



# TPESD5304D-10

## Ultra Low Capacitance TVS Arrays

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### Features

- ◆ 150 Watts Peak Pulse Power per Line ( $t_p=8/20\mu s$ )
- ◆ 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)  $\pm 15kV$  (air),  $\pm 8kV$  (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 5A (8/20 $\mu s$ )

### Mechanical Characteristics

- ◆ Package: DFN2510-10 (2.5×1.0×0.5mm)
- ◆ Lead Finish: Matte Tin
- ◆ Case Material: "Green" Molding Compound.
- ◆ UL Flammability Classification Rating 94V-0
- ◆ Moisture Sensitivity: Level 3 per J-STD-020
- ◆ Terminal Connections: See Diagram Below

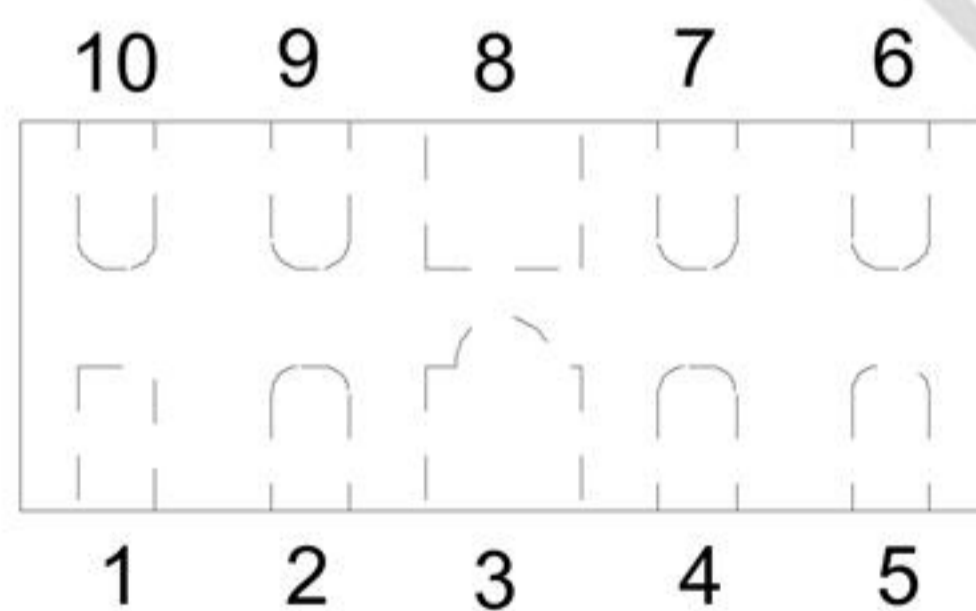
### Applications

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

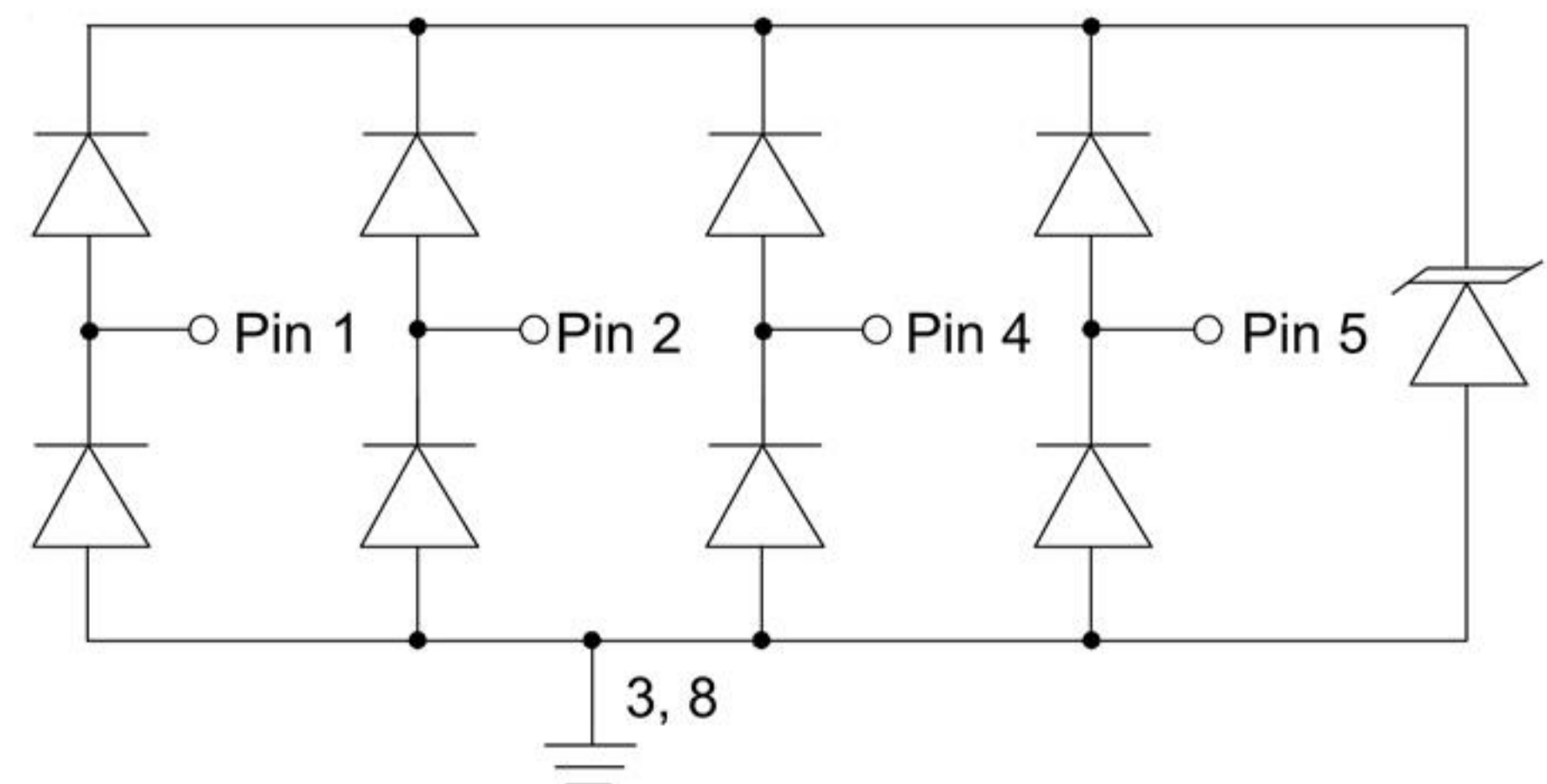
### Ordering Information

Part Number	Qty per Reel	Reel Size
TPESD5304D-10	3000	7"

### Dimensions and Pin Configuration



Pin	Identification
1, 2, 4, 5	Input Lines
6, 7, 9, 10	Output Lines (No Internal Connection)
3, 8	Ground



