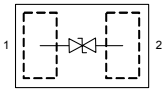
Low Capacitance TVS Diode

- ESD / transient protection of high-speed data lines in 3.3 / 5 / 12 V applications according to:
  IEC61000-4-2 (ESD): up to ± 25 KV (contact)
  IEC61000-4-4 (EFT): up to 4 kV (5/50 ns)
  IEC61000-4-5 (surge): up to 2.5 A (8/20 µs)
- Smallest form factor down to 1.0 x 0.6 x 0.4 mm
- Max. working voltage: ±8 / +14 V
- Very low capacitance down to 2 pF
- Very low reverse current < 0.1 µA
- Very low series inductance down to 0.4 nH

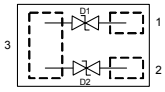
Applications

- USB 2.0, 10/100 Ethernet, Firewire, DVI
- Mobile communication
- Consumer products (STB, MP3, DVD, DSC...)
- LCD displays, camera
- Notebooks and destop computers, peripherals

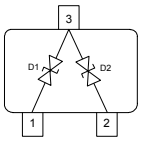
ESD8V0L1B-02LRH



ESD8V0L2B-03L
ESD8V0L2B-03LRH



ESD8V0L2B



Type	Package	Configuration	Marking
ESD8V0L1B-02LRH	TSLP-2-7	1 channel, bi-directional	B3
ESD8V0L2B-03L	TSLP-3-1	2 channels, bi-directional	B3
ESD8V0L2B-03LRH*	TSLP-3-7	2 channels, bi-directional	on request
ESD8V0L2B**	SOT23	2 channels, bi-directional	on request

* Preliminary data
** Target data

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

Parameter	Symbol	Value	Unit
ESD contact discharge[1)]	V_{ESD}		kV
ESD8V0L1B-02LRH		25	
ESD8V0L2B..., between all pins		15	
Peak pulse current (t_p = 8 / 20 µs)[2)]	I_{pp}		A
ESD8V0L1B-02LRH		2.5	
ESD8V0L2B...		1	
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}	-8	-	14	V
Breakdown voltage	$V_{(BR)}$				
$I_{(BR)}$ = 1 mA, from pin 2 to 1, ESD8V0L1B-02LRH		14.5	-	-	
$I_{(BR)}$ = 1 mA, from pin 1 to 2, ESD8V0L1B-02LRH		8.5	-	-	
$I_{(BR)}$ = 1 mA, from pin 1/2 to 3, ESD8V0L2B...		14.5	-	-	
$I_{(BR)}$ = 1 mA, from pin 3 to 1/2, ESD8V0L2B...		8.5	-	-	
$I_{(BR)}$ = 1 mA, from pin 1 to 2, ESD8V0L2B...		23	-	-	
Reverse current	I_R	-	< 1	100	nA
V_R = 3 V, between all pins					
Clamping voltage for ESD8V0L2B...	V_{CL}				V
V_{ESD} = +15 kV (contact)[1)] , from pin 1/2 to 3		-	26	-	
V_{ESD} = -15 kV (contact)[1)] , from pin 1/2 to 3		-	20	-	
Line capacitance[3)]	C_T				pF
V_R = 0 V, f = 1 MHz, ESD8V0L1B-02LRH		-	8.5	13	
V_R = 0 V, f = 1 MHz, ESD8V0L2B...,					
from pin 1/2 to 3		-	4	7	
from pin 1 to 2, pin 3 is not connected		-	2	4	

