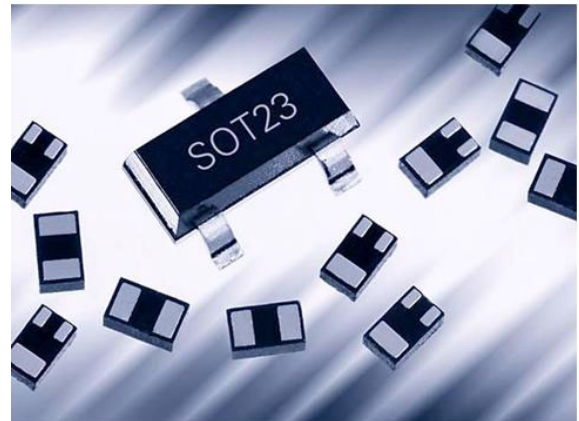


Ultra-Low Capacitance ESD Diode Array

- ESD / transient protection of high-speed data lines exceeding IEC61000-4-2 (ESD): 20 kV (air / contact)
IEC61000-4-4 (EFT): 40 A (5/50 ns)
IEC61000-4-5 (surge): 3 A (8/20 µs)
- Max. working voltage: 5.3 V
- Extremely low capacitance: down to 0.2 pF
- Very low clamping voltage: 12 V typ.
- Extremely low forward clamping voltage: 4 V typ.
- Very low reverse current: < 1 nA typ.
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

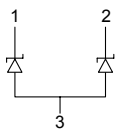


Applications

- USB 2.0, 10/100/1000 Ethernet, FireWire, DVI
HDMI, S-ATA
- Mobile communication
- Consumer products (STB, MP3; DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals



ESD5V3U2U-03F
ESD5V3U2U-03LRH



| Type | Package | Configuration | Marking |
|-----------------|----------|---------------------------|---------|
| ESD5V3U2U-03F | TSFP-3 | 2 lines, uni-directional* | Z1 |
| ESD5V3U2U-03LRH | TSLP-3-7 | 2 lines, uni-directional* | Z1 |

* or 1 line, bi-directional between pins 1 and 2, if pin 3 is not connected

Maximum Ratings at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|------------------|-----------|------|
| ESD contact/ air discharge ¹⁾ | V_{ESD} | 20 | kV |
| Peak pulse current ($t_p = 8 / 20 \mu\text{s}$) ²⁾ | I_{pp} | 3 | A |
| Operating temperature range | T_{op} | -40...125 | °C |
| Storage temperature | T_{stg} | -65...150 | |

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|-----------|--------|--------|------|------|------|
| | | min. | typ. | max. | |

Characteristics -

| | | | | | |
|--|-------------------|---|-----|-----|----|
| Reverse working voltage | V_{RWM} | - | - | 5.3 | V |
| Breakdown voltage $I_{\text{(BR)}} = 1 \text{ mA}$, from pin 1 to 3 | $V_{\text{(BR)}}$ | 6 | - | - | |
| Reverse current $V_{\text{R}} = 5.3 \text{ V}$, from pin 1 to 3 | I_{R} | - | < 1 | 50 | nA |
| Clamping voltage $I_{\text{PP}} = 1 \text{ A}$, $t_p = 8/20\mu\text{s}^2)$, from 1/2 to 3 $I_{\text{PP}} = 3 \text{ A}$, $t_p = 8/20\mu\text{s}^2)$, from 1/2 to 3 | V_{CL} | - | 10 | 13 | V |
| | | - | 12 | 15 | |
| Forward clamping voltage $I_{\text{PP}} = 1 \text{ A}$, $t_p = 8/20\mu\text{s}^2)$, from 3 to 1/2 $I_{\text{PP}} = 3 \text{ A}$, $t_p = 8/20\mu\text{s}^2)$, from 3 to 1/2 | V_{FC} | - | 2 | 4 | |
| | | - | 4 | 6 | |
| Line capacitance, $V_{\text{R}} = 0 \text{ V}$, $f = 1 \text{ MHz}$ from pin 1/2 to 3 ³⁾ from pin 1 to 2, pin 3 not connected | C_{T} | - | 0.4 | 0.6 | pF |
| | | - | 0.2 | 0.4 | |

