

# BGF104C

HSMMC Interface Filter and ESD Protection

RF & Protection Devices



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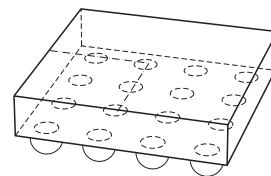
**BGF104C****Revision History: 2009-11-12, V2.0****Previous Version: 2009-09-14, V1.0**

| Page | Subjects (major changes since last revision)          |
|------|-------------------------------------------------------|
| 4    | 3D-figure of package updated                          |
| 5    | <a href="#">Figure 2</a> updated                      |
| 6    | Footprint ( <a href="#">Figure 3</a> ) added          |
| 6    | Tape specification ( <a href="#">Figure 4</a> ) 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.

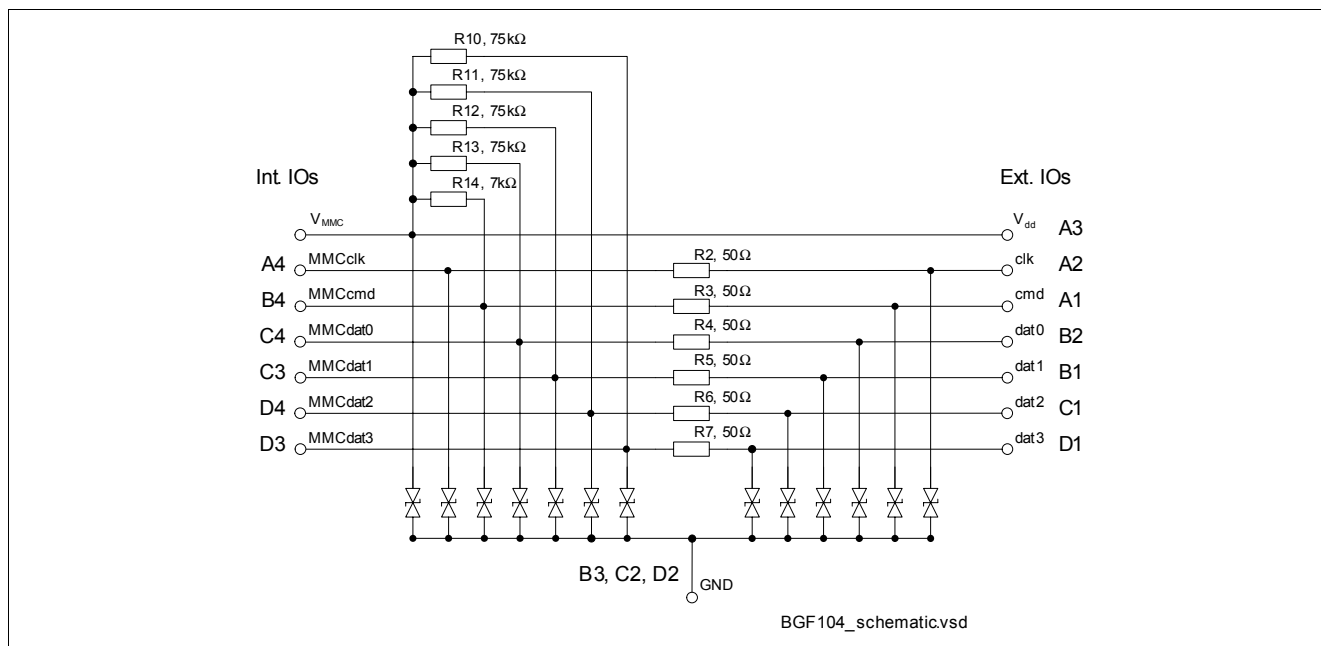


Figure 1 Schematic

| 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<br>(A1, A2, A3, B1, B2, C1, D1) | $V_{ESD}$ | -15    | –    | 15   | kV   | –                     |
| Contact discharge internal pins to GND<br>(A4, B4, C3, C4, D3, D4)     | $V_{ESD}$ | -2     | –    | 2    | kV   | –                     |

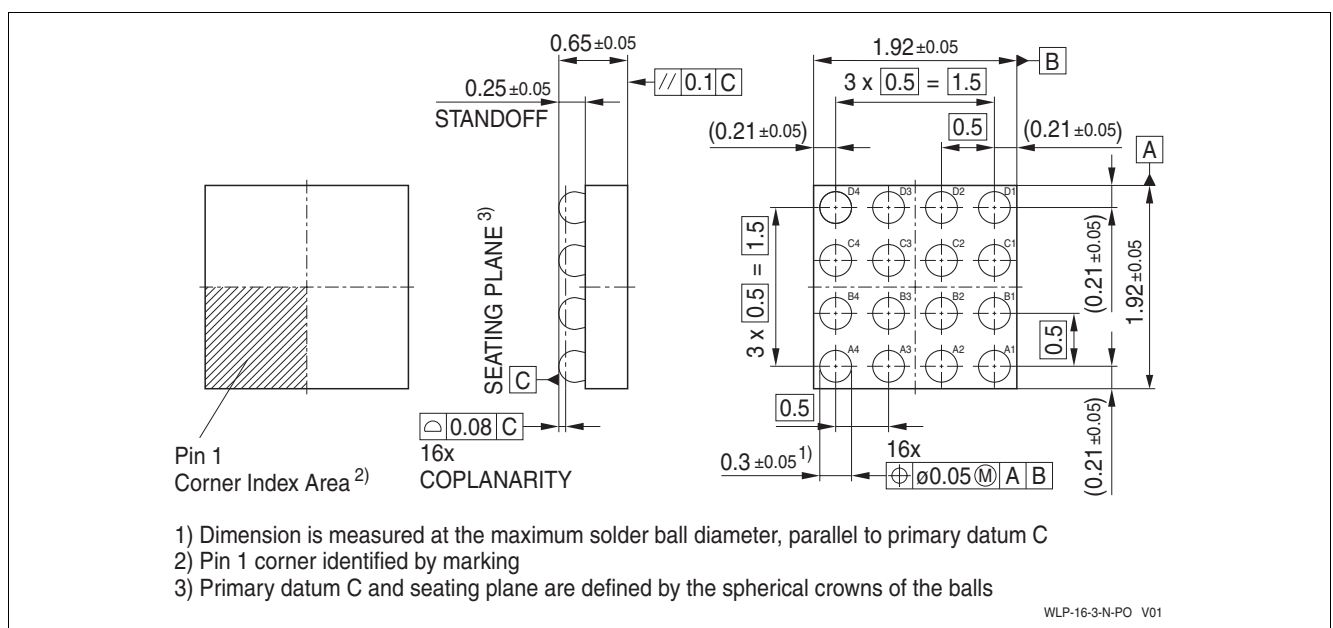
**Table 2 Electrical Characteristics<sup>1)</sup>**

