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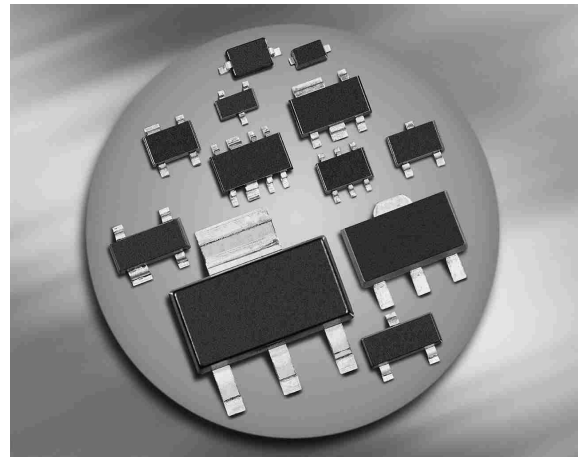
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

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**Silicon TVS Diodes**

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



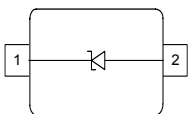
**Applications**

- 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

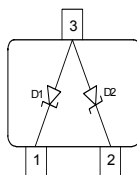
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**ESD5V0S1U-03W**



**ESD5V0S2U-06**



Type	Package	Configuration	Marking
ESD5V0S1U-03W	SOD323	1 line, uni-directional	yellow E
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 <sup>1)</sup>	$V_{\text{ESD}}$	30	kV
Peak pulse current ( $t_p = 8 / 20 \mu\text{s}$ ) <sup>2)</sup>	$I_{\text{pp}}$	40	A
Peak pulse power ( $t_p = 8 / 20 \mu\text{s}$ ) <sup>2)</sup>	$P_{\text{pk}}$	600	W
Operating temperature range	$T_{\text{op}}$	-55...125	°C
Storage temperature	$T_{\text{stg}}$	-65...150	

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

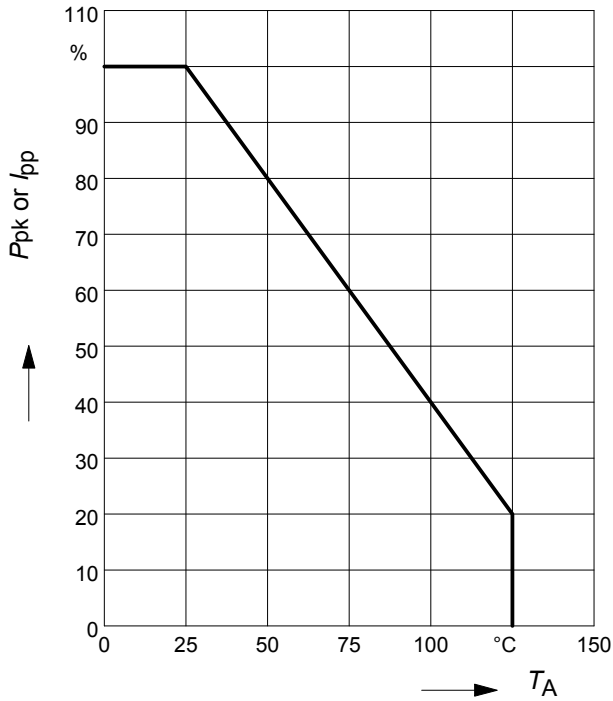
**Characteristics -**

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

<sup>1)</sup> $V_{\text{ESD}}$  according to IEC61000-4-2

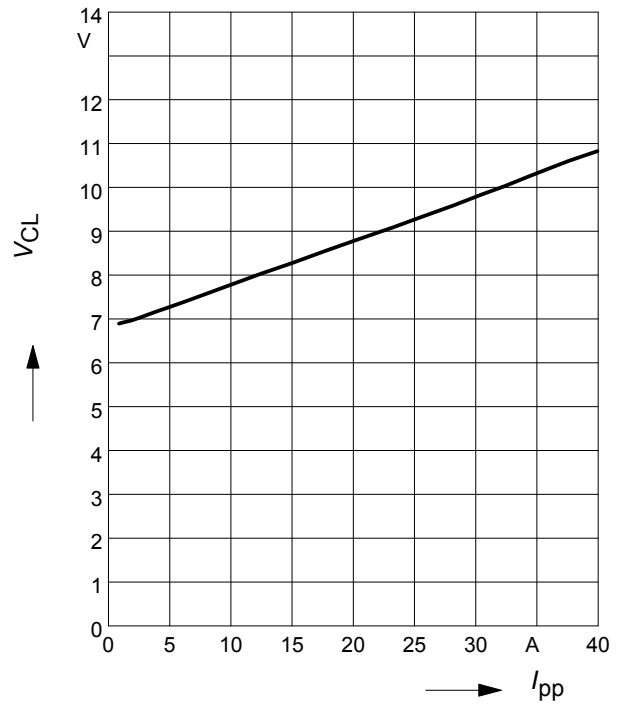
<sup>2)</sup> $I_{\text{pp}}$  according to IEC61000-4-5

