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TPTVS1593D3

1-Line High Power TVS Diode

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Features

- Ultra low leakage: nA level
- Operating voltage: 15V
- Low clamping voltage
- Complies with following standards:
  – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  –IEC61000-4-5 (Lightning) 130A (8/20μs)
- RoHS Compliant

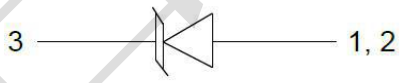
Mechanical Characteristics

- Package: DFN2X2-3
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Shipping Qty :3000pcs/7Inch Tape & Reel

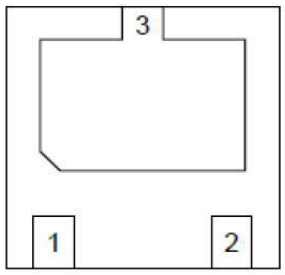
Applications

- Power Management
- Industrial Application
- Power Supply Protection

Dimensions and Pin Configuration



Circuit Diagram



Transparent top view

Pin Schematic

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{pp}	4400	W
Peak Pulse Current (8/20μs)	I_{pp}	130	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			15	V	
Breakdown Voltage	V_{BR}	16.5			V	I_T = 1mA
Reverse Leakage Current	I_R			1.0	μA	V_{RWM} =15V
Clamping Voltage	V_C			21	V	I_{PP} =20A(8x20μspulse)
Clamping Voltage	V_C		22		V	I_{PP} =30A(8x20μspulse)
Clamping Voltage	V_C		29	34	V	I_{PP} =130A(8x20μspulse)
Junction Capacitance	C_J			1000	pF	VR = 0V, f = 1MHz

