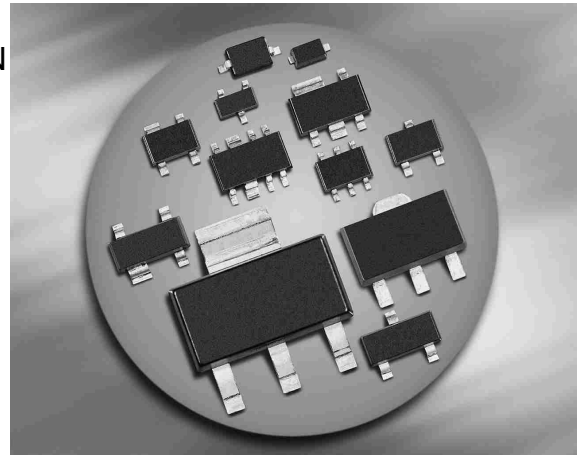
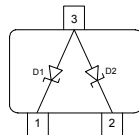
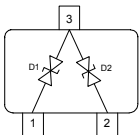


Silicon TVS diodes

- ESD / transient protection of automotive CAN / LIN bus networks / transceivers, industrial bus systems and power supply lines according to:
IEC61000-4-2 (ESD): ± 30 KV (air / contact)
IEC61000-4-4 (EFT): 80 A (5/50 ns)
IEC61000-4-5 (surge): 5 A (8/20 μ s)
ISO7637-2: Pulse 1 (max. 50 V),
Pulse 2 (max. 125 V), Pulse 3a, b
- Max. working voltage: 24 V
- Low capacitance
- Low clamping voltage < 41 V
- Extremely low reverse current < 1 nA typ.
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101


Applications

- Low and High-Speed CAN
- Fault Tolerant CAN
- Industrial control networks
- 12/24 V DC power supply lines


ESD24VS2B
ESD24VS2U


Type	Package	Configuration	Marking
ESD24VS2B	SOT23	2 lines, bi-directional	E2s
ESD24VS2U	SOT23	2 lines, uni-directional	EUs

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}	5	A
Peak pulse power ($t_p = 8 / 20 \mu\text{s}$) ²⁾	P_{pk}	230	W
Operating temperature range	T_{op}	-55...150	°C
Storage temperature	T_{stg}	-65...150	

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

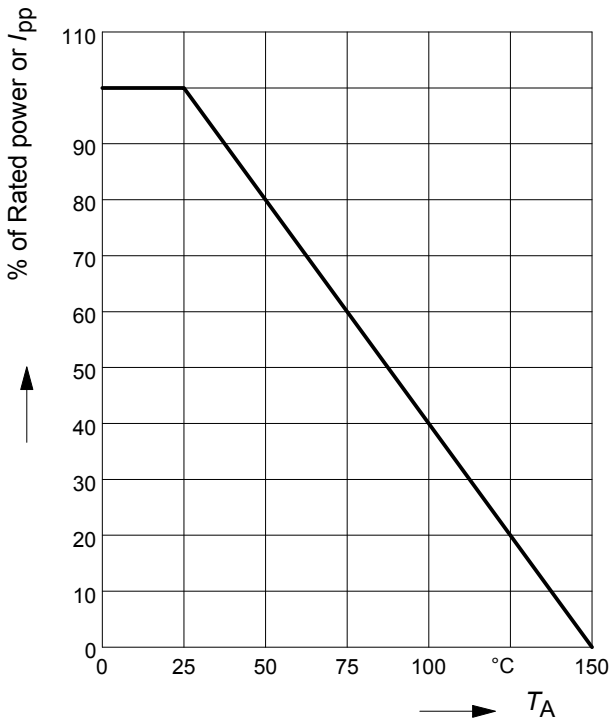
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Characteristics					
Reverse working voltage	V_{RWM}	-	-	24	V
Breakdown voltage $I_{(\text{BR})} = 1 \text{ mA}$	$V_{(\text{BR})}$	26	-	32	
Reverse current $V_R = 24 \text{ V}$	I_R	-	<1	10	nA
Clamping voltage $I_{\text{PP}} = 1 \text{ A}, t_p = 8/20 \mu\text{s}$ ²⁾ $I_{\text{PP}} = 5 \text{ A}, t_p = 8/20 \mu\text{s}$ ²⁾	V_{CL}	-	-	34 41	V
Line capacitance ³⁾ $V_R = 0 \text{ V}, f = 1 \text{ MHz}, \text{ESD24VS2B}$ $V_R = 0 \text{ V}, f = 1 \text{ MHz}, \text{ESD24VS2U}$	C_T	-	24 48	28 52	

¹⁾ V_{ESD} according to IEC61000-4-2. Device stressed with 10 positive / negative ESD pulses.

