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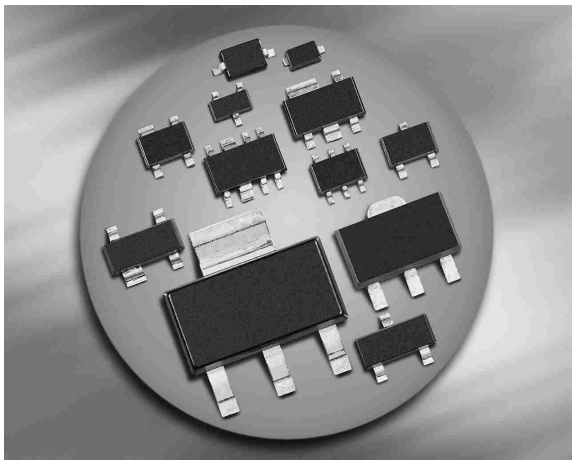
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

**Multi-Channel TVS Diode Array**

- ESD / transient protection of
  data and power lines
  in 3.3 V / 5 V application according to:
  IEC61000-4-2 (ESD): ± 30 KV (contact)
  IEC61000-4-4 (EFT): 80 A (5/50 ns)
  IEC61000-4-5 (Surge): 10 A (8/20 µs)
- Working voltage: 5 V (5.3 V max.)
- Low clamping voltage
- Low reverse current < 5 µA
- Pb-free (RoHS compliant) package

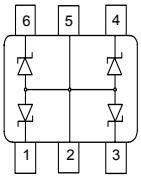


**Applications**

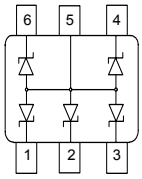
- Uni or bi-directional operation possible
  (see application example page 5)
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals

RoHS

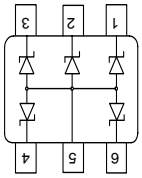
**ESD5V0S4US**




**ESD5V0S5US**




**ESD5V0S5US E6727**
180° rotated in reel




| Type | Package | Configuration | Marking |
|---|---|---|---|
| ESD5V0S4US | SOT363 | 4 lines, uni-directional | E4s |
| ESD5V0S5US | SOT363 | 5 lines, uni-directional | E5s |
| ESD5V3S5US E6727* | SOT363 | 5 lines, uni-directional | on request |

* Preliminary data

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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| ESD contact discharge per diode[1)] | $V_{ESD}$ | 30 | kV |
| Peak pulse current ($t_p$ = 8 / 20 µs) per diode[2)] | $I_{pp}$ | 10 | A |
| Peak pulse power ($t_p$ = 8 / 20 µs) per diode | $P_{pk}$ | 130 | W |
| Operating temperature range | $T_{op}$ | -55...125 | °C |
| Storage temperature | $T_{stg}$ | -65...150 | |

