

BGF121

Transient Voltage Suppressor

Small Signal Discretes



Never stop thinking

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BGF121

Revision History: 2009-06-16, V2.2

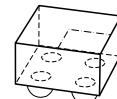
Previous Version: 2009-02-25, V2.1

Page	Subjects (major changes since last revision)
7	Figure 5 updated for 2mm component pitch

Transient Voltage Suppressor

Features

- 1 channel TVS diode designed for portable application
- ESD protection according to IEC61000-4-2 for ± 15 kV contact discharge on all IOs
- Wafer Level Package with SnAgCu solder balls
- RoHS and WEEE compliant package
- Very small form factor



WLP-4-1-3D

TVS

- High peak pulse power
- Stand-off voltage up to 10 V
- Low clamping voltage factor V_{cl}/V_{br}
- Fast response time



Description

The BGF121 is a single line TVS diode designed for transient voltage and power overstress suppression. All pins are protected against ESD pulses of ± 15 kV contact discharge according to IEC61000-4-2. The wafer level package is a green package with a size of only 0.75 mm x 0.75 mm and a total height of 0.60 mm.

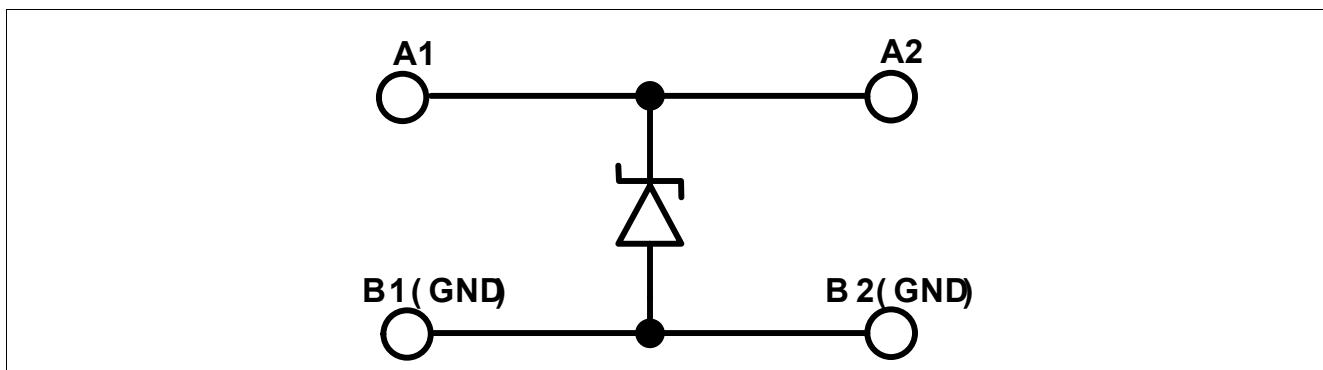


Figure 1 Schematic

Type	Package	Marking	Chip
BGF121	WLP-4-1	21	N0743

Table 1 Maximum Ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	V_P	0	–	10	V	–
Operating temperature range	T_{OP}	-30	–	+85	°C	–
Storage temperature range	T_{STG}	-55	–	+150	°C	–
Electrostatic Discharge According to IEC61000-4-2	V_{ESD}	-15	–	15	kV	–

Table 2 Electrical Characteristics¹⁾

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Line capacitance to GND	C_T		160		pF	$V_R = 0$ V
Forward voltage	V_F ²⁾		1.1	1.3	V	$I_F = 850$ mA
Break down voltage	V_{BR}	16	16.9 17.7		V	$I_R = 15$ mA $T_A = -30$ °C $T_A = 25$ °C
Clamping voltage during transient	V_{CL} ³⁾		18.7	20	V	$I_R = 1$ A, $T_A = 85$ °C
Leakage current of line to GND	I_R		1 10 100	800	nA	$V_R = 10$ V $T_A = -30$ °C $T_A = 25$ °C $T_A = 85$ °C

1) Otherwise specified at $T_A = 25$ °C

2) To avoid high temperature and possible disassembling of component from the board, DC current operation to be limited to few seconds