| Parameter                                                                               | Symbol        | Values |          |           | Unit                | Note / Test Condition |
|-----------------------------------------------------------------------------------------|---------------|--------|----------|-----------|---------------------|-----------------------|
|                                                                                         |               | Min.   | Typ.     | Max.      |                     |                       |
| Resistors $R_2 \dots R_7$                                                               | $R_{2...7}$   | 40     | 50       | 60        | $\Omega$            | –                     |
| Resistors $R_{10} \dots R_{13}$                                                         | $R_{10...13}$ | 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<br>$I_R = 3 \text{ V}$<br>$I_R = 14 \text{ V}$ | $I_R$         | –      | 5<br>0.1 | 100<br>10 | nA<br>$\mu\text{A}$ | –                     |

1) at  $T_A = 25^\circ\text{C}$

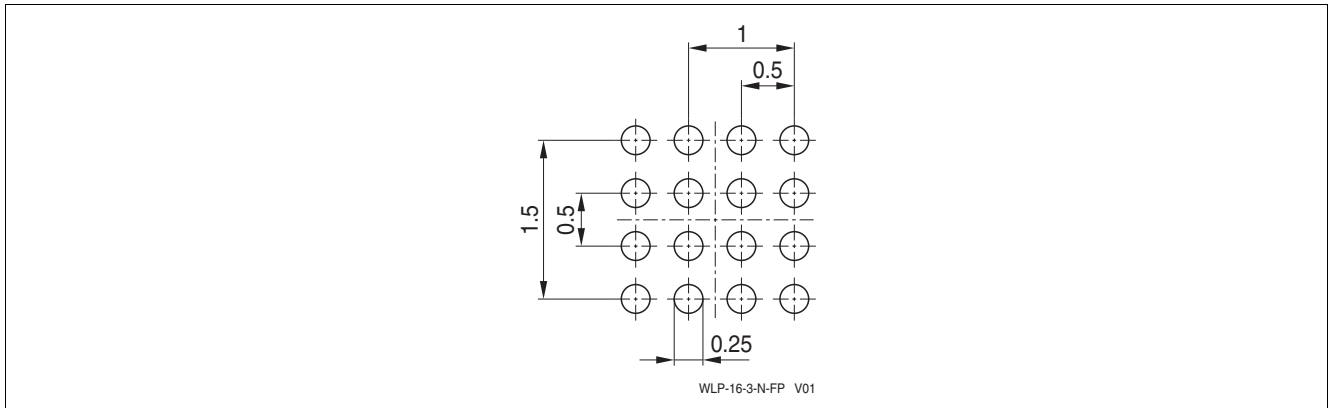
2) Without line coupling by Resistors  $R_7 - R_{11}$

## Package Outlines



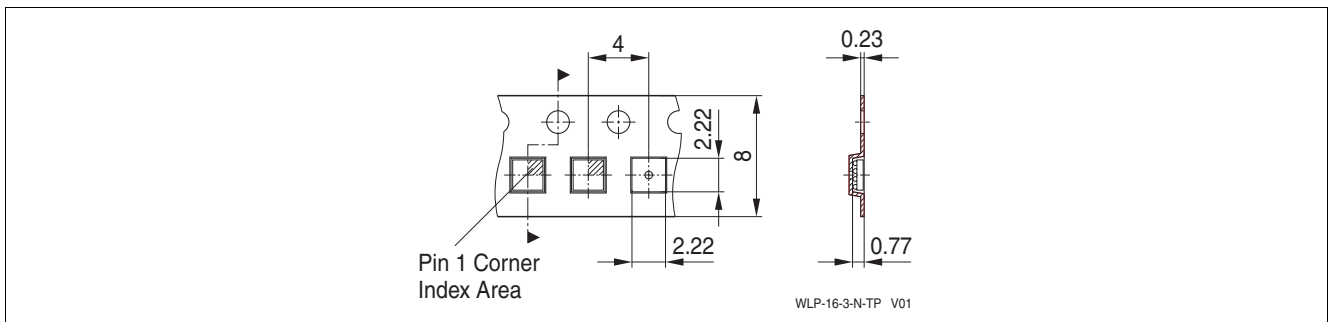
**Figure 2 WLP-16-3 (dimensions in mm)**

## 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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