

FEATURES

- Stand-off voltage: 24V Max.
- Transient protection for each line according to IEC61000-4-2 (ESD): $\pm 30\text{kV}$ (contact discharge)
: $\pm 30\text{kV}$ (air discharge)
ISO 10605 (ESD): $\pm 30\text{kV}$ (contact discharge)
IEC61000-4-5 (surge): 5A (8/20 μs)
- Capacitance: $C_J = 14\text{pF}$ typ.
- Low leakage current
- Low clamping voltage: $V_{CL} = 30\text{V}$ typ. @ $I_{PP} = 16\text{A}$ (TLP)
- Solid-state silicon technology
- Device meets MSL 3 requirements
- AEC-Q101 qualified



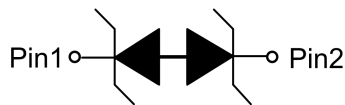
Provide green and environmentally friendly lead-free package

DESCRIPTION

The SITLW24V1BNQ is a bi-directional TVS (Transient Voltage Suppressor) designed to protect automotive Local Interconnect Network (LIN) bus lines from the damage caused by ESD and other transients. The SITLW24V1BNQ is available in SOD-323 package. Standard products are Pb-free and Halogen-free.

Applications:

- LIN bus protection
- Automotive applications

PIN CONFIGURATION

MARKING (TOP VIEW)

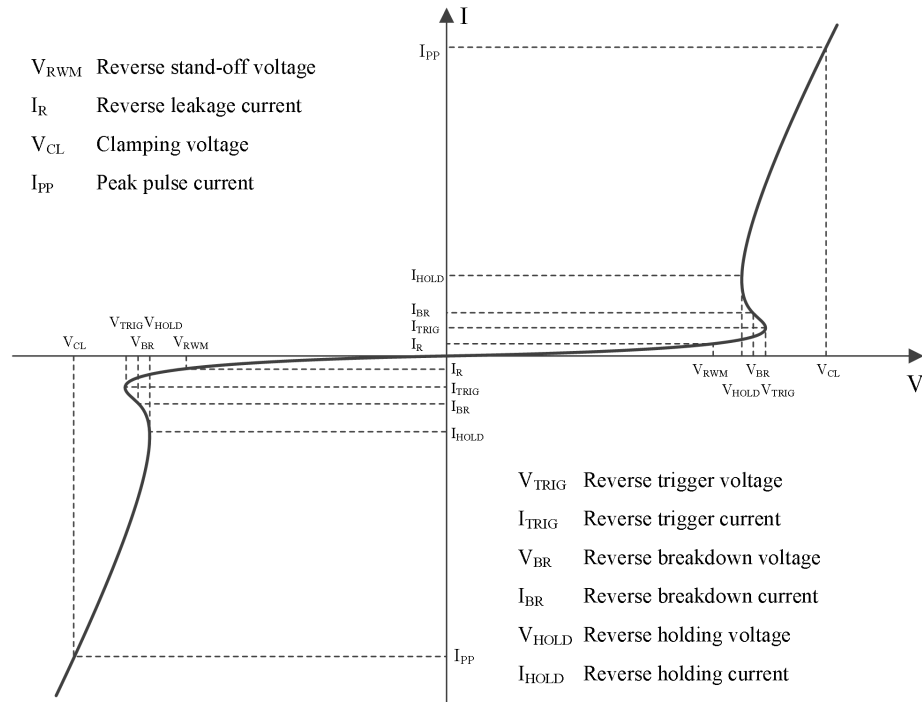

K = Device code

M = Date code (A~Z)

LIMITING VALUES

Parameter	Symbol	Value	Unit
Peak pulse power ($t_p = 8/20\mu s$)	P_{PK}	205	W
Peak pulse current ($t_p = 8/20\mu s$)	I_{PP}	5	A
ESD according to IEC61000-4-2 air discharge	V_{ESD}	± 30	kV
ESD according to IEC61000-4-2 contact discharge		± 30	kV
ESD according to ISO 10605 contact discharge C = 330 pF, R = 330 Ω ; C = 150 pF, R = 330 Ω ; C = 330 pF, R = 2 k Ω ; C = 150 pF, R = 2 k Ω ;		± 30	kV
Junction temperature	T_J	150	$^{\circ}C$
Operating temperature	T_{OP}	-55~150	$^{\circ}C$
Lead temperature	T_L	260	$^{\circ}C$
Storage temperature	T_{STG}	-65~150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS



