

# BGF111

TV-Out Filter and ESD Protection

Small Signal Discretes



Never stop thinking

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**BGF111**

**Revision History: 2008-05-28, V2.0**

**Previous Version: 2007-04-26**

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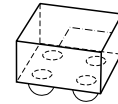
<b>Page</b>	<b>Subjects (major changes since last revision)</b>
All	Preliminary status removed

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## BGF111

### Features

- TV-Out Filter
- Wafer level package with SnAgCu solder balls
- Integrated ESD protection up to 15 kV contact discharge according to IEC61000-4-2
- Low bias voltage dependency of low pass frequency
- RoHS and WEEE compliant package



WLP-4-1-3D



### Description

BGF111 is a 75  $\Omega$  TV-Out filter with low pass characteristic offering a high stop band attenuation up to 6 GHz in mobile phone, consumer and IT applications. Wafer technology is optimized to provide low variation of the low pass frequency versus bias voltage. ESD protection at both pins exceeds 15 kV contact discharge according to IEC61000-4-2. The wafer level package is a green leadfree package with a size of only 0.75 mm x 0.75 mm and a total height of 0.6 mm.

Type	Package	Marking	Chip
BGF111	WLP-4-1	11	N0724

**Table 1 Maximum Ratings**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND		0	–	5	V	–
Operating temperature range	$T_{OP}$	-40	–	85	$^{\circ}\text{C}$	–
Storage temperature range	$T_{STG}$	-65	–	150	$^{\circ}\text{C}$	–
DC current A1 to B1	$I_{max}$	–	–	35	mA	–
<b>Electrostatic Discharge According to IEC61000-4-2</b>						
Contact discharge between all pins	$V_{ESD}$	-15	–	+15	kV	–

**Table 2 Electrical characteristics at  $T_A = 25^{\circ}\text{C}$** 

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistor R1	$R_1$	71.25	75	78.75		–
Leakage currents, A1 or B1 to GND	$I_R$	–	0.1	120	nA	$V_R = \pm 3\text{ V}$
		–	0.1	120	$\mu\text{A}$	$V_R = \pm 14\text{ V}$
Line capacitance to GND	$C_L$	–	44	–	pF	$V = 0\text{ V}$
Insertion loss at 0 V bias voltage Pin A1 to B1	$IL$	–	30	–	dB	$f = 0.8 \dots 2\text{ GHz}$ , $Z_S = Z_L = 75\ \Omega$