²⁾ I_{pp} according to IEC61000-4-5. Non-repetitive current pulse.

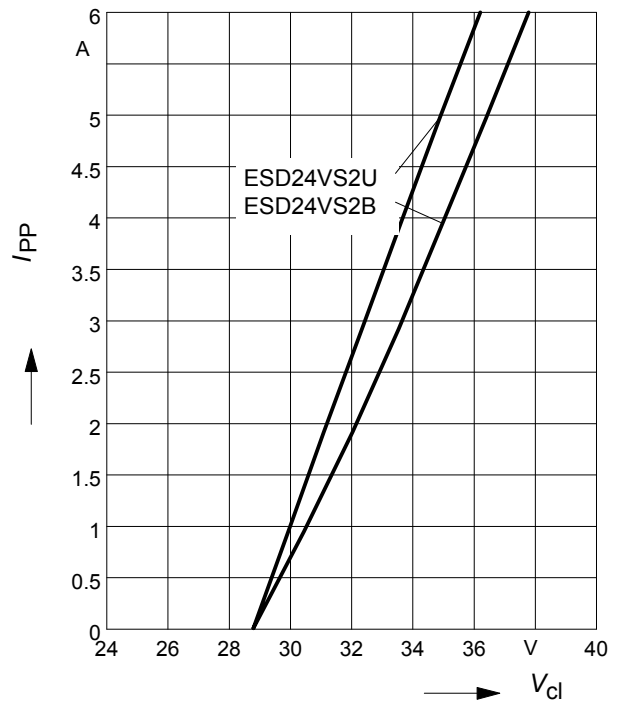
³⁾Total capacitance to ground (per line)