Definitions of electrical characteristics

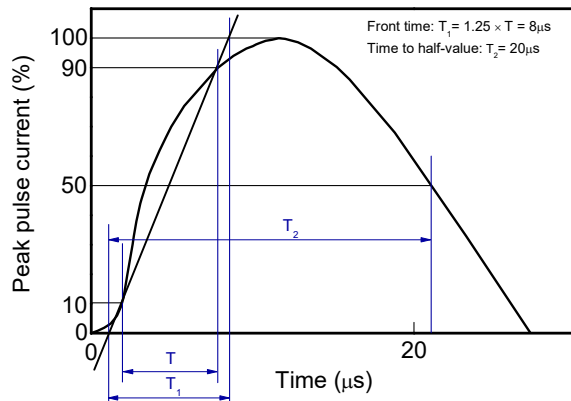
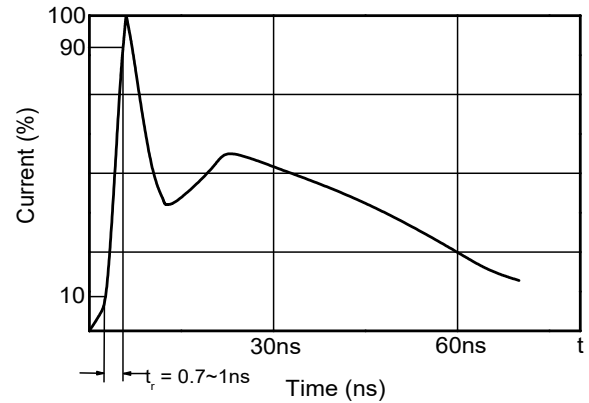
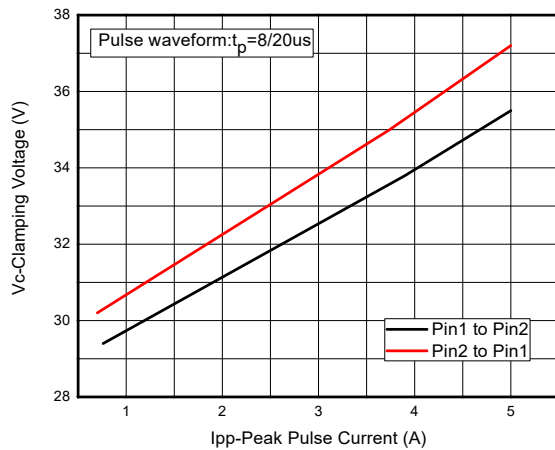
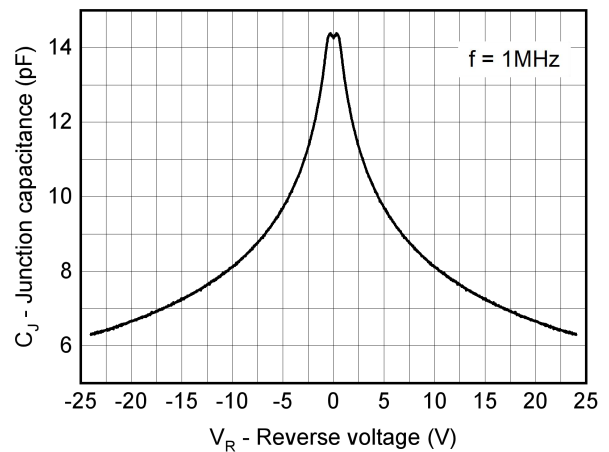
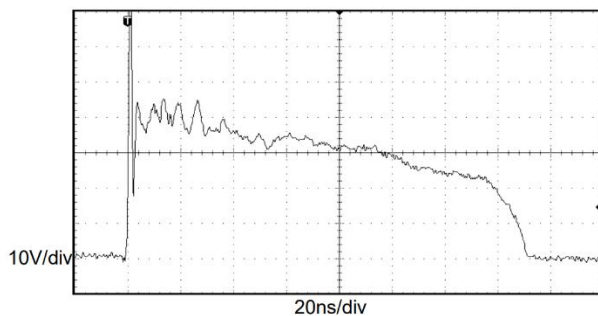
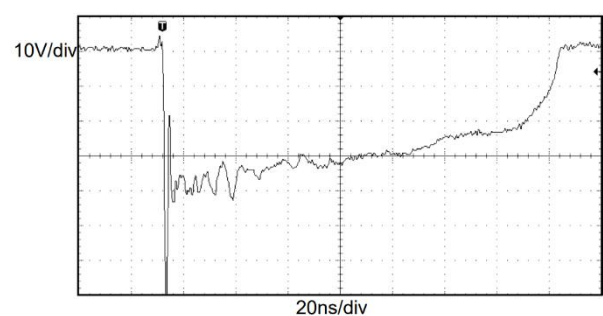
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse maximum working voltage	V_{RWM}				± 24	V
Reverse leakage current	I_R	$V_{RWM} = 24.0V$			50	nA
Reverse breakdown voltage	V_{BR}	$I_T = 1mA$	26			V
Clamping voltage ⁽¹⁾	V_{CL}	$I_{PP} = 16A, t_p = 100ns$		30		V
Clamping voltage ⁽²⁾	V_{CL}	$V_{ESD} = 8kV$		34		V
Clamping voltage ⁽³⁾	V_{CL}	$I_{PP} = 1A, t_p = 8/20\mu s$			34	V
		$I_{PP} = 5A, t_p = 8/20\mu s$			41	V
Dynamic resistance ⁽¹⁾	R_{DYN}			0.22		Ω
Junction capacitance	C_J	$V_R = 0V, f = 1MHz$		14	19	pF