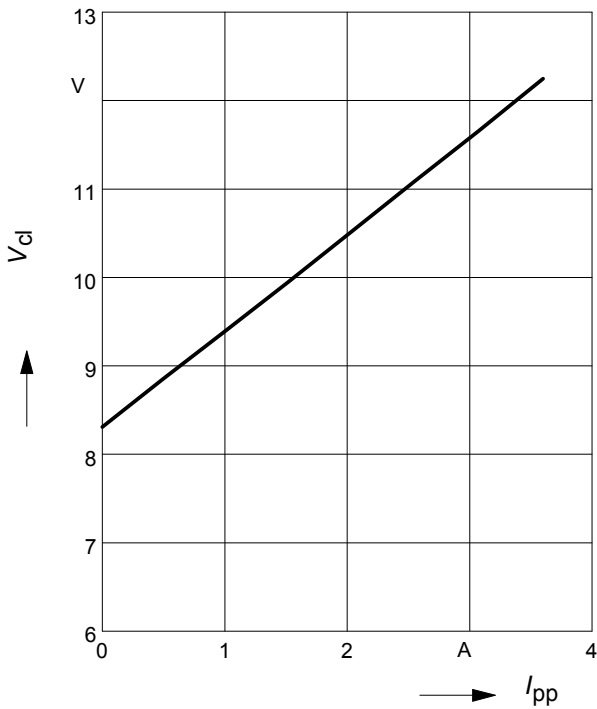
¹⁾ V_{ESD} according to IEC61000-4-2

²⁾ I_{pp} according to IEC61000-4-5

³⁾Total capacitance line to ground

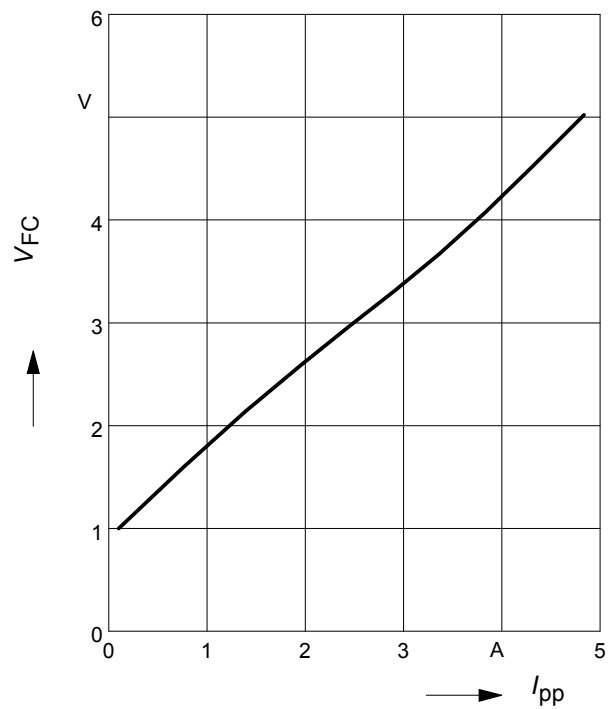
Clamping voltage, $V_{cl} = f(I_{pp})$

$t_p = 8 / 20 \mu s$, from pin 1/2 to 3



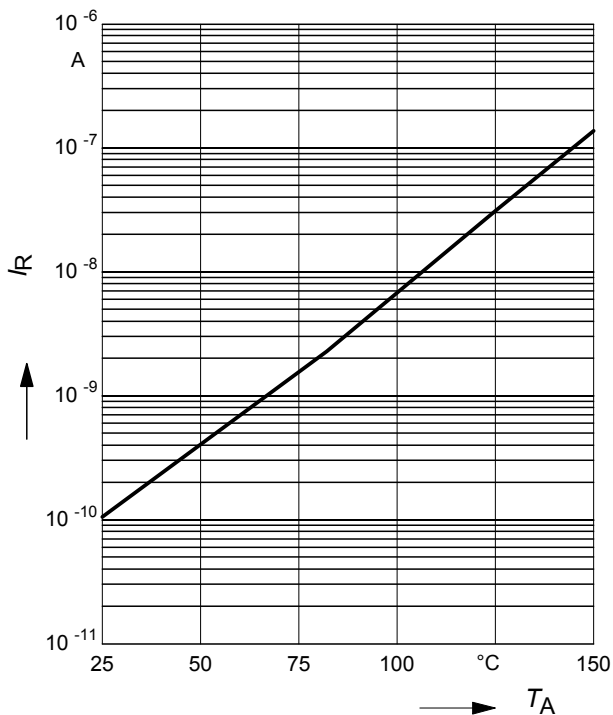
Forward clamping voltage $V_{FC} = f(I_{PP})$

