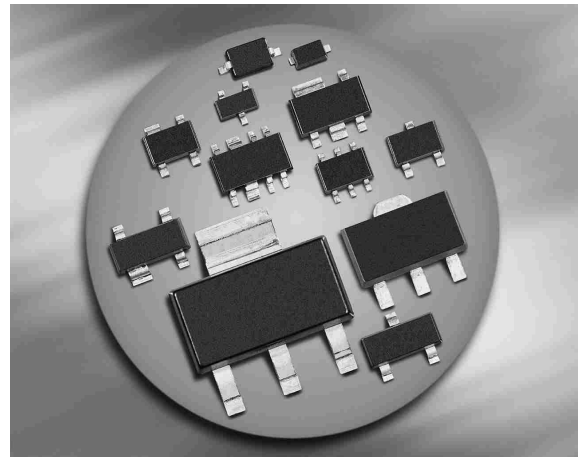


Multi-Channel TVS Diode Array

- 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 μ s)
- Working voltage: 5 V (5.3 V max.)
- Low clamping voltage
- Low reverse current < 5 μ A
- Pb-free (RoHS compliant) package

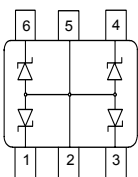


Applications

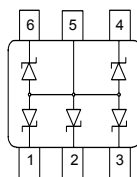
- Uni or bi-directional operation possible (see application example page 5)
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals



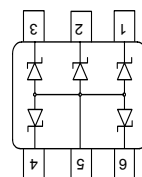
ESD5V0S4US



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

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

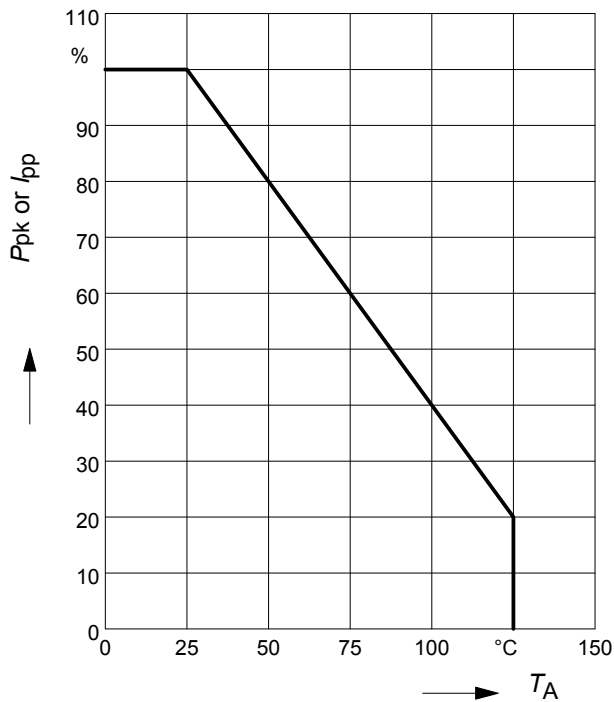
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics -					
Reverse working voltage	V_{RWM}	-	5	5.3	V
Breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$	$V_{(\text{BR})}$	5.7	6.7	7.7	
Reverse current $V_{\text{R}} = 3.3 \text{ V}$ $V_{\text{R}} = 5 \text{ V}$	I_{R}	- -	- -	1 5	μA
Clamping voltage (positive transients) $I_{\text{PP}} = 1 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 10 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$	V_{CL}	- -	7 10.5	9 13	V
Forward clamping voltage (negative transients) $I_{\text{PP}} = 1 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 10 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$	V_{FC}	- -	1 3.5	3 6	
Diode capacitance $V_{\text{R}} = 0 \text{ V}, f = 1 \text{ MHz}$ $V_{\text{R}} = 5 \text{ V}, f = 1 \text{ MHz}$	C_{T}	- -	70 35	90 55	pF