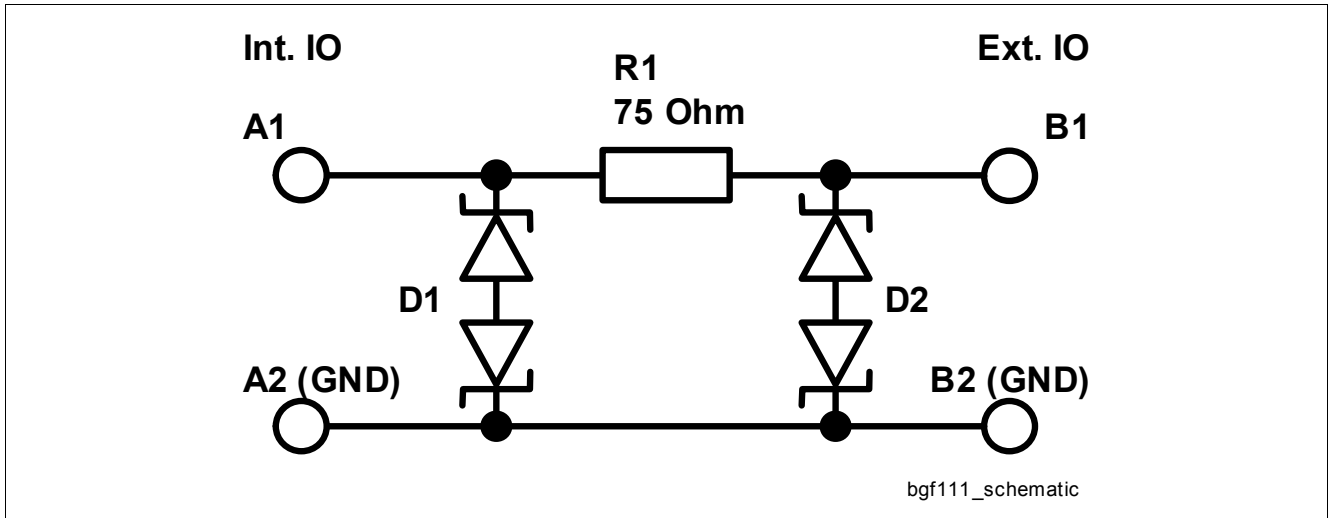


Figure 1 Schematic

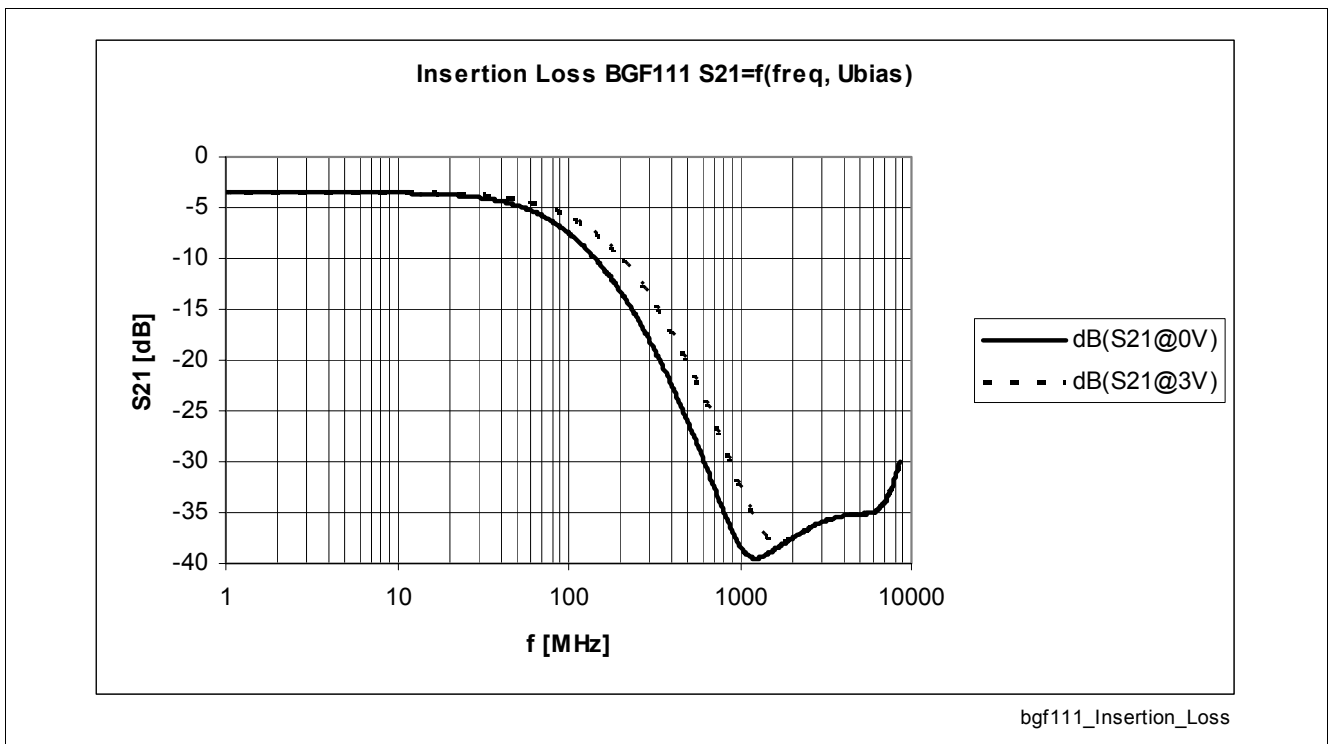
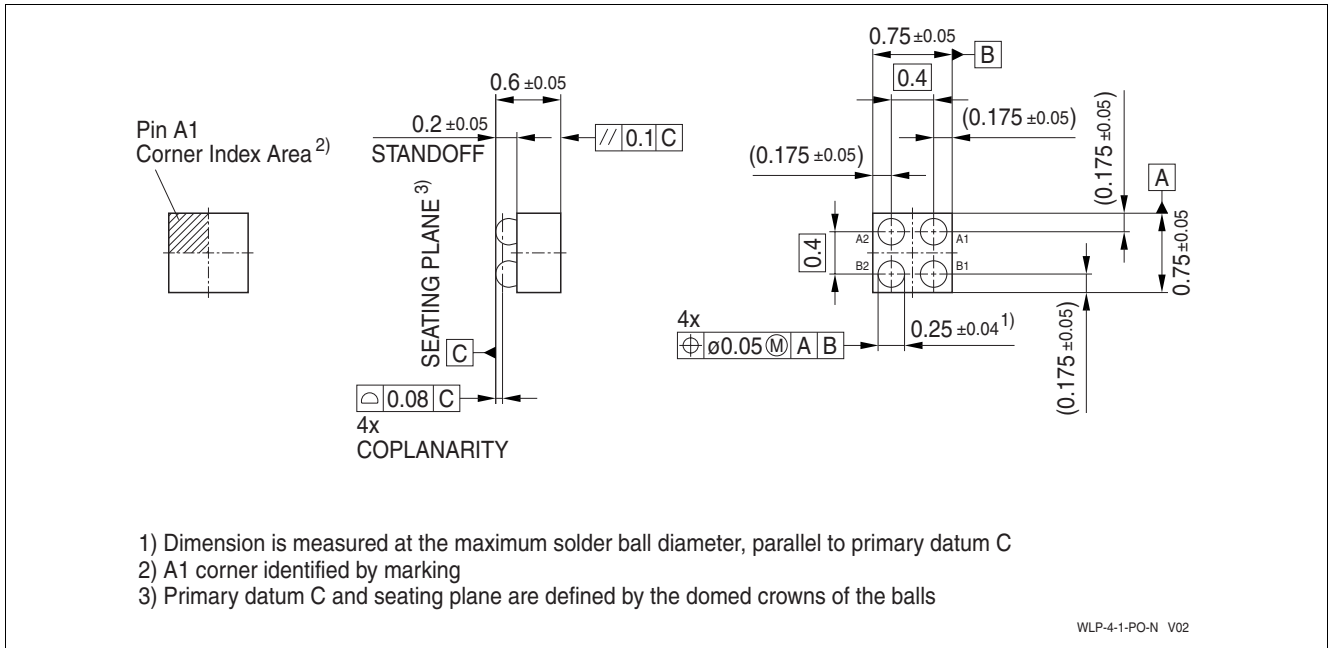