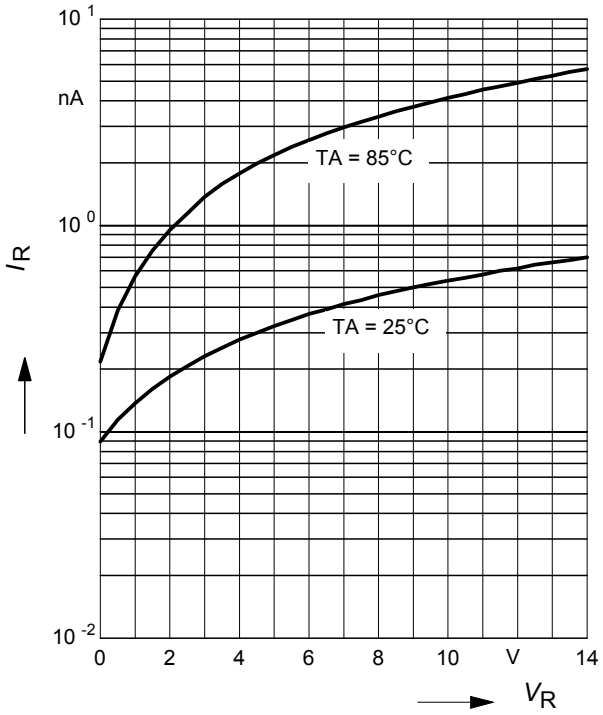
[1] V_{ESD} according to IEC61000-4-2

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

[3] Total capacitance line to ground

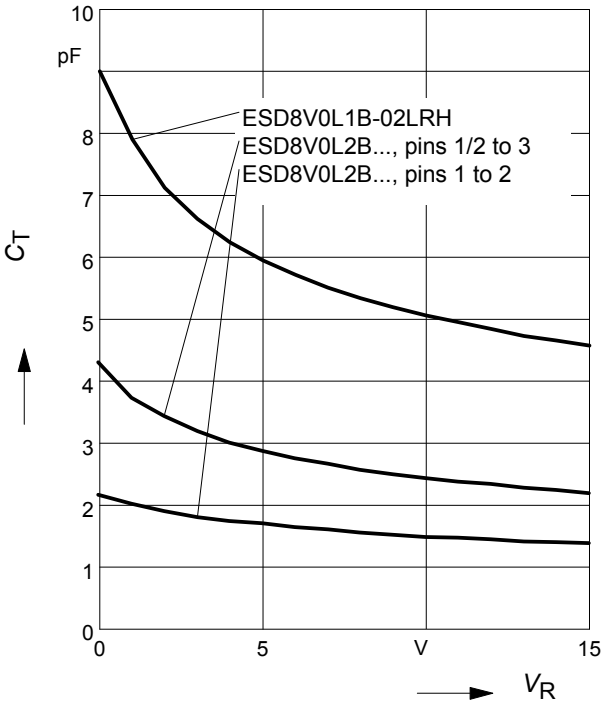
Reverse current $I_R = f(V_R)$

T_A = Parameter

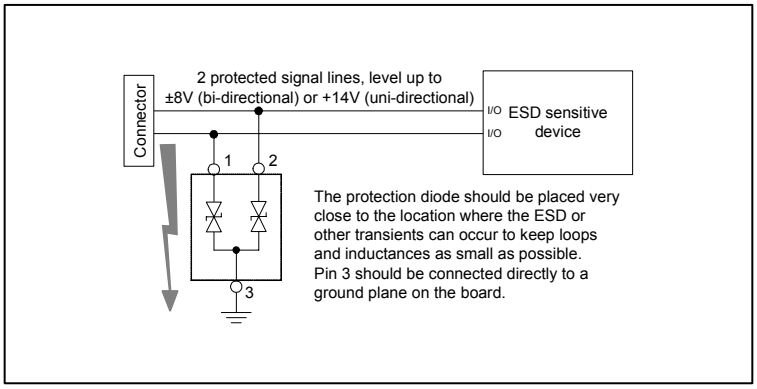


Diode capacitance $C_T = f(V_R)$

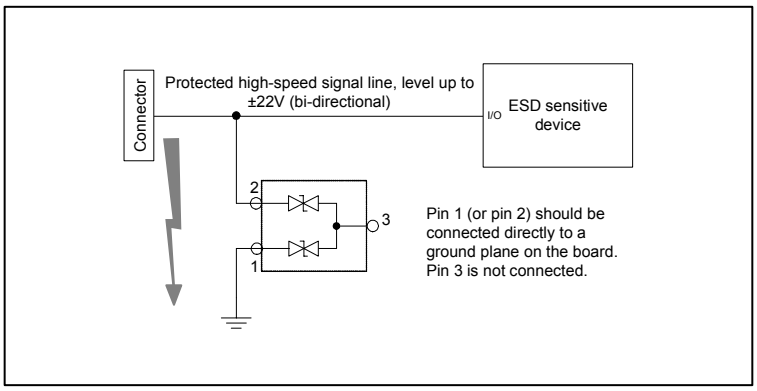
f = 1MHz



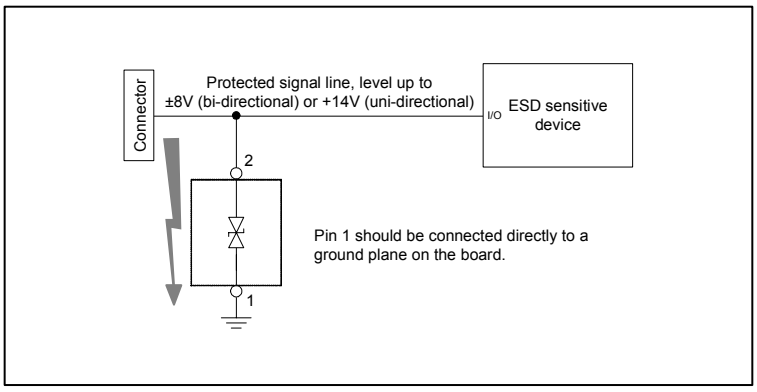
Application example ESD8V0L2B...
