

Features

- Transient protection for high-speed data lines
 - IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (Air)
 - $\pm 30\text{kV}$ (Contact)
 - IEC61000-4-5 (Lightning) 9.0A (8/20 μs)
- Protects one I/O line (unidirectional)
- Low capacitance: 24pF@0V (Typical) (I/O-I/O)
- Low leakage current: 0.1 μA @ V_{RWM} (Maximum)

Description

TS3001LEX is an capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 24pF only, it is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events.

The TS3001 LEX comes in a RoHS compliant and Halogen Free 2.6mm x 1.3mm x 0.85mm SOD 323 package.

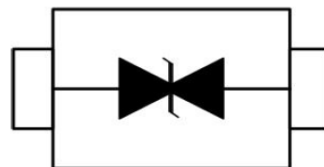
Applications

- Cellular Handsets & Accessories
- Portable devices
- Powerline
- Computer & Notebook

Mechanical Characteristics

- Package: SOD323
- Marking: Part number
- Packaging: Tape and Reel
- ROHScompliant

Pin Configuration



SOD 323
(Top View)

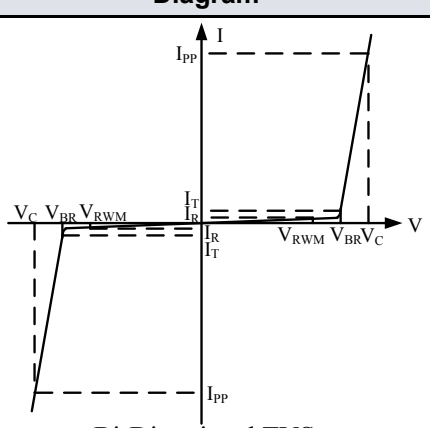
Package Outline



Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20 μ s)	9.0	A
P_{PK}	Peak Pulse Power (8/20 μ s)	500	W
V_{ESD}	ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	± 30 ± 30	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

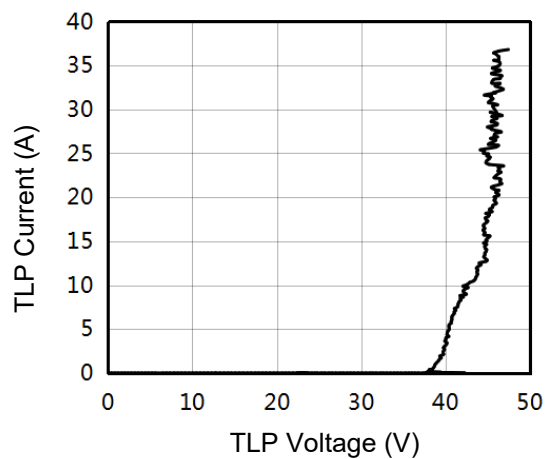
Electrical Characteristics (T = 25°C)

Symbol	Parameter	Diagram
V_{RWM}	Nominal Reverse Working Voltage	
I_R	Reverse Leakage Current @ V_{RWM}	
V_{BR}	Reverse Breakdown Voltage @ I_T	
I_T	Test Current for Reverse Breakdown	
V_C	Clamping Voltage @ I_{PP}	
I_{PP}	Maximum Peak Pulse Current	
C_{ESD}	Parasitic Capacitance	

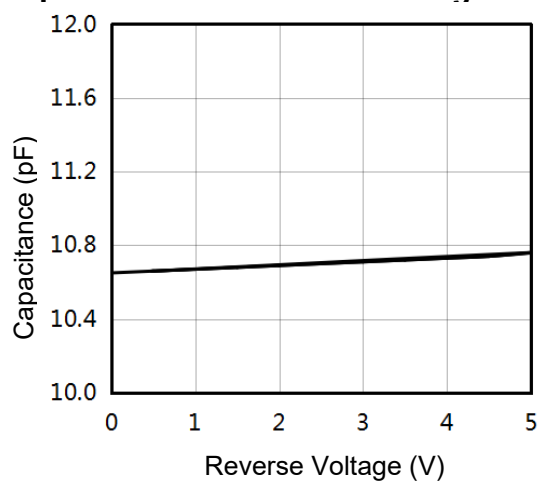
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				30	V
I_R	$V_{RWM} = 30V$, T = 25°C Between I/O and I/O			0.1	μA
V_{BR}	$I_T = 1mA$ Between I/O and I/O	35		42	V
V_C	$I_{PP} = 1A$, $t_p = 8/20\mu s$ Between I/O and I/O		42	45	V
V_C	$I_{PP} = 9A$, $t_p = 8/20\mu s$ Between I/O and I/O		53	55	V
C_{ESD}	$V_R = 0V$, f = 1MHz Between I/O and I/O		24		pF

