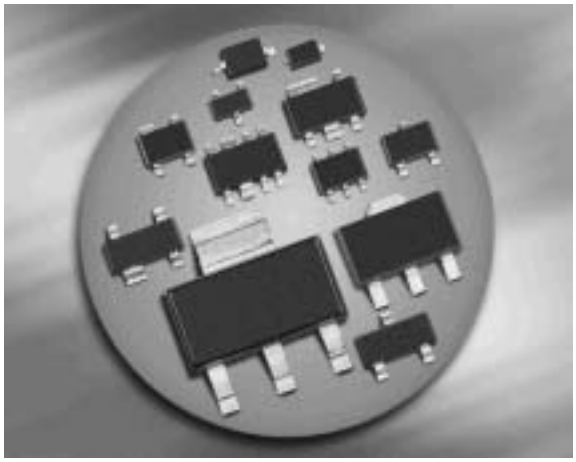
Silicon TVS Diodes



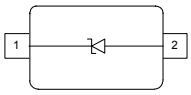
- ESD / transient protection of data and power lines in 3.3 V / 5 V applications according to:
  IEC61000-4-2 (ESD): ± 30 kV (contact)
  IEC61000-4-4 (EFT): 80 A (5/50 ns)
  IEC61000-4-5 (surge): 40 A/600 W (8/20 µs)
- Max. working voltage: 5 V
- Low clamping voltage
- Low reverse current
- Pb-free (RoHS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

Applications

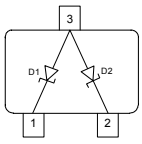
- Uni or bi-directional operation possible
  (see application example page 5)
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and desktop computers, peripherals

AEC Qualified RoHS

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°C, unless otherwise specified

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

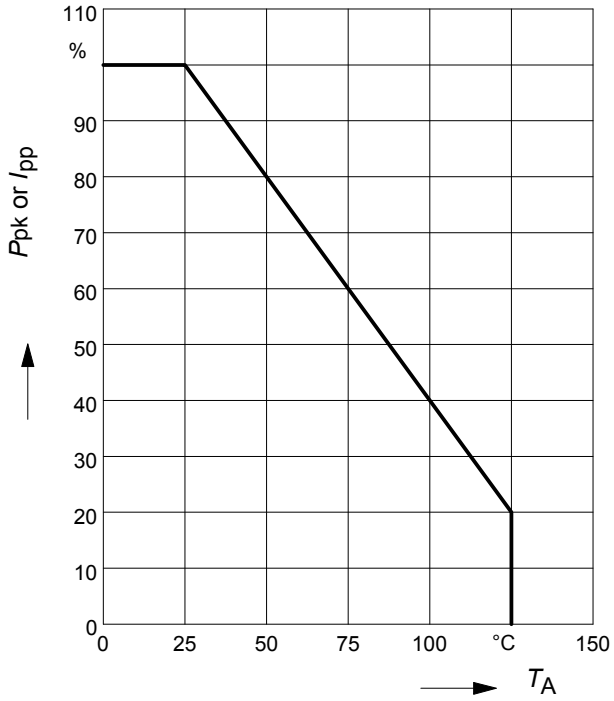
Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Reverse working voltage	V_{RWM}	-	-	5	V
Breakdown voltage $I_{(BR)}$ = 1 mA	$V_{(BR)}$	5.5	6.7	8	
Reverse current	I_R				µA
V_R = 3.3 V		-	-	5	
V_R = 5 V		-	-	20	
Clamping voltage (positive transient)	V_{CL}				V
I_{PP} = 5 A, t_p = 8/20 µs[2)]		-	7.5	9.5	
I_{PP} = 24 A, t_p = 8/20 µs[2)]		-	9	12	
I_{PP} = 40 A, t_p = 8/20 µs[2)]		-	11	14	
Forward clamping voltage (negative transients)	V_{FC}				
I_{PP} = 5 A, t_p = 8/20 µs[2)]		-	1.5	3	
I_{PP} = 24 A, t_p = 8/20 µs[2)]		-	3	5	
I_{PP} = 40 A, t_p = 8/20 µs[2)]		-	4	6	
Diode capacitance V_R = 0 V, f = 1 MHz	C_T	-	430	500	pF

