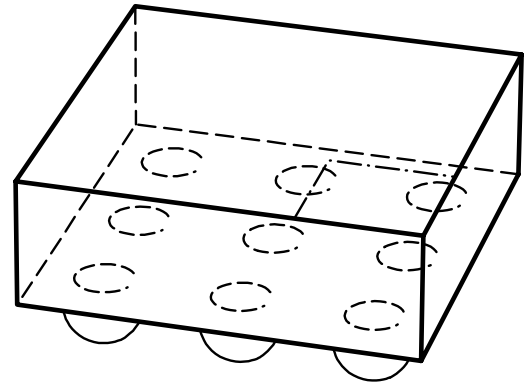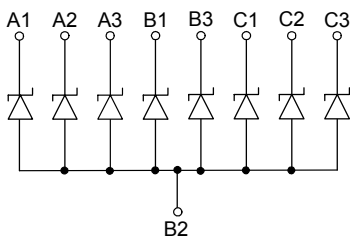## Low Capacitance ESD protection array

- 8-channel ESD protection according to:
  IEC61000-4-2 (ESD): ± 25 kV (contact)
- Max. working voltage: 5.3 V
- Very low capacitance $< 1.0$ pF typ.
- Very low reverse current < 1 nA typ.
- Wafer level package with SnAgCu solder balls



# WLP-9-1-N

**BGF127**



| Type | Package | Configuration | Marking |
|------|---------|---------------|---------|
| BGF127 | WLP-9-1 | 8 channels, uni-directional | 27 |

**Maximum Ratings** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|-----------|--------|-------|------|
| ESD contact discharge[1] | $V_{ESD}$ | ± 25 | kV |
| Operating temperature range | $T_{op}$ | -30...85 | °C |
| Storage temperature | $T_{stg}$ | -55...150 | |

[1] $V_{ESD}$ according to IEC61000-4-2

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **Characteristics** | | | | | |
| Reverse working voltage | $V_{RWM}$ | - | - | 5.3 | V |
| Breakdown voltage $I_{(BR)}$ = 1 mA | $V_{(BR)}$ | 6 | - | - | |
| Reverse current $V_R$ = 5.3 V | $I_R$ | - | <1 | 10 | nA |
| Clamping voltage $I_{PP}$ = 1 A, $t_p$ = 8/20 µs[1] $I_{PP}$ = 6 A, $t_p$ = 8/20 µs[1] | $V_{CL}$ | - - | 9.9 17 | - - | V |
| Forward clamping voltage $I_{PP}$ = 1 A, $t_p$ = 8/20 µs[1] $I_{PP}$ = 6 A, $t_p$ = 8/20 µs[1] | $V_{FC}$ | - - | 1.8 5.6 | - - | |
| Line capacitance[2] $V_R$ = 3 V, $f$ = 1 MHz Capacitance variation between the 8 channels | $C_T$ | - - | 0.9 0.01 | 1.5 - | pF |
| Dynamic resistance ( tp=30ns ) | $R_D$ | - | 1 | - | $\Omega$ |

[1]$I_{pp}$ according to IEC61000-4-5
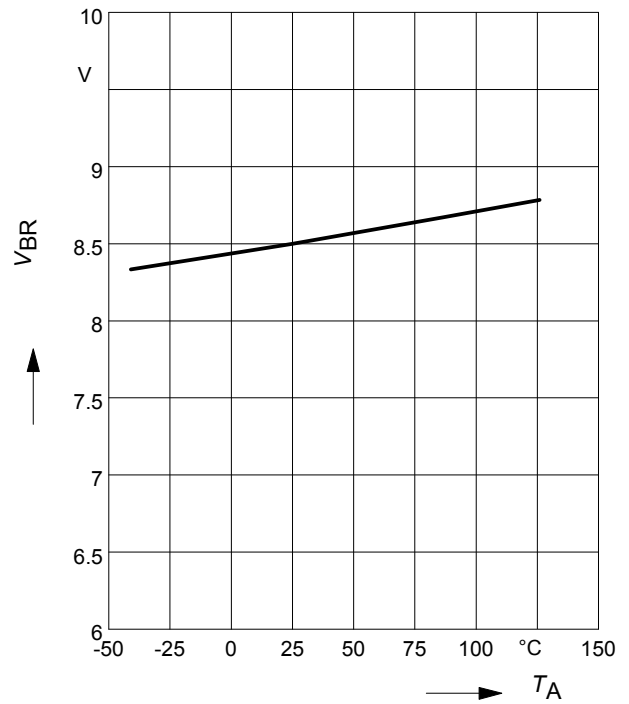[2]Total capacitance line to ground

