

Features

- ❑ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air),
 $\pm 30\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 80A (5/50ns)
- ❑ Peak Pulse Current($t_p=8/20\mu\text{s}$) 175A
- ❑ Protects one I/O line (bidirectional)
- ❑ Working voltages : 4.5V
- ❑ Low leakage current

Description

The TS0421LE is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

This series has been specifically designed to protect sensitive components which are connected to power data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

Applications

- ❑ Cell Phone Handsets and Accessories
- ❑ Microprocessor based equipment
- ❑ Personal Digital Assistants (PDA's)
- ❑ Notebooks, Desktops, and Servers
- ❑ Portable Instrumentation
- ❑ Networking and Telecom
- ❑ Serial and Parallel Ports.
- ❑ Peripherals

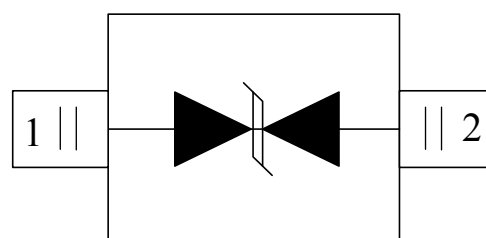
Mechanical Characteristics

- ❑ SOD-323 package
- ❑ Flammability Rating: UL 94V-0
- ❑ Packaging: Tape and Reel
- ❑ High temperature soldering guaranteed: $260^\circ\text{C}/10\text{s}$
- ❑ Reel size: 7 inch

Circuit Diagram



Pin Configuration



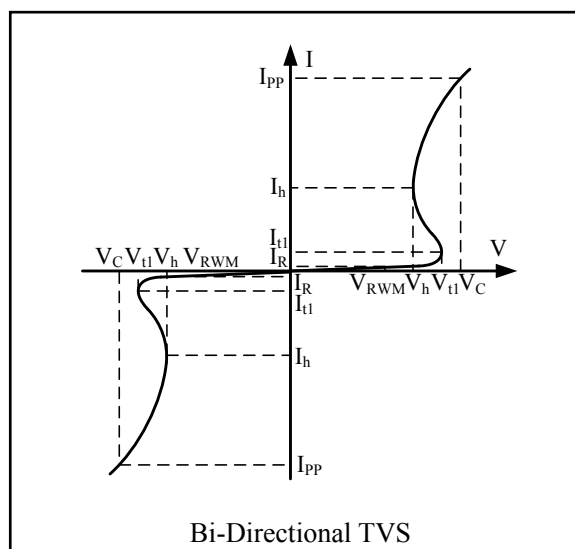
SOD-323
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 30 ± 30	kV
I_{PP}	Peak Pulse Current(8/20us)	175	A
T_{OPT}	Operating Temperature	-55/+150	°C
T_{STG}	Storage Temperature	-55/+150	°C
T_L	Lead Soldering Temperature	260 (10 sec.)	°C

Electrical Characteristics (T = 25°C)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
V_{CR}	Reverse Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
C_{ESD}	Parasitic Capacitance



Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				4.5	V
I_R	$V_{RWM} = 4.5V, T = 25^\circ C$		0.01	0.1	μA
V_{t1}	$I_{t1} = 1\mu A$	5.3	5.6	6.0	V
V_h	$I_h = 5mA$	5.0		5.5	V
V_C	$I_{PP} = 1A, t_p = 8/20\mu s$			6.0	V
V_C	$I_{PP} = 40A, t_p = 8/20\mu s$			8.5	V
V_C	$I_{PP} = 150A, t_p = 8/20\mu s$			15.0	V
C_{ESD}	$V_R = 0V, f = 1MHz$		245	300	pF