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



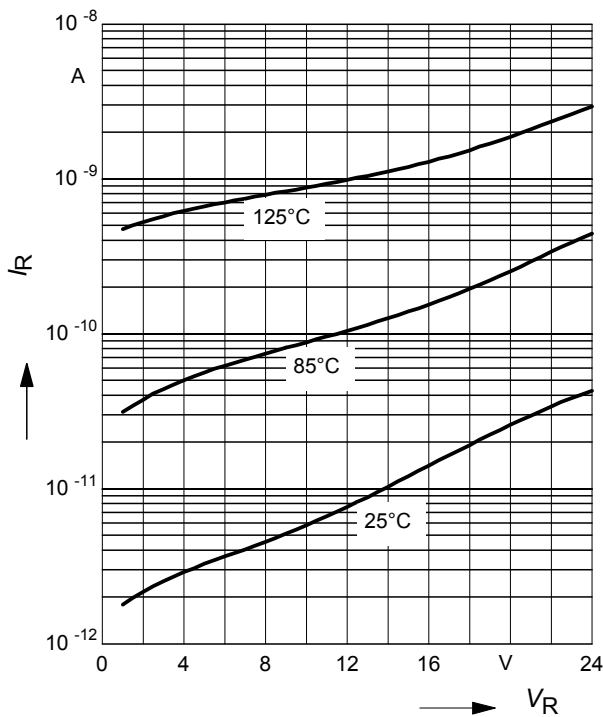
Clamping voltage, $V_{cl} = f(I_{pp})$

$t_p = 8 / 20 \mu s$



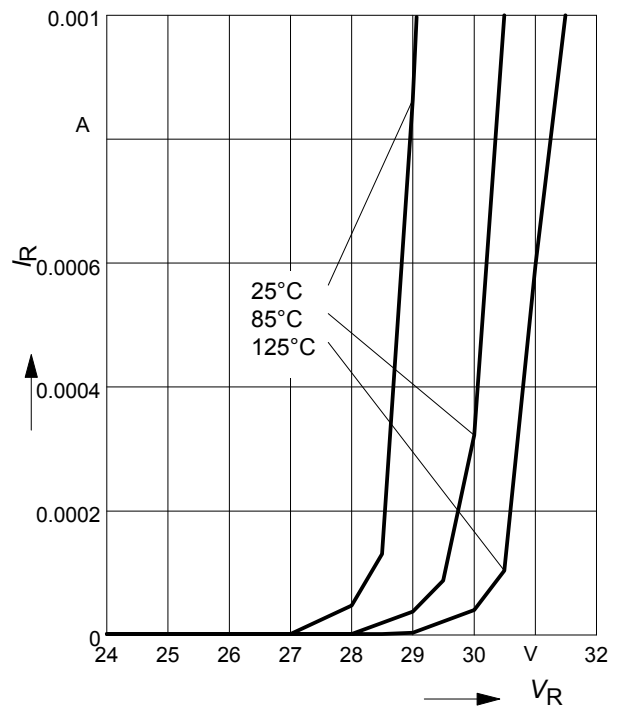
Reverse current $I_R = f(V_R)$

$T_A = \text{Parameter}$



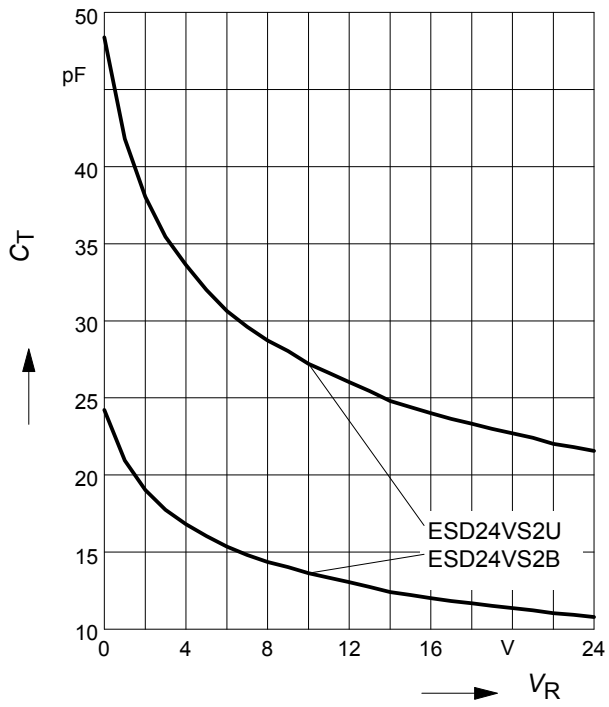
Breakdown voltage $V_{BR} = f(I_R)$

$T_A = \text{Parameter}$



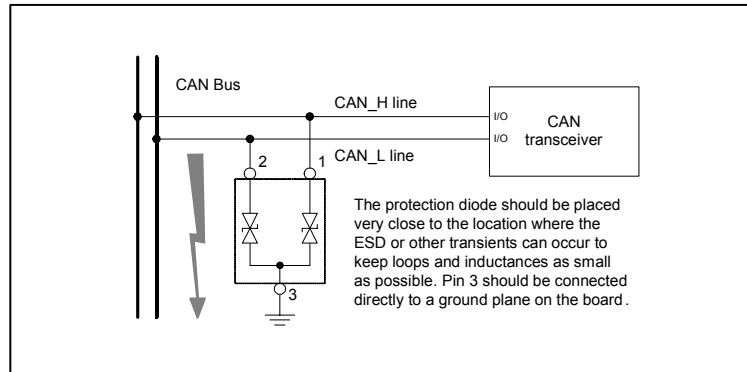
