

BGF104

HSMMC Interface Filter and ESD Protection

Small Signal Discretes



Never stop thinking

Edition 2006-10-17

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

**© Infineon Technologies AG 2006.
All Rights Reserved.**

Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenhheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (www.infineon.com).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

BGF104

Revision History: 2006-10-17, V2.1

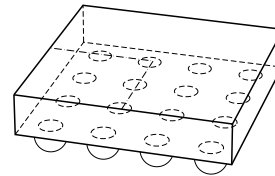
Previous Version: 2006-03-03

| Page | Subjects (major changes since last revision) |
|-------------|---|
| All | Layout conformation |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

HSMMC Interface Filter and ESD Protection

Feature

- ESD protection and filter for High Speed Multi Media Card interface
- ESD protection up to 15 kV at the external IOs
- 16 pin green wafer level package with SnAgCu solder balls
- 500 μm solder ball pitch
- 300 μm solder ball diameter



WLP-16-1

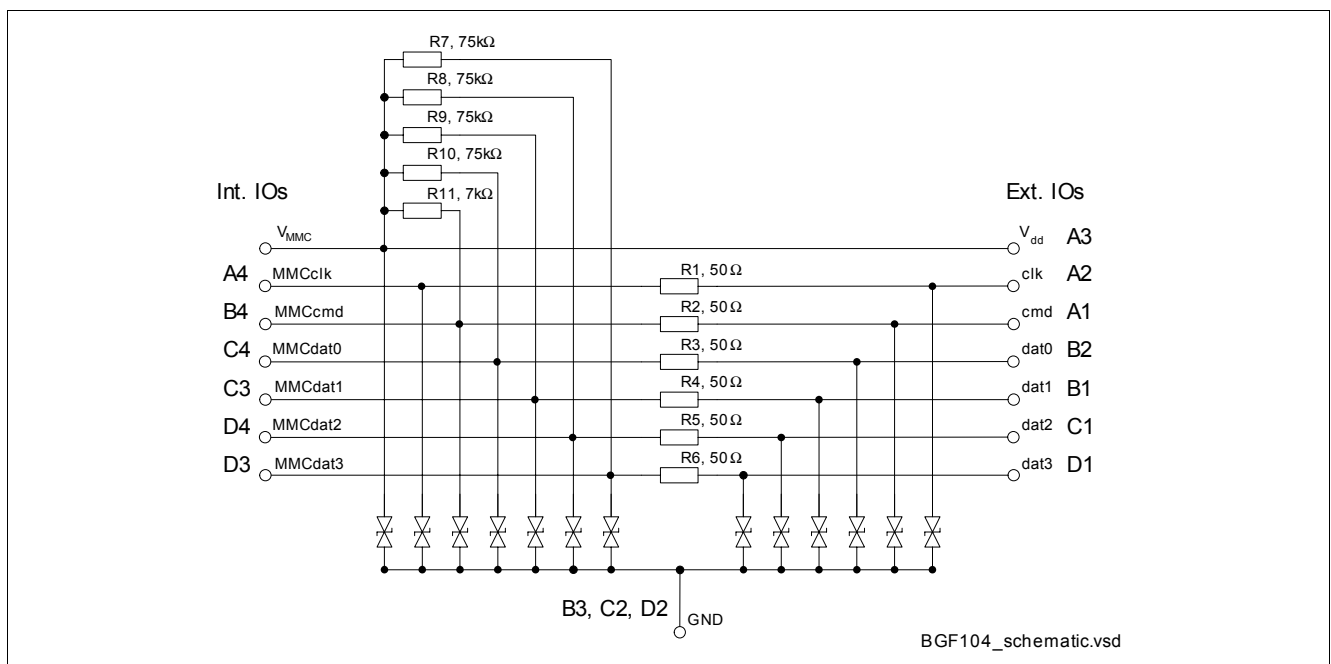


Figure 1 Blockdiagram

Description

The BGF104 is an ESD protection and filter circuit for a high speed multi media card interface. External pins are protected up to 15 kV contact discharge according to IEC61000-4-2. The wafer level package is a green package with a size of only 1.96 mm x 1.96 mm and a total height of 0.65 mm.

| Type | Package | Marking | Chip |
|--------|----------|---------|-------|
| BGF104 | WLP-16-1 | BGF104 | N0708 |