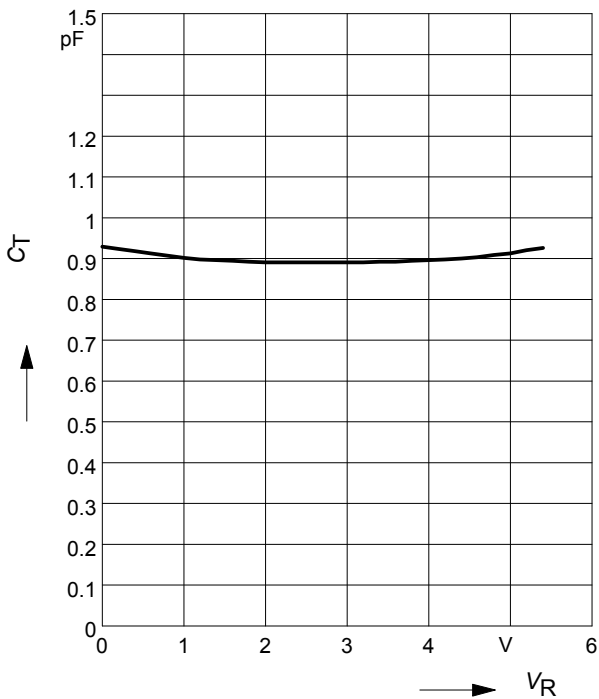**Reverse current** $I_R = f(T_A)$

$V_R$ = Parameter
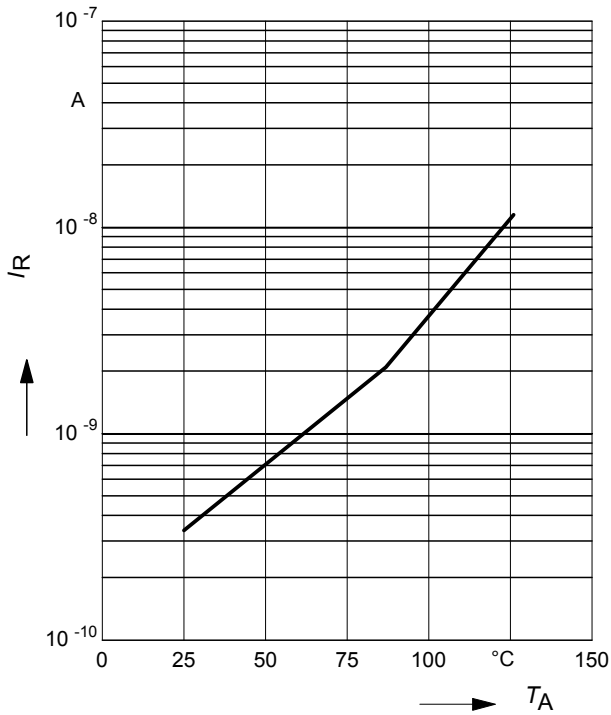


**Breakdown voltage** $V_{BR} = f(T_A)$
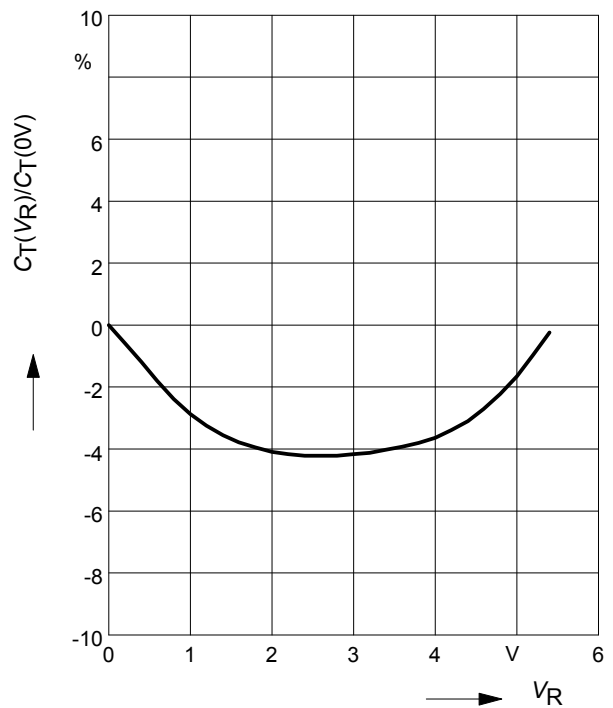
$I_R$ = 1mA



**Line capacitance** $C_T = f(V_R)$

$f$ = 1MHz


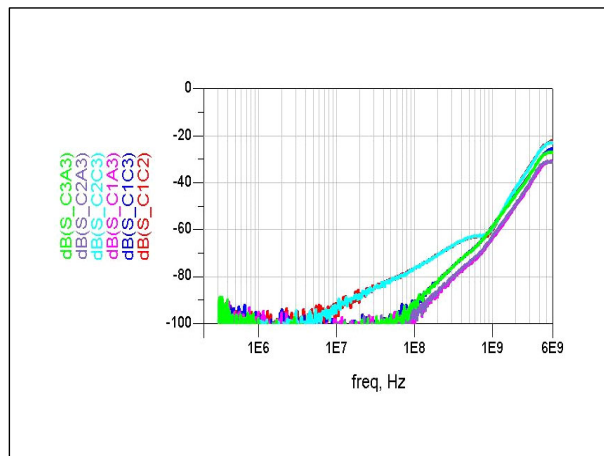
**Change of Line capacitance**
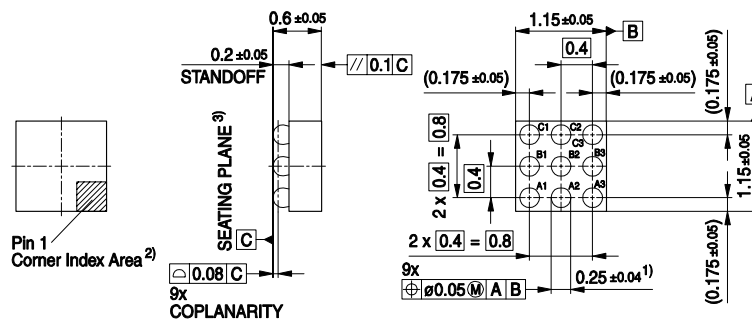
$C_T(V_R) / C_T(0V) = f(V_R)$