Line capacitance $C_T = f(V_R)$

$f = 1\text{MHz}$



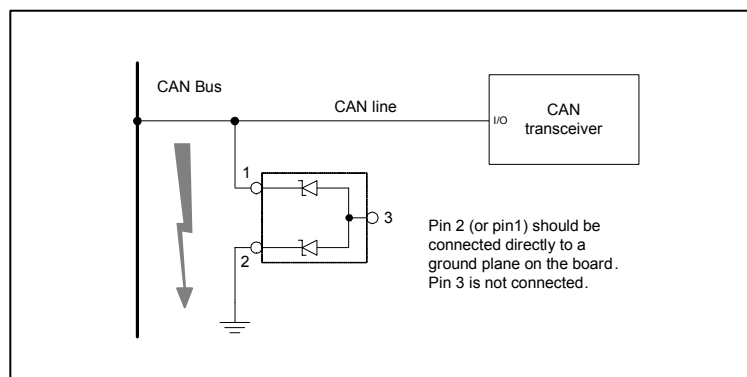
Application example ESD24VS2B

Low / High-Speed and Fault Tolerant CAN protection



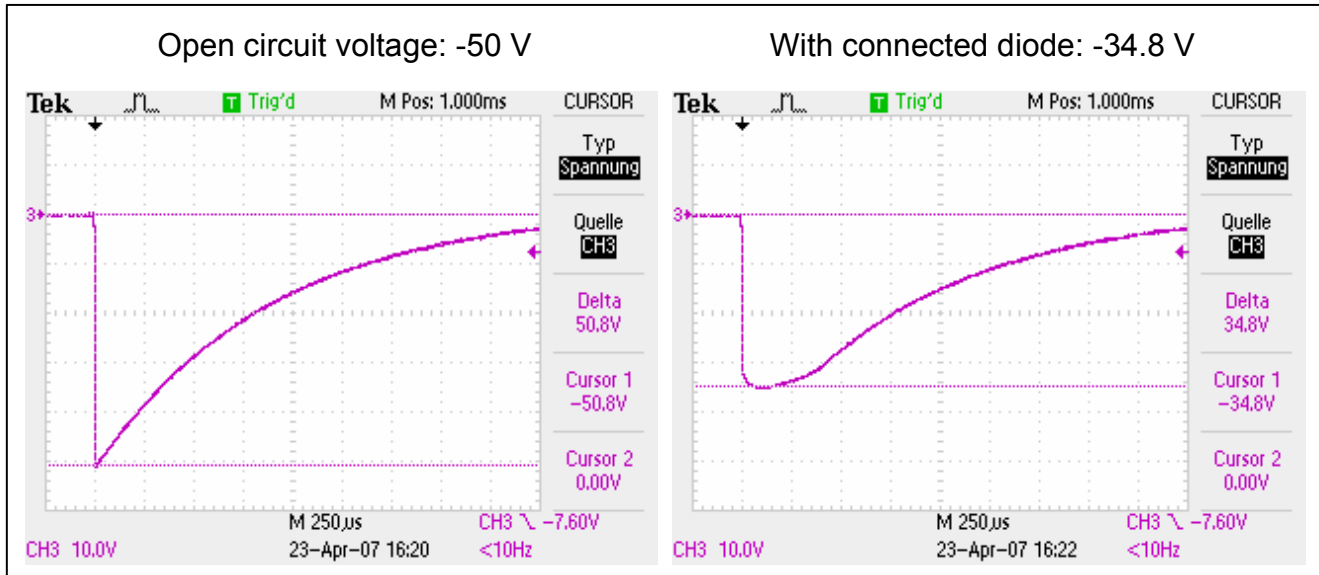
Application example ESD24VS2U

Single Wire CAN and LIN bus protection



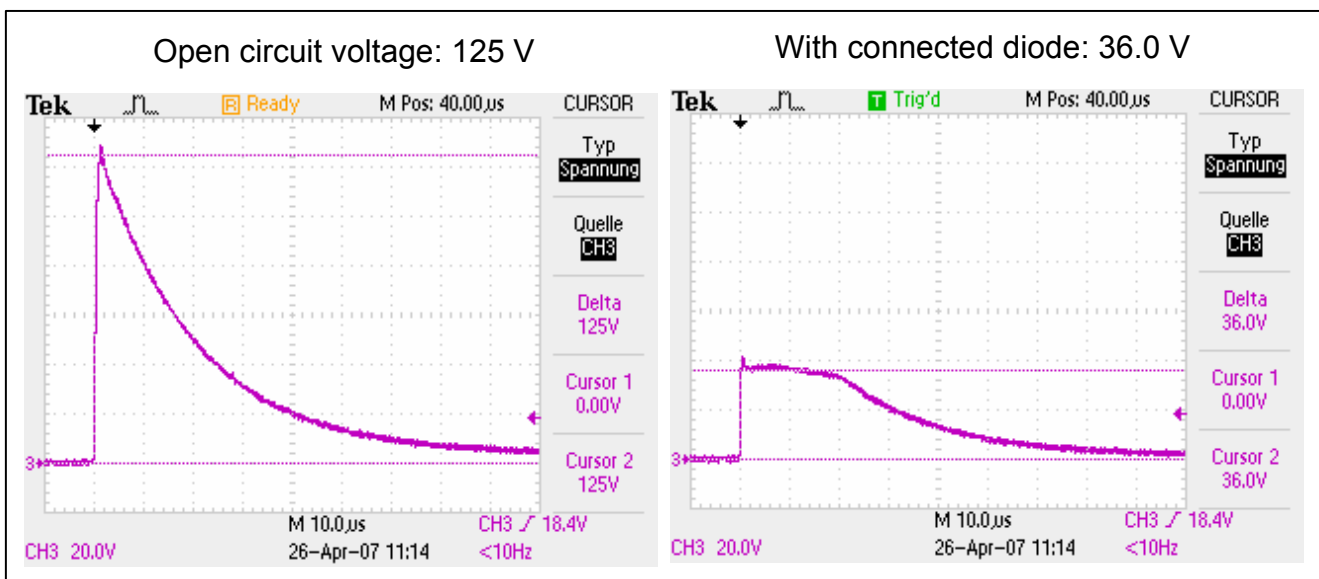
Clamping voltage according to ISO 7637-2: Pulse 1

