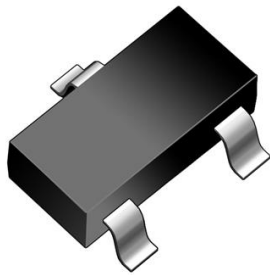


Low Capacitance Transient Voltage Suppression Diode Array

RoHS



Features

- 300 Watts Peak Pulse Power(8/20µs)
- Protects Two Lines
- Low clamping voltage
- Low leakage current
- High surge capability
- Response Time is Typically < 1 ns

Description

PTD0502T3 is a high-surge transient voltage suppressor(TVS) optimized for protection of sensitive digital sensors used in proximity switches and industrial control applications. The PTD0502T3 protects the transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.

Applications

- Control & Monitoring Systems
- Portable Electronics
- Digital Sensor Input Protection
- Industrial Controls
- DC Supply Protection

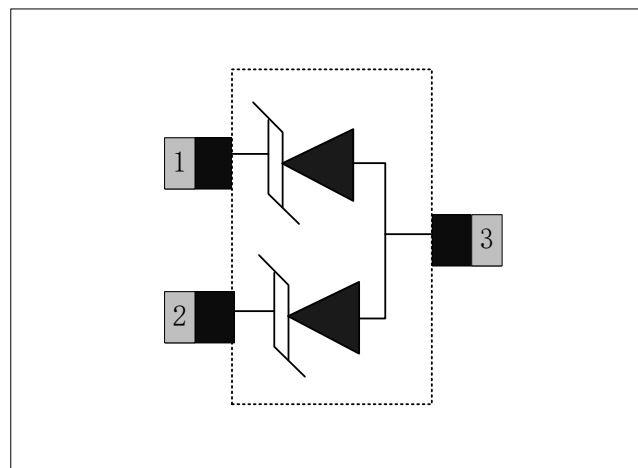
Complies with the following standards

- IEC 61000-4-2 level 4 ±15 kV (air), ±8 kV (contact)
- IEC 61000-4-4 level 4 ±2 kV - 40 A (5/50 ns)
- IEC 61000-4-5 level 2 24 A (8/20µs)

Mechanical Data

- JEDEC SOT-23 package
- Pb-Free, Halogen Free, RoHS/WEEE Compliant
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel

Schematic & PIN Configuration



Absolute Maximum Rating(Each Diode)($T_J=25^\circ\text{C}$ unless otherwise noted)

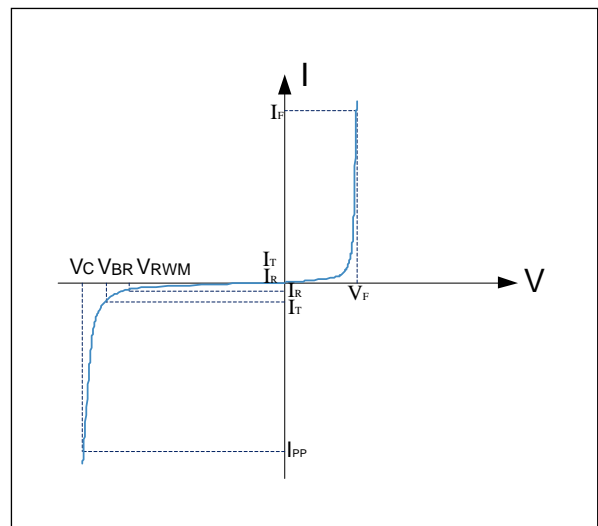
Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$)	P_{PP}	300	Watts
Lead Soldering Temperature	T_L	260(10 sec.)	$^\circ\text{C}$
Operating Temperature	T_J	-55 to +125	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (Each Diode)($T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1\text{mA}$	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5\text{V}, T=25^\circ\text{C}$			1	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$			9.8	V
Clamping Voltage	V_C	$I_{PP}=18\text{A}, t_p=8/20\mu\text{s}$			16.7	V
Junction Capacitance	C_j	Pin 1 to 3 and Pin 2 to 3 $V_R = 0\text{V}, f = 1\text{MHz}$		100		pF