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

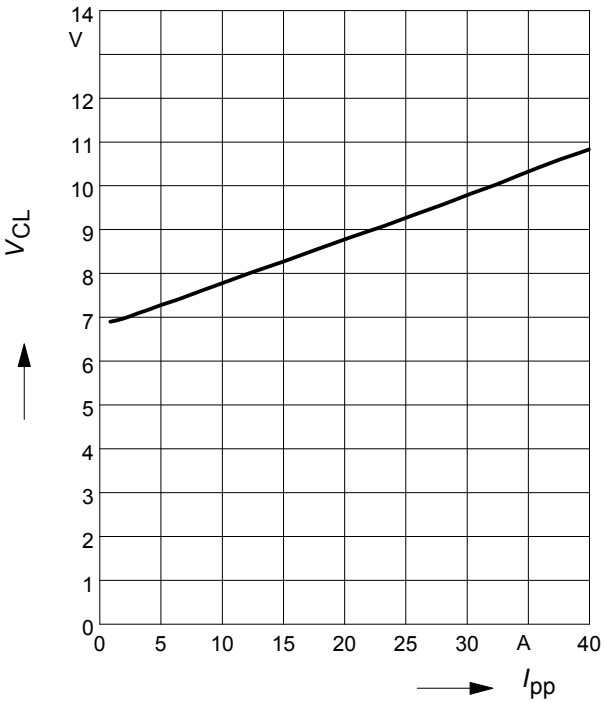
[2] I_{pp} according to IEC61000-4-5

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



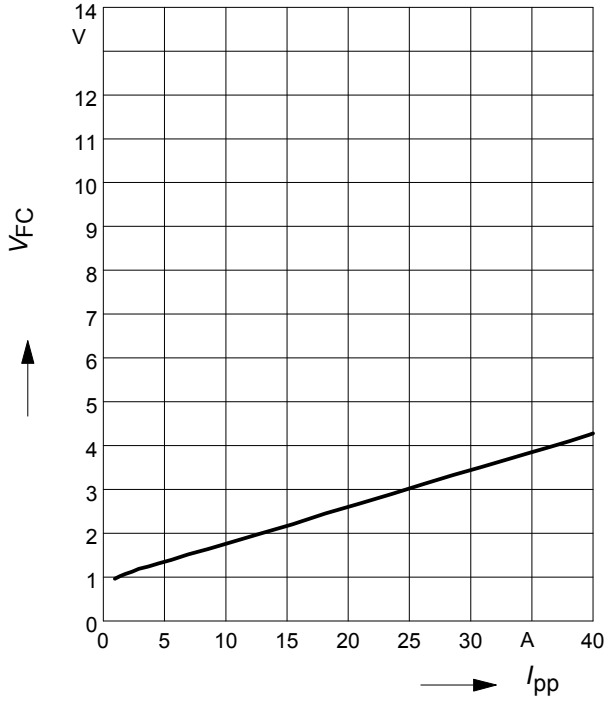
Clamping voltage $V_{cl} = f(I_{pp})$

t_p = 8 / 20 µs (positive transients)



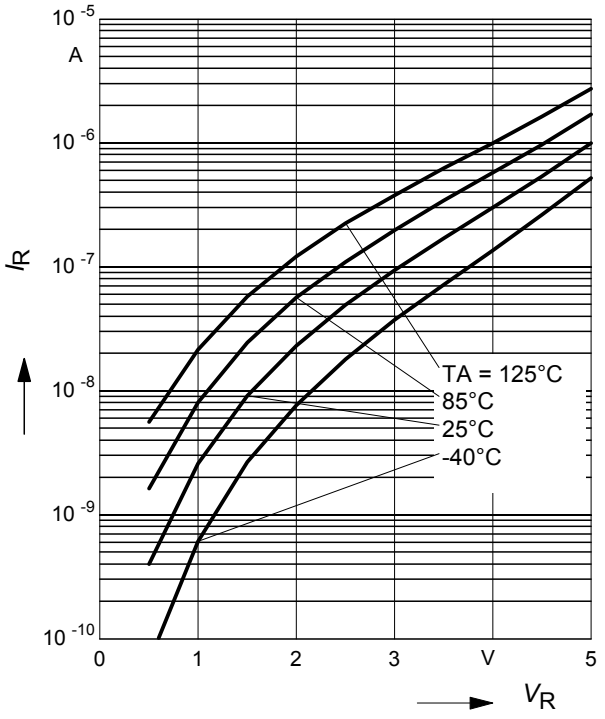
Forward clamping voltage $V_{FC} = f(I_{PP})$

t_p = 8 / 20 µs (negative transient)



