

Features

- Transient protection for high-speed data lines
IEC61000 -4-2 (ESD) $\pm 30\text{kV}$ (Air)
 $\pm 30\text{kV}$ (Contact)
IEC 61000-4-5 (Lightning) 22.0A (8/20 μs)
- Cable Discharge Event (CDE)
- Small package saves board space
- Low leakage current: 0.1 μA @ VRWM (Typical)

Description

The TS2451LB-FxX 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).

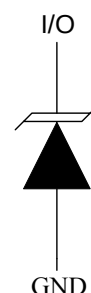
Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers

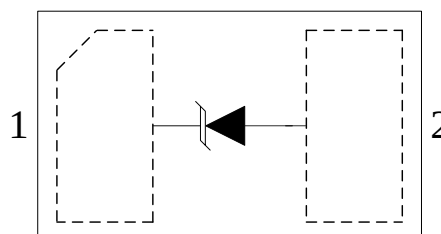
Mechanical Characteristics

- Package: DFN1006-2L
- Packaging: Tape and Reel
- ROHS compliant

Circuit Diagram



Pin Configuration

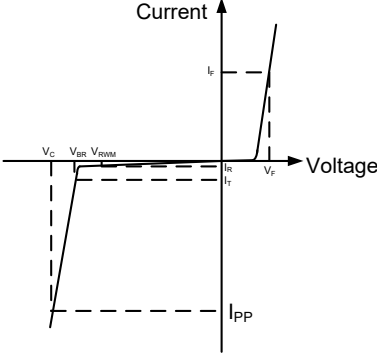


DFN1006-2L
(Top View)

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20 μ s)	22	A
P_{PK}	Peak Pulse Power (8/20 μ s)	1000	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)

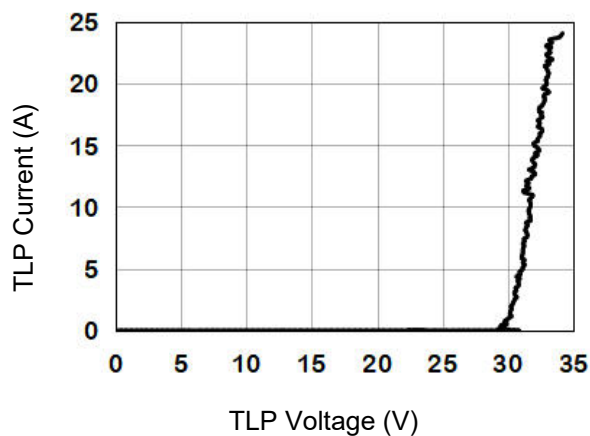
Symbol	Parameter	Diagram
V_{RWM}	Nominal Reverse Working Voltage	
I_R	Reverse Leakage Current @ V_{RWM}	
V_{BR}	Reverse Breakdown Voltage @ I_T	
I_T	Test Current for Reverse Breakdown	
V_C	Clamping Voltage @ I_{PP}	
I_{PP}	Maximum Peak Pulse Current	
C_{ESD}	Parasitic Capacitance	
I_F	Forward Current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

Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				24	V
I_R	$V_{RWM} = 24V$, T = 25°C Between I/O and GND		0.1	1.0	μA
V_{BR}	$I_T = 1mA$ Between I/O and GND	26.7	28.0		V
V_C	$I_{PP} = 22A$, $t_p = 8/20\mu s$ Between I/O and GND		48.0		V
V_C	$I_{PP} = 8.0A$, $t_p = 100ns^{(1)}$		31.4		V
	$I_{PP} = 16.0A$, $t_p = 100ns^{(1)}$		32.6		V
R_{dyn}	$I_{PP} = 12.0A$, $t_p = 100ns^{(1)}$		0.15		Ω
C_{ESD}	$V_R = 0V$, f = 1MHz Between I/O and GND		100		pF

