



Features

- ❑ Transient protection for high-speed data lines
 - IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Air)
 - $\pm 30\text{kV}$ (Contact)
 - IEC 61000-4-4 (EFT) 80 A (5/50ns)
 - IEC 61000-4-5 (Surge) 130 A (8/20 μs)
- ❑ Low leakage current: 0.1 μA @ V_{RWM} (Maximum)
- ❑ Low operating and clamping voltage
- ❑ Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

Description

TS1531LJ is a Transient Voltage Suppressor designed to provide electrostatic discharge (ESD) protection for one I/O data or power line. TS1531LJ is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (80A, 5/50 ns), IEC 61000-4-5 (Surge) (130A, 8/20 μs), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

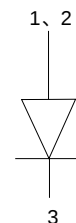
Applications

- ❑ 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

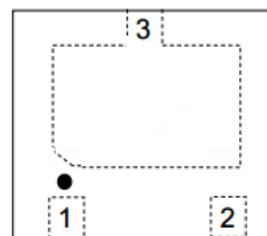
Mechanical Characteristics

- ❑ DFN2.0*2.0-3L package
- ❑ Flammability Rating: UL 94V-0
- ❑ Marking: Part number
- ❑ Packaging: Tape and Reel
- ❑ High temperature soldering guaranteed: 260 $^{\circ}\text{C}$ /10s

Circuit Diagram



Pin Configuration



DFN2.0*2.0-3L

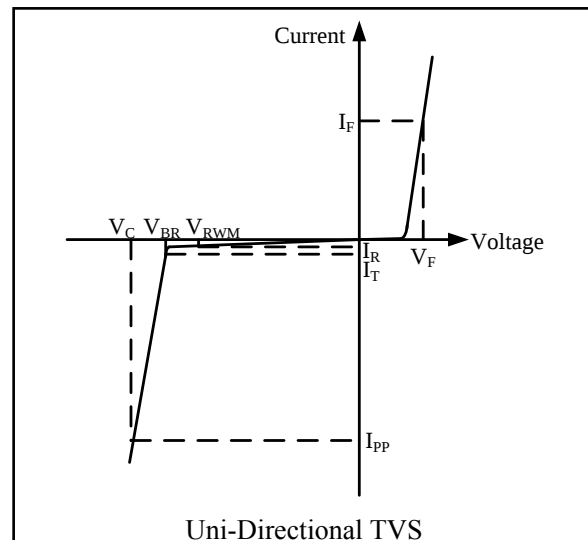
Top view

**Absolute Maximum Rating**

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20 μ s)	130	A
P_{PK}	Peak Pulse Power (8/20 μ s)	4200	Watts
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 +150	$^{\circ}$ C
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}$ C

Electrical Characteristics (T = 25 $^{\circ}$ C)