Typical Performance Characteristics

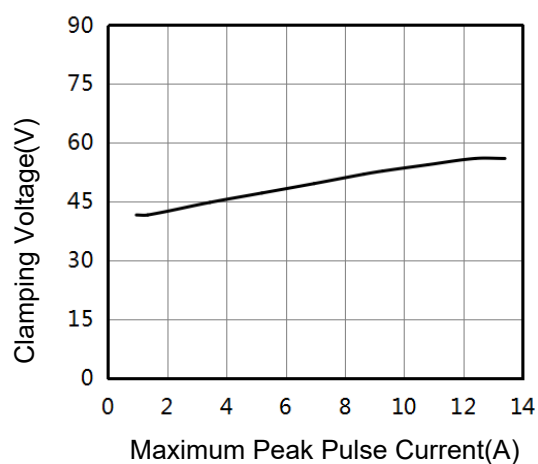
TLP Measurement of I/O to I/O



Capacitance vs Reverse Voltage I/O to I/O

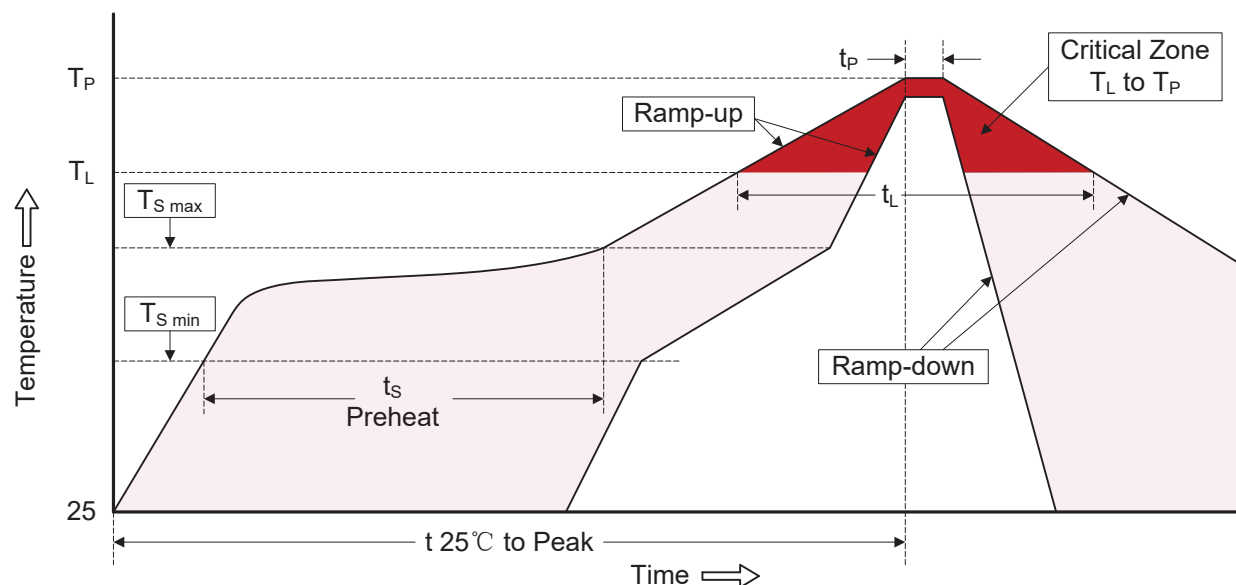


