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# BGF104

## HSMMC Interface Filter and ESD Protection

Small Signal Discretes

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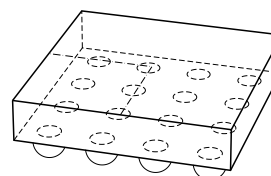
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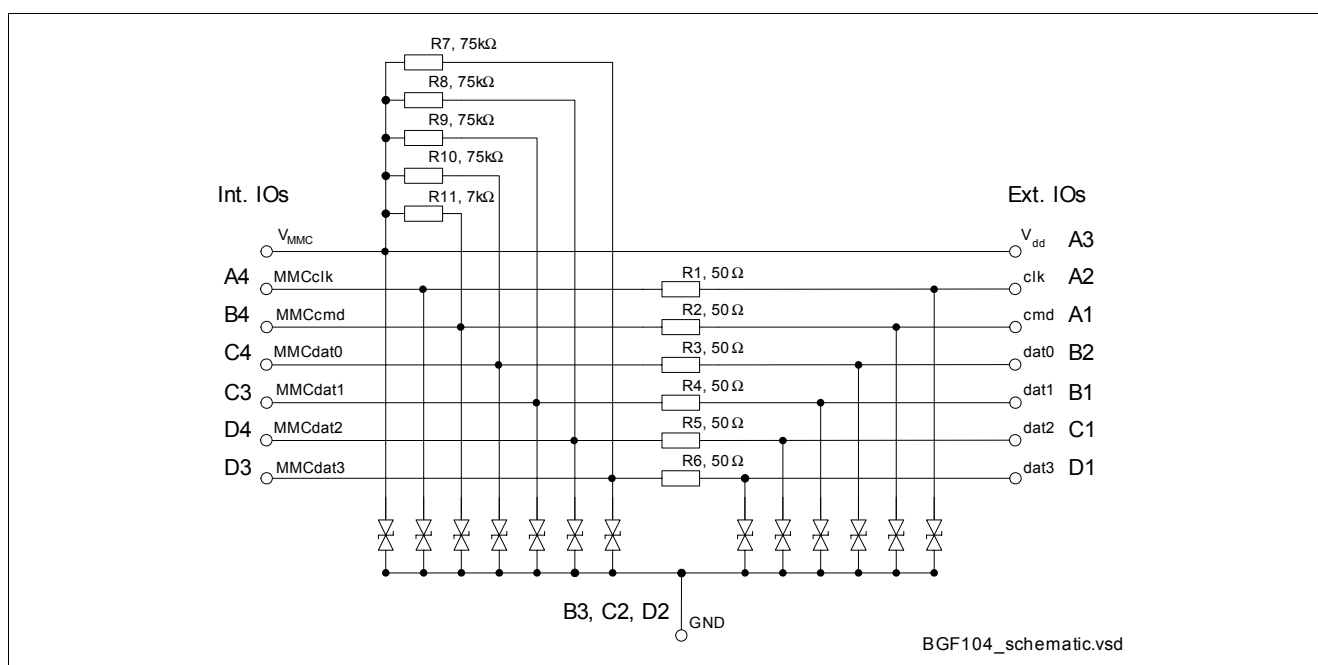
## HSMMC Interface Filter and ESD Protection

### 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**

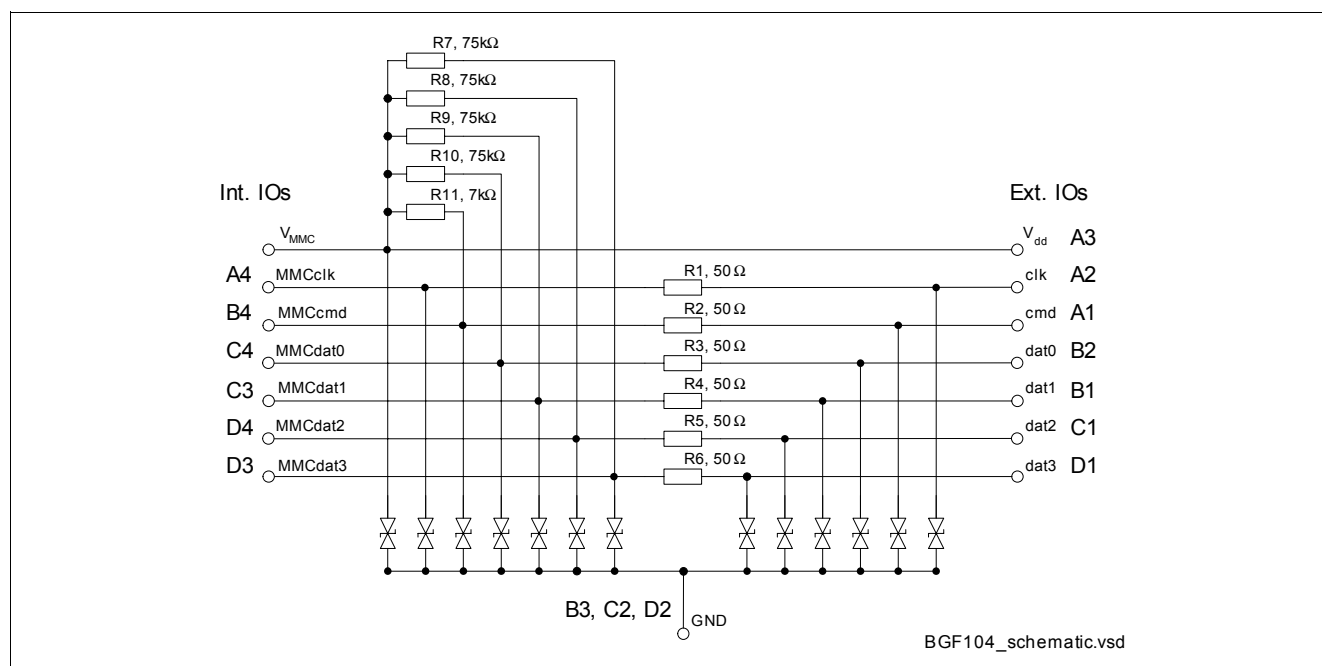
**Table 1 Maximum Ratings**

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	
<b>Electrostatic Discharge According to IEC61000-4-2</b>						
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 Characteristics<sup>1)</sup>**

