

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

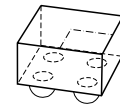
Transient Voltage Suppressor

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

TVS

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



WLP-4-1-3D



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.

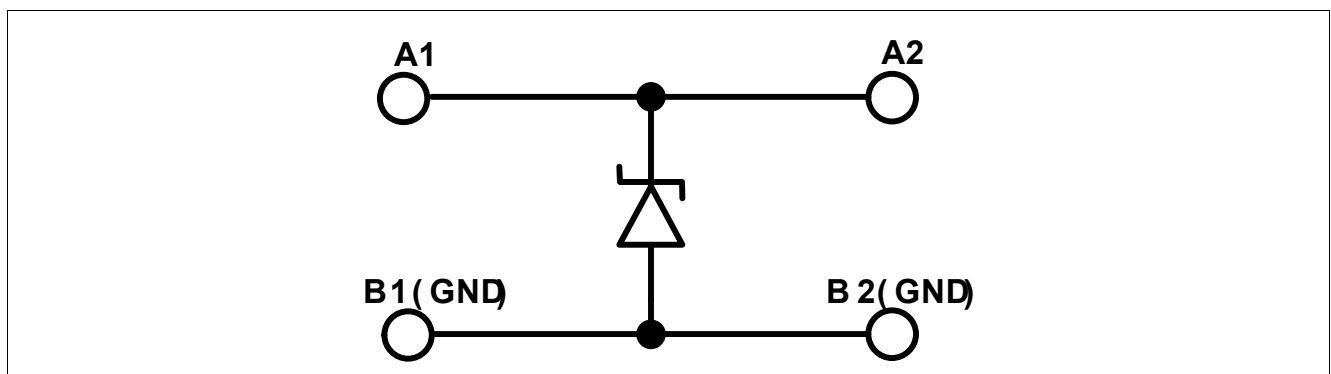


Figure 1 Schematic

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

Transient Voltage Suppressor

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	$V_R = 0\text{ V}$
Forward voltage	$V_F^{2)}$		1.1	1.3	V	$I_F = 850\text{ mA}$
Break down voltage	V_{BR}	16	16.9 17.7		V	$I_R = 15\text{ mA}$ $T_A = -30\text{ °C}$ $T_A = 25\text{ °C}$
Clamping voltage during transient	$V_{CL}^{3)}$		18.7	20	V	$I_R = 1\text{ A}$, $T_A = 85\text{ °C}$
Leakage current of line to GND	I_R		1 10 100	800	nA	$V_R = 10\text{ V}$ $T_A = -30\text{ °C}$ $T_A = 25\text{ °C}$ $T_A = 85\text{ °C}$

1) Otherwise specified at $T_A = 25\text{ °C}$

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 μs pulse waveform according to IEC61000-4-5