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



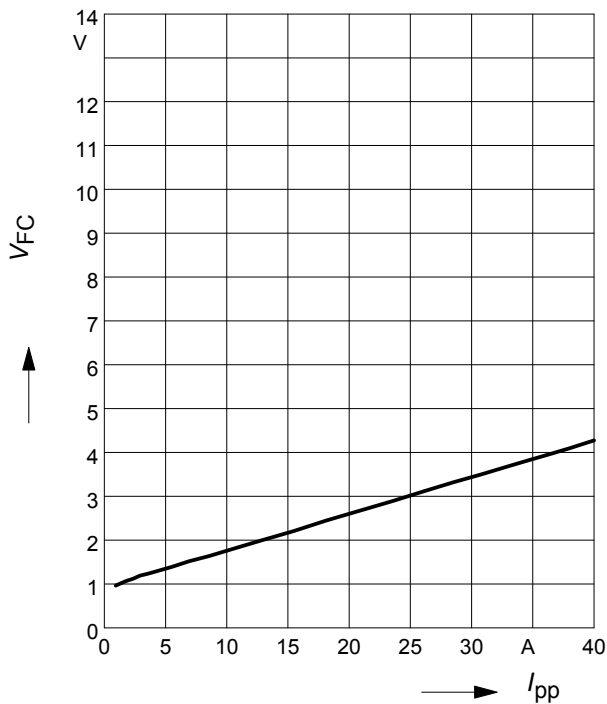
**Clamping voltage  $V_{cl} = f(I_{pp})$**

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



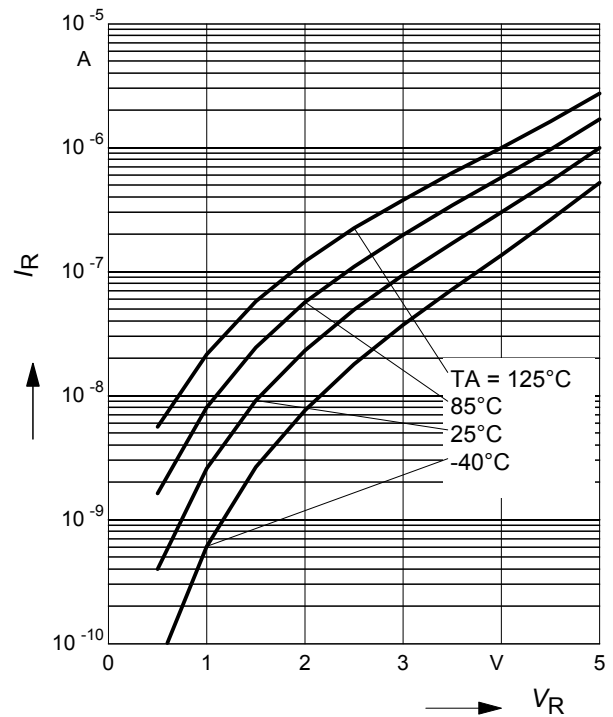
**Forward clamping voltage  $V_{FC} = f(I_{PP})$**