4-Line Protection

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

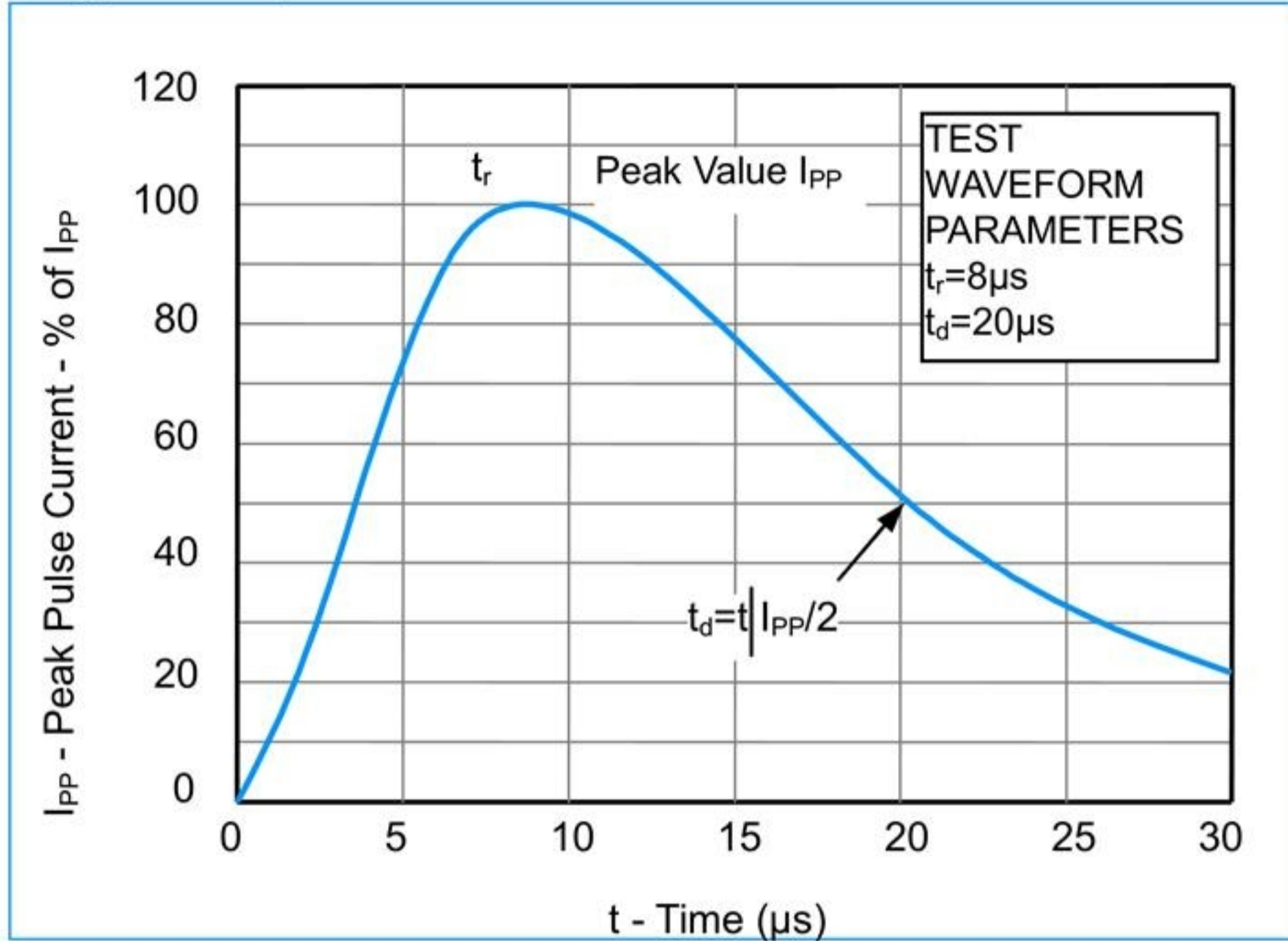
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	150	W
Peak Pulse Current (8/20μs)	I <sub>PP</sub>	5	A
ESD per IEC 61000-4-2 (Air)	V <sub>ESD</sub>	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	°C