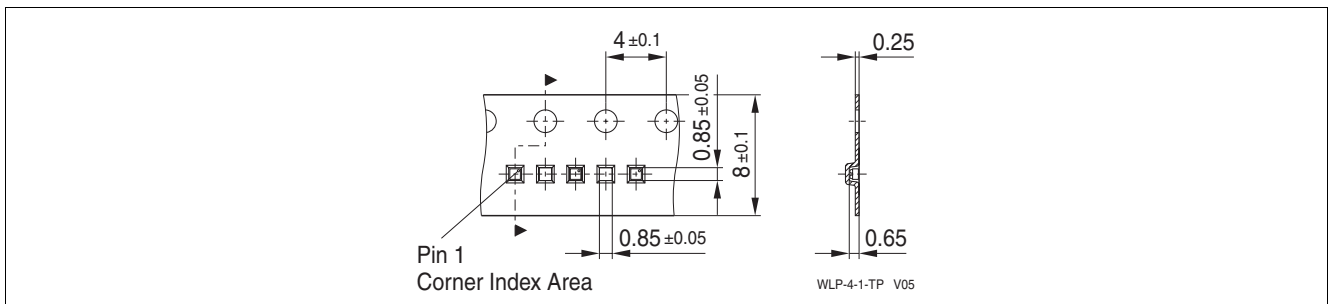
Figure 2 Insertion loss as function of bias voltage,  $Z_S = Z_L = 75 \Omega$

**Package Outline**



**Figure 3 Package outline**

**Tape for BGF111**



**Figure 4 Tape for BGF111 / WLP-4-1**

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