¹⁾ V_{ESD} according to IEC61000-4-2

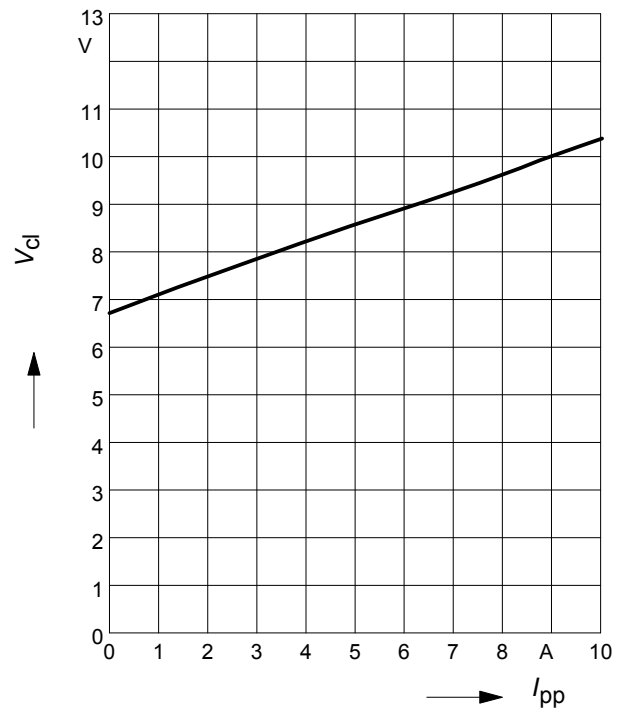
²⁾ I_{pp} according to IEC61000-4-5

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



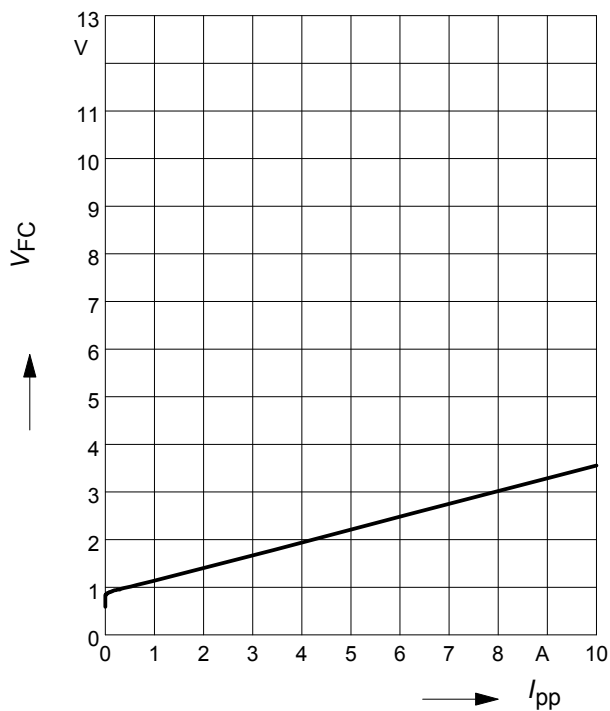
Clamping voltage, $V_{cl} = f(I_{pp})$

$t_p = 8 / 20 \mu s$ (positive transients)



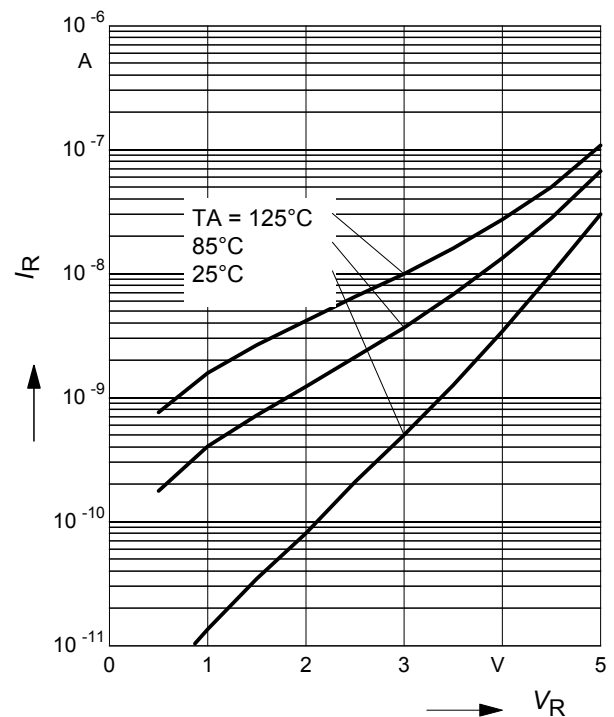
Forward clamping voltage $V_{FC} = f(I_{pp})$