Ri = 10 Ohm, td = 2 ms, 5000 pulses



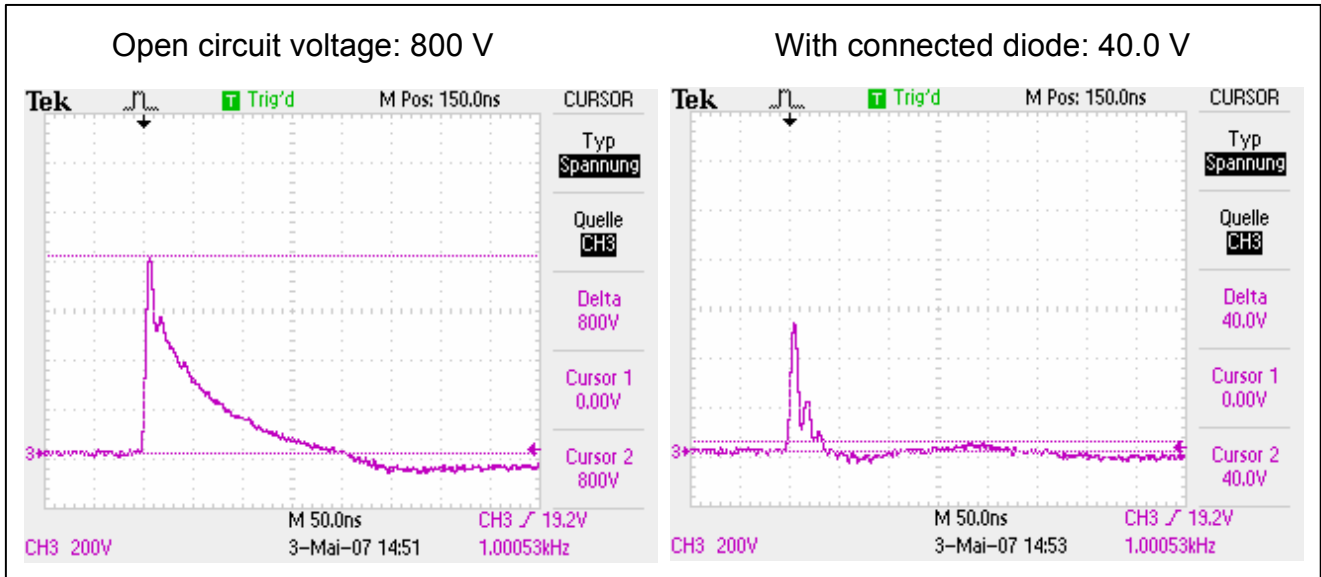
Clamping voltage according to ISO 7637-2: Pulse 2a

Ri = 10 Ohm, td = 2 µs, 4000 pulses, 60 min



Clamping voltage according to ISO 7637-2: Pulse 3

Ri = 50 Ohm, td = 100 ns, 10 min



Package Outline

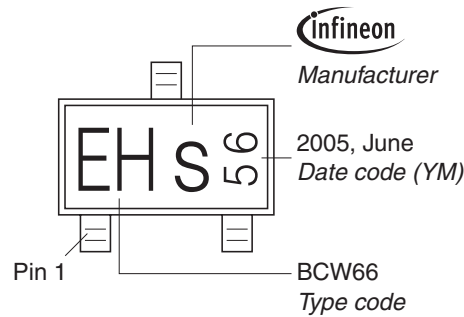


1) Lead width can be 0.6 max. in dambar area

Foot Print

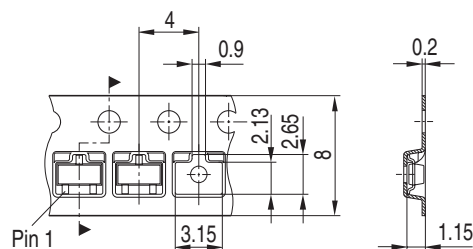


Marking Layout (Example)



Standard Packing

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



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