2 channels, bi-directional



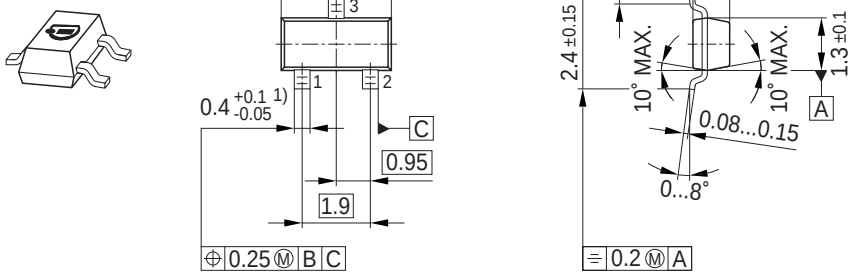
Application example ESD8V0L2B...
1 high-speed channel, bi-directional



Application example ESD8V0L1B-02LRH
1 channel, bi-directional

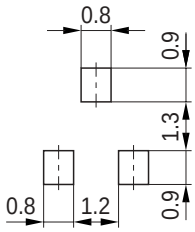


Package Outline

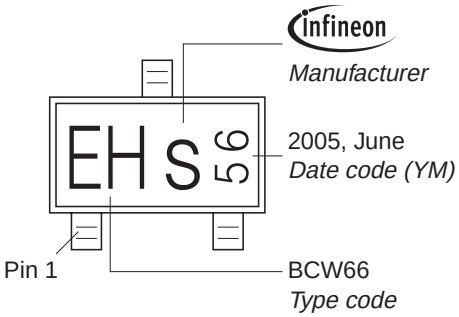


1) Lead width can be 0.6 max. in dambar area

Foot Print

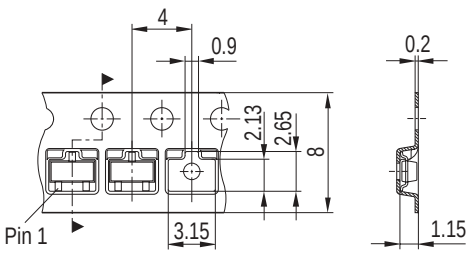


Marking Layout (Example)