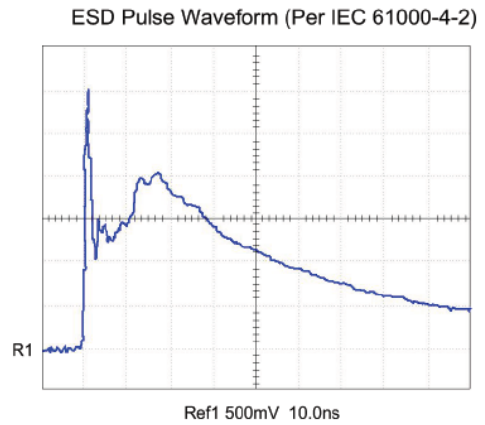
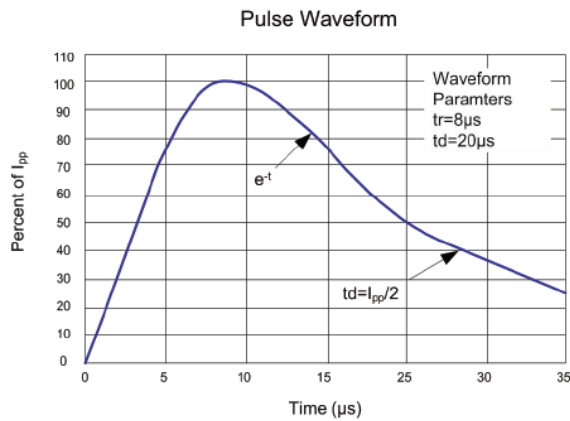
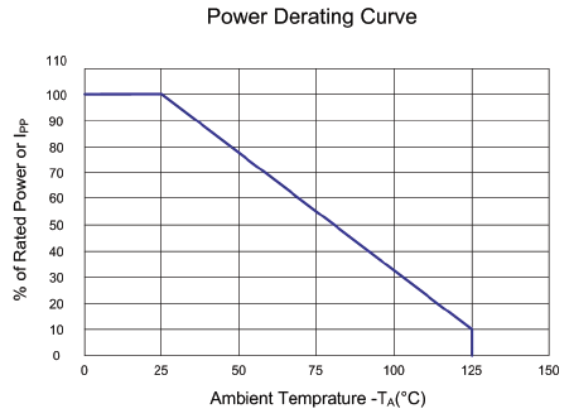
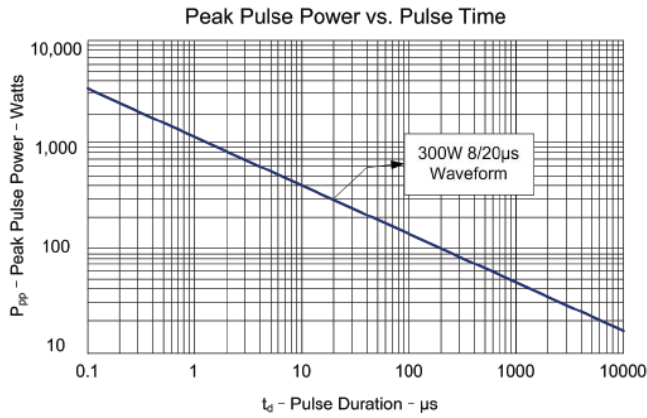
Electrical Parameters ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Note: 8/20 μs pulse waveform.

Typical Characteristics



Outline Drawing – SOT-23

PACKAGE OUTLINE

DIMENSIONS				
SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.300	0.500	0.012	0.020
θ	0	8°	0	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.088	2.20
C	0.0058	0.15
Z	0.093	2.35
e	0.037 BSC	0.95 BSC
e1	0.074 BSC	1.9 BSC
b	0.0389	0.35

Ordering Information

Order code	Package	Marking	Base qty	Delivery mode
PTD0502T3	SOT-23	5M2	3000	Tape and reel