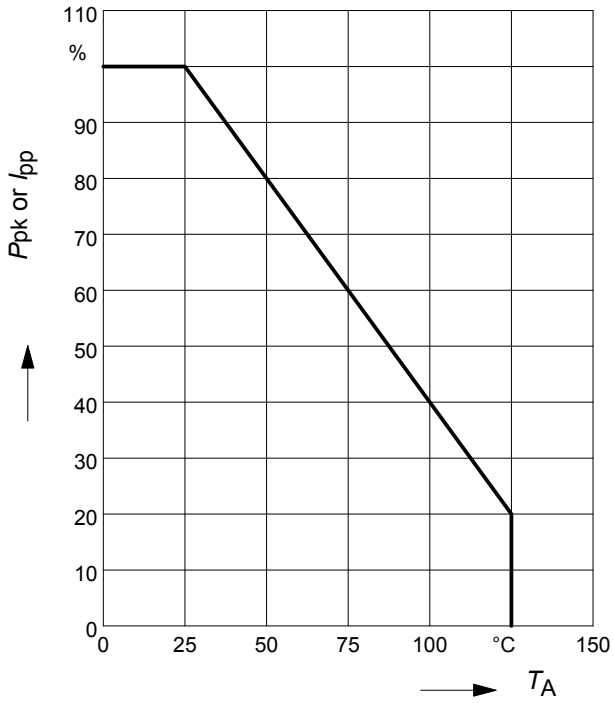
**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **Characteristics** - | | | | | |
| Reverse working voltage | $V_{RWM}$ | - | 5 | 5.3 | V |
| Breakdown voltage<br>$I_{(BR)}$ = 1 mA | $V_{(BR)}$ | 5.7 | 6.7 | 7.7 | |
| Reverse current | $I_R$ | | | | µA |
| $V_R$ = 3.3 V | | - | - | 1 | |
| $V_R$ = 5 V | | - | - | 5 | |
| Clamping voltage (positive transients) | $V_{CL}$ | | | | V |
| $I_{PP}$ = 1 A, $t_p$ = 8/20 µs[2)] | | - | 7 | 9 | |
| $I_{PP}$ = 10 A, $t_p$ = 8/20 µs[2)] | | - | 10.5 | 13 | |
| Forward clamping voltage (negative transients) | $V_{FC}$ | | | | |
| $I_{PP}$ = 1 A, $t_p$ = 8/20 µs[2)] | | - | 1 | 3 | |
| $I_{PP}$ = 10 A, $t_p$ = 8/20 µs[2)] | | - | 3.5 | 6 | |
| Diode capacitance | $C_T$ | | | | pF |
| $V_R$ = 0 V, $f$ = 1 MHz | | - | 70 | 90 | |
| $V_R$ = 5 V, $f$ = 1 MHz | | - | 35 | 55 | |

