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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



BGF109L

10 Channel LCD Filter Array with ESD Protection

Small Signal Discretes



Never stop thinking

Edition 2008-05-20

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

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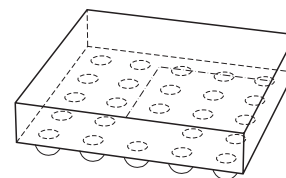
BGF109L**Revision History: 2008-05-20, V3.0****Previous Version: 2007-09-10, V2.1**

Page	Subjects (major changes since last revision)
5	Maximum ratings for DC current and power dissipation updated
5	Electrical characteristics for line resistance and capacitance updated
7	Package drawings updated

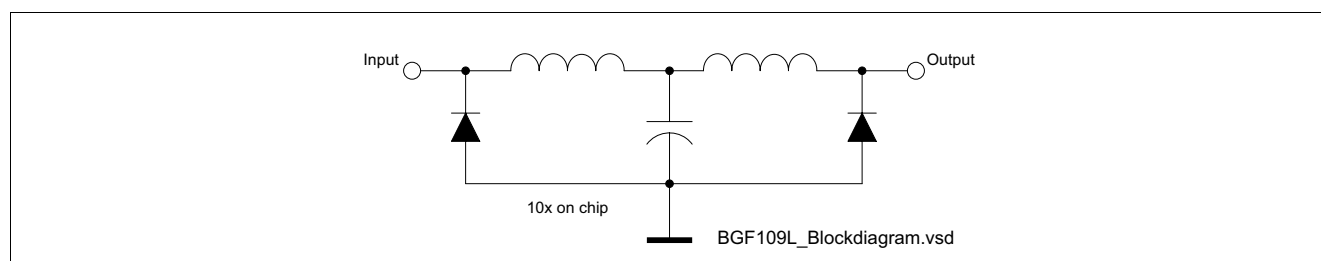
10 Channel LCD Filter Array with ESD Protection

Feature

- 10 channel integrated 5th order LC filter array
- Very good EMI compatibility
- ESD protection according to IEC61000-4-2 up to 15 kV contact discharge on all IOs
- Wafer Level Package with SnAgCu solder balls
- RoHS and WEEE compliant package



WLP-24-4-3D


Figure 1 Blockdiagram

Description

The BGF109L is a 10 channel 5th order LC filter array to provide superior signal attenuation in the 800 - 2200 MHz range. EMI compatibility is very good in point of high power mobile TX signals. LCD data integrity will be much less affected by the mobile's TX signal.

All pins are protected against ESD up to 15 kV according to IEC61000-4-2 (contact discharge). The wafer level package is a green package with a size of only 2.1 mm x 2.1 mm and a total height of 0.6 mm.

Type	Package	Marking	Chip
BGF109L	WLP-24-4	BGF109L	N0729

10 Channel LCD Filter Array with ESD Protection

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	V_P	0	-	5.0	V	
Operating temperature range	T_{OP}	-40	-	+85	°C	
Storage temperature range	T_{STG}	-65	-	+150	°C	
DC current for each line	I_{DC}		-	25	mA	$T_A < 85\text{ °C}$
Total dissipated power for all lines	P_{diss}		-	200	mW	$T_A < 85\text{ °C}$
Electrostatic discharge according to IEC61000-4-2 ¹⁾ at all pins	V_{ESD}	-15	-	+15	kV	

1) Contact discharge

Table 2 Electrical Characteristics¹⁾

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Series Resistors $R_1 \dots R_{10}$	R	68	90	112	Ω	
Line capacitance of each line to GND	C_T	36	42.5 28	49	pF	$V_R = 0\text{ V}$ $V_R = 3\text{ V}$
Leakage currents of lines to GND	I_R			200	nA	$V_R = 3\text{ V}$
Breakdown voltage of ESD diodes	I_R	6.5	7.8	-	V	$I_{(BR)} = 1\text{ mA}$
Stopband attenuation Input of output pin ²⁾	IL_{800} IL_{2200}		45 35		dB	$f = 800\text{ MHz}$ $f = 2200\text{ MHz}$
Cross talk between adjacent channels 2 channel, all pins ²⁾	CT_{800} CT_{2200}		-30 -20		dB	$f = 800\text{ MHz}$ $f = 2200\text{ MHz}$