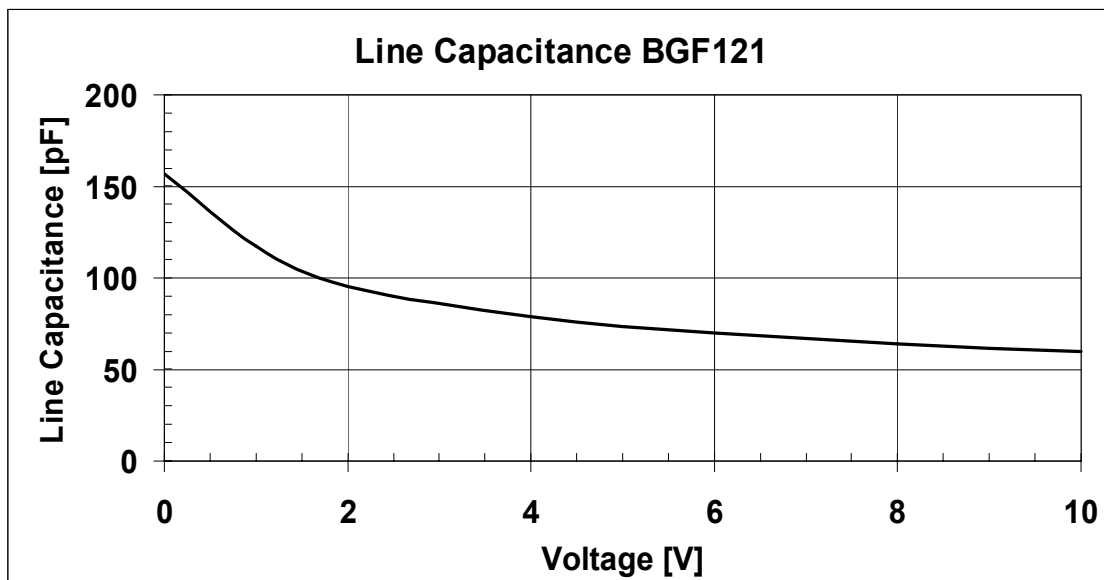


Figure 2 Line Capacitance vs reverse voltage (typical values) at 25°C

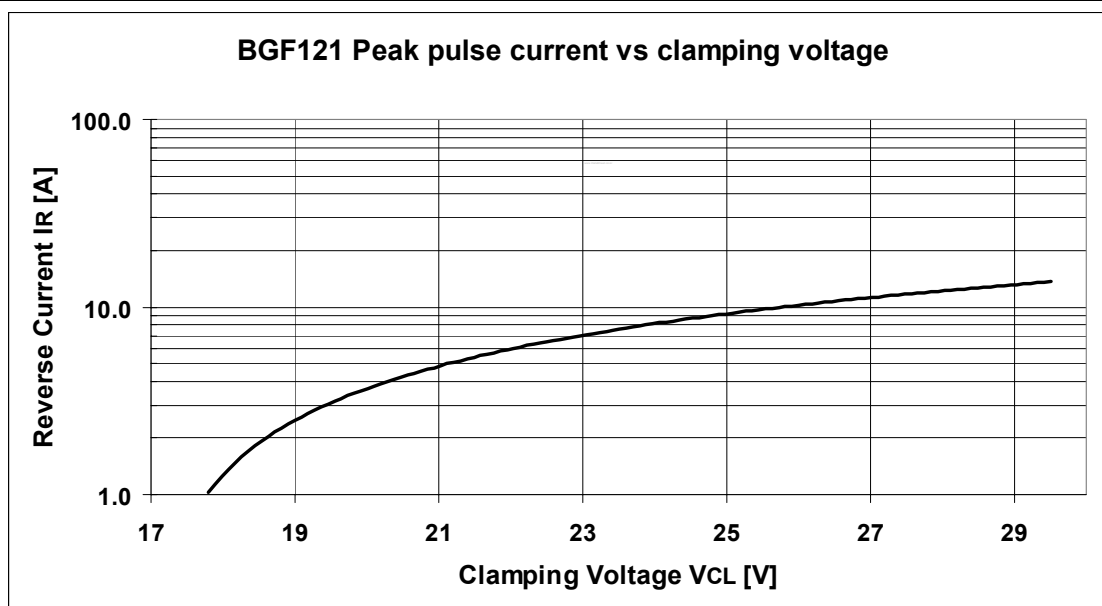


Figure 3 Peak pulse reverse current (IEC61000-4-5) versus clamping voltage (typical values) at 25°C

