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TPSP3012-04UTG

4-Line Uni-directional TVS Diode

www.sot23.com.tw

Features

- 70 Watts Peak Pulse Power (8/20μs)
- Protects two or four I/O lines
- Low capacitance: 0.3pF typical (I/O to I/O)
- Low operating voltage: 5V
- RoHS Compliant
- IEC61000-4-2 (ESD) ±20kV (air), ±15kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ηs)
- IEC61000-4-5 (Lightning) 5A(8/20μs)

Mechanical Characteristics

- Package: DFN2510-10 (2.5×1.0×0.5mm)
- Ultra low leakage: nA level
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below

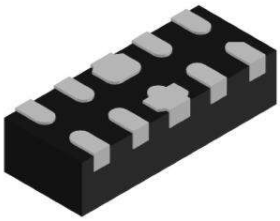
Applications

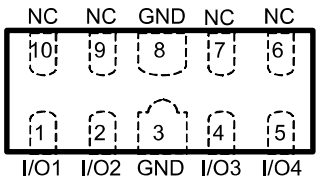
- High Definition Multimedia Interface (HDMI)
- Digital Visual Interface (DVI)
- Unified Display Interface (UDI)
- MDDI Ports
- PCI Express
- Serial ATA

Ordering Information

Part Number	Qty per Reel	Reel Size
TPSP3012-04UTG	3000	7″

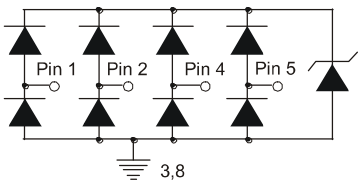
Dimensions and Pin Configuration





Pin Description (Top View)

Pin #	Description
1, 2, 4, 5	I/O
6, 7, 9, 10	No Connection
3, 8	GND



Device Schematic

MARKING CODE:

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	70	W
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	± 20 ± 15	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}			5	V	Any I/O pin to ground
Breakdown Voltage	V_{BR}	6.4	7.5	9.2	V	I_T = 1mA, any I/O pin to ground
Reverse Leakage Current	I_R		0.01	0.05	μA	V_{RWM} = 5V, any I/O pin to ground
Clamping Voltage	V_C			10	V	I_{PP} = 1 A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V_C			13	V	I_{PP} = 5 A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C_J		0.3		pF	VR = 0V, f = 1MHz, between I/O pins
Junction Capacitance	C_J		0.6	0.8	pF	VR = 0V, f = 1MHz, any I/O pin to ground

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Characteristic Curves

Fig1. 8/20μs Pulse Waveform

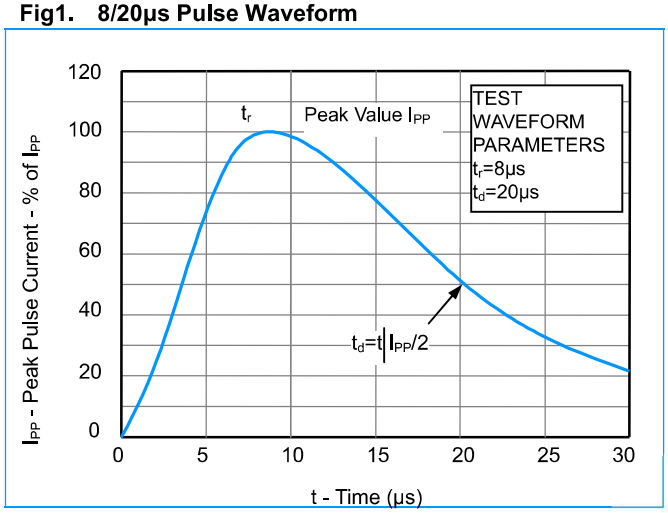


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

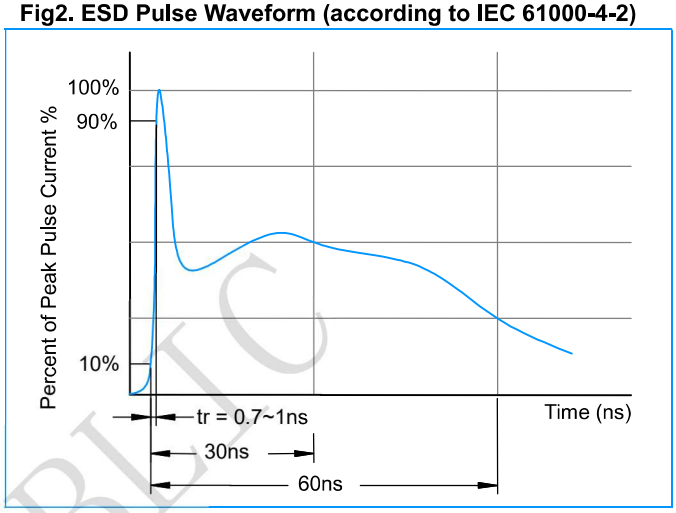
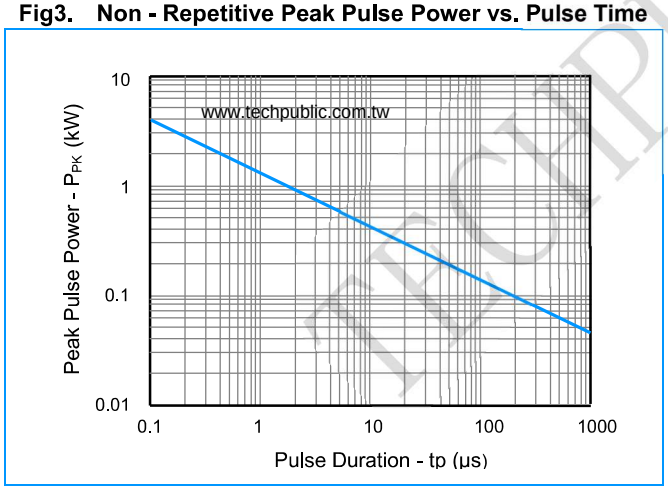