$t_p = 8 / 20 \mu s$, from pin 3 to 1/2



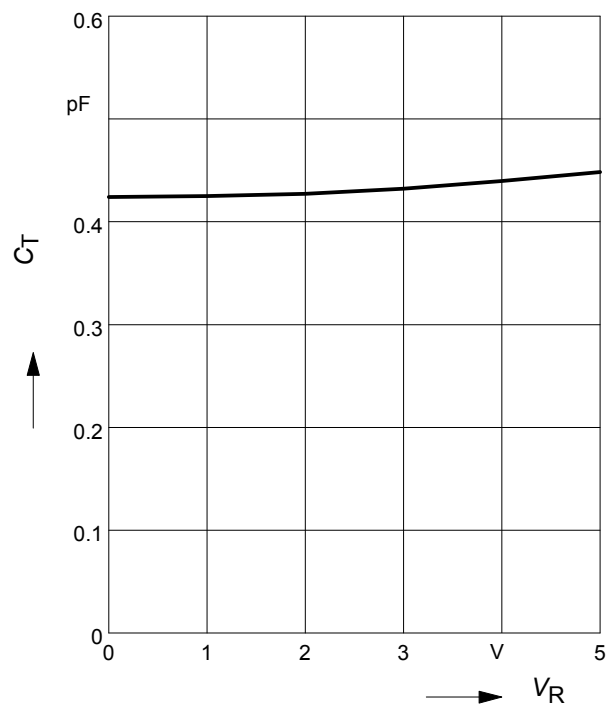
Reverse current $I_R = f(T_A)$

$V_R = \text{Parameter}$, from pin 1/2 to 3



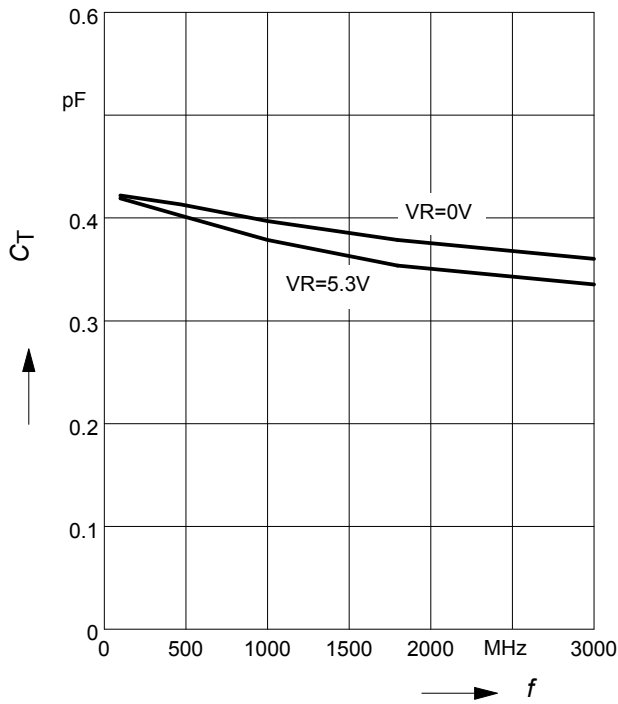
Diode capacitance $C_T = f(V_R)$

$f = 1 \text{ MHz}$, from pin 1/2 to 3



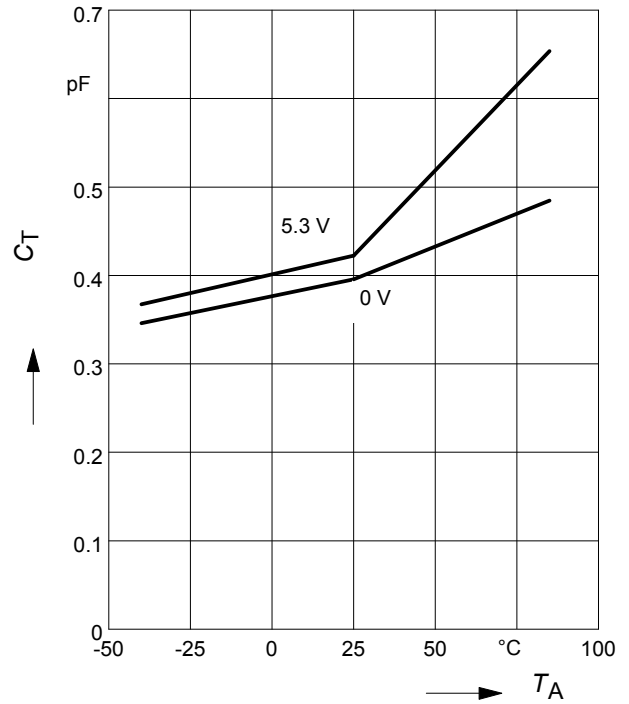