$t_p = 8 / 20 \mu s$ (negative transients)



Reverse current $I_R = f(V_R)$

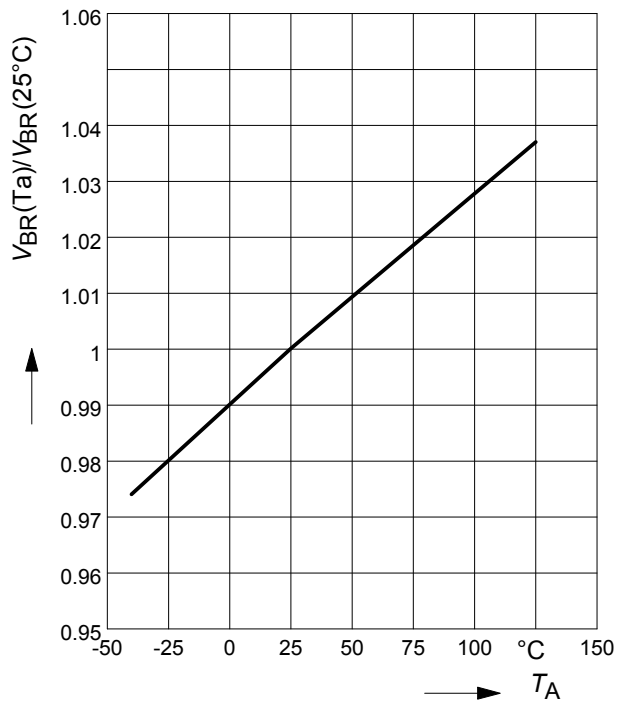
$T_A = \text{Parameter}$



Normalized reverse voltage

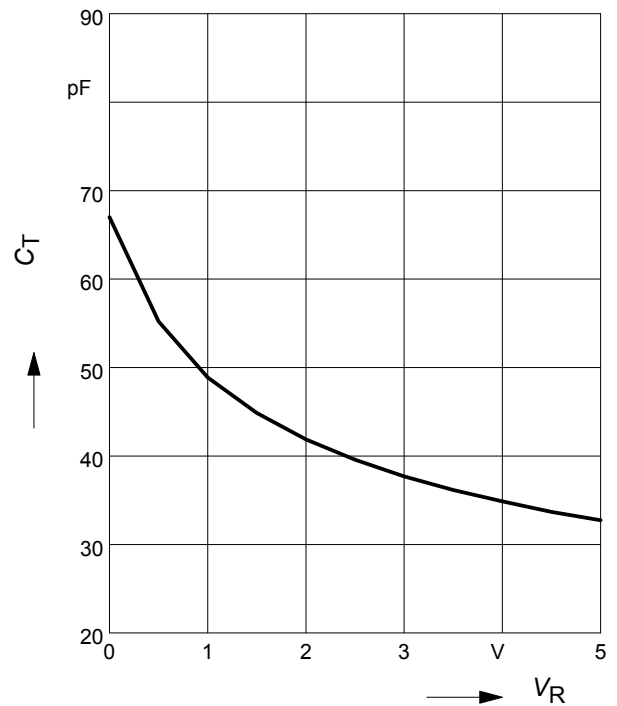
$$V_{BR}(T_A)/V_{BR}(25^\circ\text{C}) = f(T_A)$$