Fig3. Non - Repetitive Peak Pulse Power vs. Pulse Time



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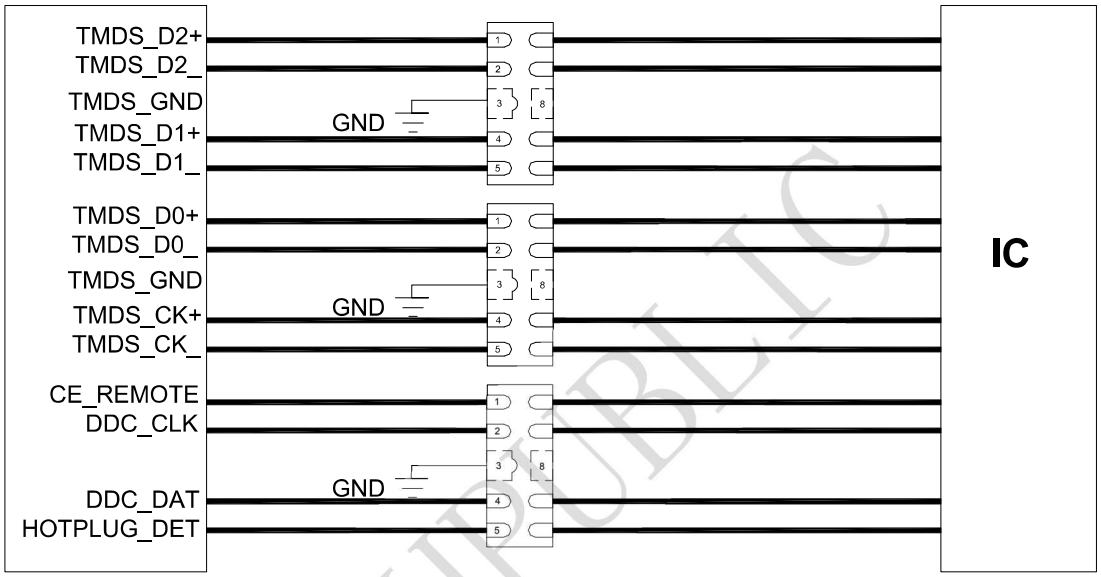
Application Information

ESD protection for HDMI port



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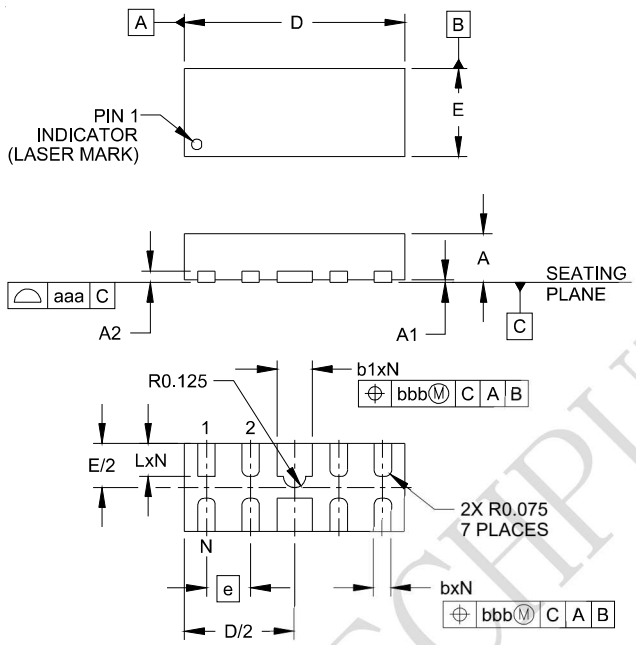
Outline Drawing - DFN2510-10



DIMENSIONS						
DIM	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.023	.026	0.50	0.58	0.65
A1	0.00	.001	.002	0.00	0.03	0.05
A2		(.005)			(0.13)	
b	.006	.008	.010	0.15	0.20	0.25
b1	.014	.016	.018	0.35	0.40	0.45
D	.094	.098	.102	2.40	2.50	2.60
E	.035	.039	.043	0.90	1.00	1.10
e		.020 BSC			0.50 BSC	
L	.012	.015	.017	0.30	0.38	0.425
N		8			8	
aaa		.003			0.08	
bbb		.004			0.10	

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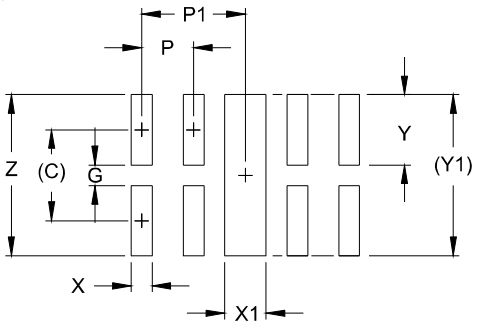
Land Pattern - DFN2510-10



DIMENSIONS		
DIM	INCHES	MILLIMETERS
C	(.034)	(0.875)
G	.008	0.20
P	.020	0.50
P1	.039	1.00
X	.008	0.20
X1	.016	0.40
Y	.027	0.675
Y1	(.061)	(1.55)
Z	.061	1.55