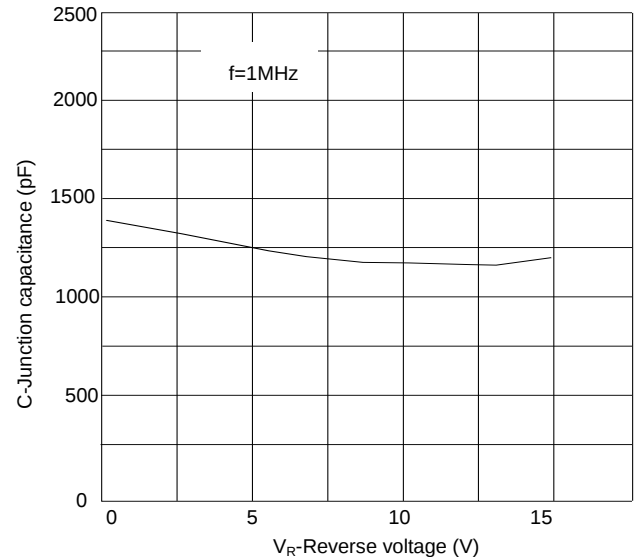
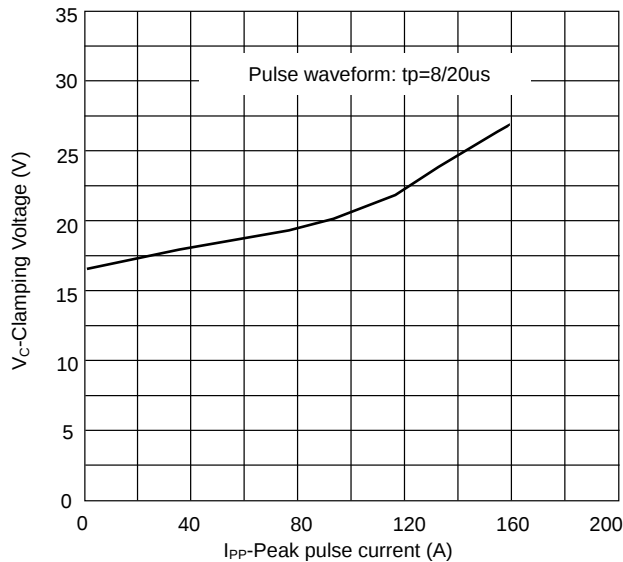
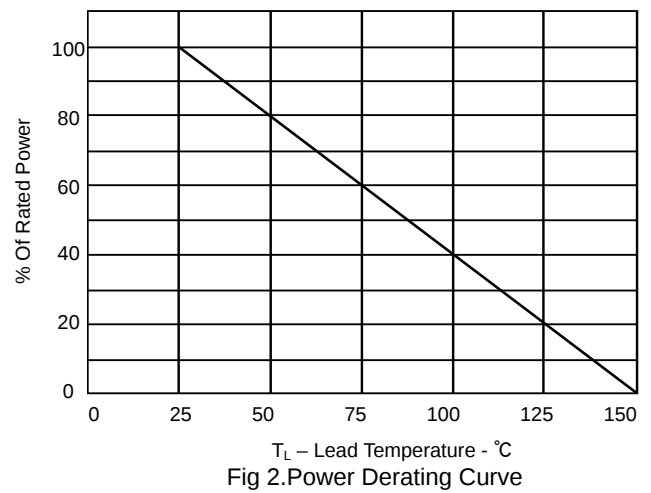
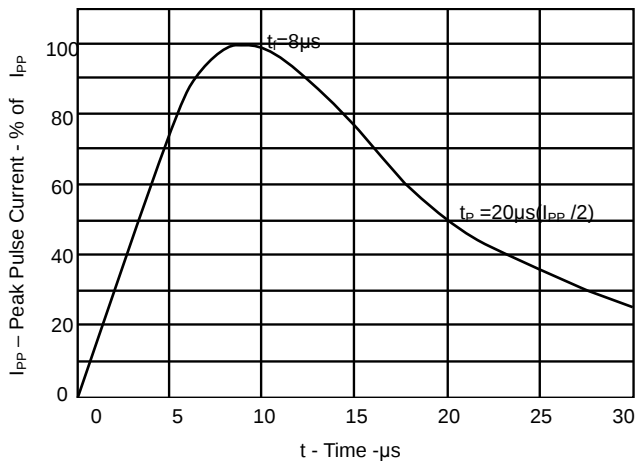
Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
V_{CR}	Reverse Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current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



Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				15.0	V
I_R	$V_{RWM} = 15.0V, T = 25^{\circ}C$			0.1	μA
V_{BR}	$I_T = 1mA$	16		19	V
V_F	$I_F = 1mA$			0.8	V
V_C	$I_{PP} = 1A, t_p = 8/20\mu s$			22	V
V_C	$I_{PP} = 130A, t_p = 8/20\mu s$			40	V
C_{ESD}	$V_R = 0V, f = 1MHz$		1200		pF