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



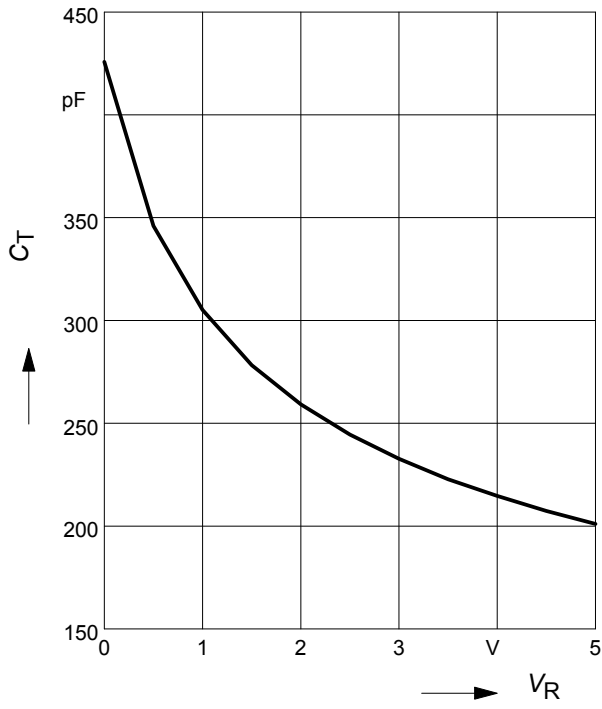
**Reverse current  $I_R = f(V_R)$**

$T_A = \text{Parameter}$



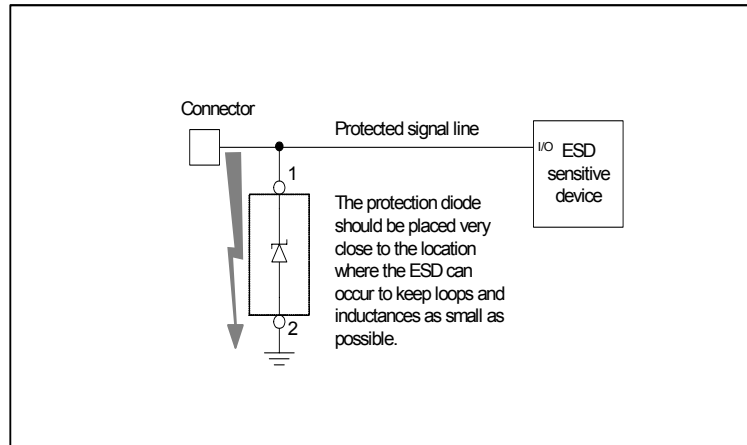
Diode capacitance  $C_T = f(V_R)$

$f = 1\text{MHz}$

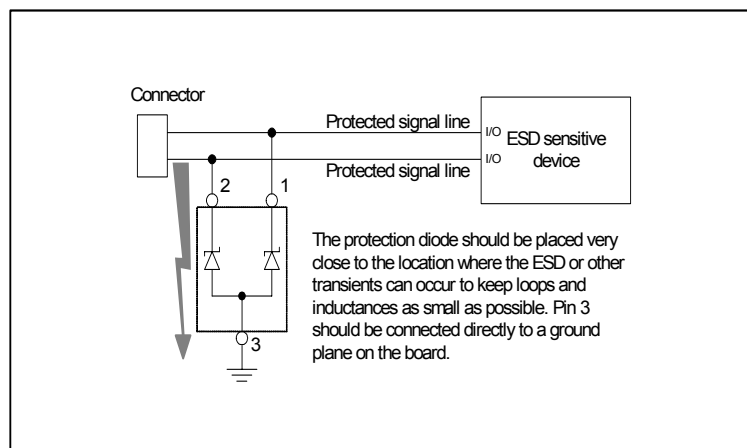




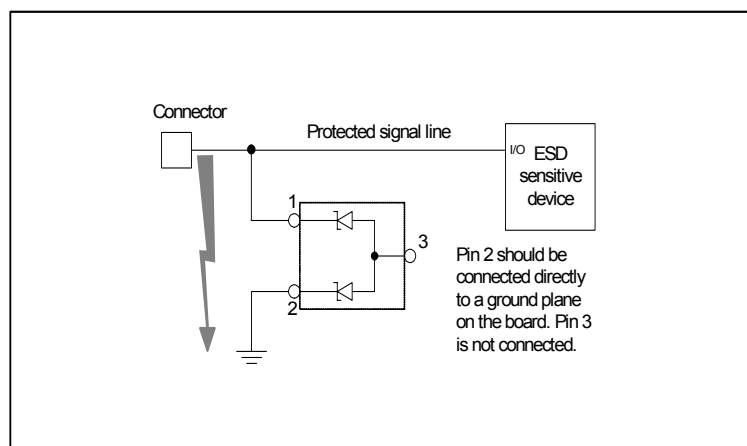
**Application example ESD5V01U-03W**  
single channel, uni-directional