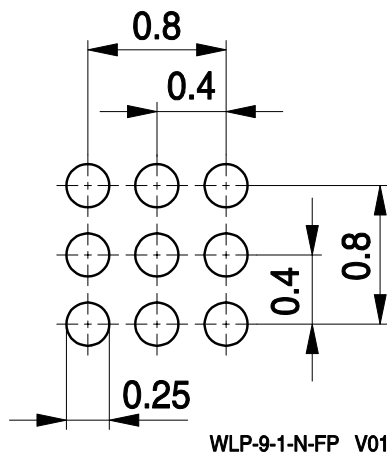
$f$ = 1 MHz

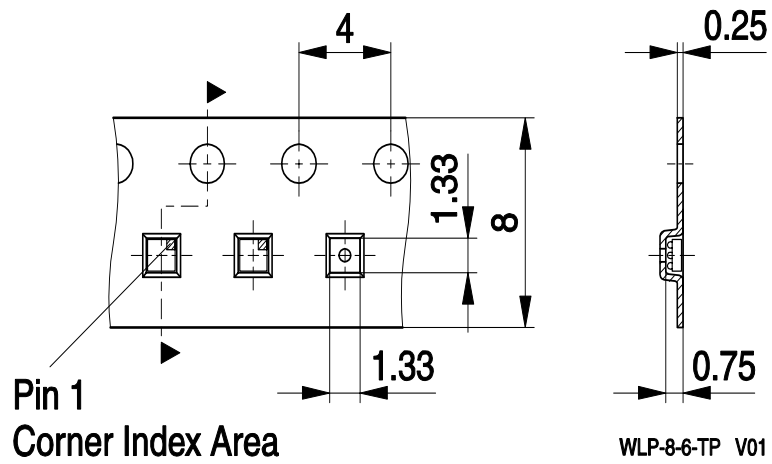2009-08-20

## Typical cross talk



## Package outline WLP-9-1



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

WLP-9-1-N-PO  V01

## Footprint



WLP-9-1-N-FP  V01

2009-08-20

**Tape and reel specification for WLP-9-1**



Pin 1
Corner Index Area

WLP-8-6-TP   V01

2009-08-20

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