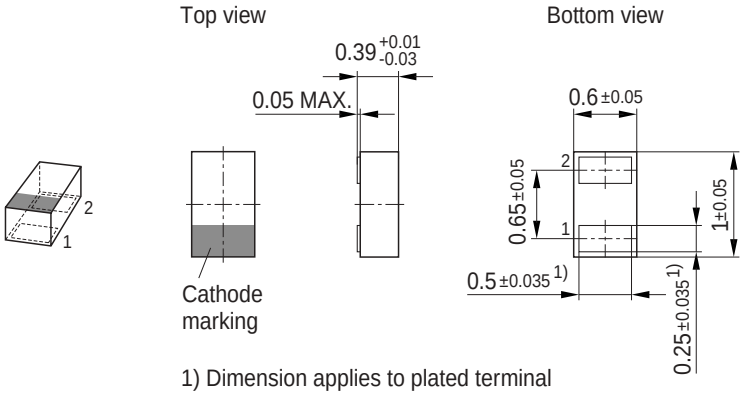


Standard Packing

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



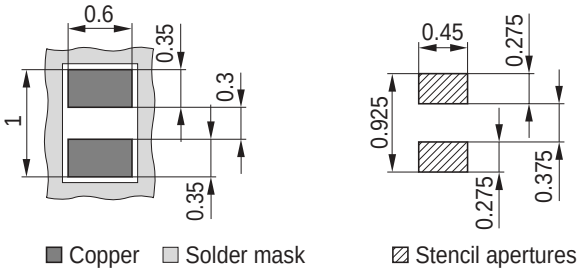
Package Outline



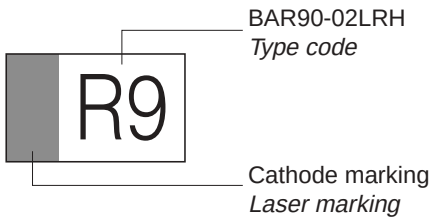
1) Dimension applies to plated terminal

Foot Print

For board assembly information please refer to Infineon website "Packages"

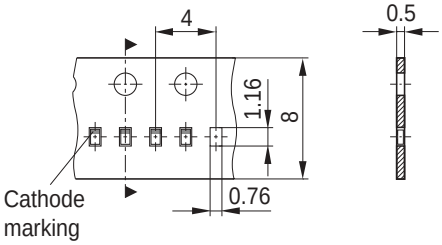


Marking Layout (Example)

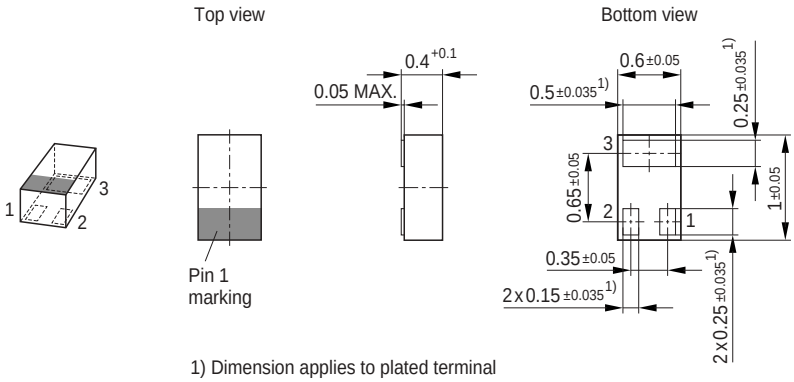


Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel
Reel ø330 mm = 50.000 Pieces/Reel (optional)



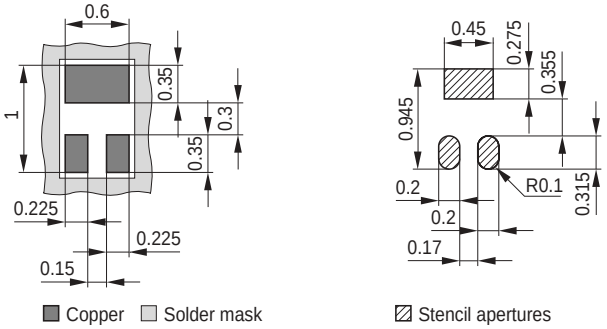
Package Outline



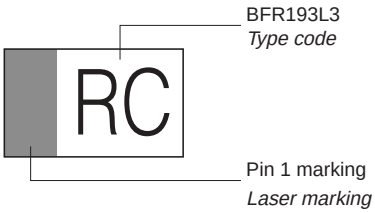
1) Dimension applies to plated terminal

Foot Print

For board assembly information please refer to Infineon website "Packages"

