

# BGF104

## HSMMC Interface Filter and ESD Protection

AIM  
Discrete Semiconductors



Never stop thinking.

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**BGF104****Data sheet****Revision History:        2005-06-07**Previous Version:        2005-02-07

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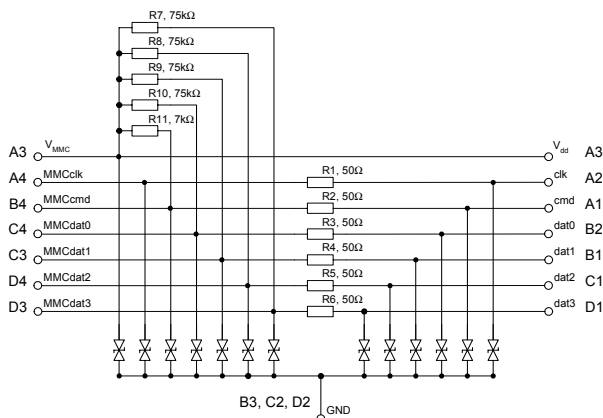
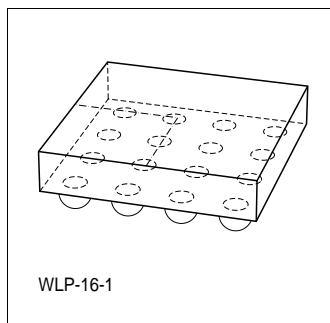
Page	Subjects (major changes since last revision)
4, 7	Package size reduced
5	Resistor numbers changed to match to schematic
all	Preliminary status of data sheet removed

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## Features

- ESD protection and filter for High Speed Multi Media Card interface
- ESD protection up to 15 kV
- 16 pin green wafer level package with SnAgCu solder balls
- 500  $\mu\text{m}$  solder ball pitch
- 300  $\mu\text{m}$  solder ball diameter



## 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

### Maximum Ratings

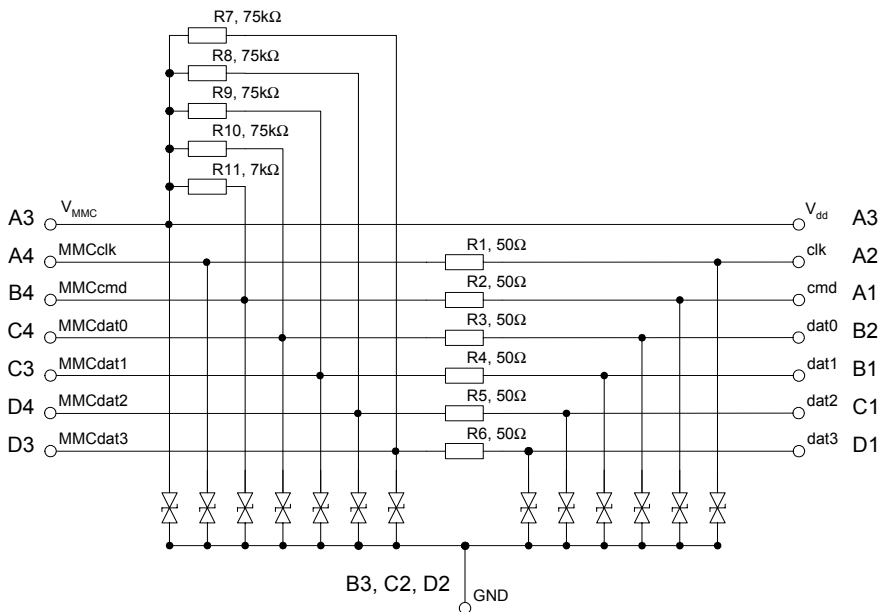
Parameter	Symbol	Value	Unit
Voltage at all pins to GND	$V_P$	14	V
Operating temperature range	$T_{OP}$	-40 ... +85	°C
Storage temperature range	$T_{STG}$	-65 ... +150	°C
Contact discharge according to IEC61000-4-2 Pins A4, B4, C3, C4, D3, D4	$V_{ESD}$	2	kV
Contact discharge according to IEC61000-4-2 Pins A1, A2, A3, B1, B2, C1, D1	$V_{ESD}$	15	kV

### Electrical Characteristics at $T_A=25^{\circ}\text{C}$

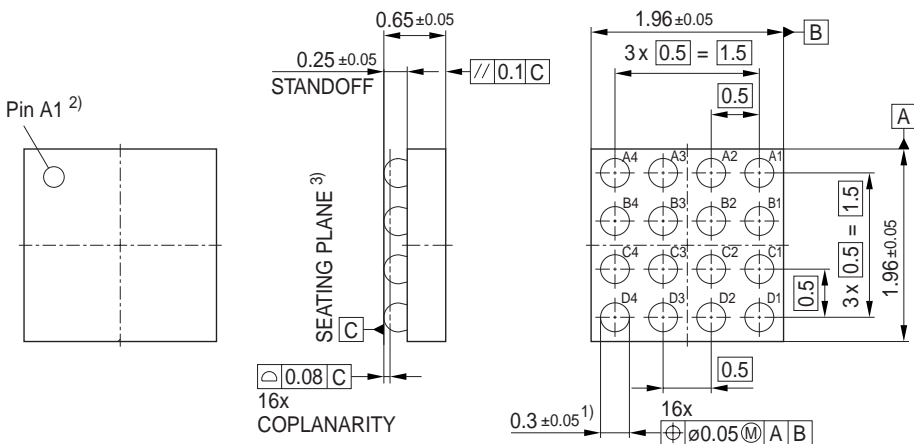
Parameter	Symbol	min.	typ.	max.	Unit
Resistors					
$R_1 \dots R_6$	$R_{1..6}$	40	50	60	$\Omega$
$R_7 \dots R_{10}$	$R_{7..10}$	52.5	75	97.5	k $\Omega$
$R_{11}$	$R_{11}$	4.9	7	9.1	k $\Omega$
Reverse current of ESD protection diodes					
$V_R = 3\text{V}$	$I_R$		5	100	nA
$V_R = 14\text{V}$			0.1	10	$\mu\text{A}$
Line capacitance					
Capacitance of each line to GND <sup>1)</sup>					pF
$V_R = 0\text{V}$	$C_T$		16	20	

<sup>1)</sup> Without line coupling by resistors  $R_7 - R_{11}$

### Schematic



### Package Outline



- 1) Dimension is measured at the maximum solder ball diameter, parallel to primary datum C
- 2) Pin A1 corner identified by marking
- 3) Primary datum C and seating plane are defined by the spherical crowns of the balls

GWLN1057

WLP-16-1