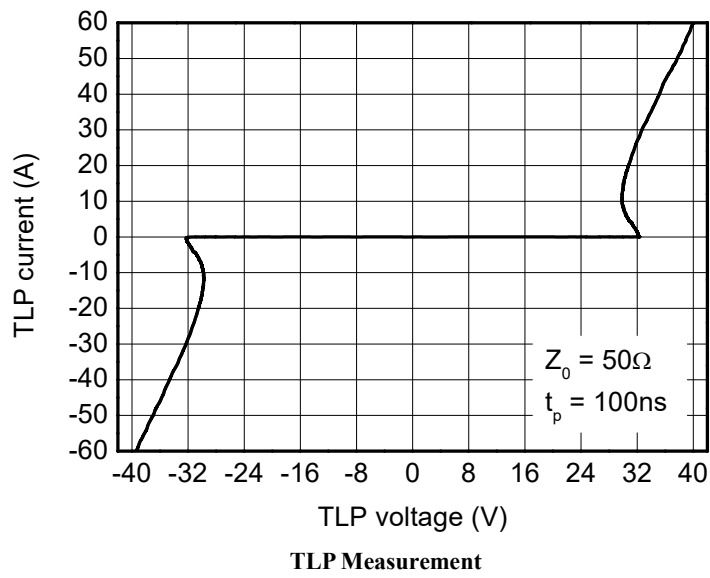
($T_A = 25^\circ C$, unless otherwise noted.)

(1) TLP parameter: $Z_0 = 50\Omega$, $t_p = 100ns$, averaging window from 70ns to 90ns. R_{DYN} is calculated from 20A to 40A.

(2) Contact discharge mode, according to IEC61000-4-2.

(3) Non-repetitive current pulse, according to IEC61000-4-5.

TYPICAL CHARACTERISTICS

8/20 μs waveform per IEC61000-4-5

Contact discharge current waveform per IEC61000-4-2

Clamping voltage vs. Peak pulse current

Capacitance vs. Reverse voltage

ESD clamping
(+8kV contact discharge per IEC61000-4-2)

ESD clamping
(-8kV contact discharge per IEC61000-4-2)