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

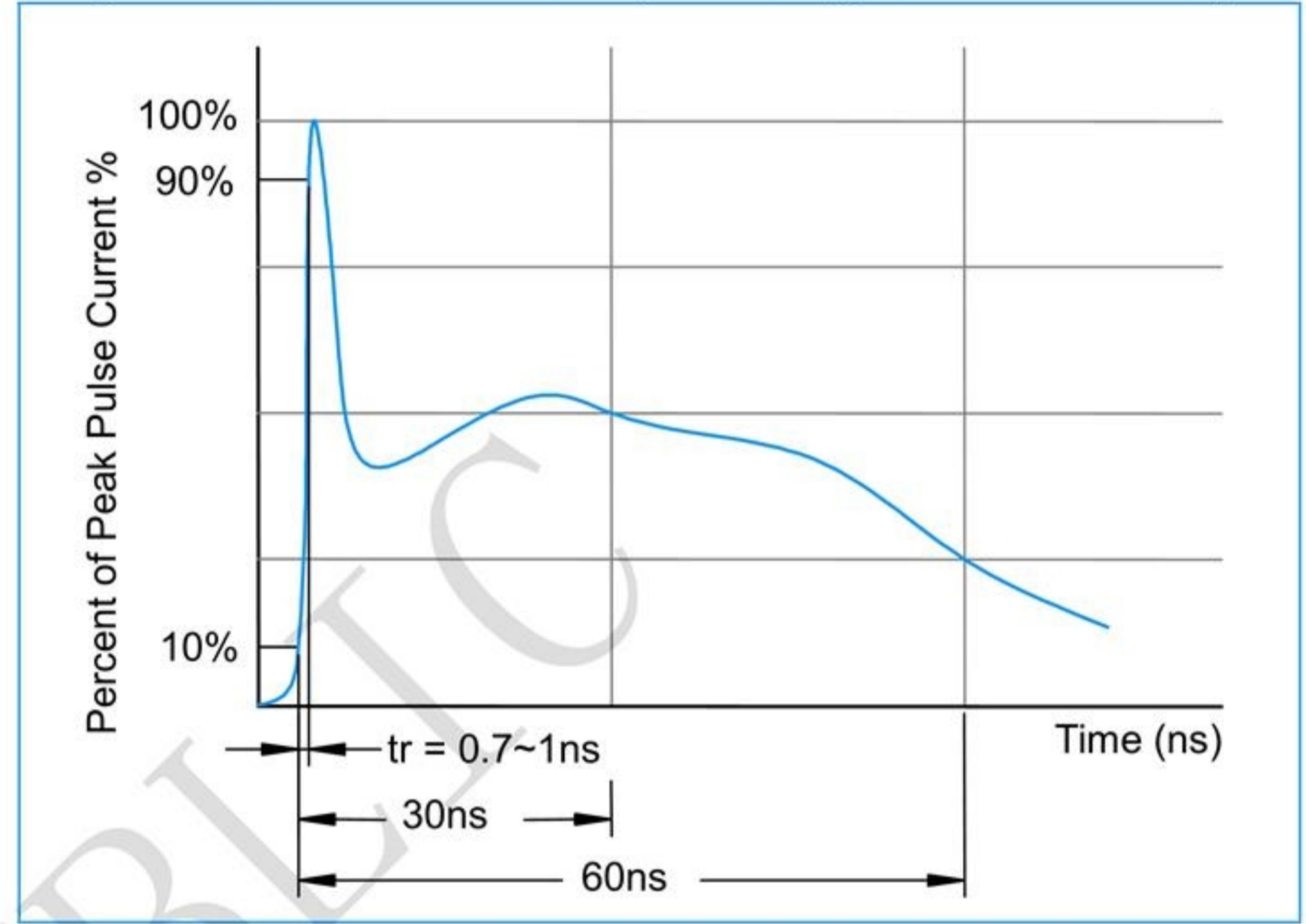
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			5	V	Any I/O pin to ground
Breakdown Voltage	V <sub>BR</sub>	6			V	I <sub>T</sub> = 1mA, any I/O pin to ground
Reverse Leakage Current	I <sub>R</sub>		0.01	0.5	μA	V <sub>RWM</sub> = 5V, any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			9	V	I <sub>PP</sub> = 1A (8 x 20μs pulse), any I/O pin to ground
Clamping Voltage	V <sub>C</sub>			16	V	I <sub>PP</sub> = 5A (8 x 20μs pulse), any I/O pin to ground
Junction Capacitance	C <sub>J</sub>		0.3	0.4	pF	V <sub>R</sub> = 0V, f = 1MHz, between I/O pins
Junction Capacitance	C <sub>J</sub>			0.8	pF	V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to ground

