TECH PUBLIC
台舟电子

TPNUP4201MR6T1G
Low Capactiance 4-Line TVS Array

WWW.SOT23.COM.TW

Features

- Ultra low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- Up to 4 data lines and one power line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge: ±20kV
    - Contact discharge: ±15kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- ROHS Compliant

Mechanical Characteristics

- Package: SOT23-6
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

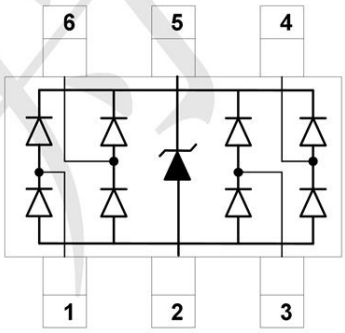
Applications

- USB 2.0 and USB 3.0 Ports
- USB OTG
- Digital video interface(DVI)
- Monitor and Flat Panel Displays
- PCI Express and Serial SATA Ports
- Gigabit Ethernet
- IEEE 1394 firewire ports
- Consumer products (STB, DVD, DSC, DVC…)

Ordering Information

Part Number	Qty per Reel	Reel Size
TPNUP4201MR6T1G	3000	7″

Dimensions and Pin Configuration



Circuit and Pin Schematic

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs) (Vcc-GND)	P_{pk}	250	W
ESD per IEC61000-4-2 (Air) ESD per IEC61000-4-2 (Contact)	V_{ESD}	±20 ±15	kV
Operating Temperature Range	T_J	-55 to +125	℃
Storage Temperature Range	T_{stg}	-55 to +150	℃

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	6		9.5	V	I_T=1mA
Leakage Current	I_{Leak}			100	nA	V_{RWM}=5V
Clamping Voltage（I/O-GND）	V_C			16	V	I_{PP}=4.5A,Tp=8/20μs
Clamping Voltage(Vcc-GND)	V_C			17	V	I_{PP}=15A,Tp=8/20μs
Junction Capacitance (I/O to GND)	C_J		0.6	0.7	pF	V_R=0V, f=1MHz,
Junction Capacitance (I/O to I/O)	C_J		0.3	0.5	pF	V_R=0V, f=1MHz,