Typical Characteristics

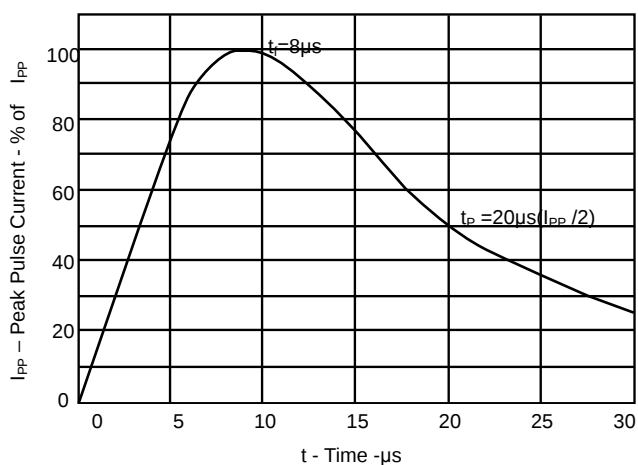


Fig 1. Pulse Waveform

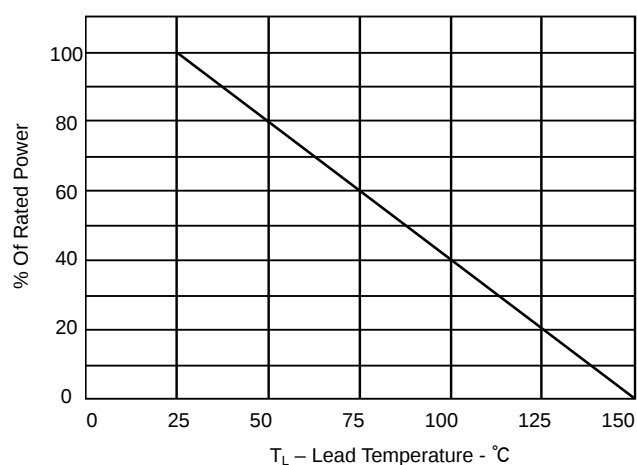


Fig 2. Power Derating Curve

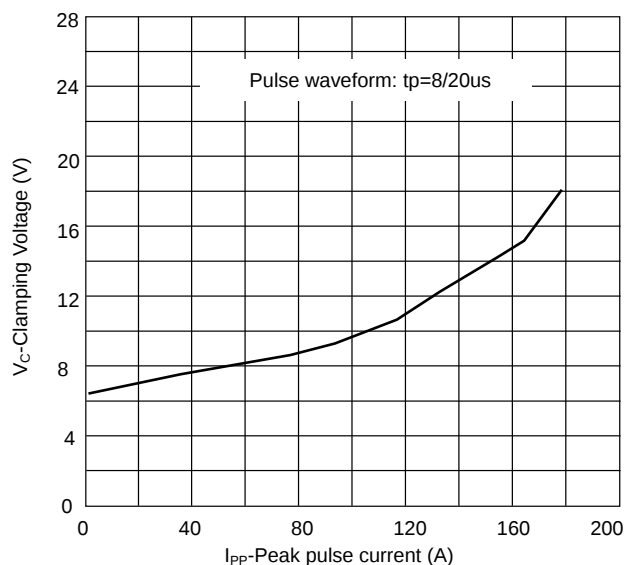


Fig 3. Clamping voltage vs. Peak pulse current

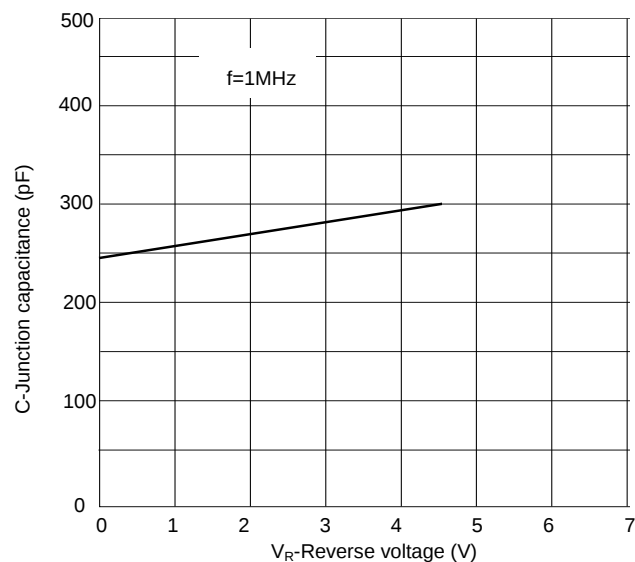


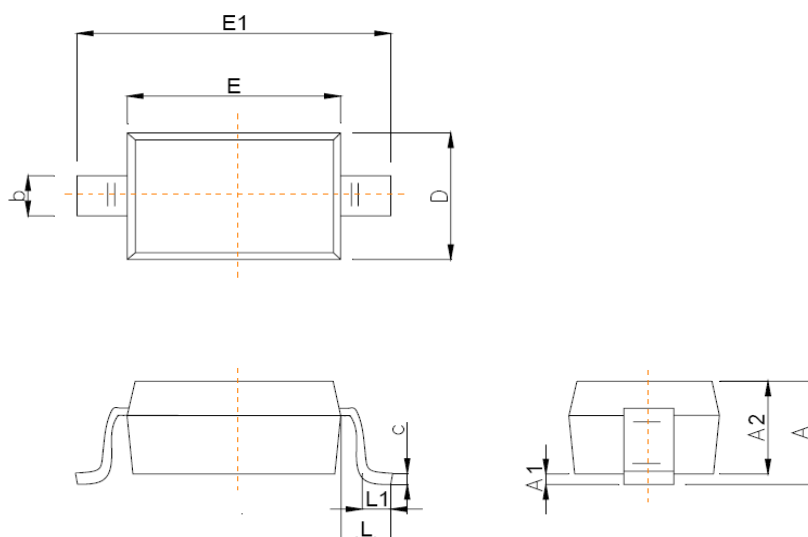
Fig 4. Capacitance vs. Reverse voltage

Package Outline

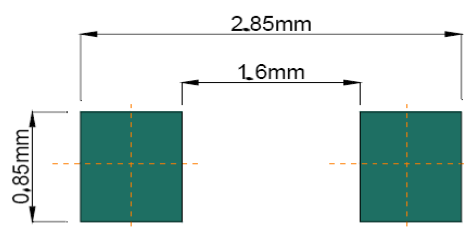
□ SOD-323 package



Package Outline Dimensions

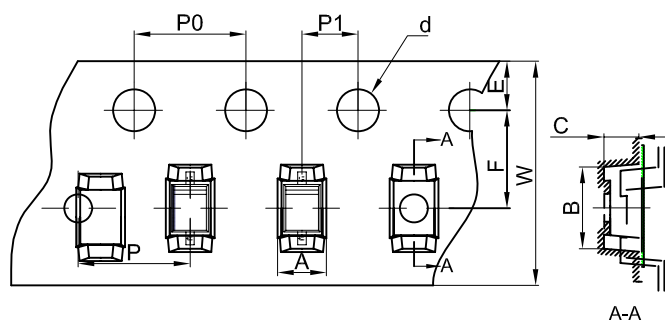


Symbol	Dimensions In Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°



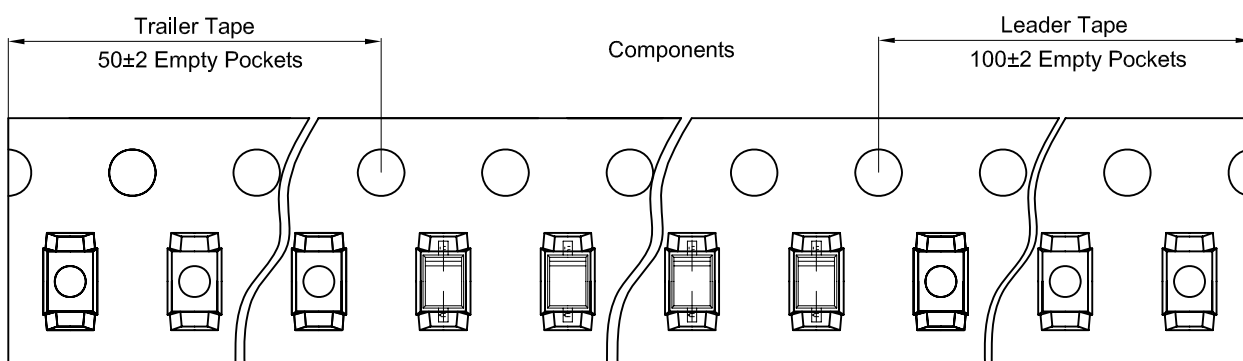