**Characteristic Curves**

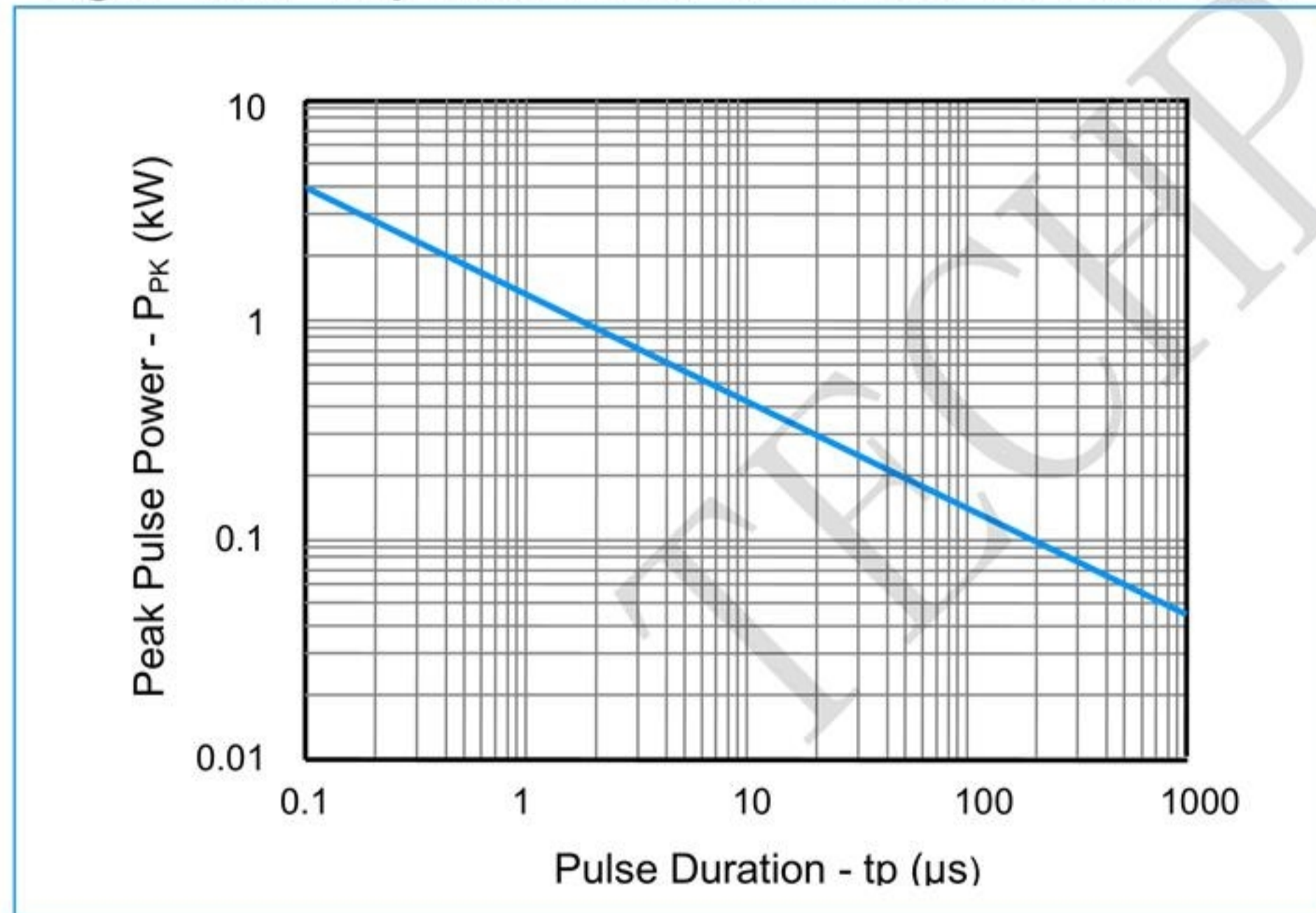
**Fig1. 8/20 $\mu$ s Pulse Waveform**



