

# BGF119

Transient Voltage Suppressor

Small Signal Discretes



Never stop thinking

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**BGF119**

**Revision History: 2008-11-18, V3.0**

**Previous Version: 2008-10-20, V2.0**

<b>Page</b>	<b>Subjects (major changes since last revision)</b>
<b>6</b>	<b>Updated Figure 3</b>
<b>All</b>	<b>Target status removed</b>

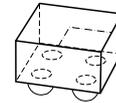
## Transient Voltage Suppressor

### 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 8 V
- Low clamping voltage factor  $V_{cl}/V_{br}$
- Fast response time



WLP-4-1-3D



### Description

The BGF119 is a single line TVS diode designed for transient voltage and power overstress suppression. All pins are protected against ESD pulses of 15kV 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.

Type	Package	Marking	Chip
BGF119	WLP-4-1	BGF119	N0742

**Table 1 Maximum Ratings**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Voltage at all pins to GND	$V_P$	0		8	V	
Operating temperature range	$T_{OP}$	-30		+85	°C	
Storage temperature range	$T_{STG}$	-55		+150	°C	
Electrostatic discharge according to IEC61000-4-2 <sup>1)</sup> at all pins	$V_{ESD}$	-15		15	kV	

1) Contact discharge

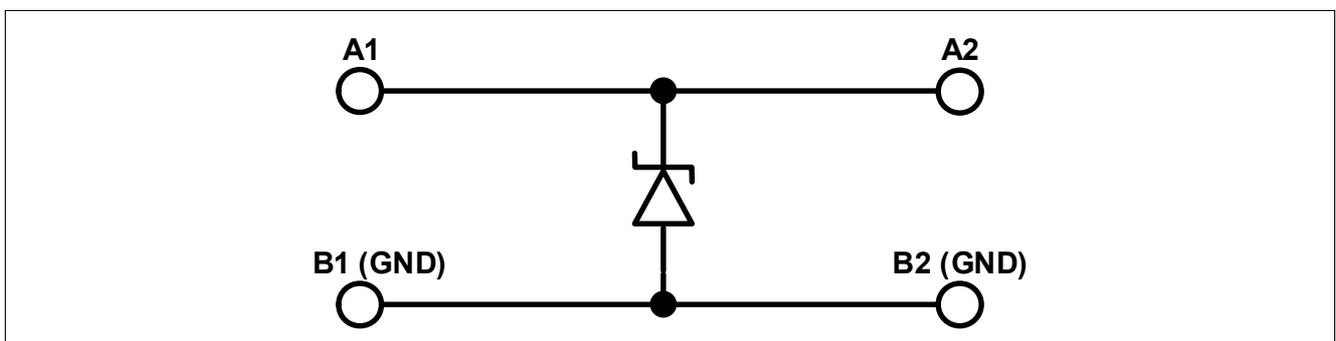
**Table 2 Electrical Characteristics<sup>1)</sup>**

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Line capacitance to GND	$C_T$		230		pF	$V_R = 0$ V
Forward voltage	$V_F$ <sup>2)</sup>			1.1	V	$I_F = 850$ mA
Break down voltage	$V_{BR}$	10	10 11 12	12	V	$I_R = 15$ mA $T_A = -30$ °C $T_A = 25$ °C $T_A = 85$ °C
Clamping voltage during transient	$V_{CL}$ <sup>3)</sup>			13	V	$I_R = 1$ A
Leakage current of line to GND	$I_R$		1 10 100	800	nA	$V_R = 8$ 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  $\mu$ s pulse waveform according to IEC61000-4-5