HSMMC Interface Filter and ESD Protection

Table 1 Maximum Ratings

| Parameter | Symbol | Values | | | Unit | Note / Test Condition |
|--|-----------|--------|------|------|------|-----------------------|
| | | Min. | Typ. | Max. | | |
| Voltage at all pins to GND | V_P | -14 | | 14 | V | |
| Operating temperature range | T_{OP} | -40 | | +85 | °C | |
| Storage temperature range | T_{STG} | -65 | | +150 | °C | |
| Electrostatic Discharge According to IEC61000-4-2 | | | | | | |
| Ext. IOs: A1, A2, A3, B1, B2, C1, D1 | V_E | -15 | | 15 | kV | |
| Int. IOs: A4, B4; C3, C4, D3, D4 | V_I | -2 | | 2 | kV | |

Table 2 Electrical Characteristics¹⁾

| Parameter | Symbol | Values | | | Unit | Note / Test Condition |
|---|--------------|--------|----------|-----------|---------------|---|
| | | Min. | Typ. | Max. | | |
| Resistors $R_{1...6}$ | $R_{1...6}$ | 40 | 50 | 60 | Ω | |
| Resistors $R_{7...10}$ | $R_{7...10}$ | 52.5 | 75 | 97.5 | k Ω | |
| Resistor R_{11} | R_{11} | 4.9 | 7 | 9.1 | k Ω | |
| Reverse current of ESD protection diodes | I_R | | 5 0.1 | 100 10 | nA μ A | $V_R = 3\text{ V}$ $V_R = 14\text{ V}$ |
| Line capacitance Capacitance of each line to GND | C_T | | 16 | 20 | pF | $V_R = 0\text{ V}$ |