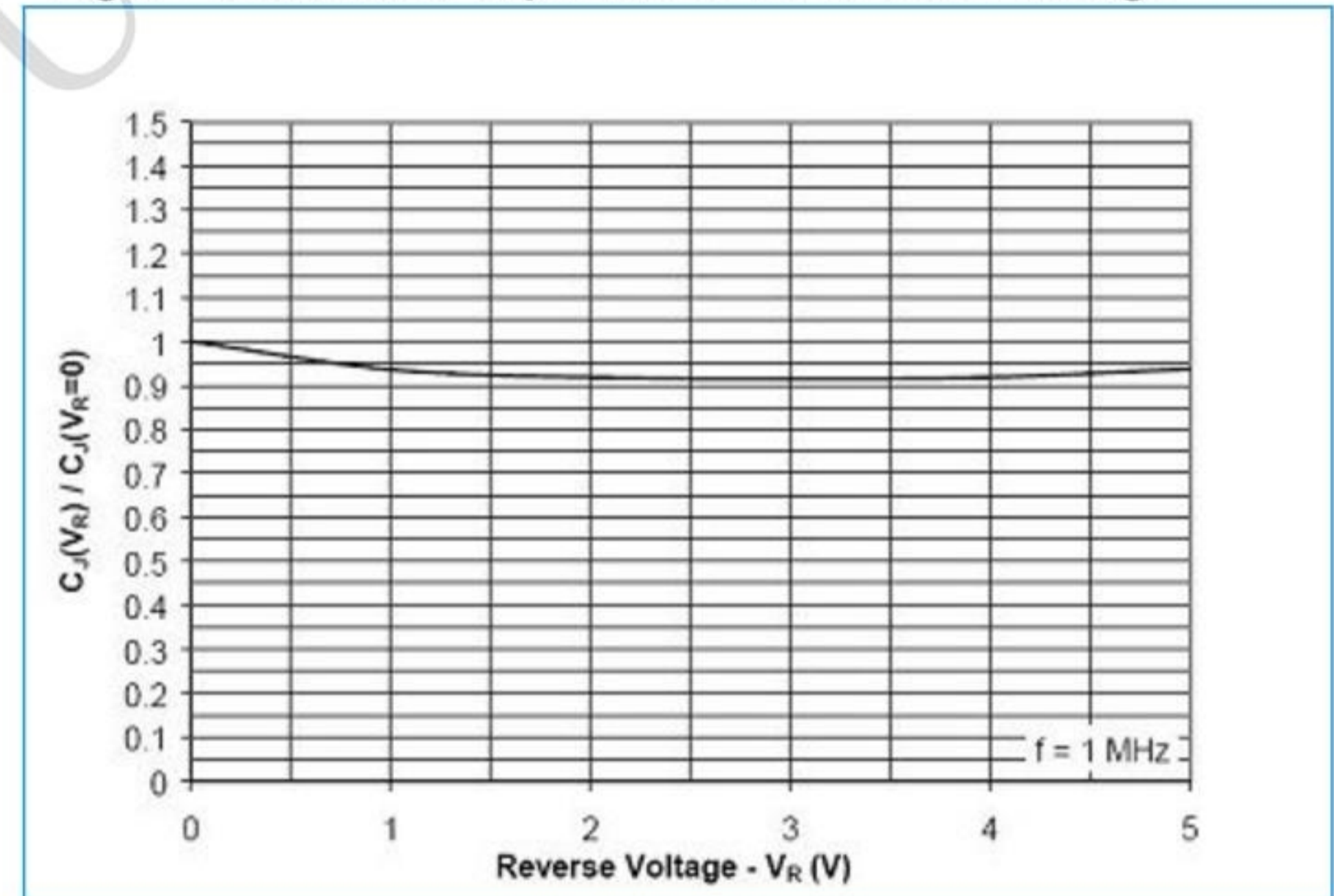
**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



