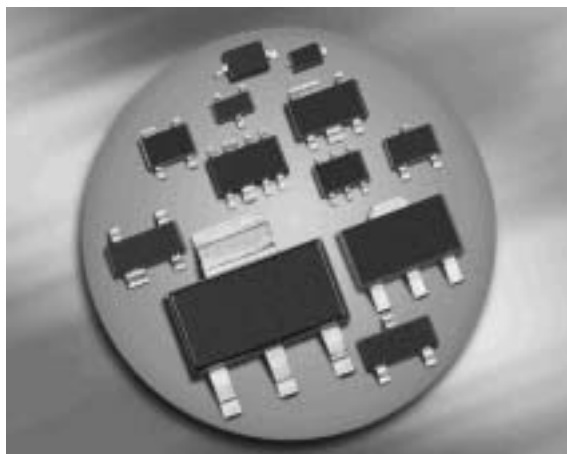


Silicon TVS Diodes

- ESD / transient protection of data and power lines in 3.3 V / 5 V applications according to:
IEC61000-4-2 (ESD): ± 30 kV (contact)
IEC61000-4-4 (EFT): 80 A (5/50 ns)
IEC61000-4-5 (surge): 40 A/600 W (8/20 μ s)
- Max. working voltage: 5 V
- Low clamping voltage
- Low reverse current
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

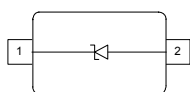


Applications

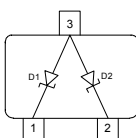
- Uni or bi-directional operation possible
(see application example page 5)
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals



ESD5V0S1U-03W



ESD5V0S2U-06



Type	Package	Configuration	Marking
ESD5V0S1U-03W	SOD323	1 line, uni-directional	E/yellow
ESD5V0S2U-06	SOT23	2 lines, uni-directional	E5