$$I_R = 1 \text{ mA}$$



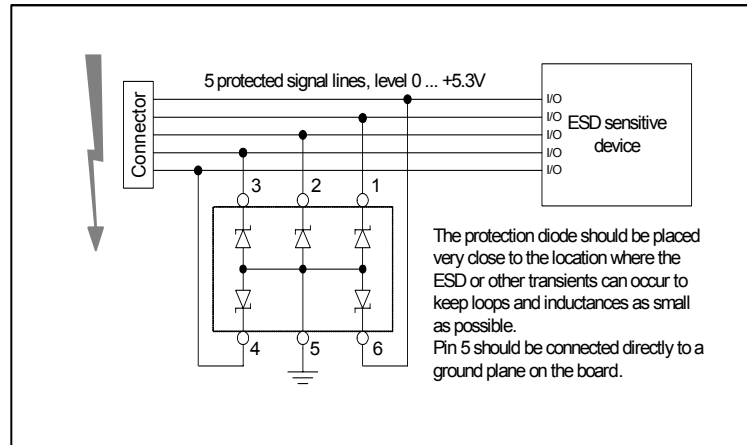
Diode capacitance $C_T = f(V_R)$

$$f = 1 \text{ MHz}$$

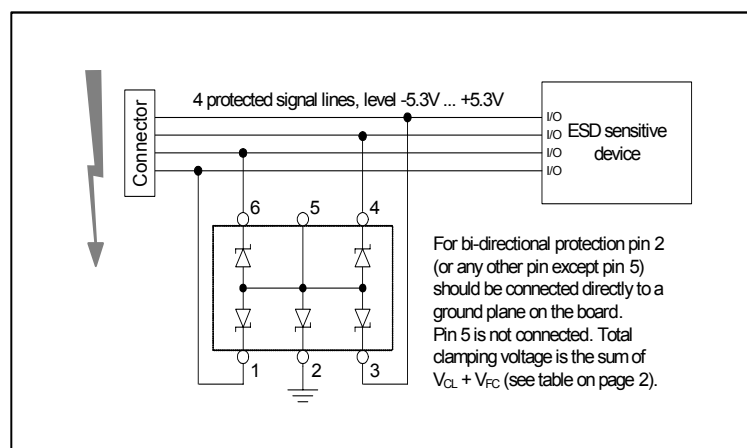


Application example ESD5V0S5US

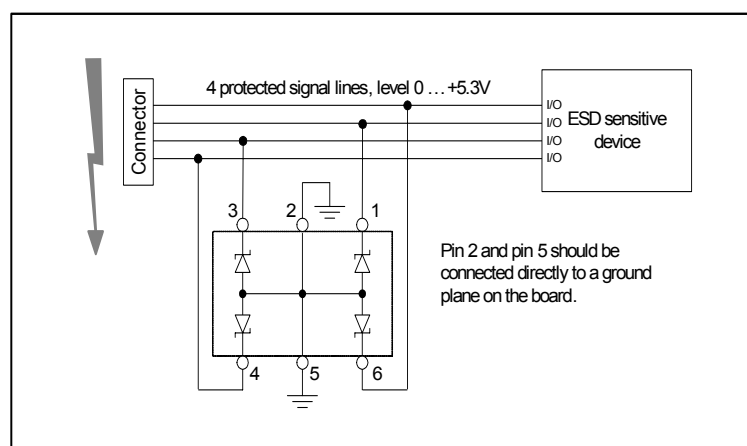
5 channels, uni-directional


Application example ESD5V0S5US

4 channels, bi-directional


Application example ESD5V0S4US

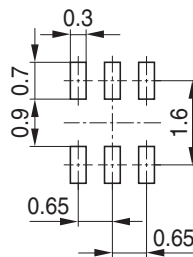
4 channels, uni-directional



Package Outline



Foot Print



Marking Layout (Example)

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



Standard Packing

Reel $\varnothing 180 \text{ mm}$ = 3.000 Pieces/Reel
Reel $\varnothing 330 \text{ mm}$ = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



Edition 2009-11-16

**Published by
Infineon Technologies AG
81726 Munich, Germany**

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