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

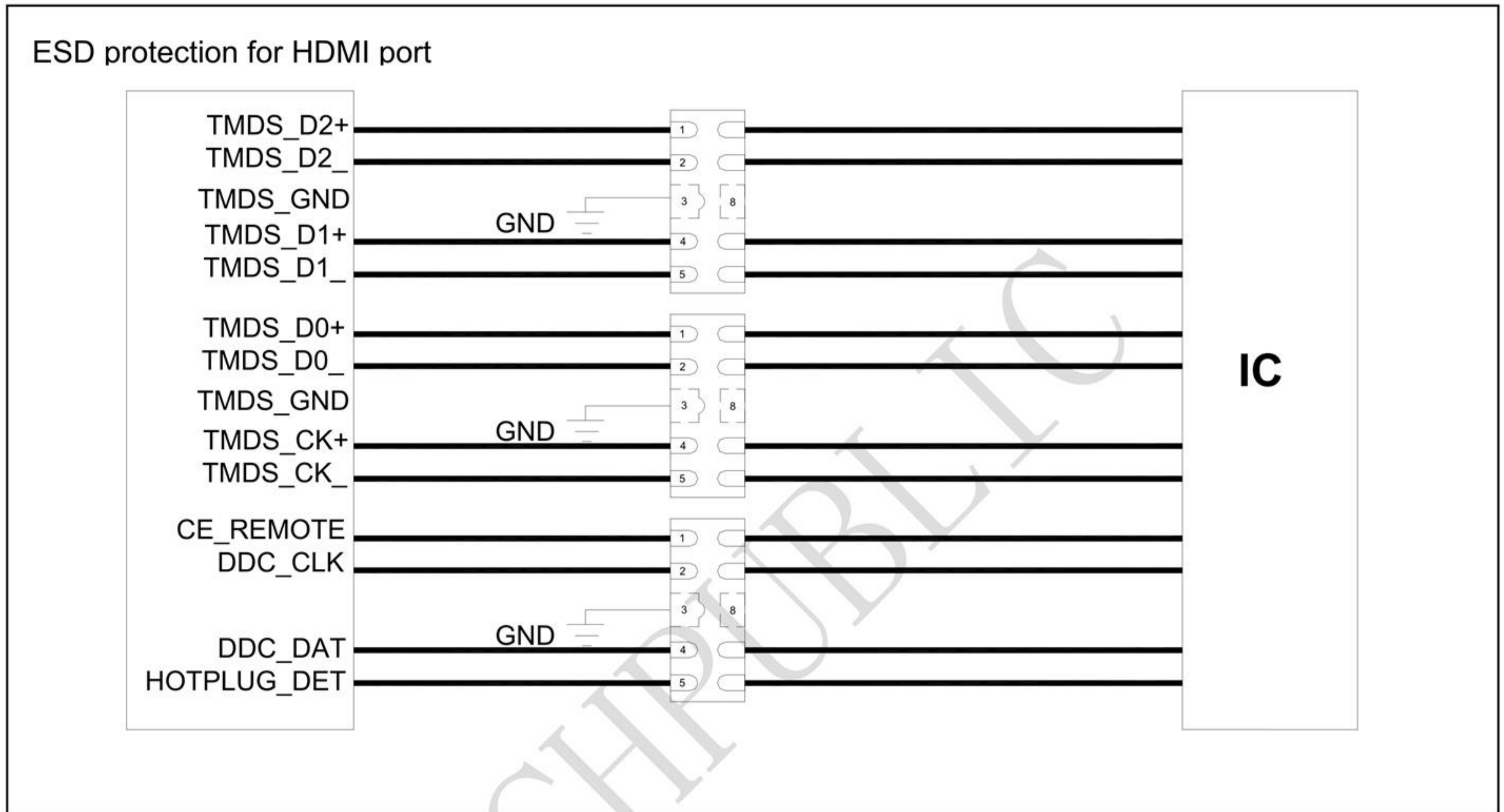