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

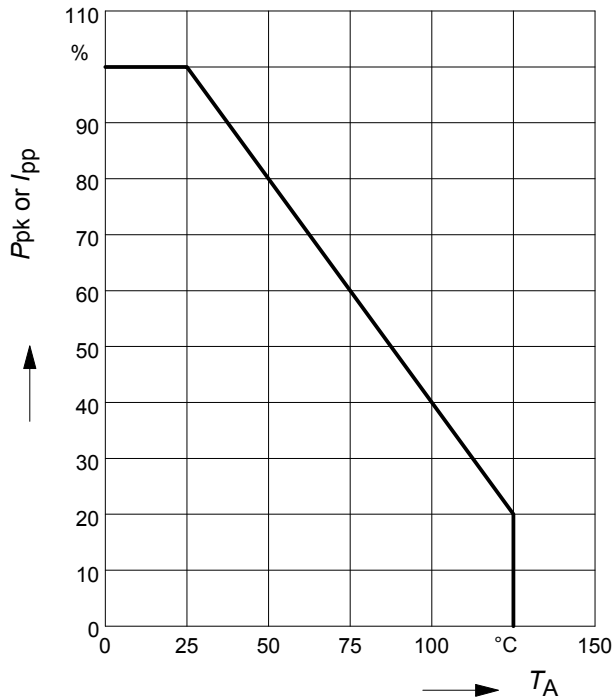
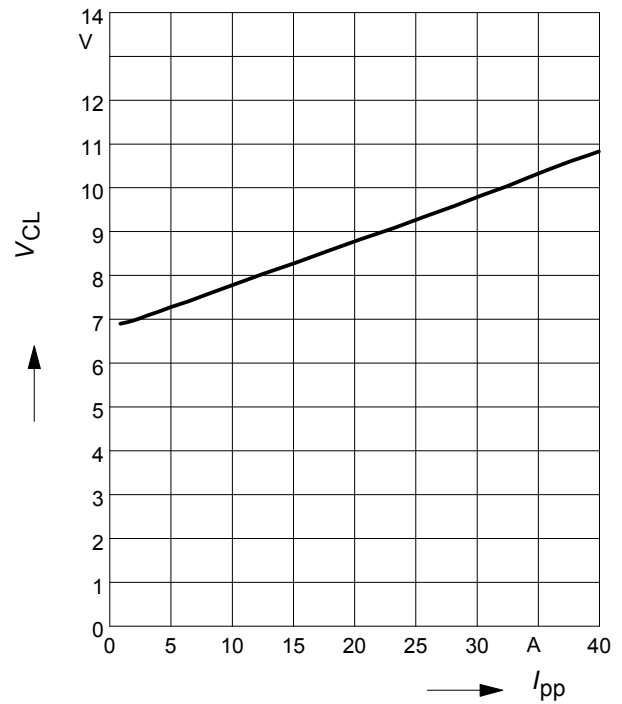
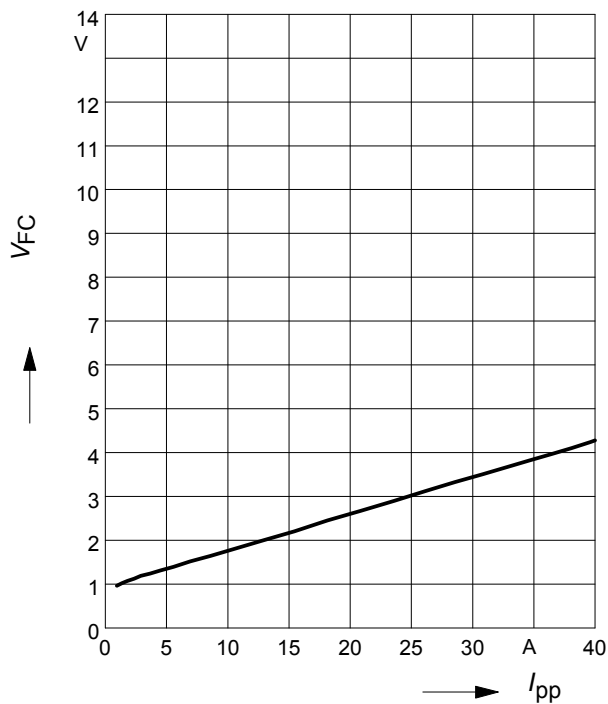
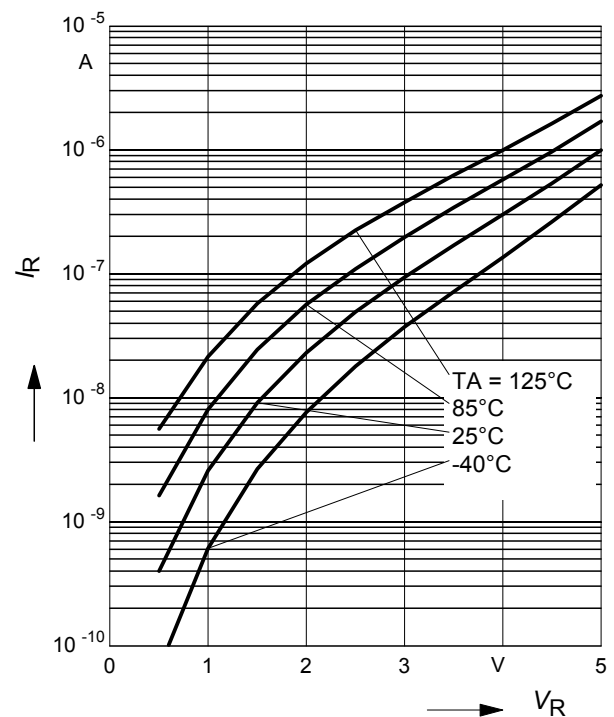
Parameter	Symbol	Value	Unit
ESD contact discharge ¹⁾	V_{ESD}	30	kV
Peak pulse current ($t_p = 8 / 20 \mu\text{s}$) ²⁾	I_{pp}	40	A
Peak pulse power ($t_p = 8 / 20 \mu\text{s}$) ²⁾	P_{pk}	600	W
Operating temperature range	T_{op}	-55...125	$^\circ\text{C}$
Storage temperature	T_{stg}	-65...150	

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	V	
Breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$	$V_{(\text{BR})}$	5.5	6.7	8		
Reverse current $V_{\text{R}} = 3.3 \text{ V}$ $V_{\text{R}} = 5 \text{ V}$	I_{R}	- -	- -	5 20	μA	
Clamping voltage (positive transient) $I_{\text{PP}} = 5 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 24 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 40 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$	V_{CL}	- - -	7.5 9 11	9.5 12 14	V	
Forward clamping voltage (negative transients) $I_{\text{PP}} = 5 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 24 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$ $I_{\text{PP}} = 40 \text{ A}, t_{\text{p}} = 8/20 \text{ }\mu\text{s}^2)$	V_{FC}	- - -	1.5 3 4	3 5 6		
Diode capacitance $V_{\text{R}} = 0 \text{ V}, f = 1 \text{ MHz}$	C_{T}	-	430	500		pF