PROTECTION PRODUCTS
Typical charateristics

Fig1. 8/20μs Pulse Waveform

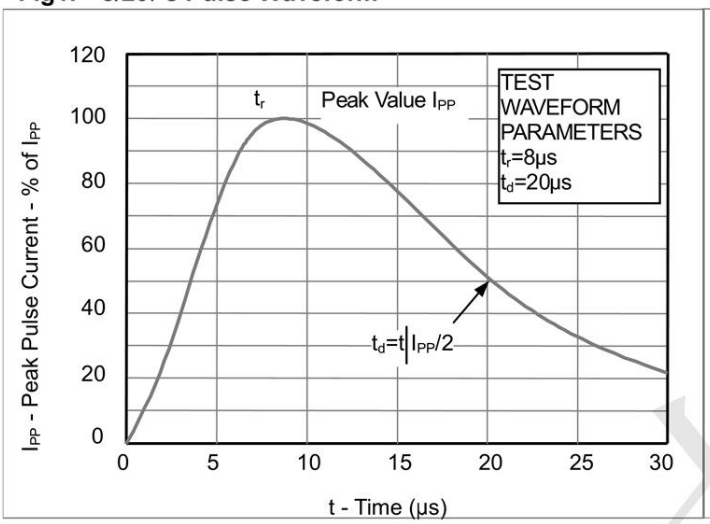


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

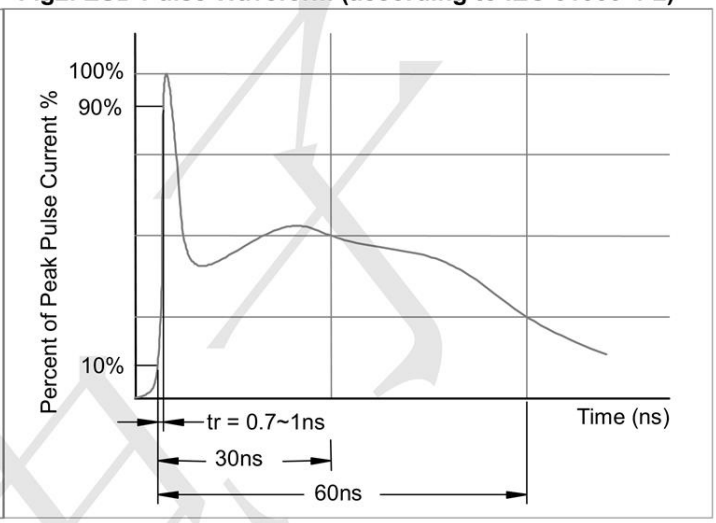
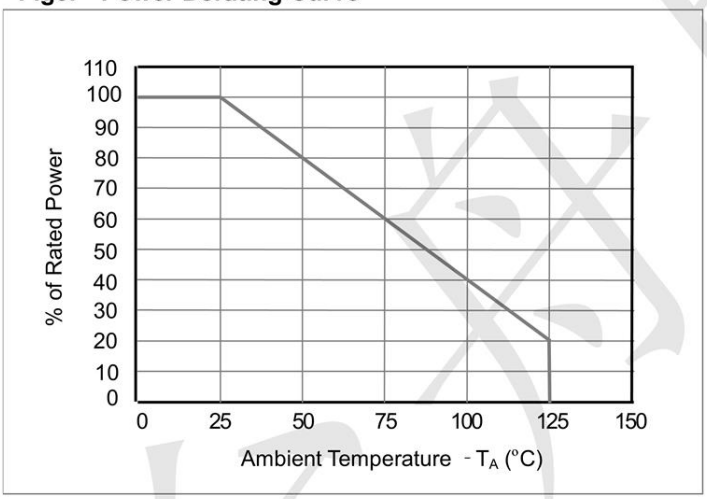
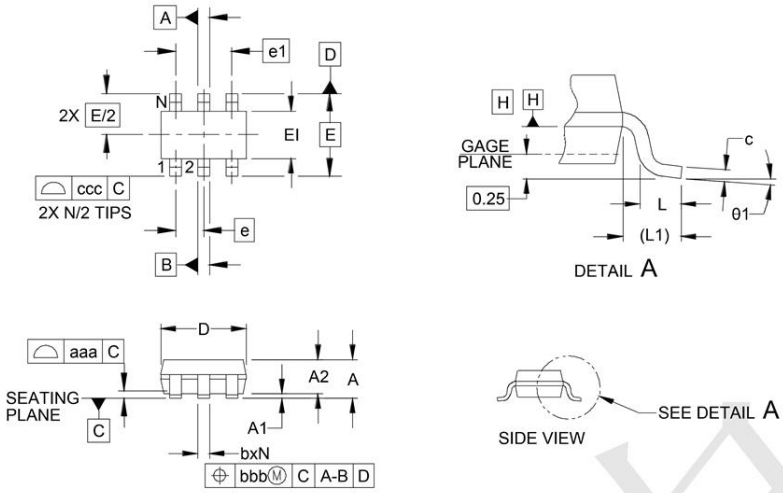


Fig3. Power Derating Curve

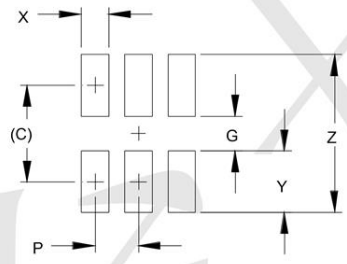


Outline Drawing - SOT23-6



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.035	-	.057	0.90	-	1.45
A1	.000	-	.006	0.00	-	0.15
A2	.035	.045	.051	.90	1.15	1.30
b	.010	-	.020	0.25	-	0.50
c	.003	-	.009	0.08	-	0.22
D	.110	.114	.118	2.80	2.90	3.00
E1	.060	.063	.069	1.50	1.60	1.75
E	.110 BSC			2.80 BSC		
e	.037 BSC			0.95 BSC		
e1	.075 BSC			1.90 BSC		
L	.012	.018	.024	0.30	0.45	0.60
L1	(.024)			(0.60)		
N	6			6		
θ1	0°	-	10°	0°	-	10°
aaa	.004			0.10		
bbb	.008			0.20		
ccc	.008			0.20		

Land Pattern - SOT23-6



DIM	DIMENSIONS	
	INCHES	MILLIMETERS
C	(.098)	(2.50)
G	.055	1.40
P	.037	0.95
X	.024	0.60
Y	.043	1.10
Z	.141	3.60

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