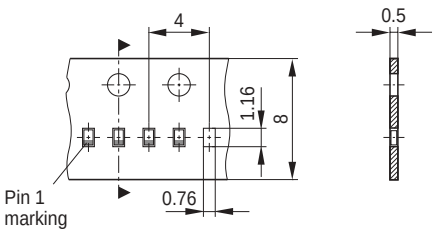


Marking Layout (Example)

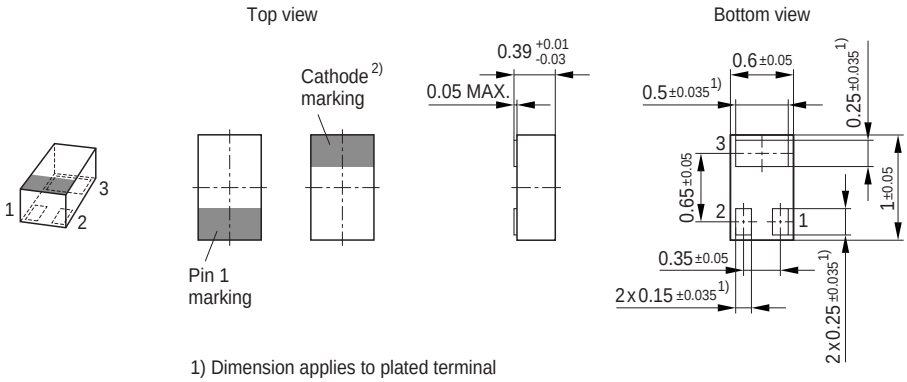


Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



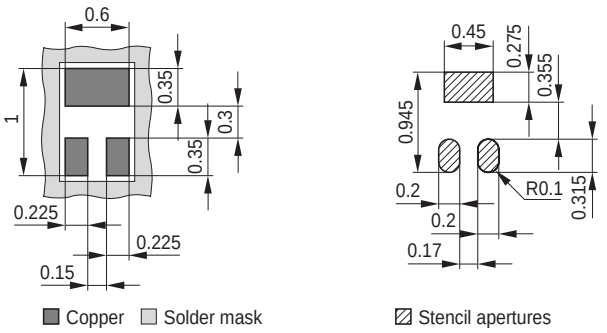
Package Outline



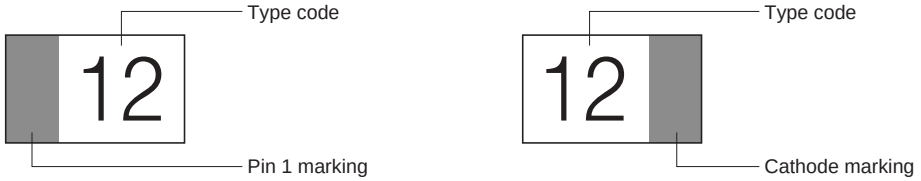
1) Dimension applies to plated terminal
2) Only for diodes, cathode marking on pin 3

Foot Print

For board assembly information please refer to Infineon website "Packages"



Marking Layout



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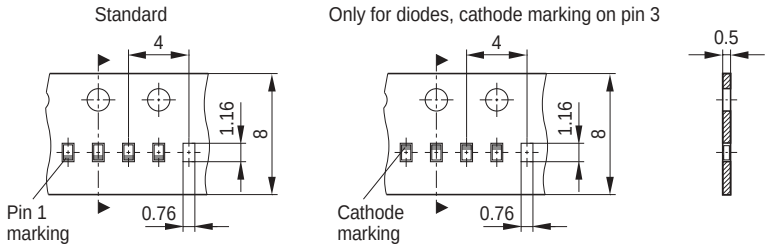

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