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

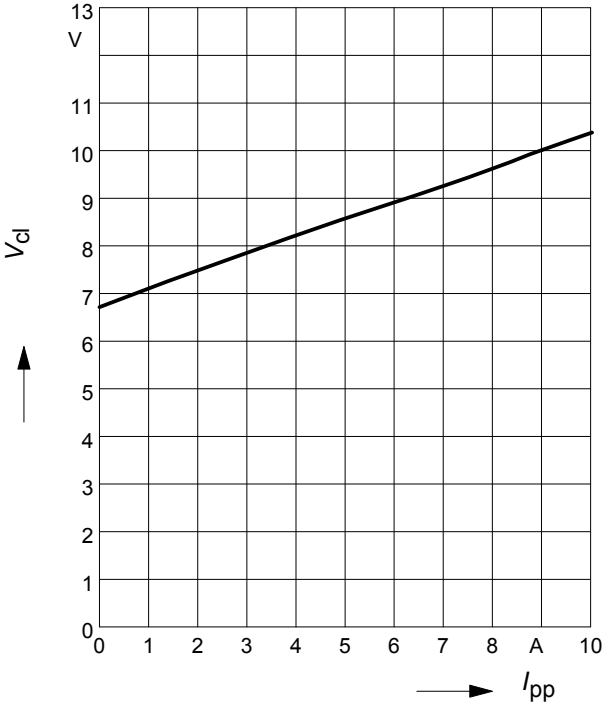
[2] $I_{pp}$ according to IEC61000-4-5

**Power derating curve** $P_{pk} = f(T_A)$



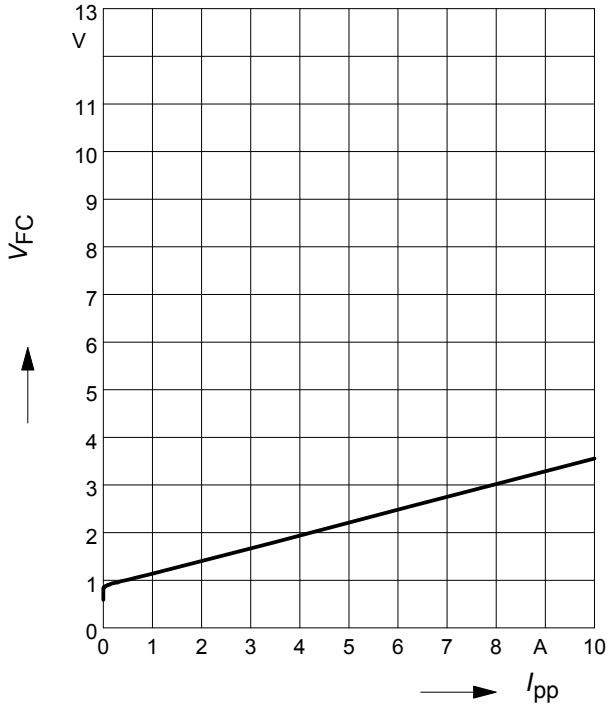

**Clamping voltage**, $V_{cl} = f(I_{pp})$

$t_p$ = 8 / 20 µs (positive transients)



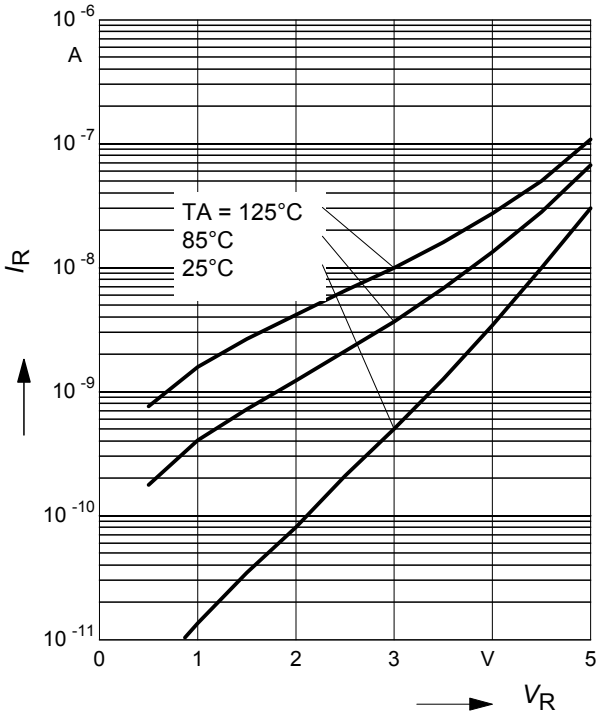

**Forward clamping voltage** $V_{FC} = f(I_{pp})$

$t_p$ = 8 / 20 µs (negative transients)