Recommended Pad outline

Tape and Reel Specification

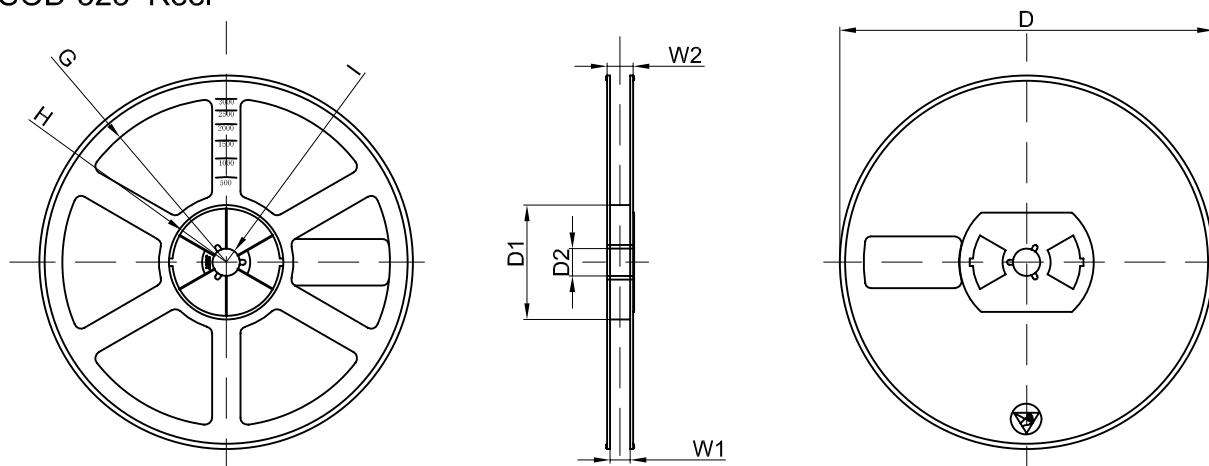


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-323	1.46	2.90	1.25	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
(Tolerance)	+/-0.05	+/-0.05	+/-0.05	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

SOD-323 Tape Leader and Trailer

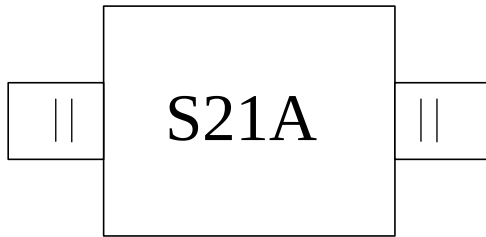


SOD-323 Reel



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

Note:

- (1) "S21A" is part number, fixed
- (2) no cathode line and date code

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS0421LE	4.5V	3,000	7 Inch