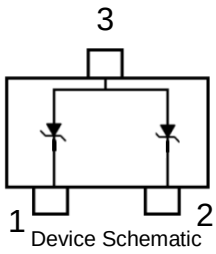
Silicon TVS diodes

- ESD / transient protection of CAN/LIN bus networks 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 (8/20µs)
  ISO7637-2: Pulse 1 (max. 50 V),
  Pulse 2 (max. 125 V), Pulse 3a, b (max.800 V)
- Max. working voltage: 24 V
- Low capacitance: 24 pF typ.
- Low clamping voltage: < 41 V
- Extremely low reverse current: < 1 nA typ.



Device Schematic

Applications

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

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}	5	A
Peak pulse power (t_p = 8 / 20 µs)[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°C, unless otherwise specified

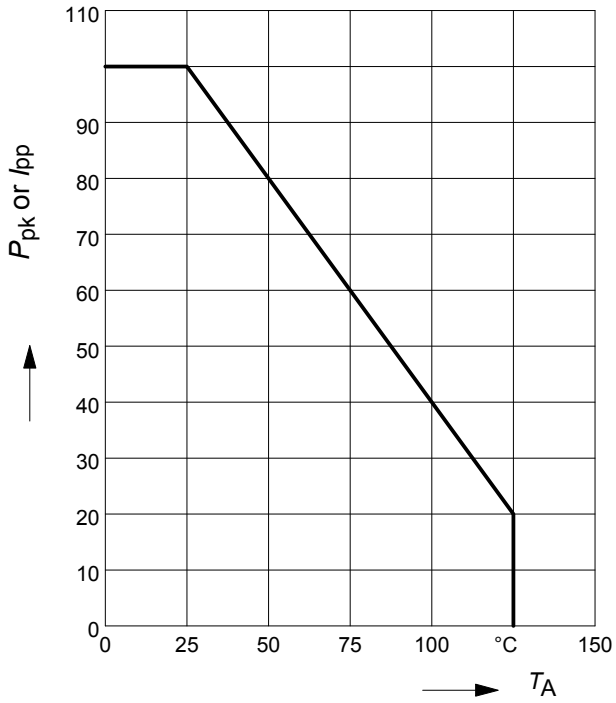
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
Reverse working voltage	V_{RWM}			24	V
Breakdown voltage $I_{(BR)}$ = 1 mA	$V_{(BR)}$	26		32	
Reverse current V_R = 24 V	I_R		<1	10	nA
Clamping voltage	V_{CL}				V
I_{PP} = 1 A, t_p = 8 / 20 µs)[2)]			30	34	
I_{PP} = 5 A, t_p = 8 / 20 µs)[2)]			36	41	
Line capacitance[3)]	C_T				pF
V_R = 0 V, f = 1 MHz, (pins 1 to 2, pin 3 n.c.)			24	28	
V_R = 0 V, f = 1 MHz, (pins 1 or 2 to 3)			48	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.

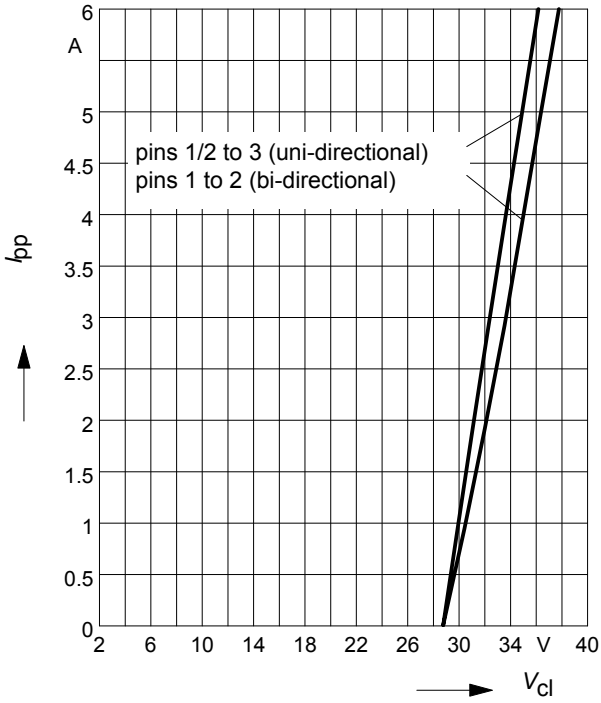
[3] Total capacitance line to ground (per linie)