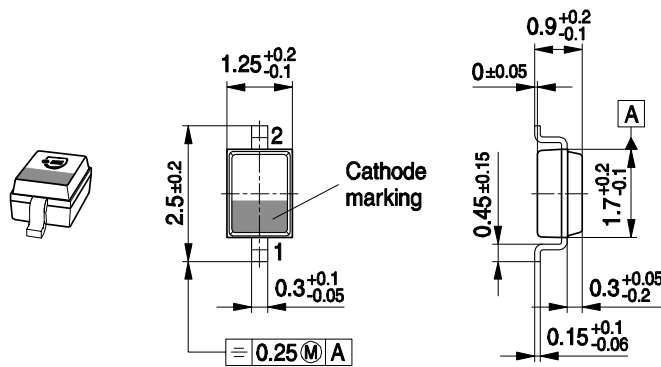
**Application example ESD5V0S2U-06**  
dual channel, uni-directional



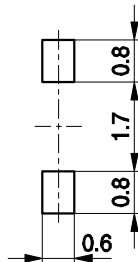
**Application example ESD5V0S2U-06**  
single channel, bi-directional



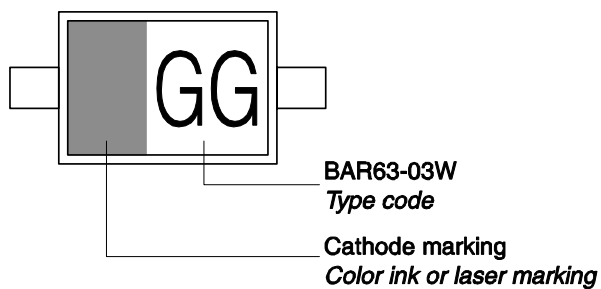
### Package Outline



### Foot Print

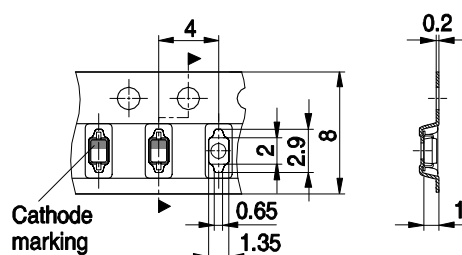


### Marking Layout (Example)

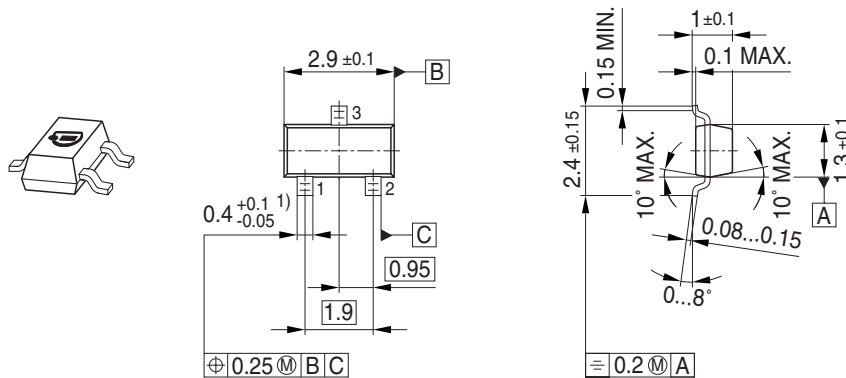


### Standard Packing

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

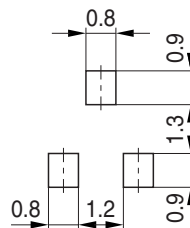


Package Outline

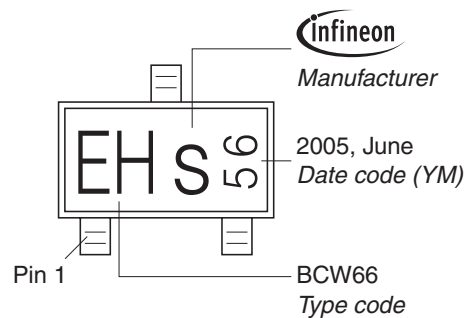


1) Lead width can be 0.6 max. in dambar area

Foot Print

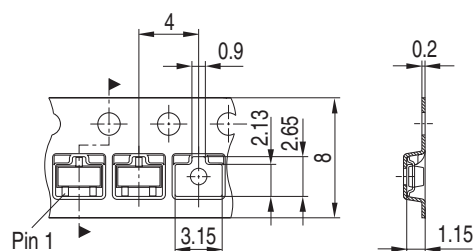


Marking Layout (Example)



Standard Packing

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





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