8/20us Current I/O to I/O



Recommended Soldering Conditions

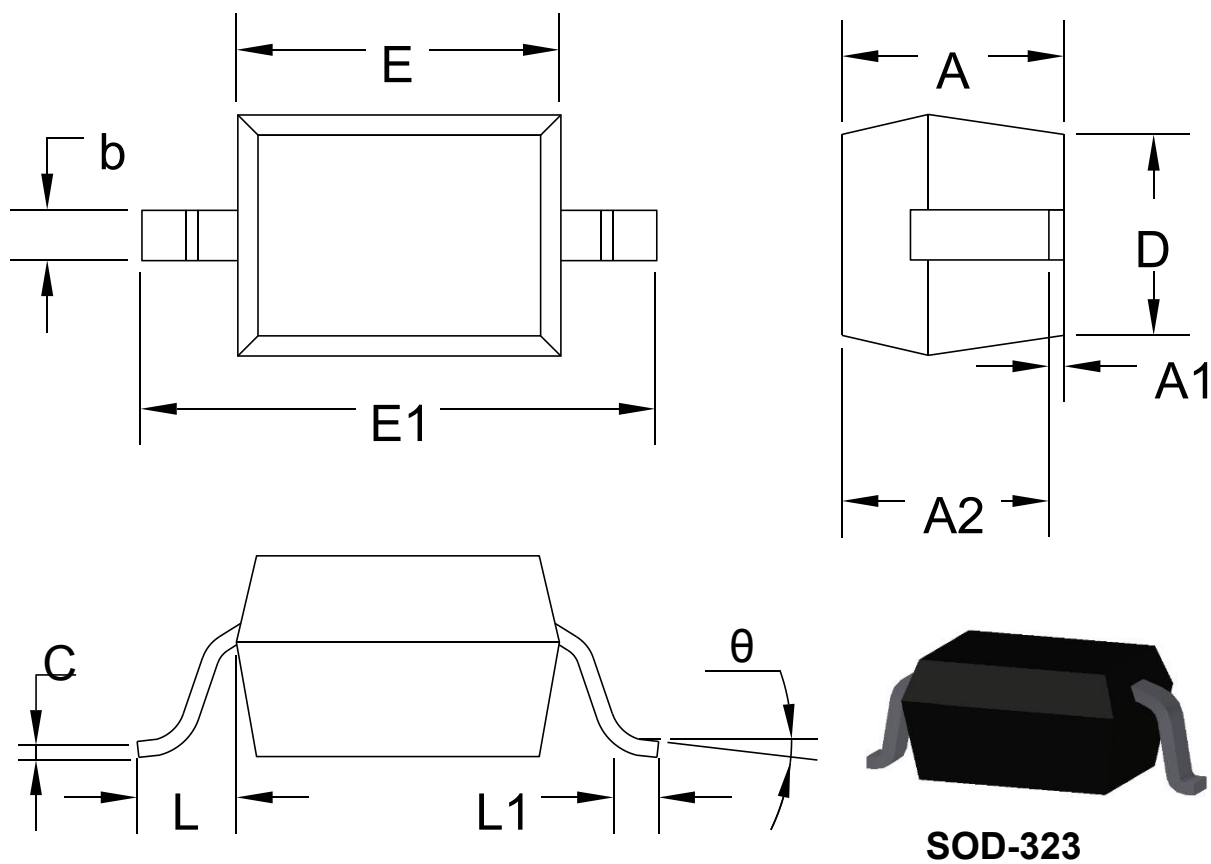
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

