

Features

- Transient protection for high-speed data lines
IEC61000 -4-2 (ESD) $\pm 15\text{kV}$ (Air)
 $\pm 13\text{kV}$ (Contact)
IEC 61000-4-5 (Lightning) 6.0A (8/20 μs)
- Cable Discharge Event (CDE)
- Array of surge rated diodes with internal TVS diode
- Small package saves board space
- Protects four I/O lines
- Low capacitance: 0.2pF@0V(Typical)
- Low leakage current: 0.1 μA @ VRWM (Typical)
- Low clamping voltage
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge

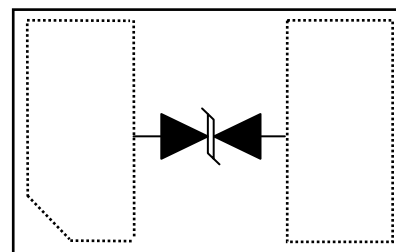
Circuit Diagram



Description

TT1821SAX is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.20pF only, TT1821SAX is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC61000-4-2 (ESD), Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge).

Pin Configuration



DFN0603-2L
(Top View)

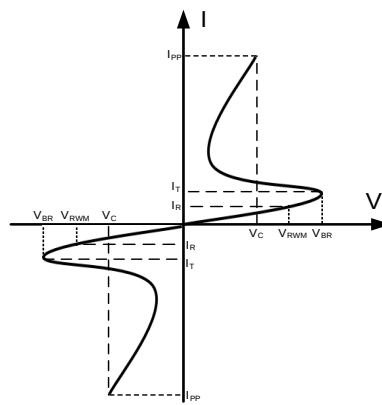
Mechanical Characteristics

- Package: DFN0603-2L
- Marking: Part number
- Packaging: Tape and Reel
- ROHS compliant

Absolute Maximum Rating

Symbol	Parameter	Value	Units
I_{PP}	Peak Pulse Current (8/20 μ s)	6	A
P_{PK}	Peak Pulse Power (8/20 μ s)	30	W
V_{ESD}	ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	± 15 ± 13	kV
T_{OPT}	Operating Temperature	-55/+125	°C
T_{STG}	Storage Temperature	-55/+150	°C

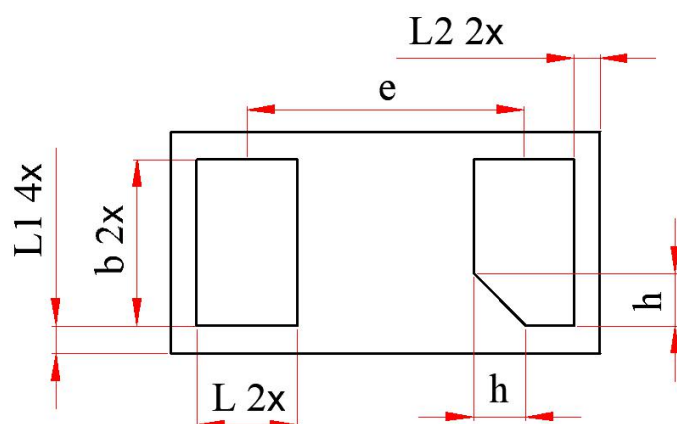
Electrical Characteristics (T = 25°C)

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	

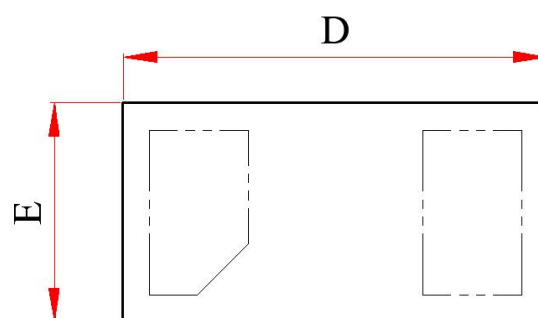
Symbol	Test Condition	Minimum	Typical	Maximum	Units
V_{RWM}				18	V
I_R	$V_{RWM} = 18V, T = 25^\circ C$			0.1	μA
V_{BR}	$I_T = 10\mu A$	20.0	23.0		V
V_C	$I_{PP} = 6A, t_p = 8/20\mu s$		4.8		V
V_C	$I_{PP} = 8.0A, t_p = 100ns^{(1)}$		4.70		V
	$I_{PP} = 16.0A, t_p = 100ns^{(1)}$		6.40		V
R_{dyn}	$I_{PP} = 12.0A, t_p = 100ns^{(1)}$		0.21		Ω
C_{ESD}	$V_R = 0V, f = 1MHz$		0.20		pF