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

Fig1. 8/20μs Pulse Waveform

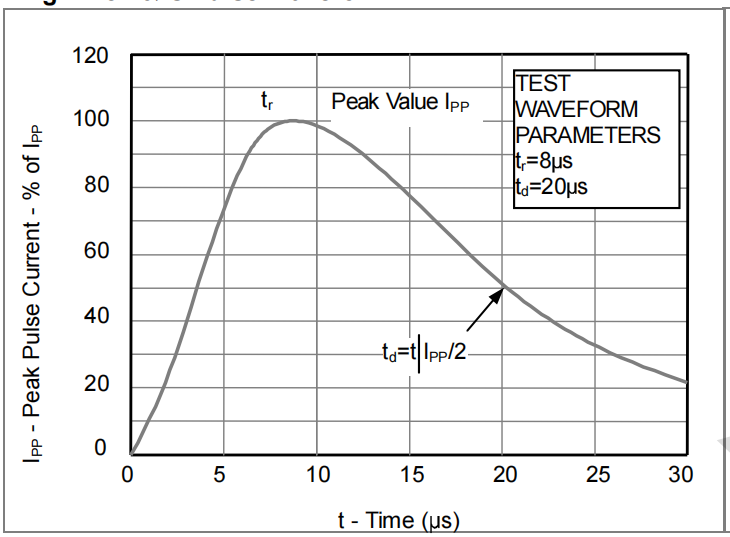


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

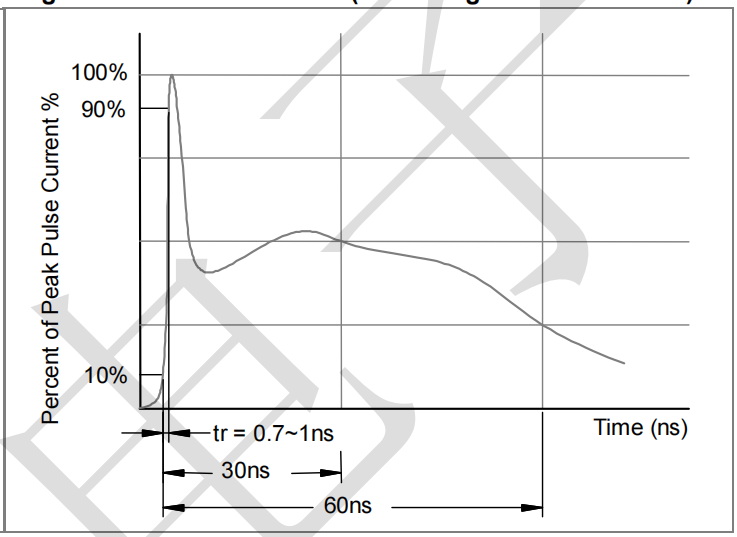
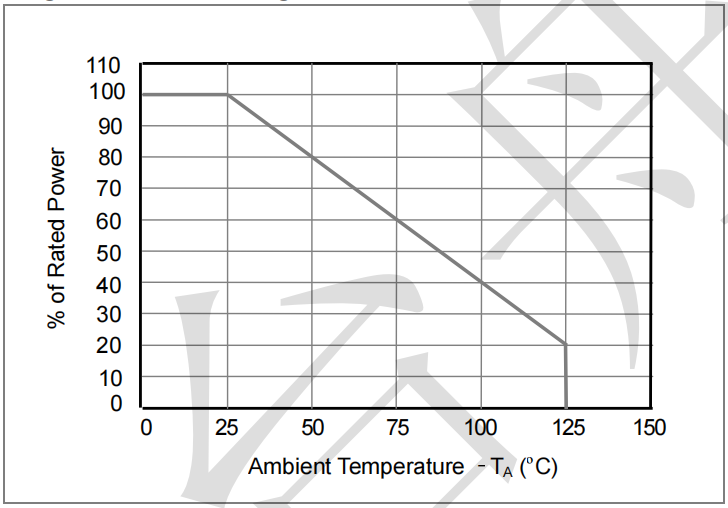
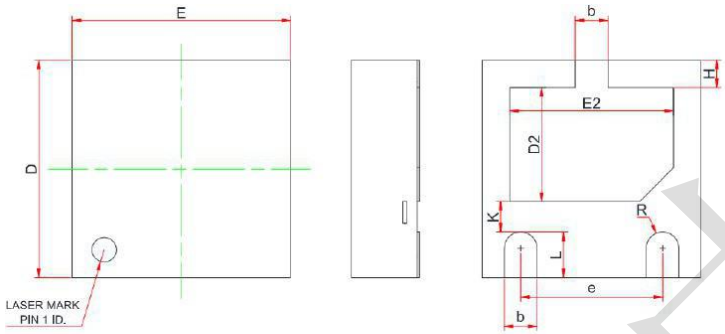


Fig3. Power Derating Curve



Outline Drawing - DFN2X2-3



Top View

Bottom View

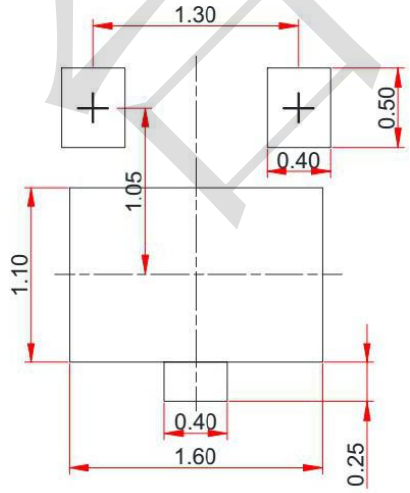


Side View

DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.031	-	.048	0.80	-	1.22
A1	.000	-	.006	0.013	-	0.15
A2	.029	.035	.042	0.75	0.90	1.07
b	.011	-	.020	0.30	-	0.51
b1	.029	-	.037	0.76	-	0.94
c	.003	-	.008	0.08	-	0.20
D	.110	.114	.120	2.80	2.90	3.04
E	.082	.093	.104	2.10	2.37	2.64
E1	.047	.051	.055	1.20	1.30	1.40
e	.075			1.92 BSC		
e1	.008			0.20 BSC		
L	.015	.020	.024	0.40	0.50	0.60
L1	(.021)			(0.54)		
N	4			4		
θ	0°	-	8°	0°	-	8°
aaa	.006			0.15		
bbb	.008			0.20		
ccc	.004			0.10		

SYM	DIMENSIONS MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF		
b	0.25	--	0.35
D	1.90	--	2.10
E	1.90	--	2.10
D2	0.95	--	1.15
E2	1.40	--	1.60
e	1.20		1.40
H	0.20	--	0.30
K	0.20		0.40
L	0.35	--	0.45
R	0.13	--	--

Land Pattern -DFN2X2-3



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TPB1A30-123 TPDMG6602SVT TPESD0504S6-A TPS7B6950DBVR-TP TPZVN3320FTA FDMS7670AS-TP SI3932DV TPS3809L30DBVR-TP BV15C DDTA143ZCA QM3003J-TP TPAPX809S-31SA TPSPX3819M5-L-3-3 TPESD0402G08V TPFMMT493 IRFR2405TRPBF-TP TPADM809SAKSZ TPD1213A-02SM TPESD5311N TPGC12C-1 TPZXMP3A13FTA ESD5B5.0ST1G-P FDC6301N-TP SN7002W TPADM809LAKSZ TPWSB5557Z DMP6350S LTH7 BSN20W TPB05A40-323