

## Features

- ❑ IEC61000-4-2 (ESD)            +/-30kV (air),  
   +/-30KV(contact)
- IEC61000-4-4 (EFT) 80A (5/50 ns)
- ❑ Peak Pulse Current(tp=8/20us) 25A
- ❑ Protects one I/O line
- ❑ Working voltages : 12.0V
- ❑ Low leakage current

## Description

The TS1231LKX 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).

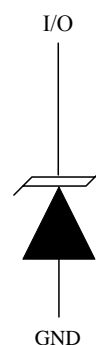
## Applications

- ❑ 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

- ❑ SOD123 package
- ❑ Flammability Rating: UL 94V-0
- ❑ Packaging: Tape and Reel
- ❑ High temperature soldering guaranteed:260°C/10s
- ❑ Reel size: 7 inch
- ❑ ROHS compliant
- ❑ MSL-3

## Circuit Diagram



## Pin Configuration



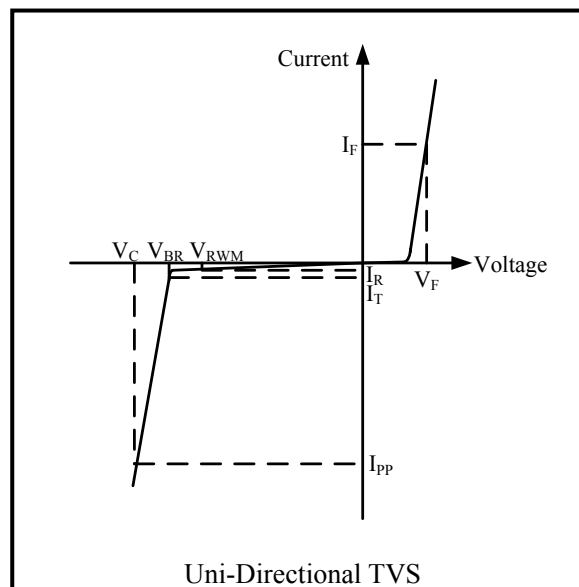
SOD123  
(Top View)

## Absolute Maximum Rating

Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$\pm 30$ $\pm 30$	kV
$I_{PP}$	Peak Pulse Current(8/20us)	25	A
$T_{OPT}$	Operating Temperature	-55/+150	°C
$T_{STG}$	Storage Temperature	-55/+150	°C
$T_L$	Lead Soldering Temperature	260 (10 sec.)	°C

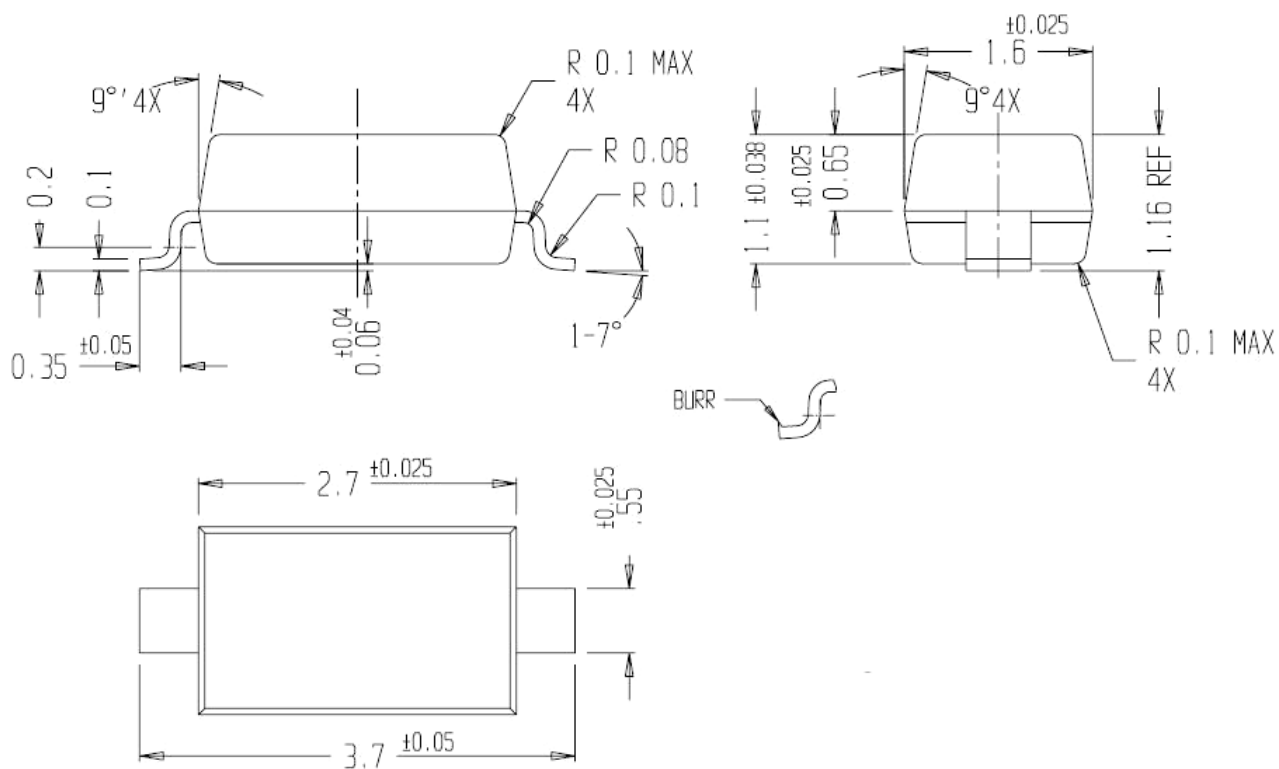
## Electrical Characteristics (T = 25°C)

