

# BGF104C

HSMMC Interface Filter and ESD Protection

RF & Protection Devices



Never stop thinking

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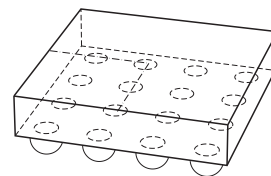
**BGF104C****Revision History: 2009-11-12, V2.0****Previous Version: 2009-09-14, V1.0**

Page	Subjects (major changes since last revision)
4	3D-figure of package updated
5	<b>Figure 2</b> updated
6	Footprint ( <b>Figure 3</b> ) added
6	Tape specification ( <b>Figure 4</b> ) added
all	Target status removed

## BGF104C

### Features

- ESD protection and filter for High Speed Multi Media Card interface
- ESD protection according to IEC61000-4-2 for  $\pm 15$  kV contact discharge on external IOs
- 16 pin green wafer level package with SnAgCu solder balls
- RoHS and WEEE compliant package
- 500  $\mu\text{m}$  solder ball pitch
- 300  $\mu\text{m}$  solder ball diameter

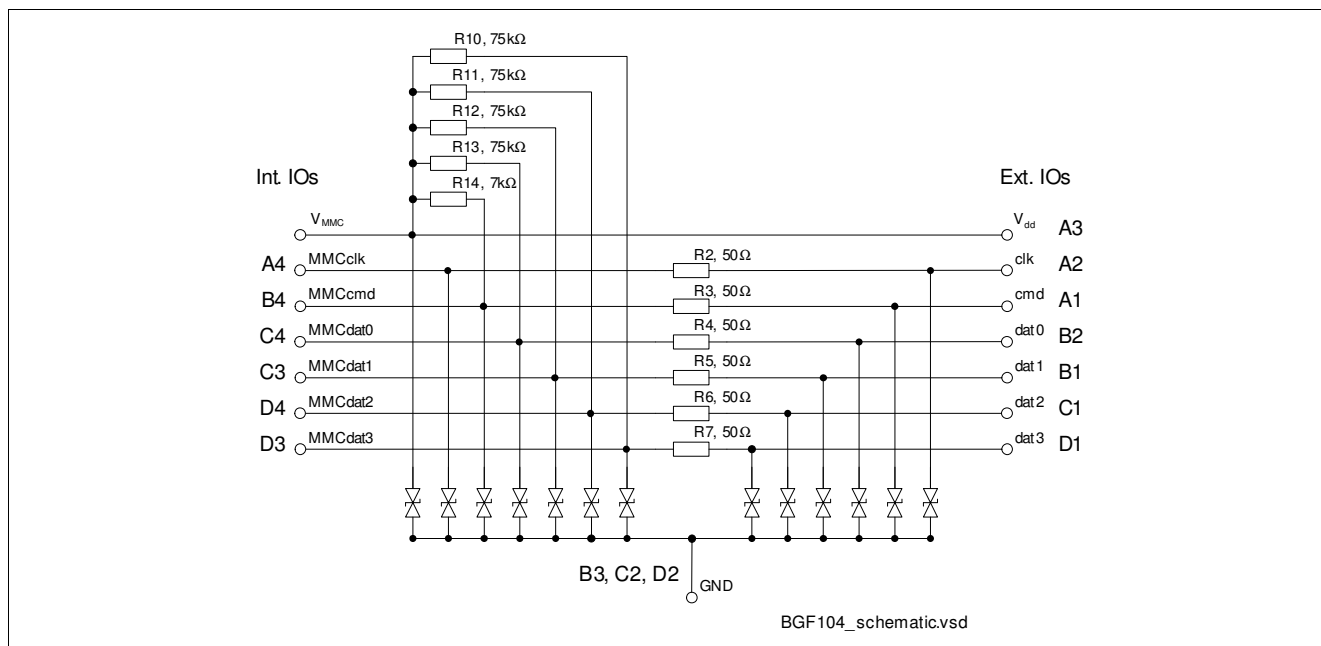


WLP-16-3-N



### Description

BGF104C is an ESD protection and filter circuit for a high speed multi media card interface. External pins are protected against ESD pulses of  $\pm 15$  kV contact discharge according to IEC61000-4-2. The wafer level package is a green leadfree package with a size of only 1.92 mm x 1.92 mm and a total height of 0.65 mm.