3) 8/20 μ s pulse waveform according to IEC61000-4-5

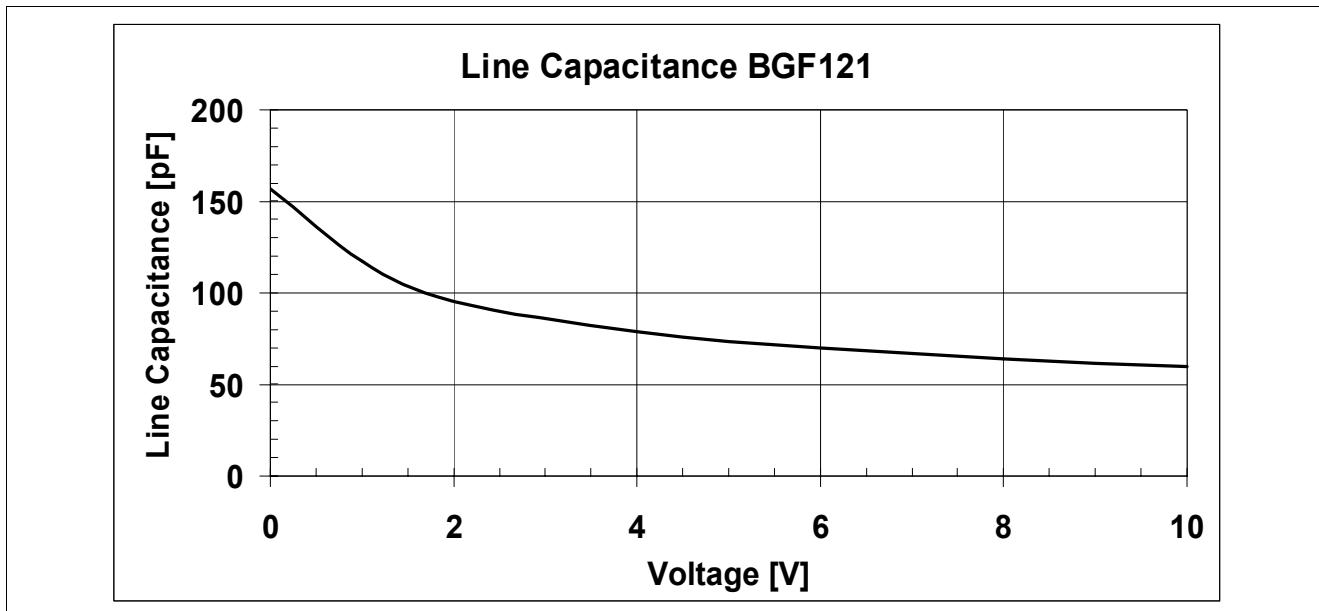


Figure 2 Line Capacitance vs reverse voltage (typical values) at 25°C

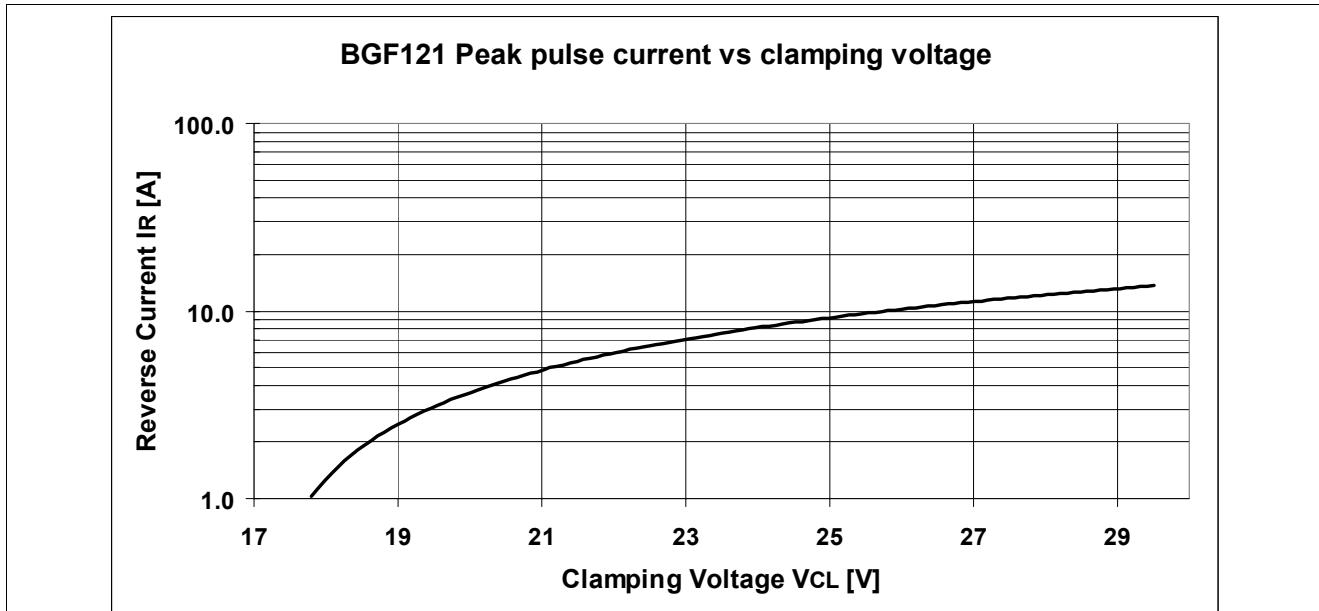
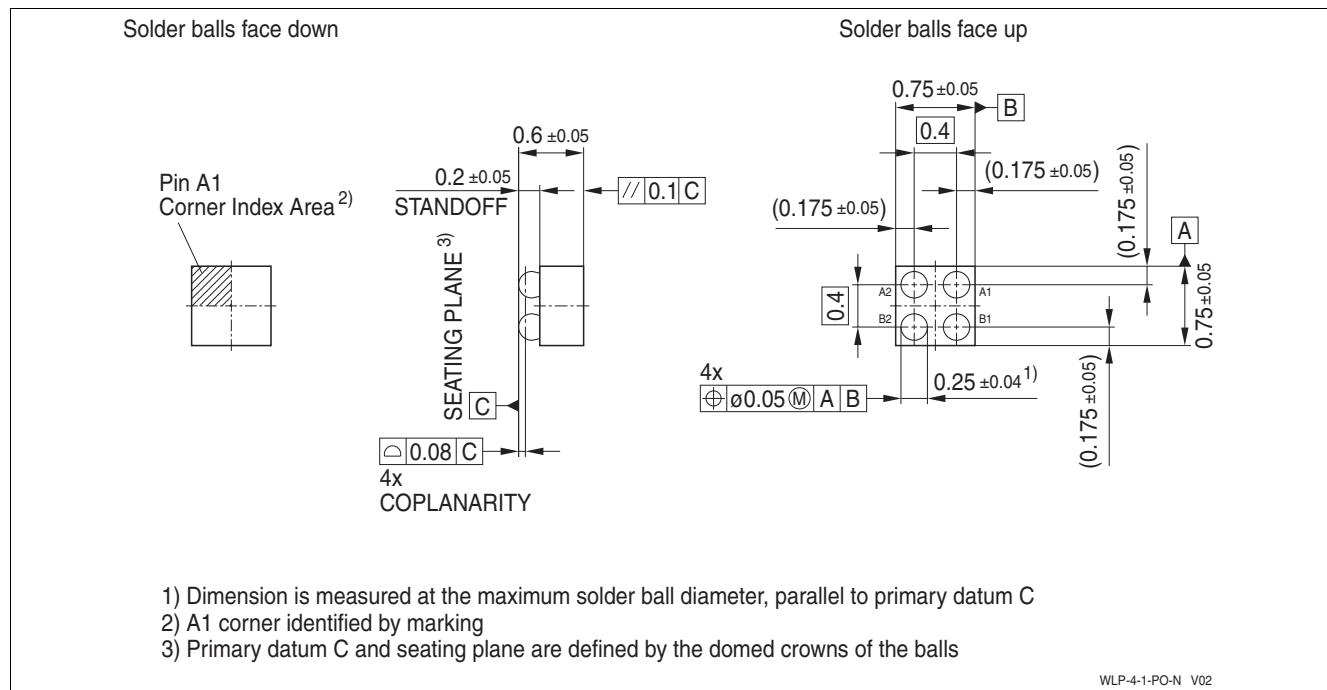
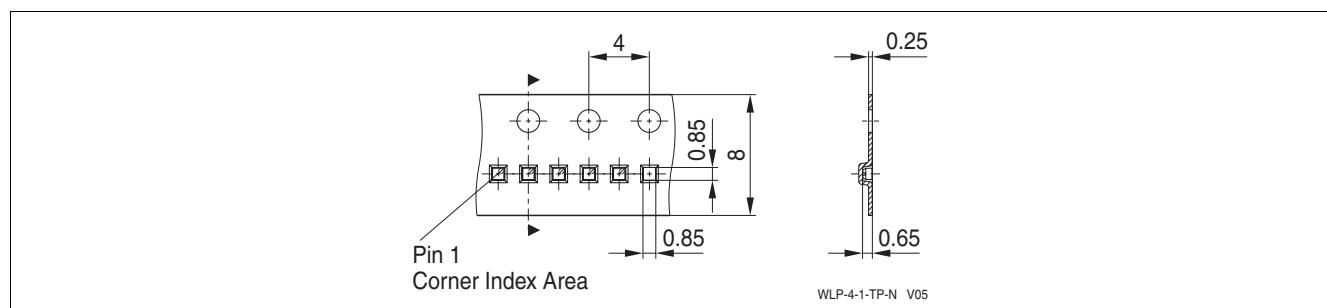


Figure 3 Peak pulse reverse current (IEC61000-4-5) versus clamping voltage (typical values) at 25°C

Package Outline

Figure 4 Package WLP-4-1 (dimension in mm)
Tape and reel specification

Figure 5 Tape for WLP-4-1 (dimension in mm)

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