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

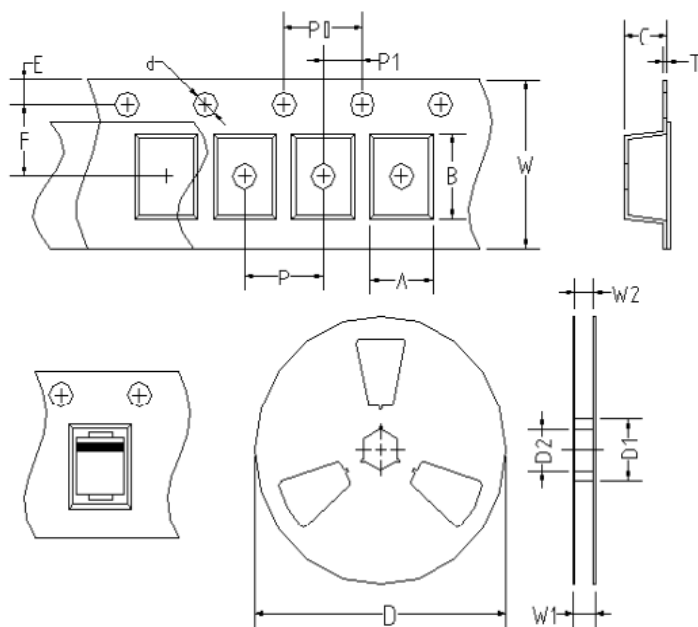


Symbol	Test Condition	Minimum	Typical	Maximum	Units
$V_{RWM}$				12.0	V
$I_R$	$V_{RWM} = 12.0V, T = 25^\circ C$		0.01	0.1	$\mu A$
$V_{BR}$	$I_T = 1mA$	13.3			V
$V_F$	$I_T = 1mA$			0.9	V
$V_C$	$I_{PP} = 1A, t_p = 8/20\mu s$			15.0	V
$V_C$	$I_{PP} = 5A, t_p = 8/20\mu s$			19.0	V
$V_C$	$I_{PP} = 25A, t_p = 8/20\mu s$			30.0	V
$C_{ESD}$	$V_R = 0V, f = 1MHz$			250	pF

## Package Outline Demensions



## Tape and Reel Specification



REF	mm	inch
A	2.05±0.10	0.080±0.003
B	3.85±0.10	0.151±0.003
C	1.45±0.10	0.057±0.003
d	1.55±0.10	0.061±0.003
D	177.8±1.0	6.999±0.039
D1	20±1.0	0.787±0.039
D2	13.0±1.0	0.511±0.039
E	1.75±0.10	0.068±0.003
F	3.50±0.05	0.137±0.002
P	4.00±0.10	0.157±0.003
P0	4.00±0.10	0.157±0.003
P1	2.00±0.10	0.078±0.003
T	0.20±0.10	0.007±0.003
W	8.00±0.15	0.314±0.006
W1	16.2±1.5	0.637±0.006
W2	13.2±1.0	0.519±0.039

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3,000	252,000	177.8	385	275	385

## Marking Codes



Note:

(1) "SB3K" is part number, fixed

## Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS1231LKX	12.0V	3,000	7 Inch