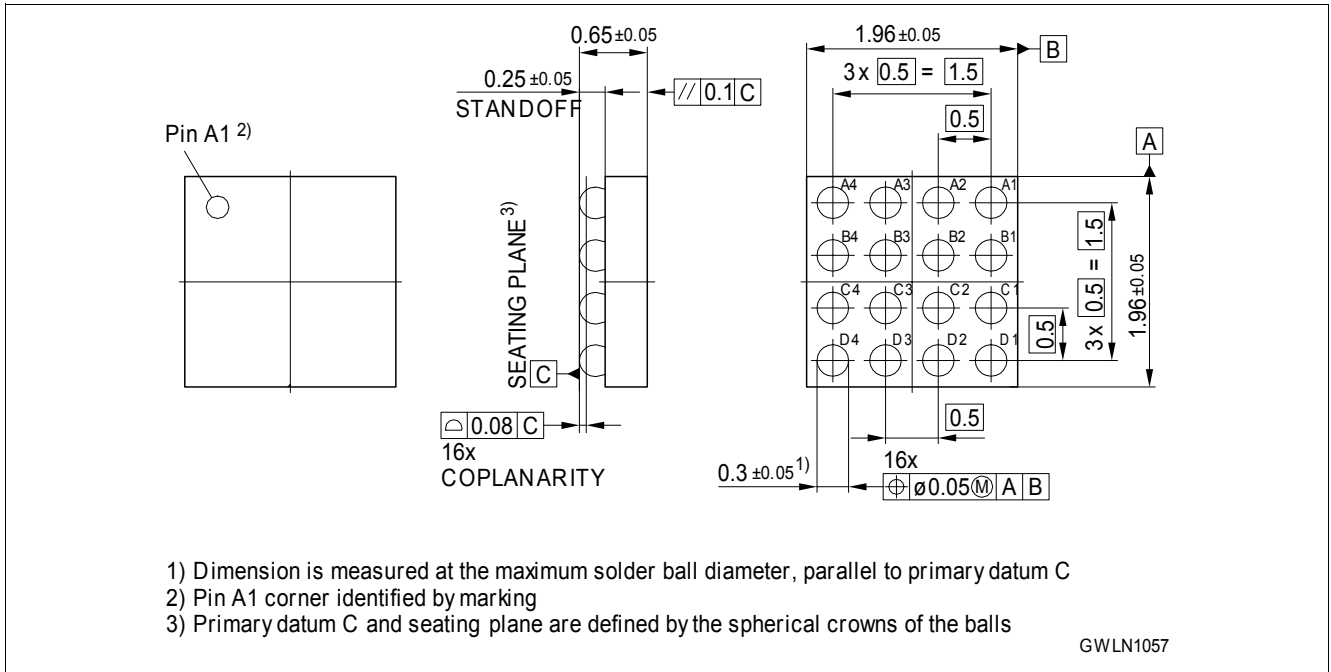
Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Resistors $R_{1...6}$	$R_{1...6}$	40	50	60	$\Omega$	
Resistors $R_{7...10}$	$R_{7...10}$	52.5	75	97.5	k $\Omega$	
Resistor $R_{11}$	$R_{11}$	4.9	7	9.1	k $\Omega$	
Reverse current of ESD protection diodes	$I_R$		5 0.1	100 10	nA $\mu$ 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  $T_A = 25\text{ }^\circ\text{C}$

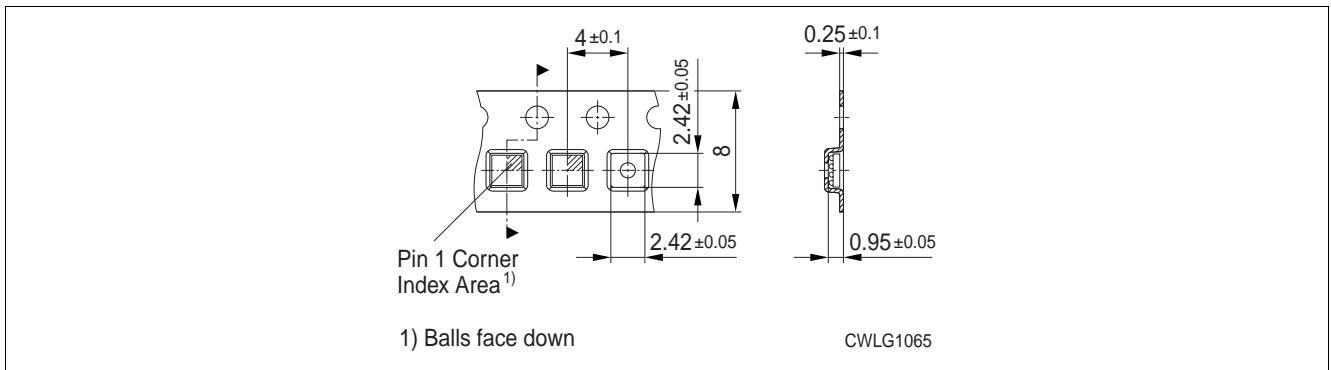


**Figure 2 Schematic**

**HSMMC Interface Filter and ESD Protection**



**Figure 3 Package Outline WLP-16-1**



**Figure 4 Tape for WLP-16-1**