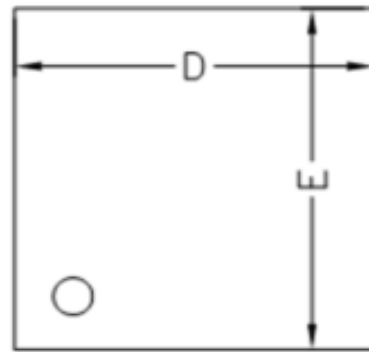
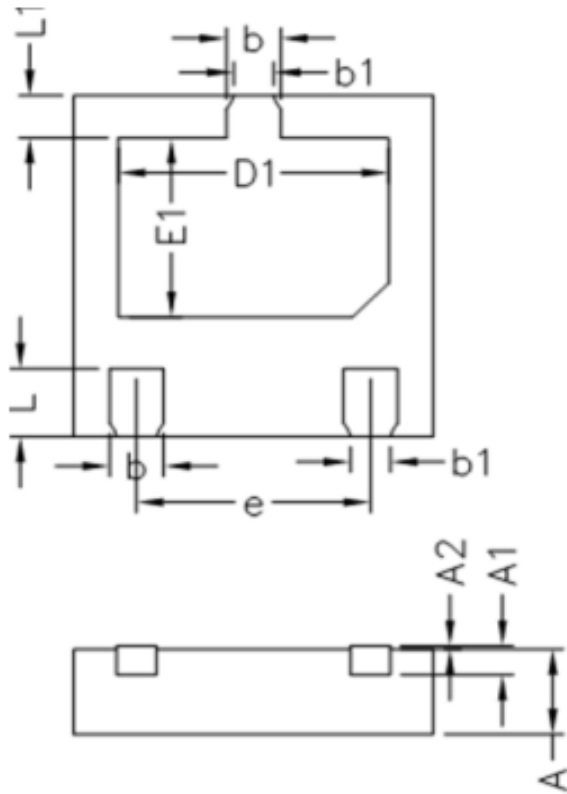
Typical Characteristics





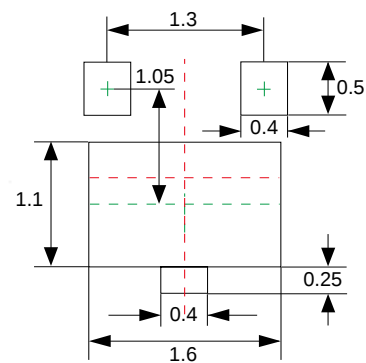
Package Outline

DFN2.0*2.0-3L



Units: mm

	Min	Nom	Max
D	1.95	2.00	2.05
E	1.95	2.00	2.05
D1	1.45	1.50	1.55
E1	1.00	1.05	1.10
L1	0.20	0.25	0.30
L	0.35	0.40	0.45
b1	0.22REF		
b	0.25	0.30	0.35
e	1.30BSC		
A1	0.15REF		
A2	0.00	0.02	0.05
A	0.45	0.50	0.55



Recommended Soldering Pad

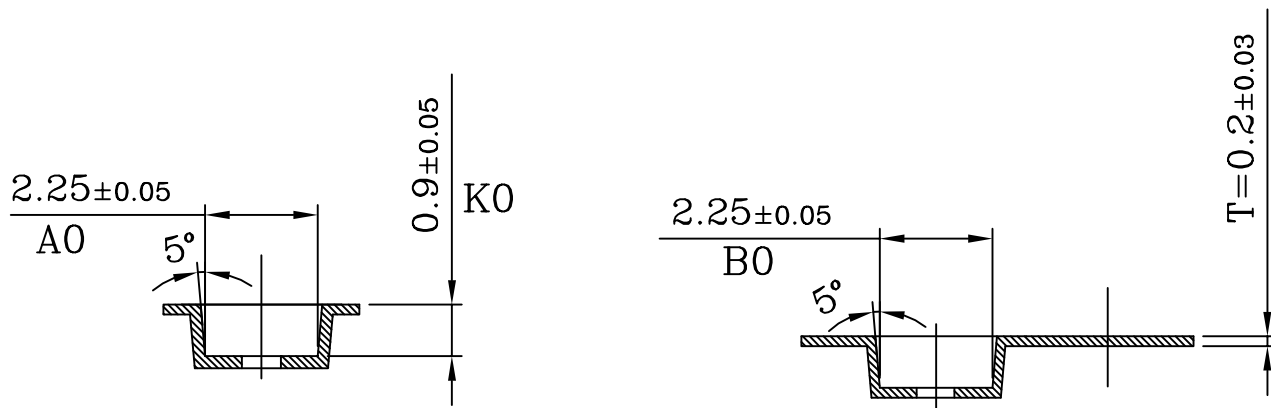
Unit:mm



TS1531LJ

ESD/Surge Protection

Tape and Reel Specification



Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TS1531LJ	15.0V	3,000	7 Inch