Line capacitance $C_T = f(f)$

$V_R =$ parameter, from pin 1/2 to 3



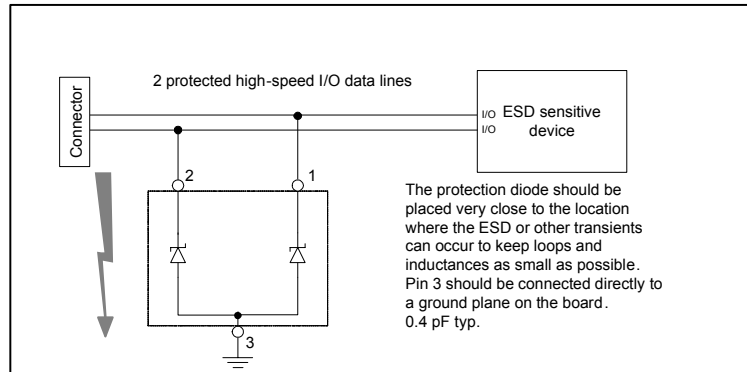
Line capacitance $C_T = f(T_A)$

$V_R = 0 V, f = 1 MHz$



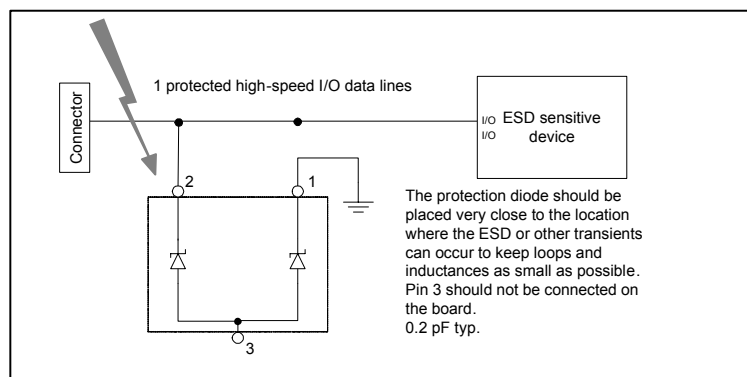
Application example ESD5V3U2U...

2 lines, uni-directional

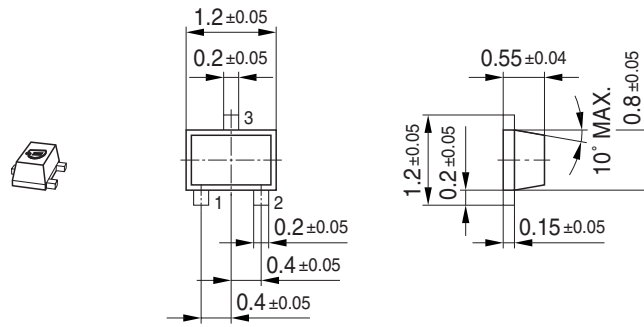


Application example ESD5V3U2U...