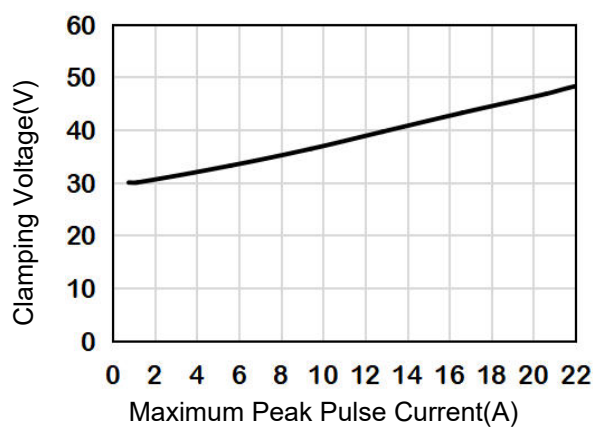
Notes: (1) Measurements performed using a 100ns Transmission Line Pulse (TLP) system, Between I/O and GND.

Typical Performance Characteristics

TLP Measurement of I/O to GND

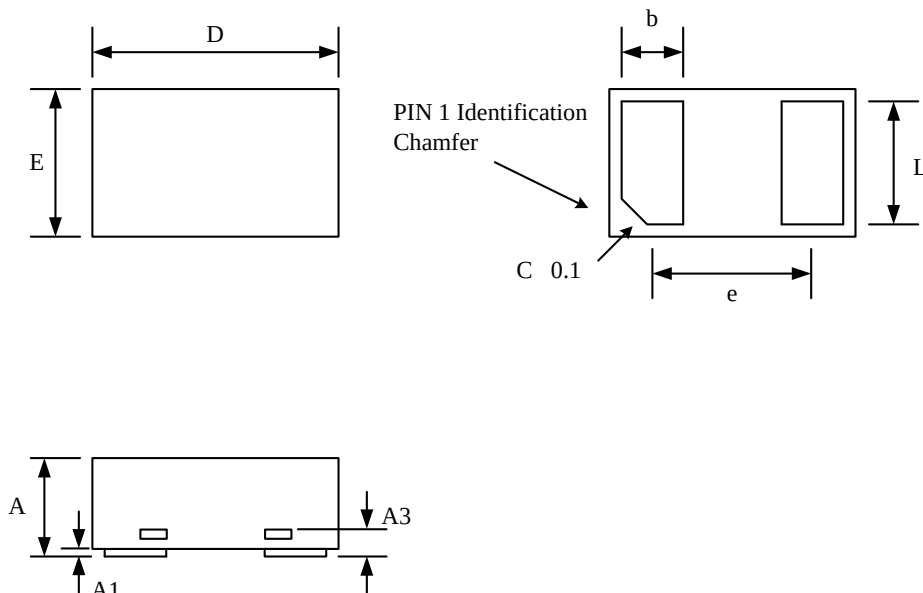


8/20us Current IO to GND



Package Outline

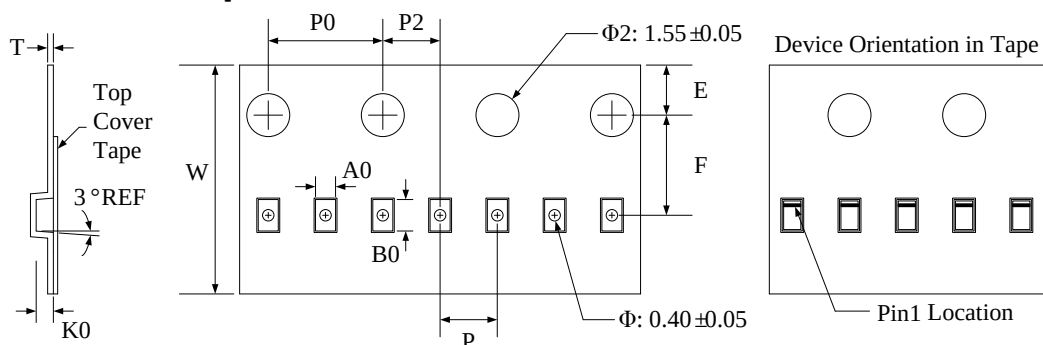
- DFN1006-2L package
- 2 leads, very small package
- MSL-1



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) "E" is part number.
- (2) "X" is the internal code.

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS2451LB-FxX	24V	10,000	7 Inch