**Figure 1 Schematic**

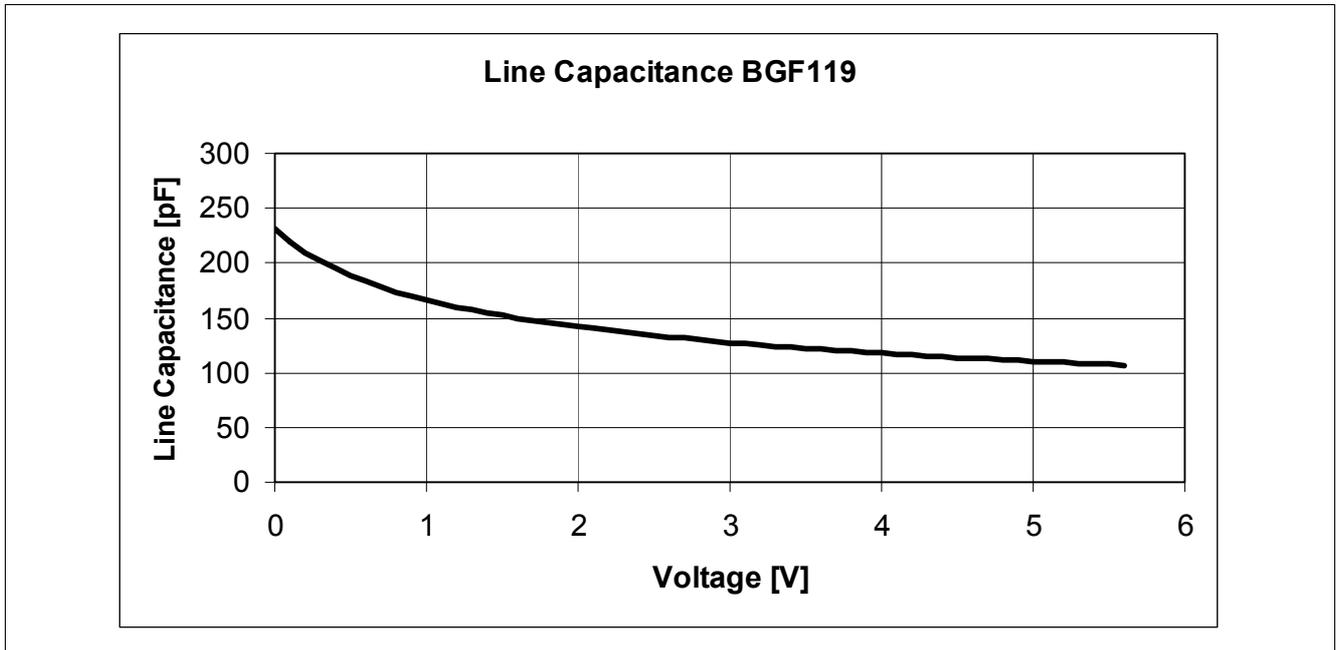


Figure 2 Line capacitance versus reverse voltage (typical values) at 25°C

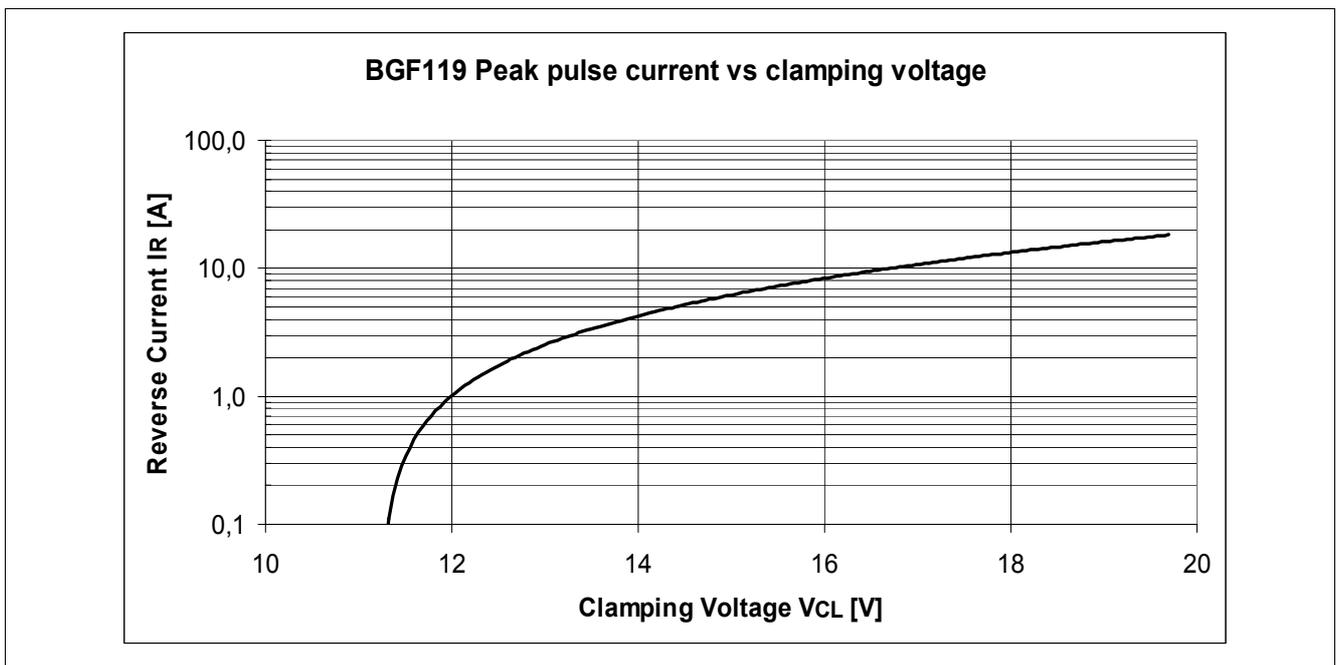


Figure 3 Peak pulse reverse current (IEC61000-4-5) versus clamping voltage (typical values) at 25°C