Notes:(1)Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

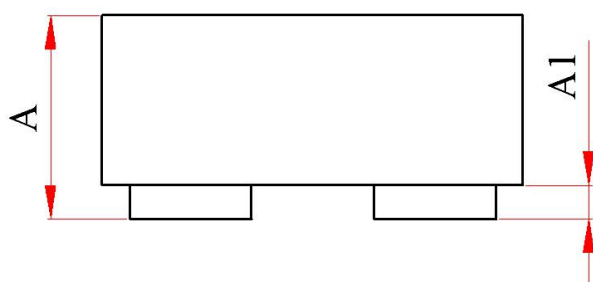
Package Outline, DFN0603-2L



Bottom View



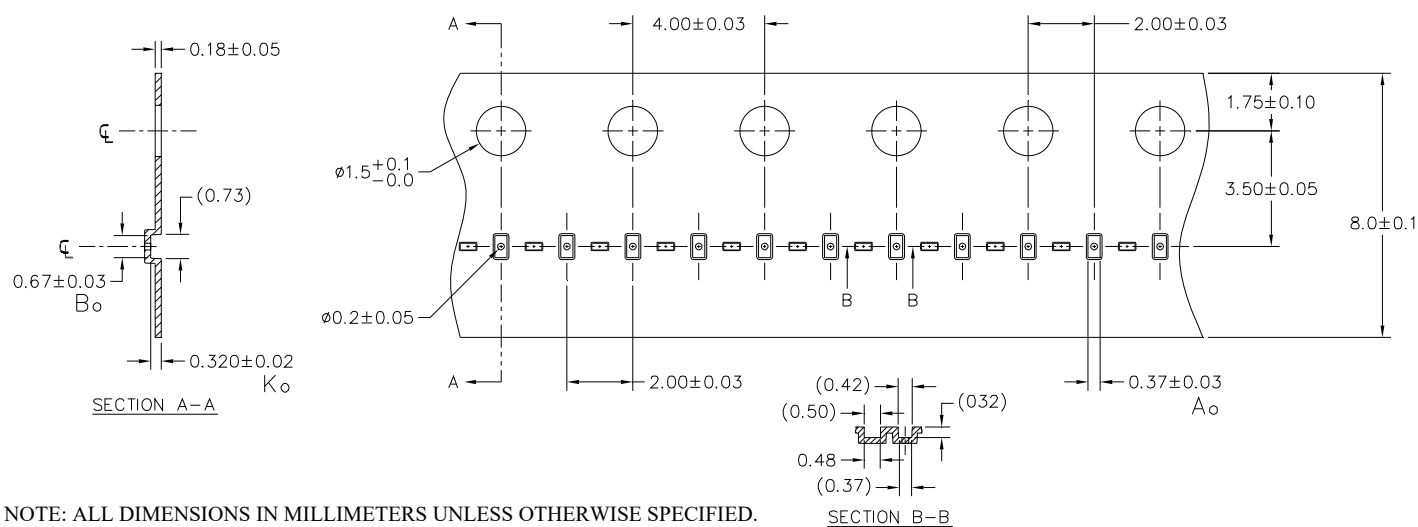
Top View



Side View

Symbol	Dimension In Millimeters			Dimension In Inches		
	Normal	Min	Max	Normal	Min	Max
A	--	0.270	0.330	--	0.011	0.013
A1	--	--	0.050	--	--	0.002
D	0.620	0.600	0.640	0.024	0.023	0.025
E	0.320	0.300	0.340	0.012	0.011	0.013
b	0.245	0.215	0.275	0.010	0.008	0.011
L	0.145	0.115	0.175	0.006	0.005	0.007
L1	0.038 REF			0.001 REF		
L2	0.038 REF			0.001 REF		
h	0.075 REF			0.003 REF		
e	0.400 BSC			0.016 BSC		

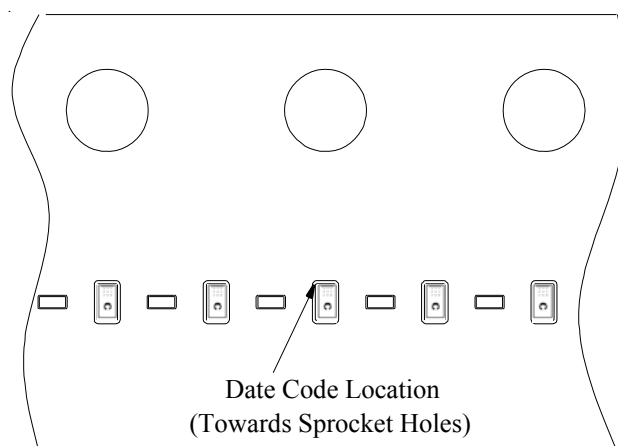
Tape and Reel Specification



Device Orientation in Tape

A0	B0	K0
0.37 ± 0.03	0.67 ± 0.03	0.32 ± 0.02 mm

Note: All dimensions in mm unless otherwise specified



Marking Codes



Note:

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

Ordering Information

Part Number	Working Voltage	Quantity Per Reel	Reel Size
TT1821SAX	18V	10,000	7 Inch