

## Features

- ❑ IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (air),  
 $\pm 30\text{kV}$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50 ns)
- ❑ 280 Watts Peak Pulse Power per (tp=8/20us)
- ❑ Protects one I/O line (bidirectional)
- ❑ Working voltages : 5.5V
- ❑ Low leakage current
- ❑ ROHS compliant

## Description

The TS0501NBX 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

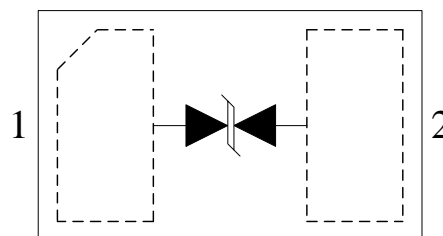
## Mechanical Characteristics

- ❑ DFN1006-2L 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



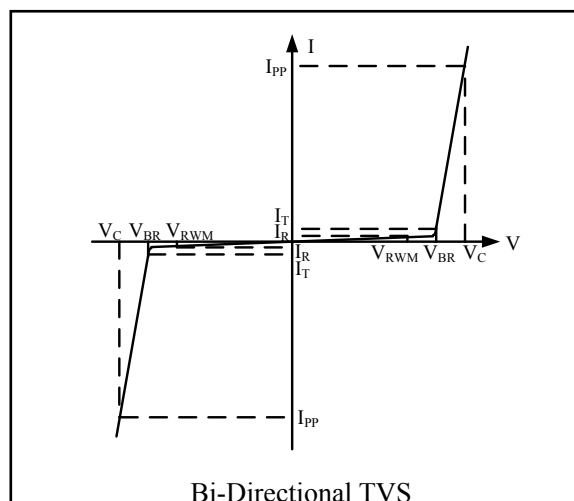
DFN1006-2L  
(Top View)

## Absolute Maximum Rating

Symbol	Parameter	Value	Units
$I_{PP}$	Peak Pulse Current (8/20 $\mu$ s)	18	A
$P_{PK}$	Peak Pulse Power (8/20 $\mu$ s)	280	Watts
$V_{ESD}$	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	$\pm 30$ $\pm 30$	kV
$T_{OPT}$	Operating Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

## Electrical Characteristics (T = 25°C)

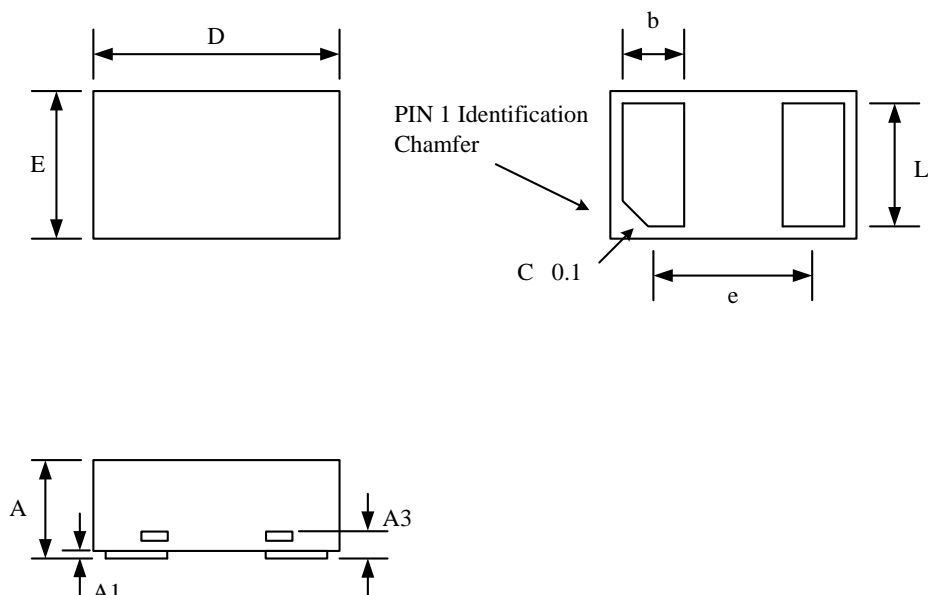
Symbol	Parameter
$V_{RWM}$	Nominal Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Reverse Breakdown Voltage @ $I_T$
$I_T$	Test Current for Reverse Breakdown
$V_C$	Clamping Voltage @ $I_{PP}$
$I_{PP}$	Maximum Peak Pulse Current
$C_{ESD}$	Parasitic Capacitance
$V_R$	Reverse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