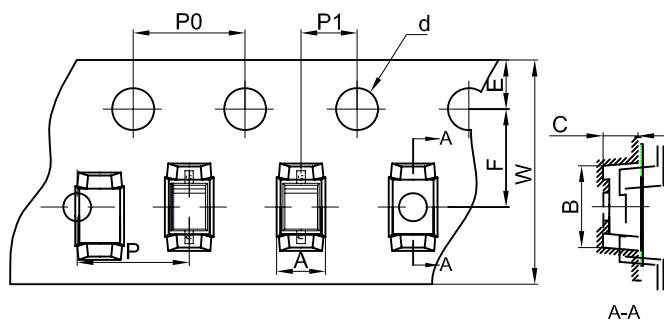
Package Outline, SOD-323



SOD-323

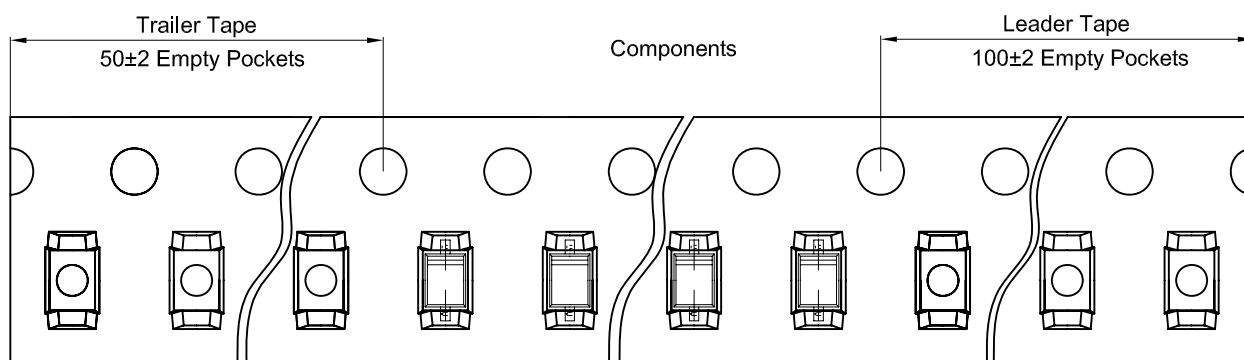
Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
C	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

Tape and Reel Specification

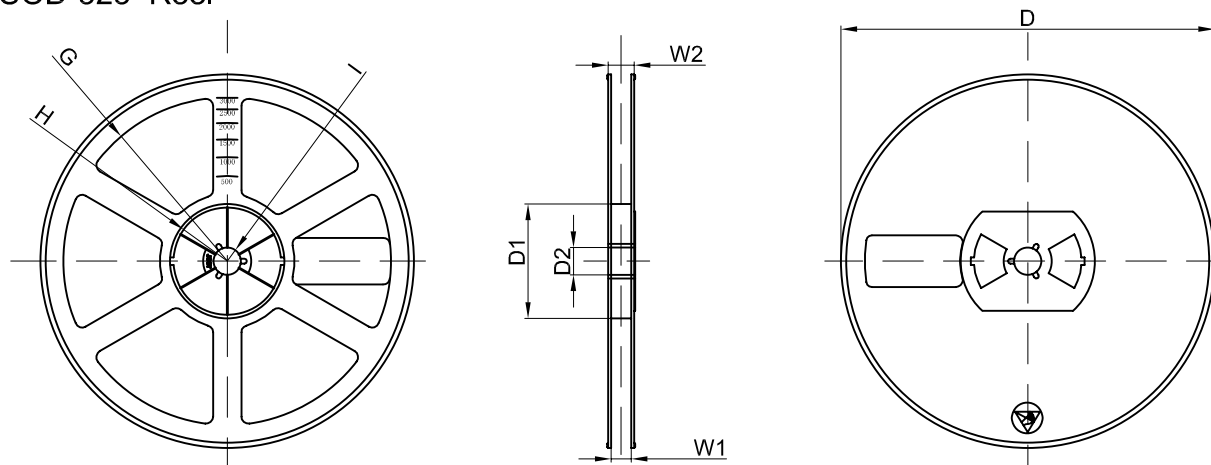


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-323	1.46	2.90	1.25	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
(Tolerance)	+/-0.05	+/-0.05	+/-0.05	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

SOD-323 Tape Leader and Trailer



SOD-323 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1	+/-1

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

Marking Codes



(1) "IXXY" is part number, fixed .

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS3001LEX	30V	3000	7 Inch