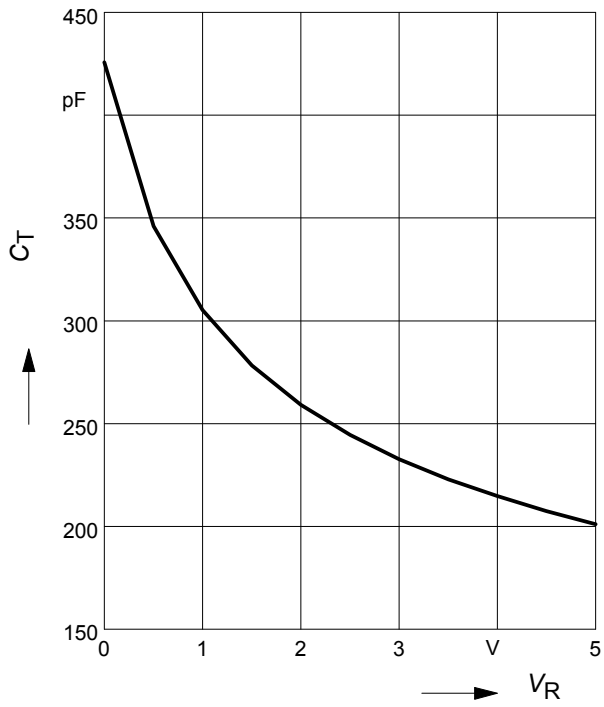
¹⁾ V_{ESD} according to IEC61000-4-2

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 transient)

Reverse current $I_R = f(V_R)$
 $T_A = \text{Parameter}$


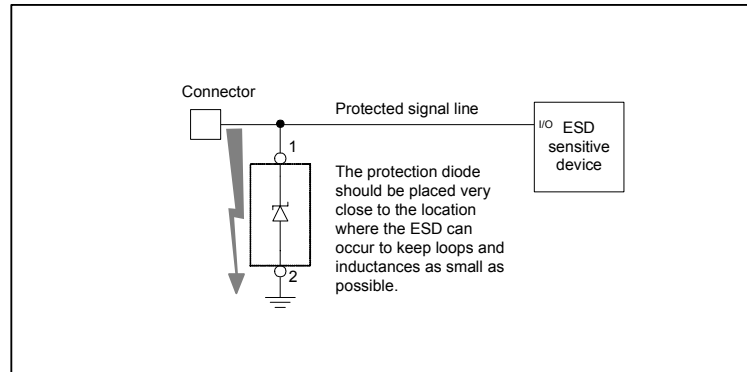
Diode capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