Package Outline

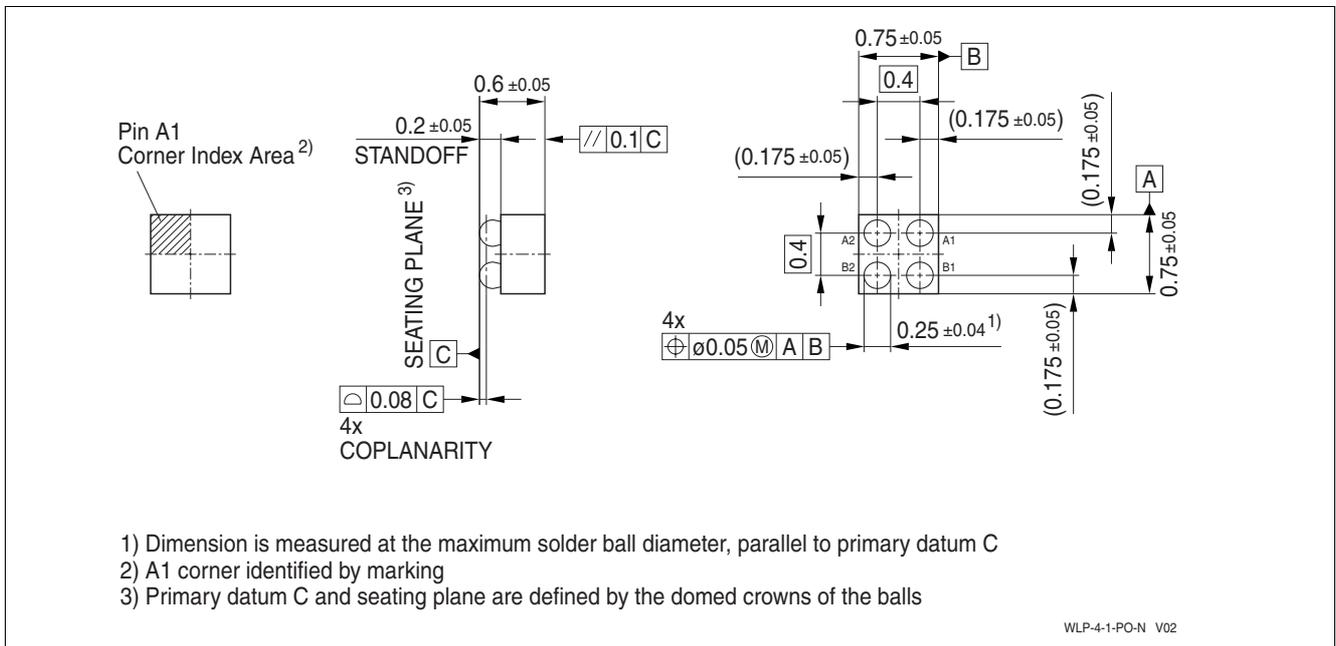


Figure 4 Package WLP-4-1

Tape and reel specification

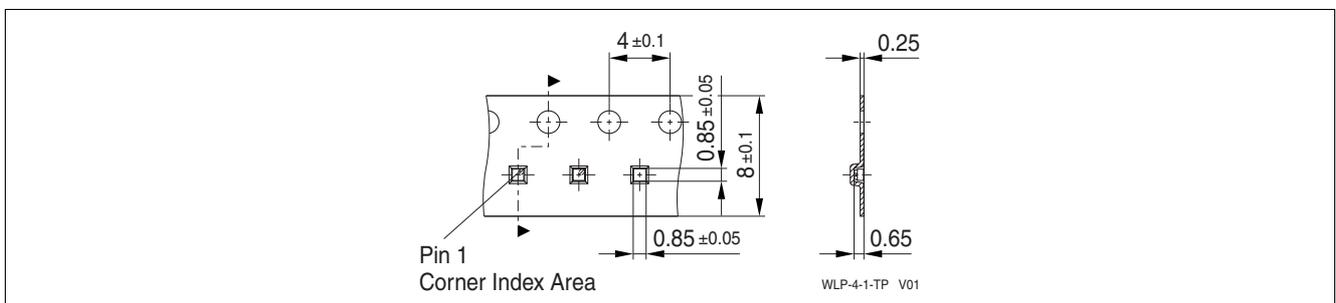


Figure 5 Tape for WLP-4-1