Symbol	Test Condition	Minimum	Typical	Maximum	Units
$V_{RWM}$				5.5	V
$I_R$	$V_{RWM} = 5.5V$ , T = 25 °C Between I/O_1 and I/O_2		0.1	1.0	$\mu A$
$V_{BR}$	$I_T = 1mA$ Between I/O_1 and I/O_2	6.0		8.0	V
$V_C$	$I_{PP} = 1A$ , $t_p = 8/20\mu s$ Between I/O_1 and I/O_2			6.5	V
$V_C$	$I_{PP} = 18A$ , $t_p = 8/20\mu s$ Between I/O_1 and I/O_2			16	V
$C_{ESD}$	$V_R = 0V$ , f = 1MHz Between I/O_1 and I/O_2			50	pF

## Package Outline

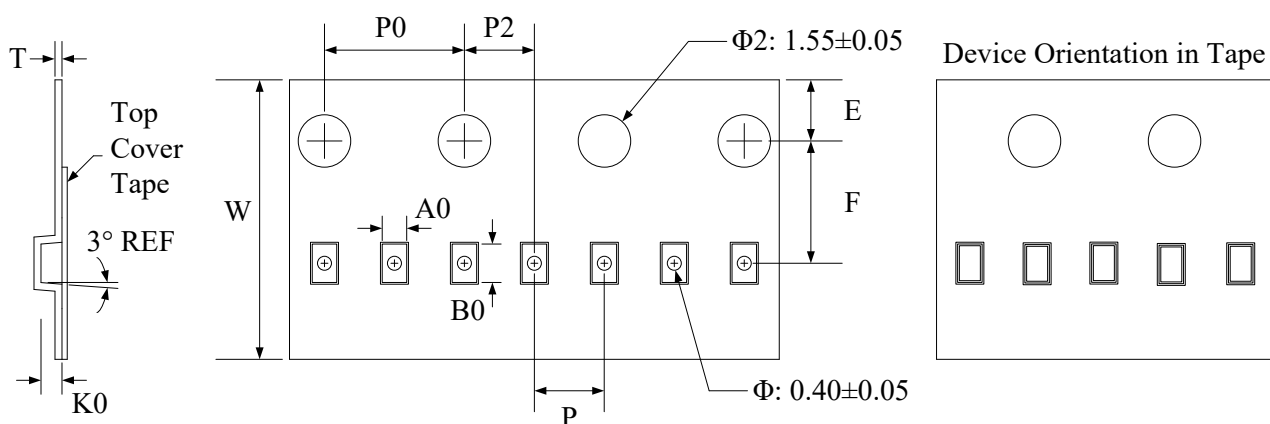
- DFN1006-2L Package
- MSL-1



Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Minimum	Maximum	Minimum	Maximum
A	0.400	0.550	0.016	0.022
A1	0.000	0.050	0.000	0.002
A3	0.125 REF		0.005 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b	0.200	0.300	0.008	0.012
e	0.650 BSC		0.026 BSC	
L	0.450	0.550	0.018	0.022

## Tape and Reel Specification



Symbol	W	A0	B0	K0	E	F	P	P0	P2	T
Dimensions (mm)	8.00±0.1	0.7±0.05	1.15±0.05	0.55±0.05	1.75±0.1	3.5±0.05	2.0±0.1	4.0±0.1	2.0±0.05	0.2±0.05

## Marking Codes



Note:

- (1) "5L" is part number, fixed
- (2) no cathode line and date code

## Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS0501NBX	5.5V	10,000	7 Inch