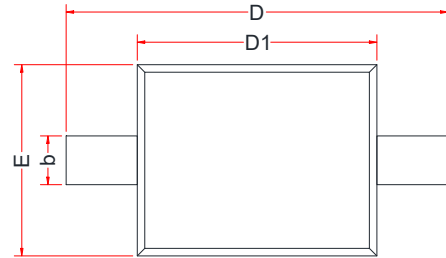




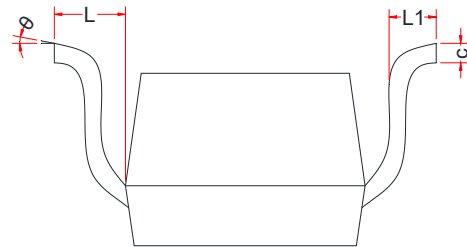
SOD-323 DIMENSIONS

PACKAGE SIZE

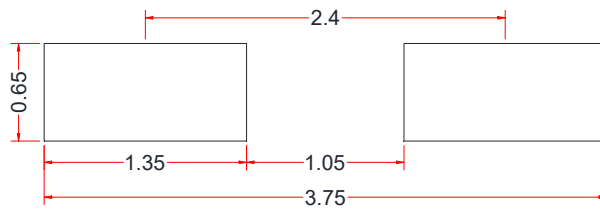
Symbol	Min.	Typ.	Max.
A	-	-	1.00
A1	0.80	-	0.90
A2	0.00	-	0.10
b	0.25	-	0.35
c	0.08	-	0.15
D1	1.60	1.70	1.80
D	2.50	2.60	2.70
E	1.20	1.30	1.40
L	0.475Ref.		
L1	0.25	-	0.40
θ	0°	-	8°



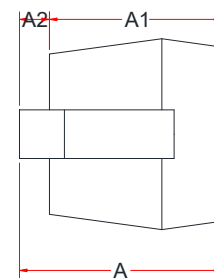
BOTTOM VIEW



SIDE VIEW



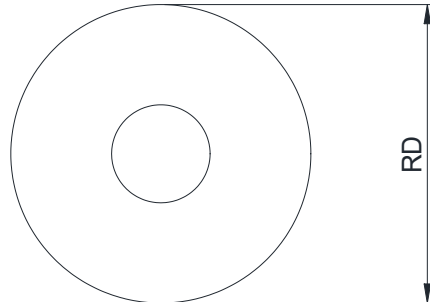
RECOMMENDED LAND PATTERN (Unit:mm)



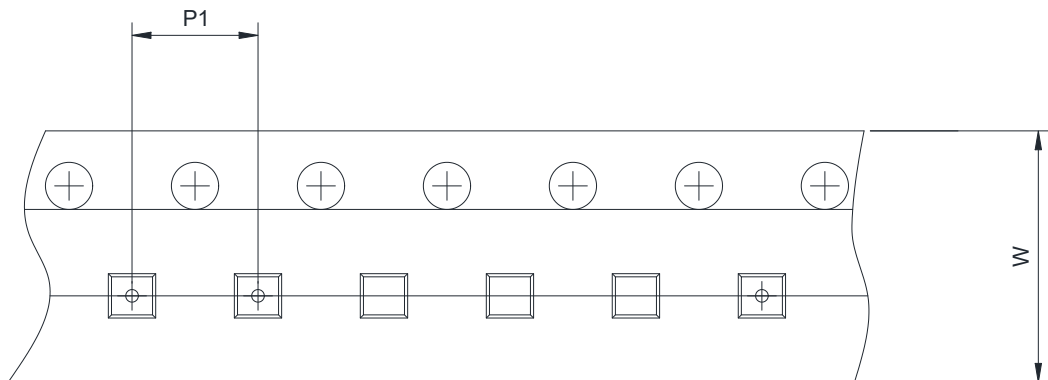
SIDE VIEW

TAPE AND REEL INFORMATION

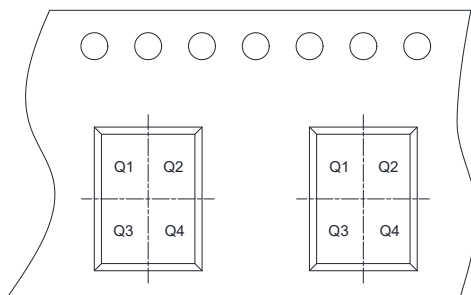
Reel Dimensions



Tape Dimensions



Quadrant Assignments For PIN1 Orientation In Tape




 User Direction of Feed

RD	Reel Dimension	☒ 7inch	☐ 13inch
W	Overall width of the carrier tape	☒ 8mm	☐ 12mm ☐ 16mm
P1	Pitch between successive cavity centers	☐ 2mm	☒ 4mm ☐ 8mm
Pin1	Pin1 Quadrant	☒ Q1	☒ Q2 ☐ Q3 ☐ Q4



ORDERING INFORMATION

TYPE NUMBER	PACKAGE	PACKING
SITLW24V1BNQ-2/TR	SOD-323	Tape and reel

SOD-323 is packed with 3000 pieces/disc in braided packaging.

Important statement

SIT reserves the right to change the above-mentioned information without prior notice.

REVISION HISTORY

Version number	Datasheet status	Revision date
V1.0	Initial version.	June 2025