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

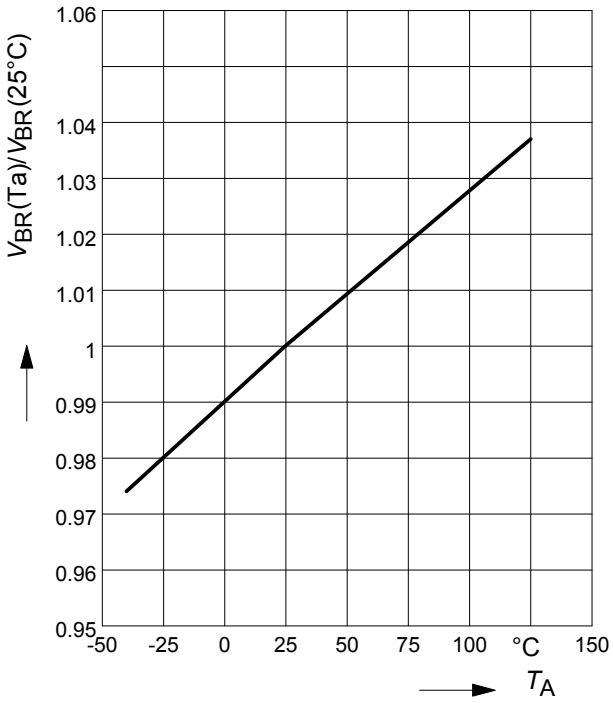
$T_A$ = Parameter



**Normalized reverse voltage**

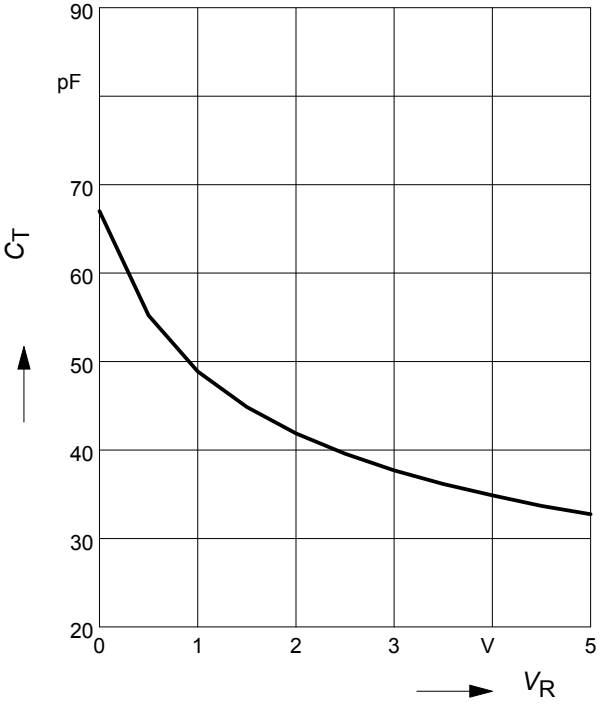
$V_{BR}(T_A)/V_{BR}(25°C)= f(T_A)$

$I_R$ = 1 mA

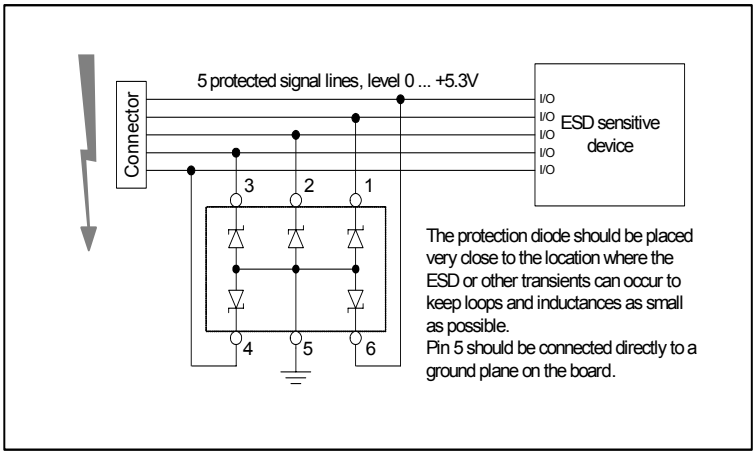



**Diode capacitance** $C_T = f(V_R)$

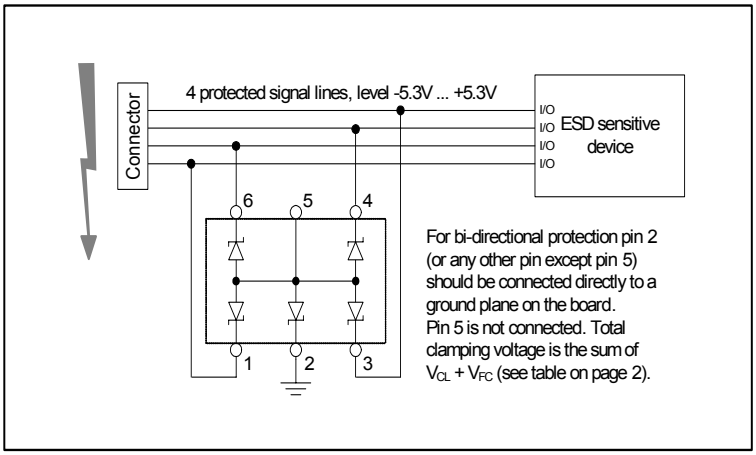
$f$ = 1MHz



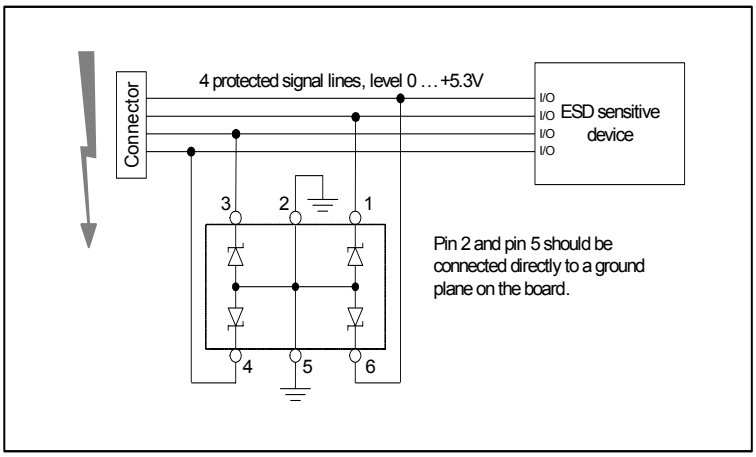
**Application example** ESD5V0S5US
5 channels, uni-directional



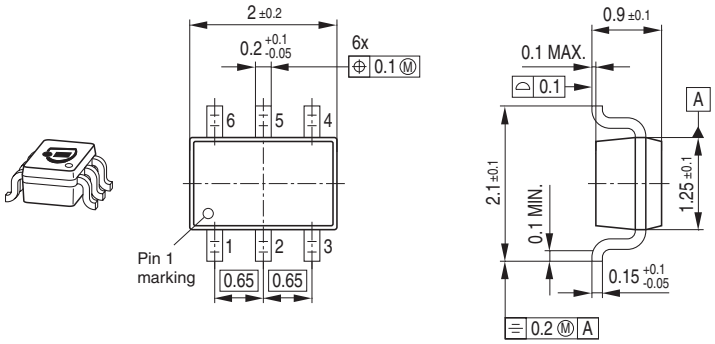