**Figure 1 Schematic**

Type	Package	Marking	Chip
BGF104C	WLP-16-3	4C	N0708

**Table 1 Maximum Ratings**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	$V_P$	0	—	14	V	—
Operating temperature range	$T_{OP}$	-40	—	+85	°C	—
Storage temperature range	$T_{STG}$	-65	—	+150	°C	—
<b>Electrostatic Discharge According to IEC61000-4-2</b>						
Contact discharge external pins to GND (A1, A2, A3, B1, B2, C1, D1)	$V_{ESD}$	-15	—	15	kV	—
Contact discharge internal pins to GND (A4, B4, C3, C4, D3, D4)	$V_{ESD}$	-2	—	2	kV	—

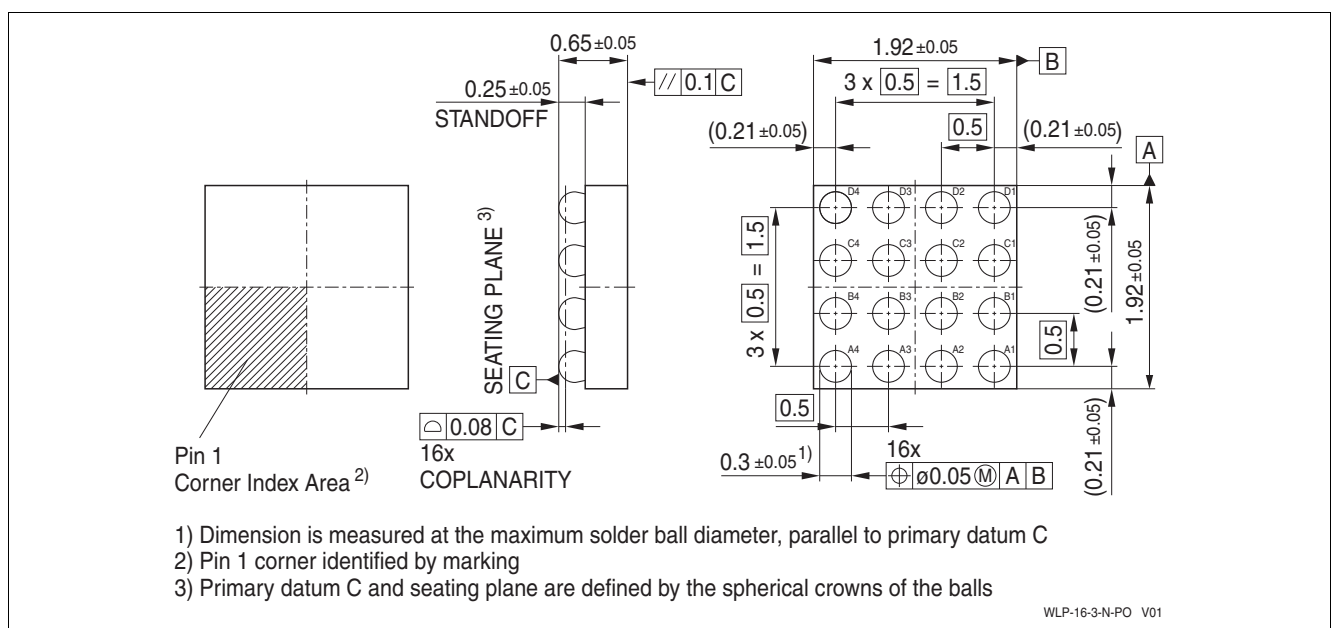
**Table 2 Electrical Characteristics<sup>1)</sup>**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistors $R_2 \dots R_7$	$R_{2\dots7}$	40	50	60	$\Omega$	—
Resistors $R_{10} \dots R_{13}$	$R_{10\dots13}$	52.5	75	97.5	k $\Omega$	—
Resistor $R_{14}$	$R_{14}$	4.9	7	9.1	k $\Omega$	—
Line capacitance, each line to GND <sup>2)</sup>	$C_T$	—	16	20	pF	$V = 0 \text{ V}$
Reverse current of ESD protection diodes $I_R = 3 \text{ V}$ $I_R = 14 \text{ V}$	$I_R$	—	5 0.1	100 10	nA $\mu\text{A}$	—