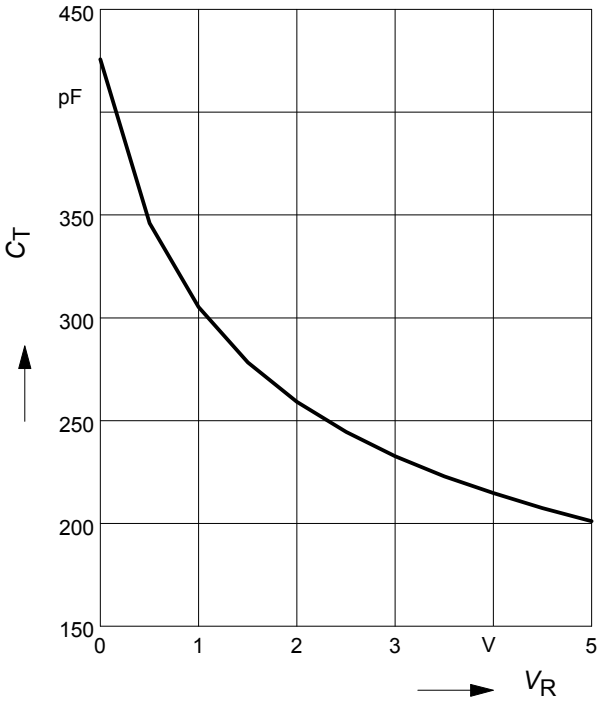
Reverse current $I_R = f(V_R)$

T_A = Parameter

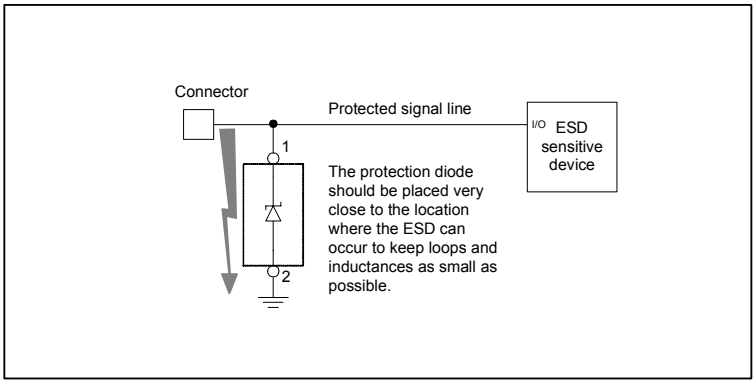


Diode capacitance $C_T = f(V_R)$

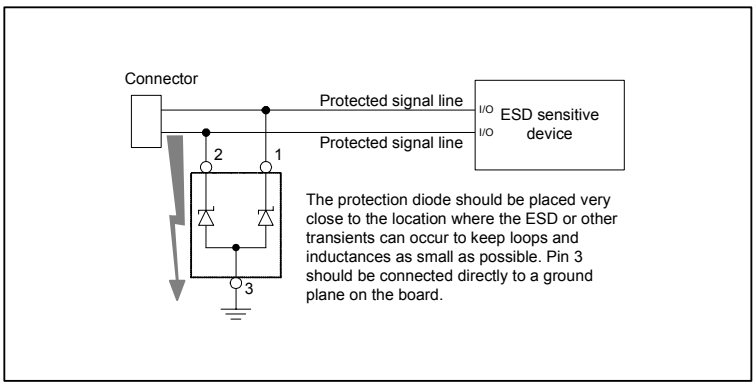
f = 1MHz



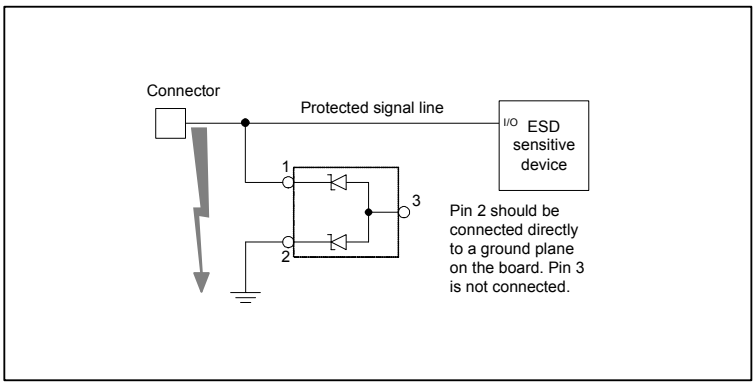
Application example ESD5V01U-03W
single channel, uni-directional