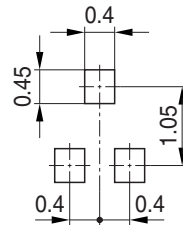
1 line, bi-directional



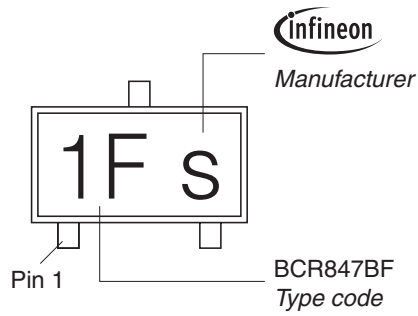
Package Outline



Foot Print

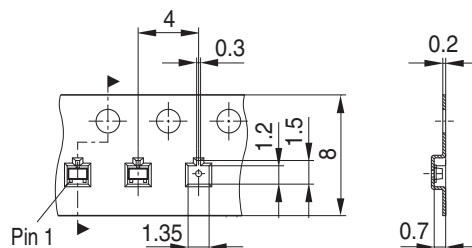


Marking Layout (Example)

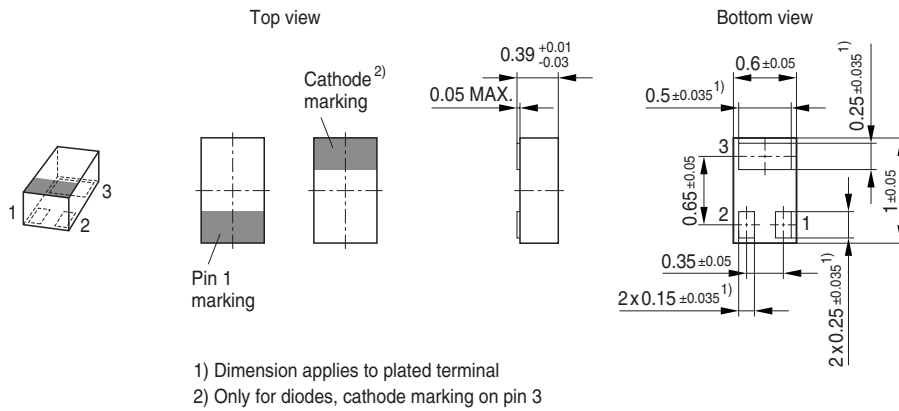


Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel

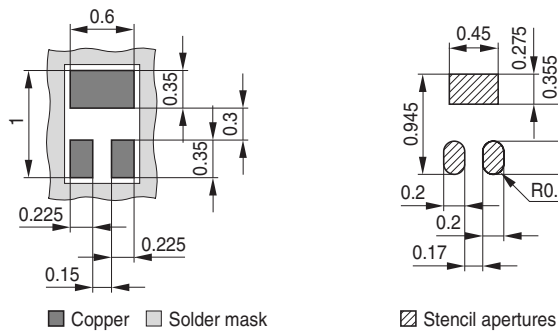


Package Outline



Foot Print

For board assembly information please refer to Infineon website "Packages"

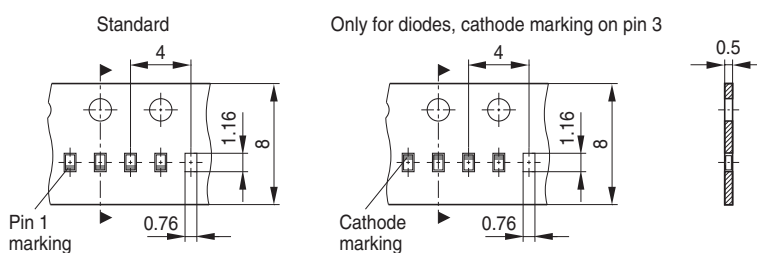


Marking Layout



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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