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



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

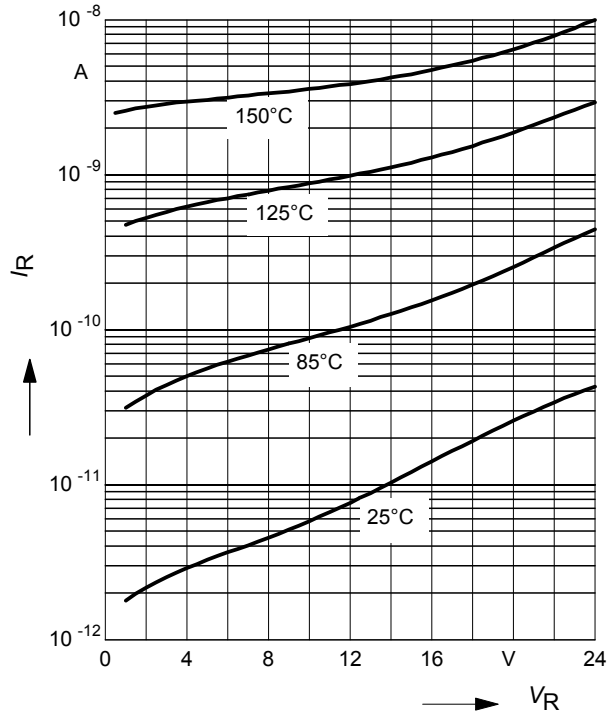
t_p = 8 / 20 µs



Reverse current $I_R = f(V_R)$

T_A = Parameter, pins 1 / 2 to 3

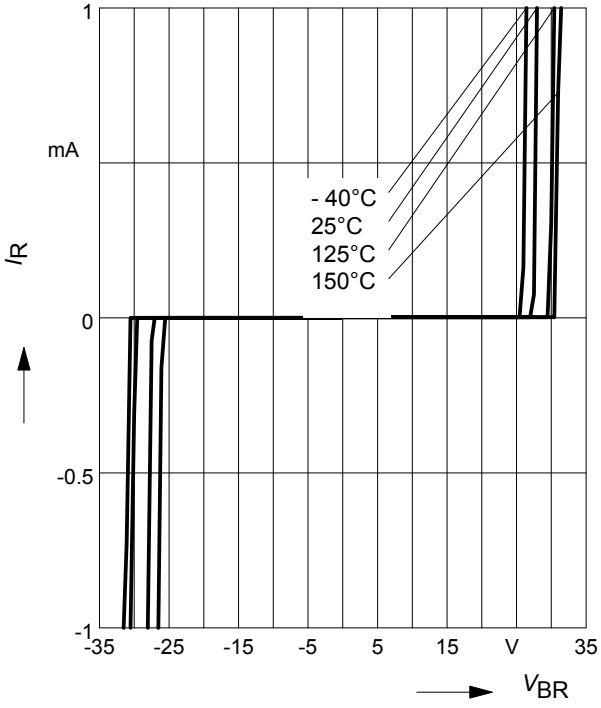
(uni-directional)



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

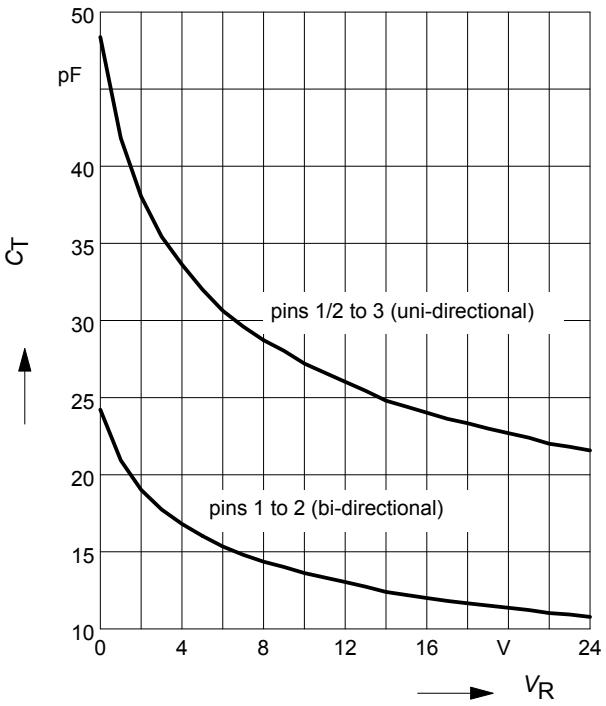
T_A = Parameter, pins 1 to 2

(bi-directional)

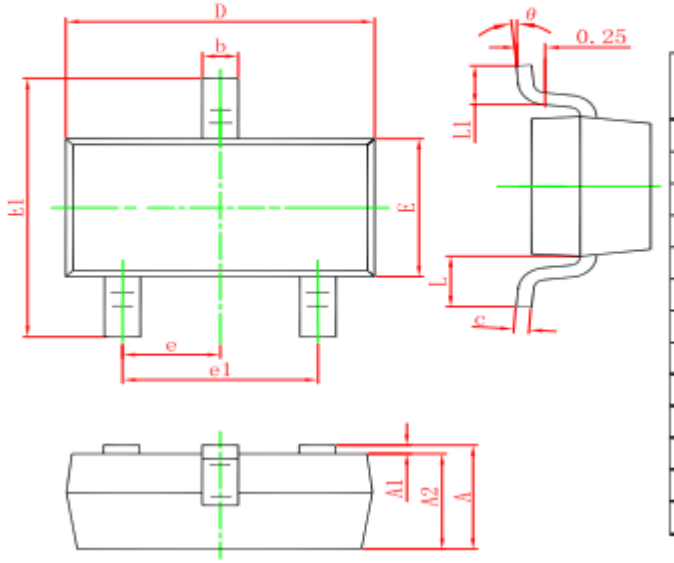


Line capacitance $C_T = f(V_R)$

f = 1MHz



SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Marking

Ordering information

Order code	Package	Baseqty	Deliverymode
UMW ESD24VS2UE6327	SOT-23	3000	Tape and reel