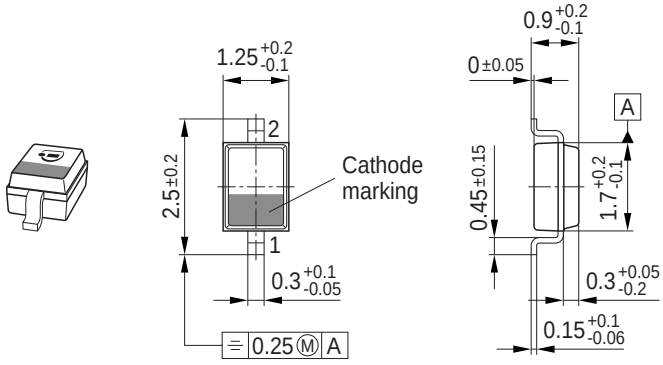
Application example ESD5V0S2U-06
dual channel, uni-directional



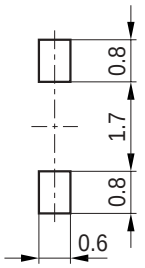
Application example ESD5V0S2U-06
single channel, bi-directional



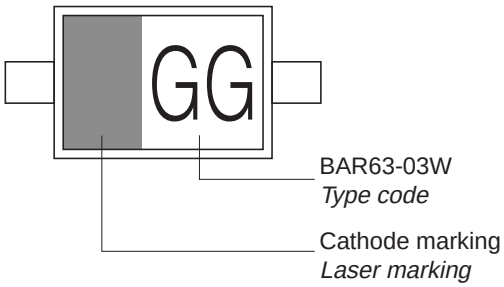
Package Outline



Foot Print

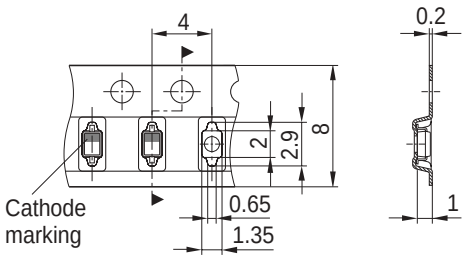


Marking Layout (Example)

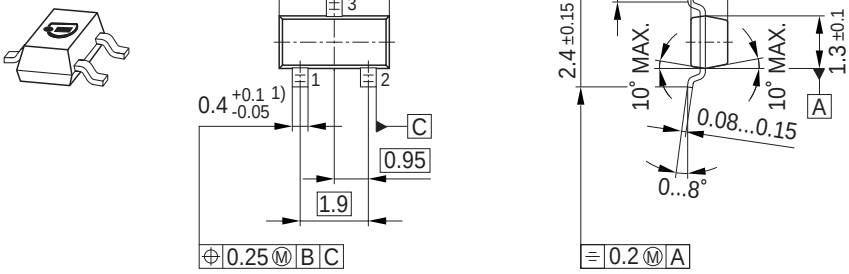


Standard Packing

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

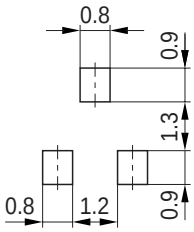


Package Outline

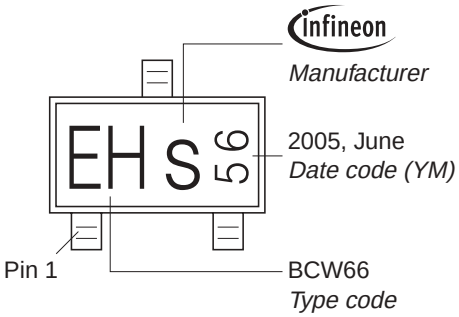


1) Lead width can be 0.6 max. in dambar area

Foot Print



Marking Layout (Example)



Standard Packing

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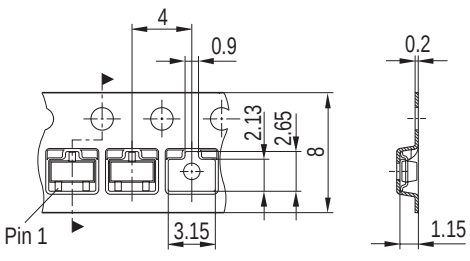
Reel ø330 mm = 10.000 Pieces/Reel



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