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

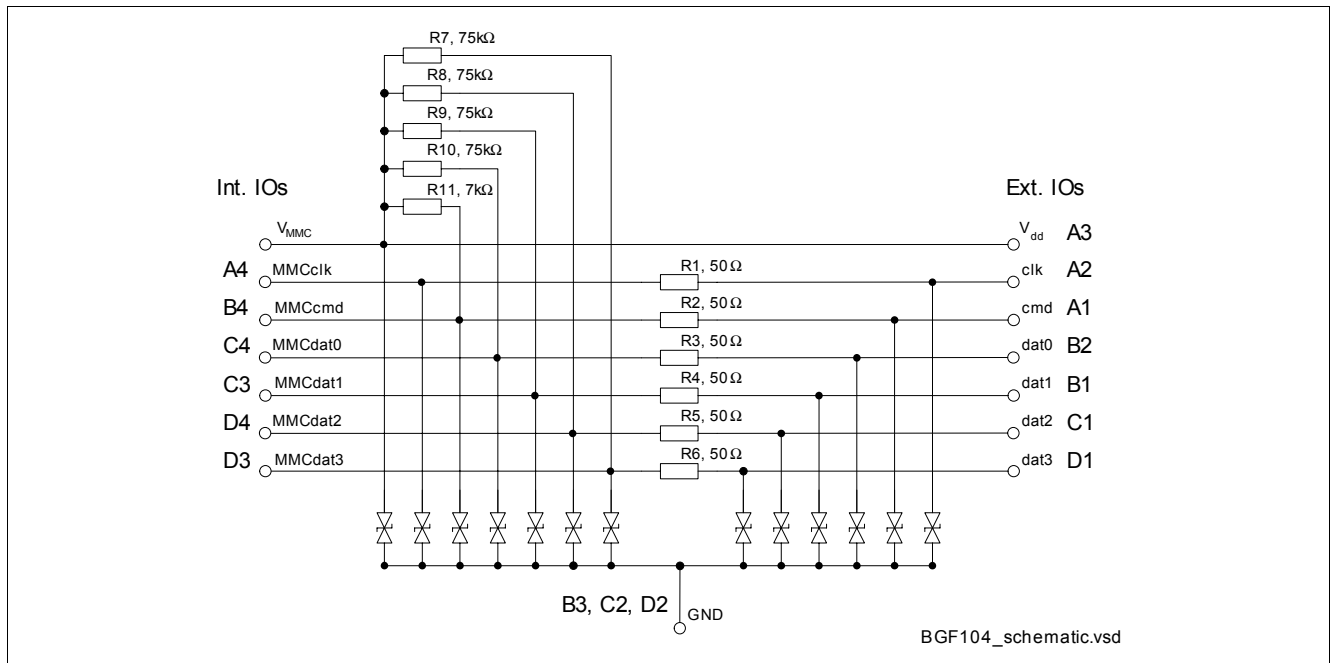


Figure 2 Schematic

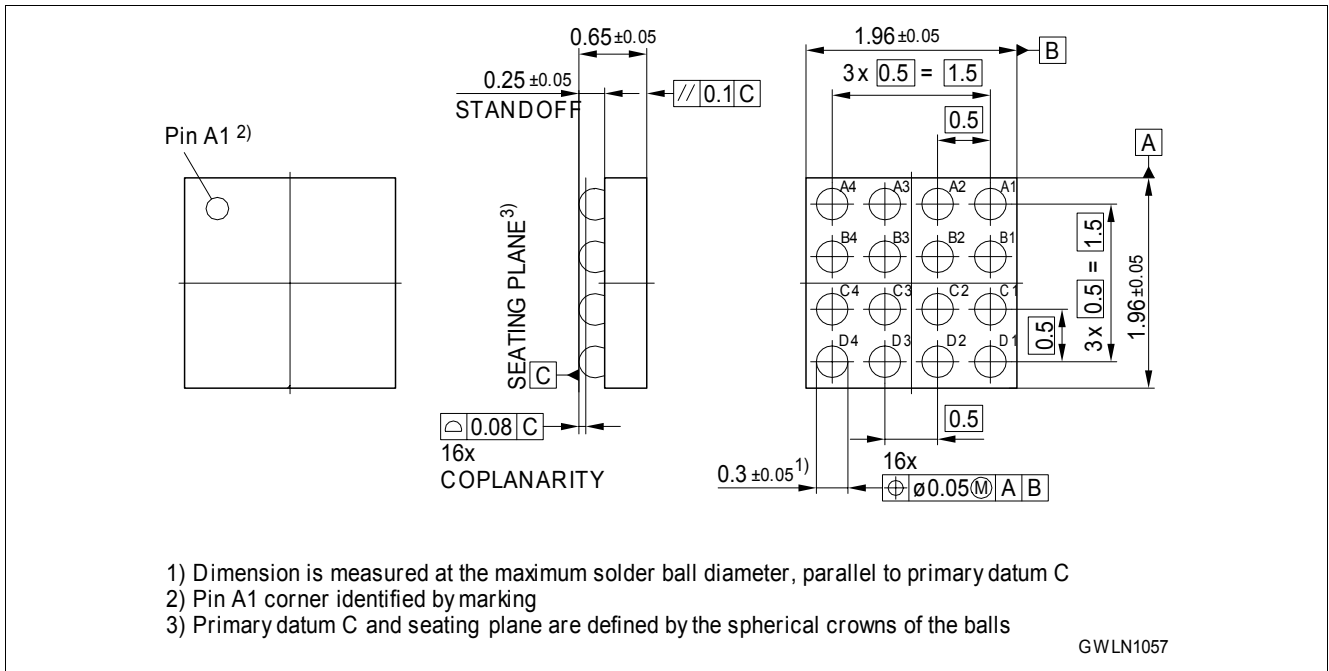


Figure 3 Package Outline WLP-16-1

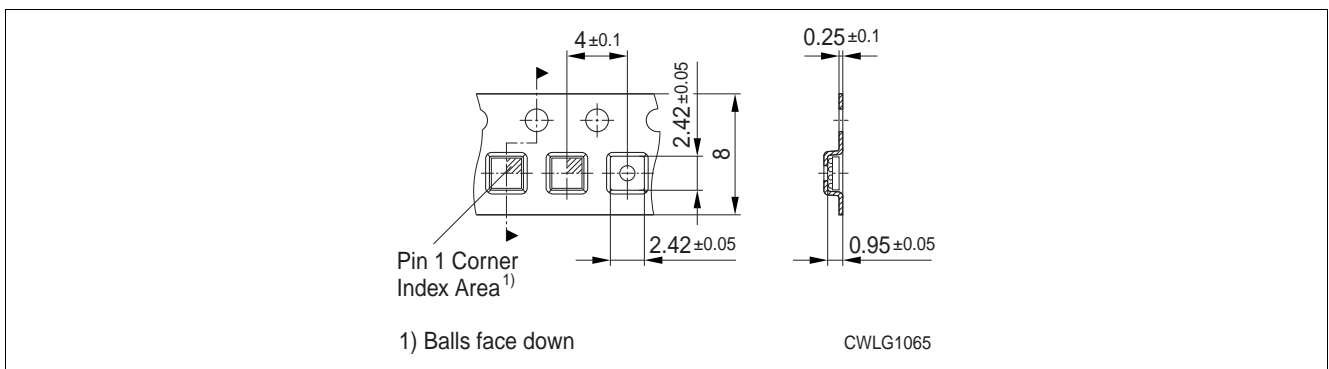


Figure 4 Tape for WLP-16-1