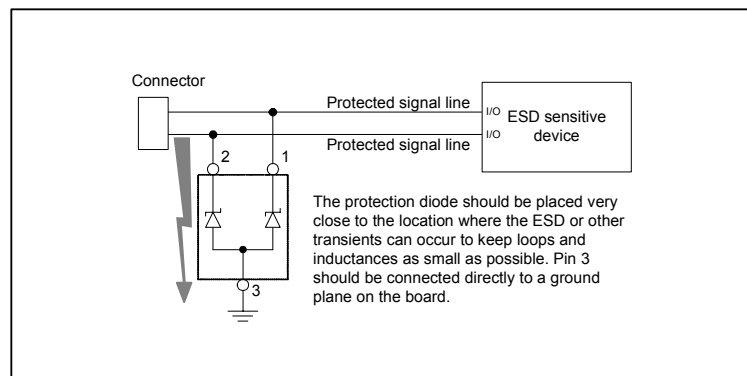
Application example ESD5V01U-03W

single channel, uni-directional



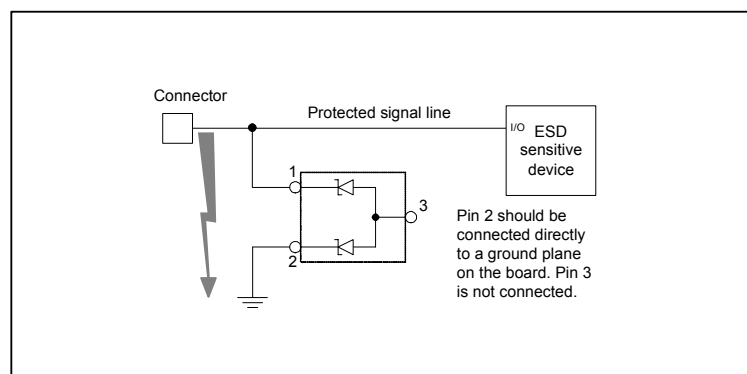
Application example ESD5V0S2U-06

dual channel, uni-directional

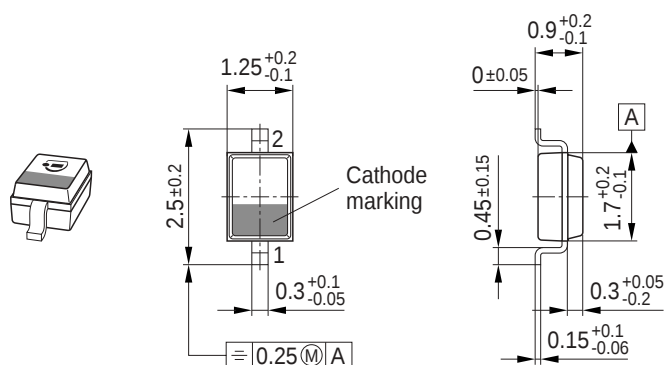


Application example ESD5V0S2U-06

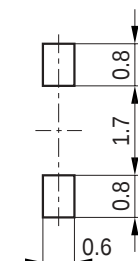
single channel, bi-directional



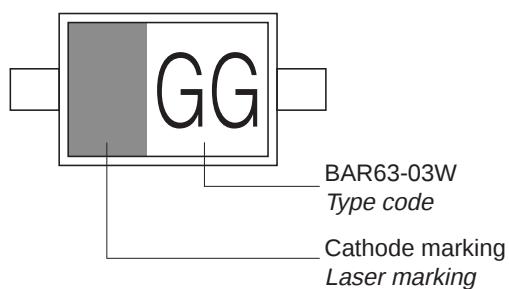
Package Outline



Foot Print

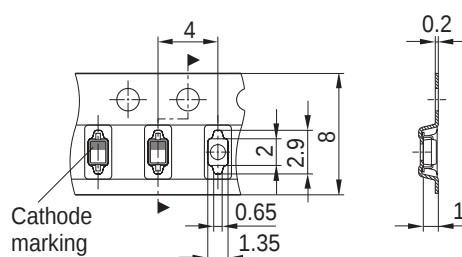


Marking Layout (Example)

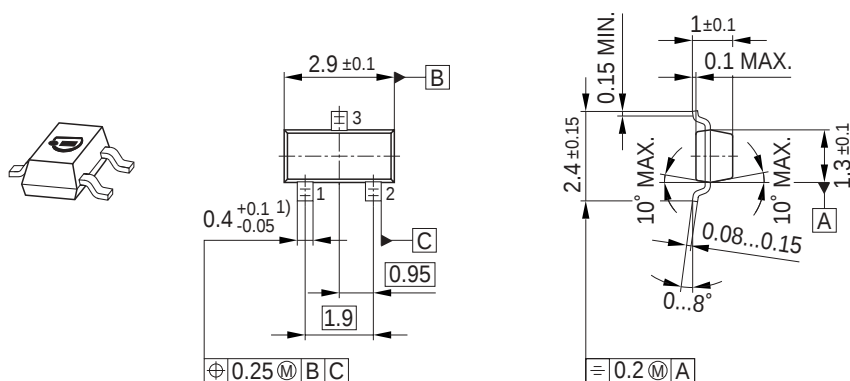


Standard Packing

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

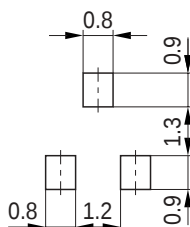


Package Outline

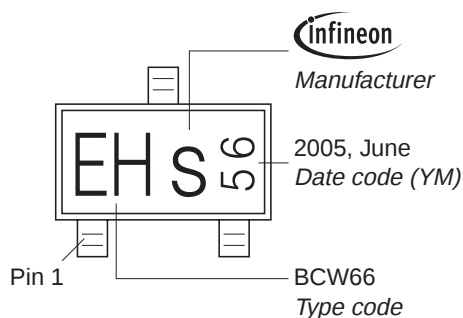


1) Lead width can be 0.6 max. in dambar area

Foot Print

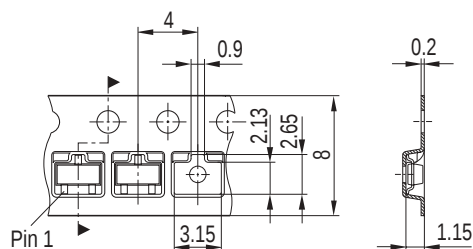


Marking Layout (Example)



Standard Packing

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



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