Package Outline

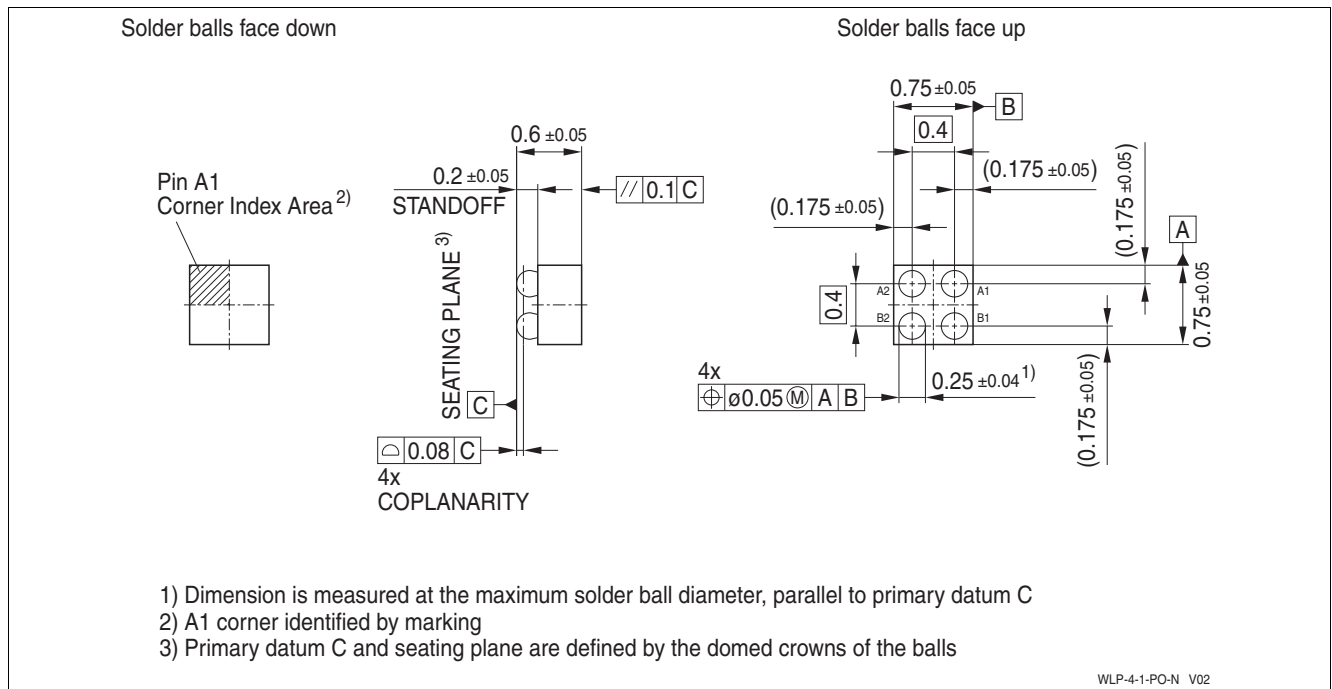


Figure 4 Package WLP-4-1 (dimension in mm)

Tape and reel specification

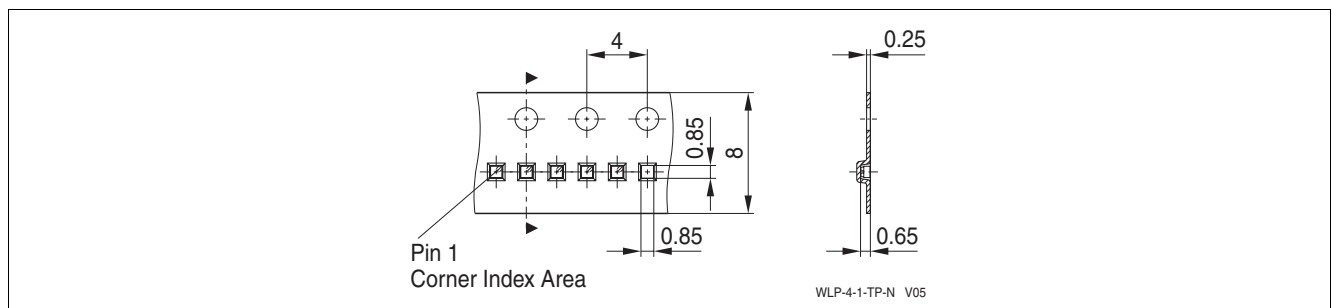


Figure 5 Tape for WLP-4-1 (dimension in mm)

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