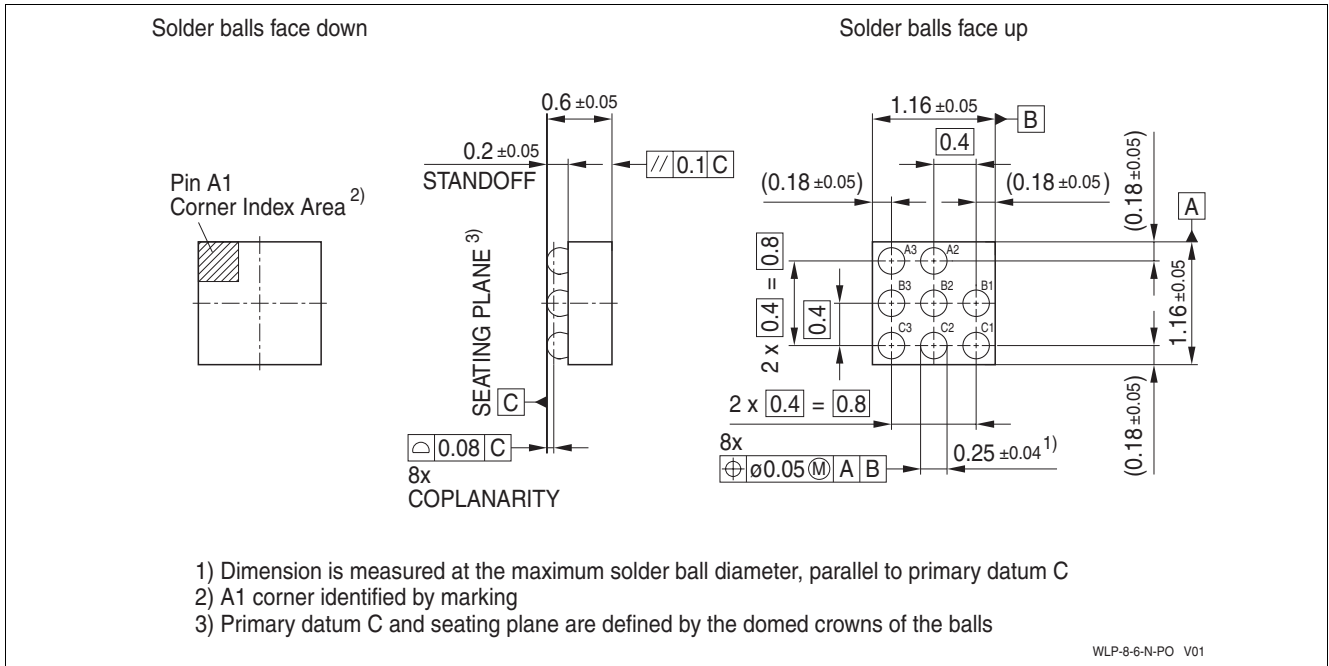


Figure 4 WLP-8-6 (dimensions in mm)

Tape and reel specification

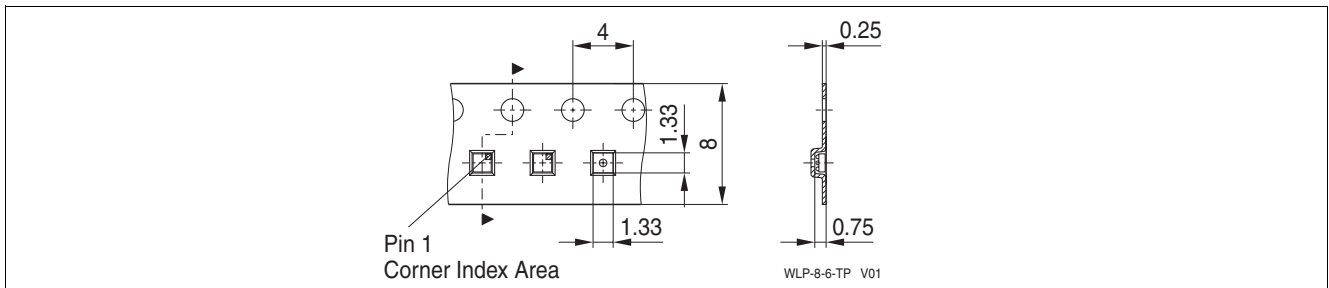


Figure 5 Tape for WLP-8-6 (dimensions in mm)

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