Differential Microphone Filter and ESD Protection

Small Signal Discretes



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

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

Subjects (major changes since last revision)			
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.

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

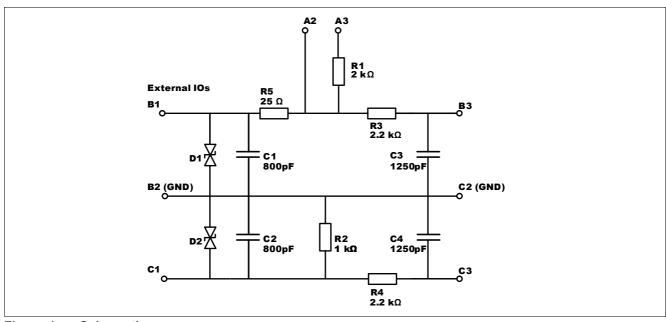


Figure 1 Schematic

BGF113 Differential Microphone Filter and ESD Protection

BGF113

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note /
		Min.	Typ.	Max.		Test Condition
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 IEC61	000-4-2				-	
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 /
		Min.	Тур.	Max.		Test Condition
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	I_{R}	_	0.1	100	nA	V = ±3 ∨
ESD diodes to GND			0.1	100	μΑ	$V = \pm 14 \text{ V}$
Insertion loss ²⁾	IL	20			dB	f = 0.1 6 GHz
Pins B1 to B3 or C1 to C3						$Z_{\rm S}$ = $Z_{\rm L}$ = 50 Ω

¹⁾ at $T_{A} = 25 \, ^{\circ}\text{C}$

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 50 Ω environment is used.



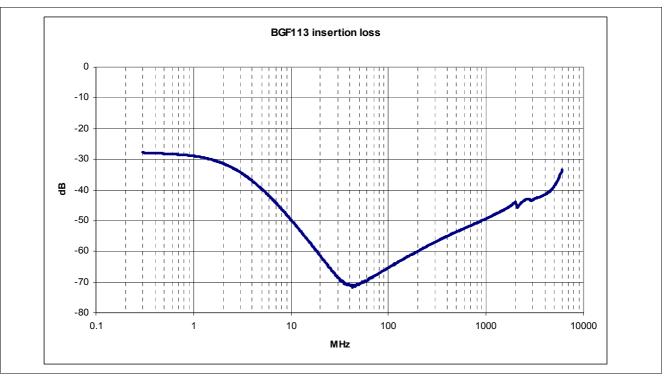


Figure 2 Insertion loss B1 - B3 or C1 - C3, $Z_{\rm S}$ = $Z_{\rm L}$ = 50 Ω

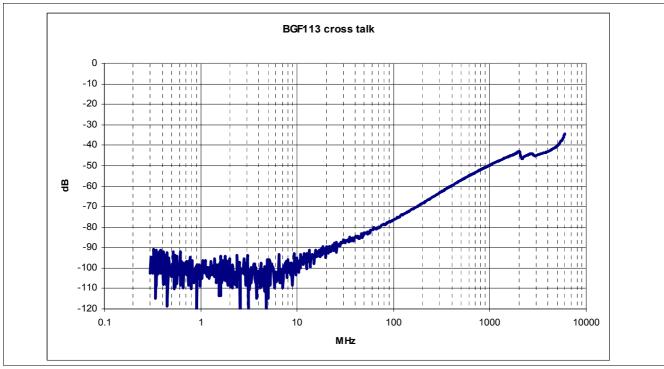


Figure 3 Cross talk B1 - C3 or C1 - B3, $Z_S = Z_L = 50 \Omega$

Package outlines

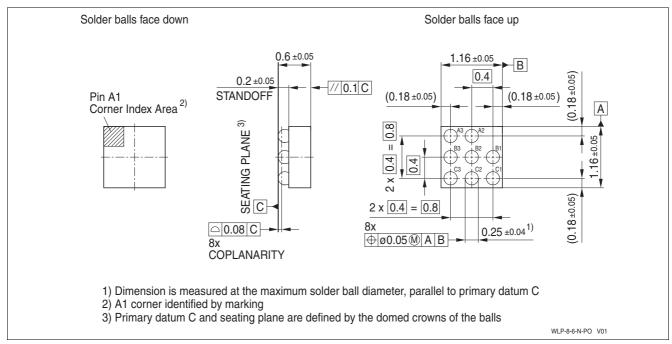


Figure 4 WLP-8-6 (dimensions in mm)

Tape and reel specification

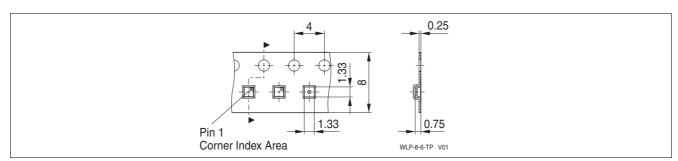


Figure 5 Tape for WLP-8-6 (dimensions in mm)

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