1) at  $T_A = 25 \text{ °C}$

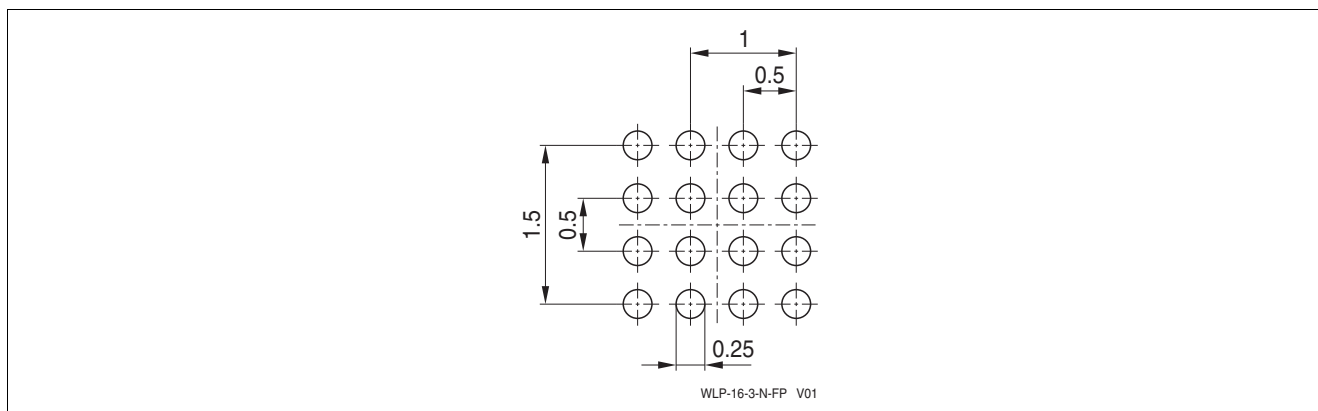
2) Without line coupling by Resistors  $R_7 - R_{11}$

## Package Outlines



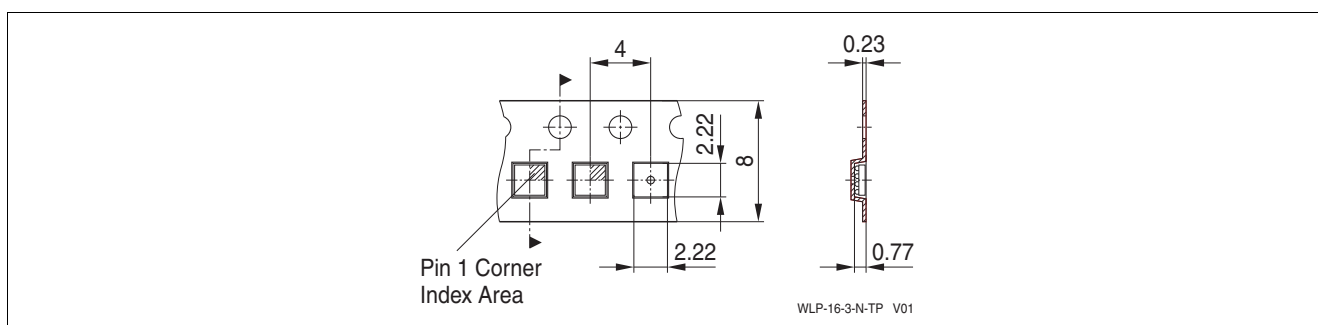
**Figure 2 WLP-16-3 (dimensions in mm)**

## Footprint



**Figure 3** Footprint for WLP-16-3 (dimensions in mm)

## Tape and reel specification



**Figure 4** Tape for WLP-16-3 (dimensions in mm)

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