

Features

- ❑ IEC61000-4-2 (ESD) +/-30kV (air),
 +/-30KV(contact)
- IEC61000-4-4 (EFT) 40A (5/50 ns)
- ❑ Peak Pulse Current(tp=8/20us) 20A
- ❑ Protects one I/O line (bidirectional)
- ❑ Working voltages : 5.0V
- ❑ Low leakage current
- ❑ ROHS compliant

Description

The TS0501NDX 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).

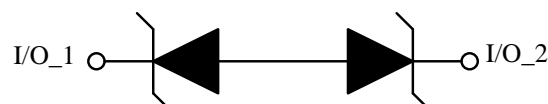
Applications

- ❑ 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

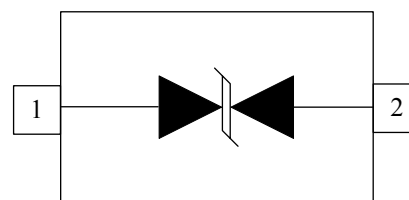
Mechanical Characteristics

- ❑ SOD-523 package
- ❑ Flammability Rating: UL 94V-0
- ❑ Marking: Part number
- ❑ Packaging: Tape and Reel

Circuit Diagram



Pin Configuration



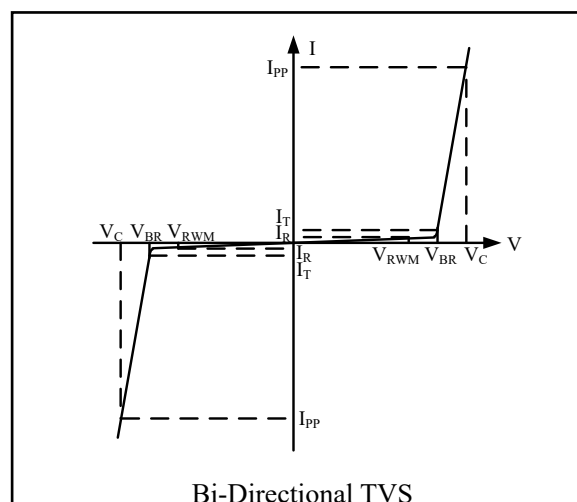
SOD-523
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20 μ s)	20	A
V_{ESD}	ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	± 30 ± 30	kV
T_{OPT}	Operating Temperature	-55 to +125	°C
T_{STG}	Storage Temperature	-55 to +150	°C

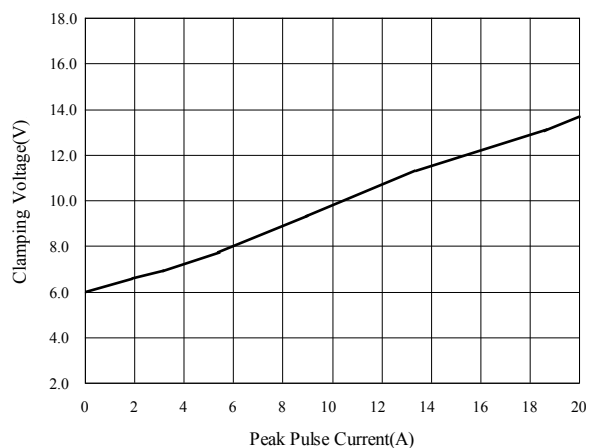
Electrical Characteristics (T = 25°C)

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

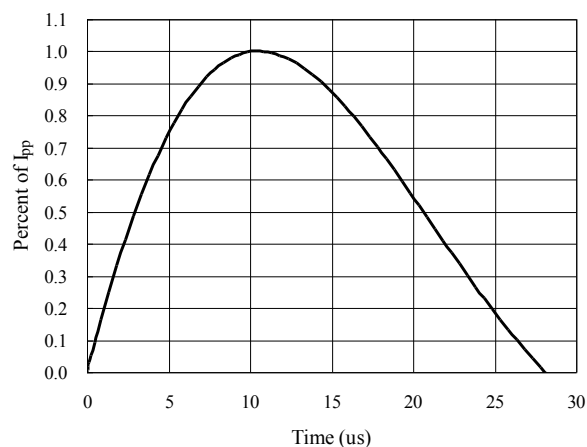


Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				5.0	V
I_R	$V_{RWM} = 5.0$, T = 25 °C Between I/O_1 and I/O_2		0.1	1.0	μ A
V_{BR}	$I_T = 1$ mA Between I/O_1 and I/O_2	5.5	6.2	8.5	V
V_C	$I_{PP} = 1$ A, $t_p = 8/20\mu$ s Between I/O_1 and I/O_2			7	V
V_C	$I_{PP} = 20$ A, $t_p = 8/20\mu$ s Between I/O_1 and I/O_2		12		V
C_{ESD}	$V_R = 0$ V, f = 1MHz Between I/O_1 and I/O_2		40		pF