**Application example** ESD5V0S5US
4 channels, bi-directional



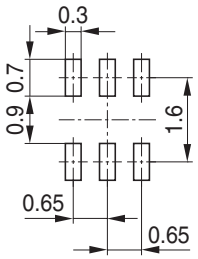

**Application example** ESD5V0S4US
4 channels, uni-directional



## Package Outline

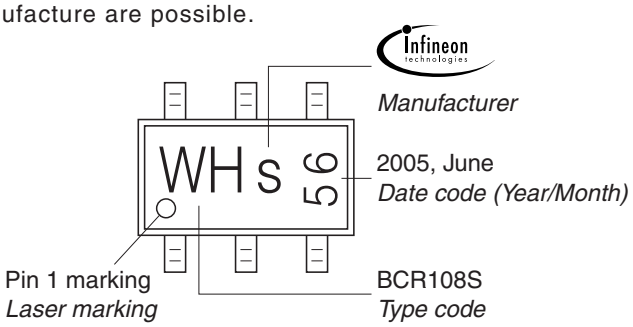



## Foot Print




## Marking Layout (Example)

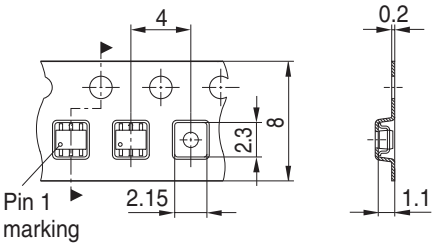
Small variations in positioning of
Date code, Type code and Manufacture are possible.




## Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



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