1) at $T_A = 25\text{ °C}$

2) $Z_S = Z_L = 50\text{ }\Omega$, 0 V bias

10 Channel LCD Filter Array with ESD Protection

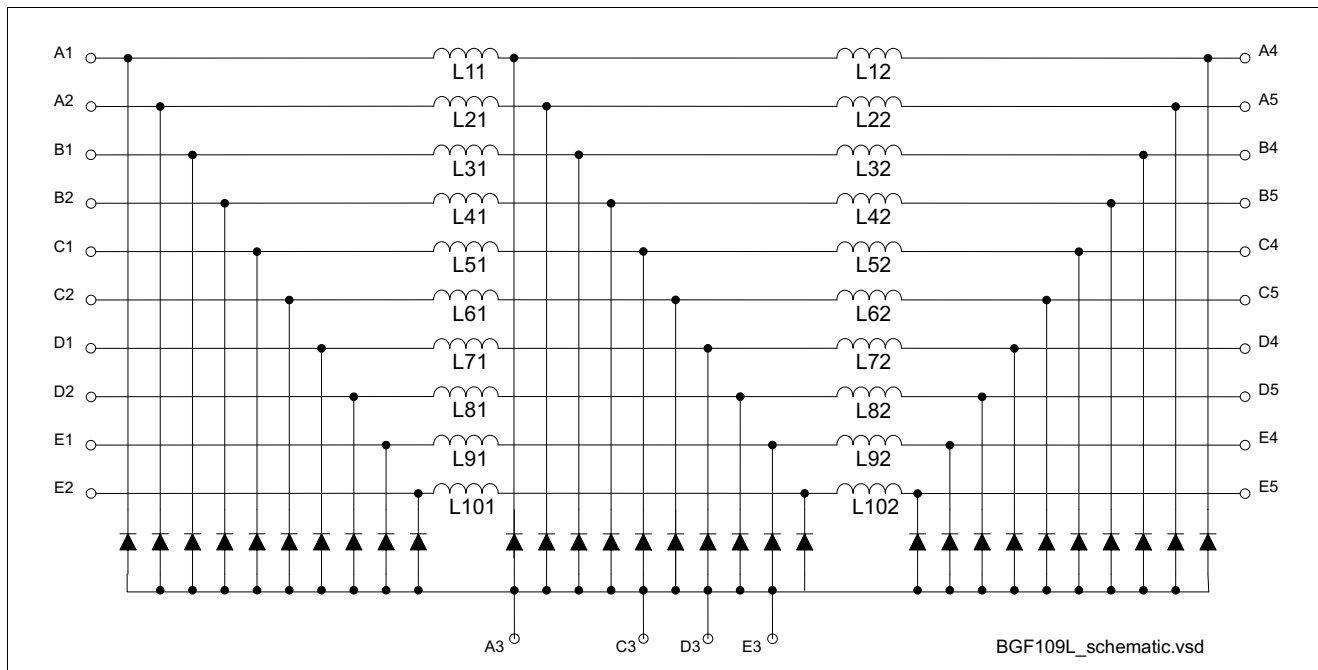


Figure 2 Schematic

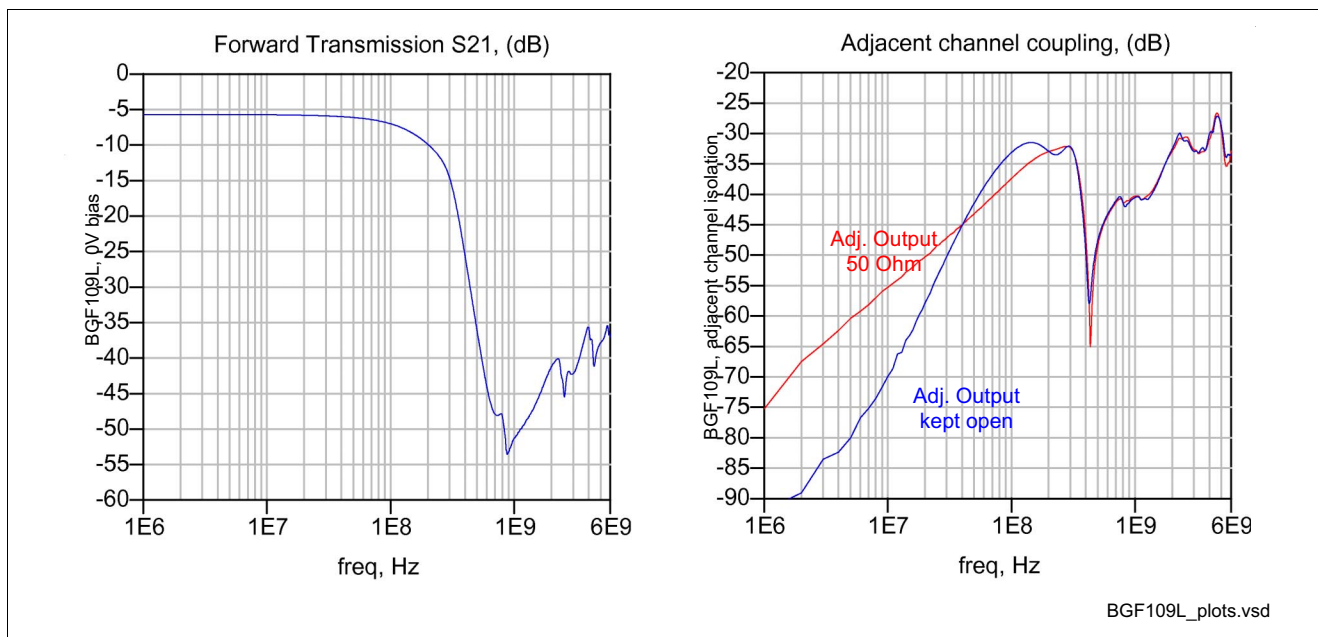
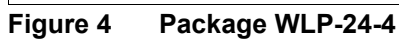


Figure 3 Filter characteristic of one channel and the crosstalk between adjacent channels with different termination

Package Outline



Technical drawing of a 4-pin connector. The top view shows a rectangular body with four pins. Dimensions include a pin pitch of 4 ± 0.1 mm, a pin diameter of 2.24 ± 0.05 mm, a body width of 8 ± 0.1 mm, and a body thickness of 2.24 ± 0.05 mm. A 'Pin 1' label points to the first pin. A 'Corner Index Area' label points to the corner of the body. The side view shows a cross-section with a top thickness of 0.25 mm and a bottom thickness of 0.75 mm.

Figure 5 **Tape for WLP-24-4**