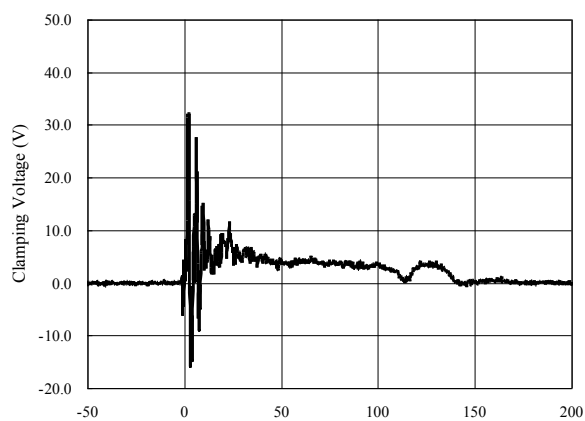
Clamping Voltage V_C vs. Current I_{PP}



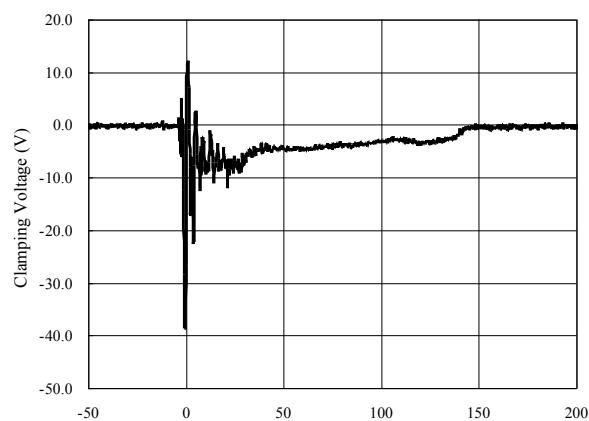
8/20 μ s Pulse Waveform



**ESD Clamping of I/O to I/O
(+8kV Contact per IEC 61000-4-2)**

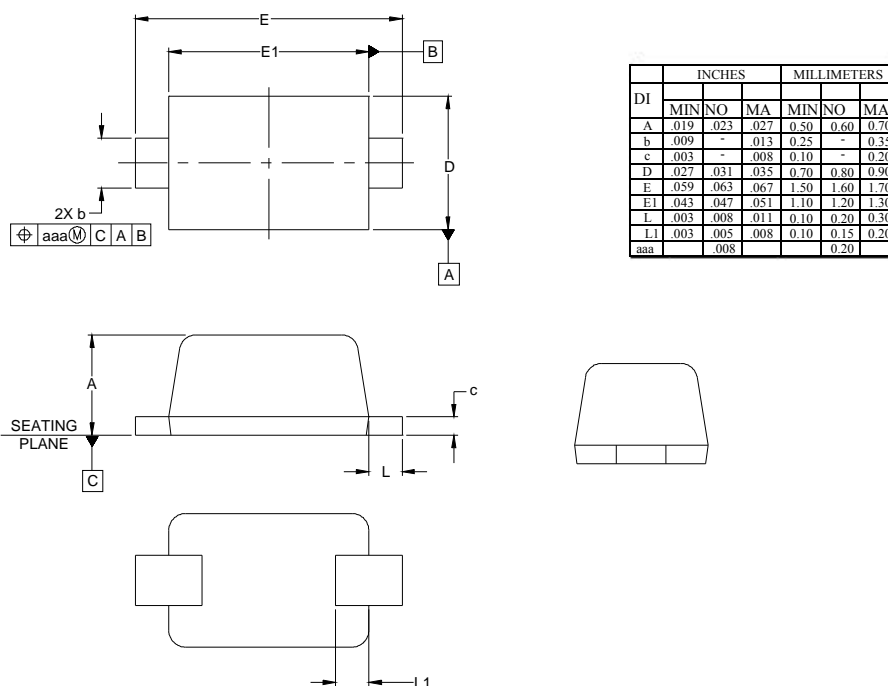


**ESD Clamping of I/O to I/O
(-8kV Contact per IEC 61000-4-2)**



Package Outline Dimensions

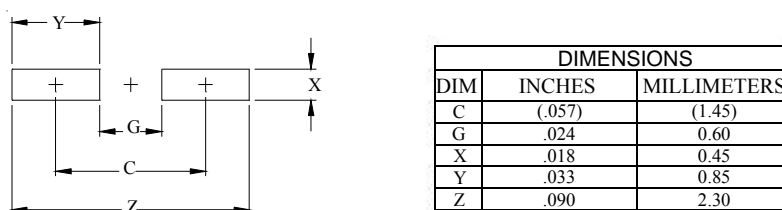
Outline Drawing (SOD-523)



NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DIMENSIONS "E1" AND "D" DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

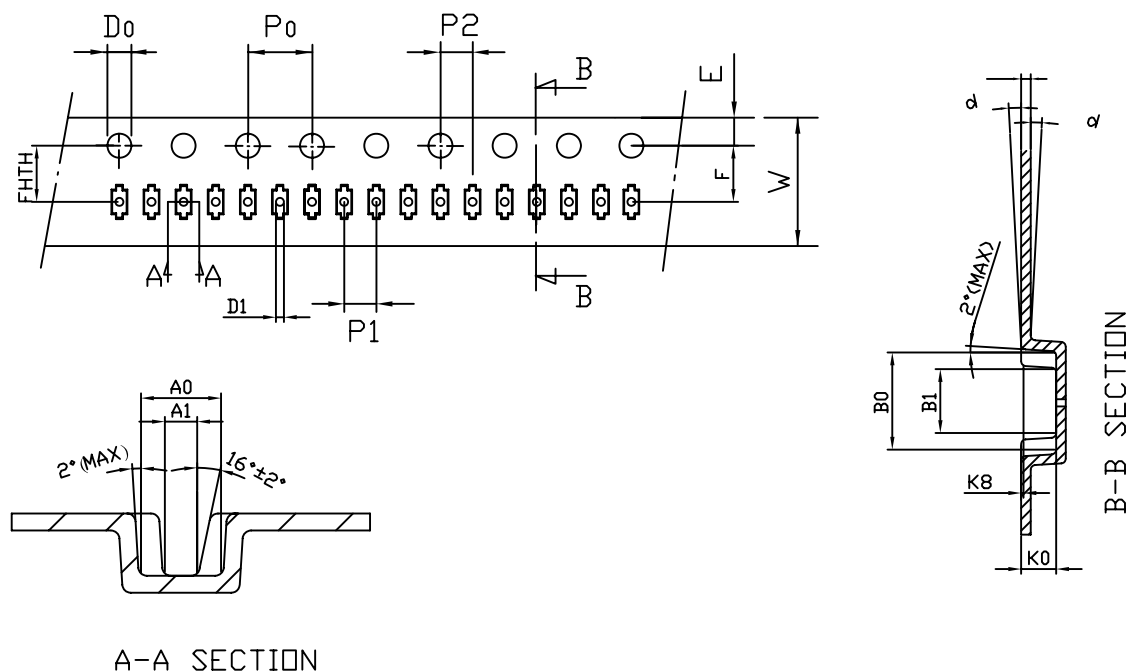
Land Pattern



NOTES:

1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR
COMPANY'S MANUFACTURING GUIDELINES ARE MET

Tape and Reel Specification



unit:mm

symbol	A0	B0	K0	P0	P1	P2	A1	T
Spec	0.90 ± 0.05	1.95 ± 0.05	0.73 ± 0.05	4.0 ± 0.10	2.0 ± 0.05	2.0 ± 0.05	0.39 ± 0.05	0.20 ± 0.02
symbol	E	F	D0	D1	B2	W	10P0	K8
Spec	1.75 ± 0.10	3.50 ± 0.05	$1.50^{+0.10}_{-0}$	0.50 ± 0.05	1.40 ± 0.05	$8.0^{+0.3}_{-0.1}$	40.0 ± 0.10	0.15MAX
symbol	FH _{TH}							
Spec	3.50 ± 0.05							

Marking Codes



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS0501NDX	5.0V	3,000	7 Inch

Note:

(1) "5D" is part number, fixed