**Fig4. Normalized Capacitance vs. Reverse Voltage**

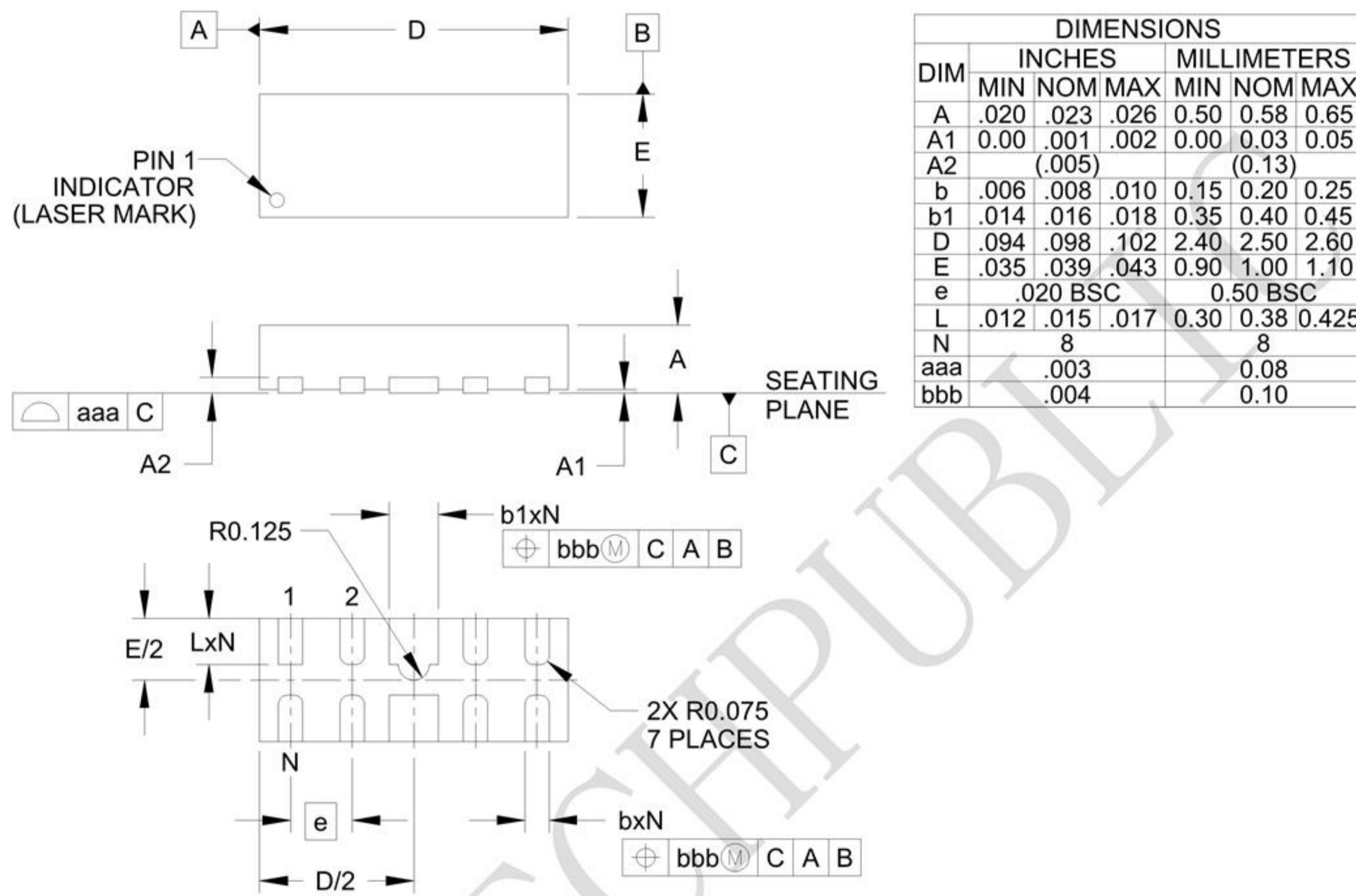


**Application Information**

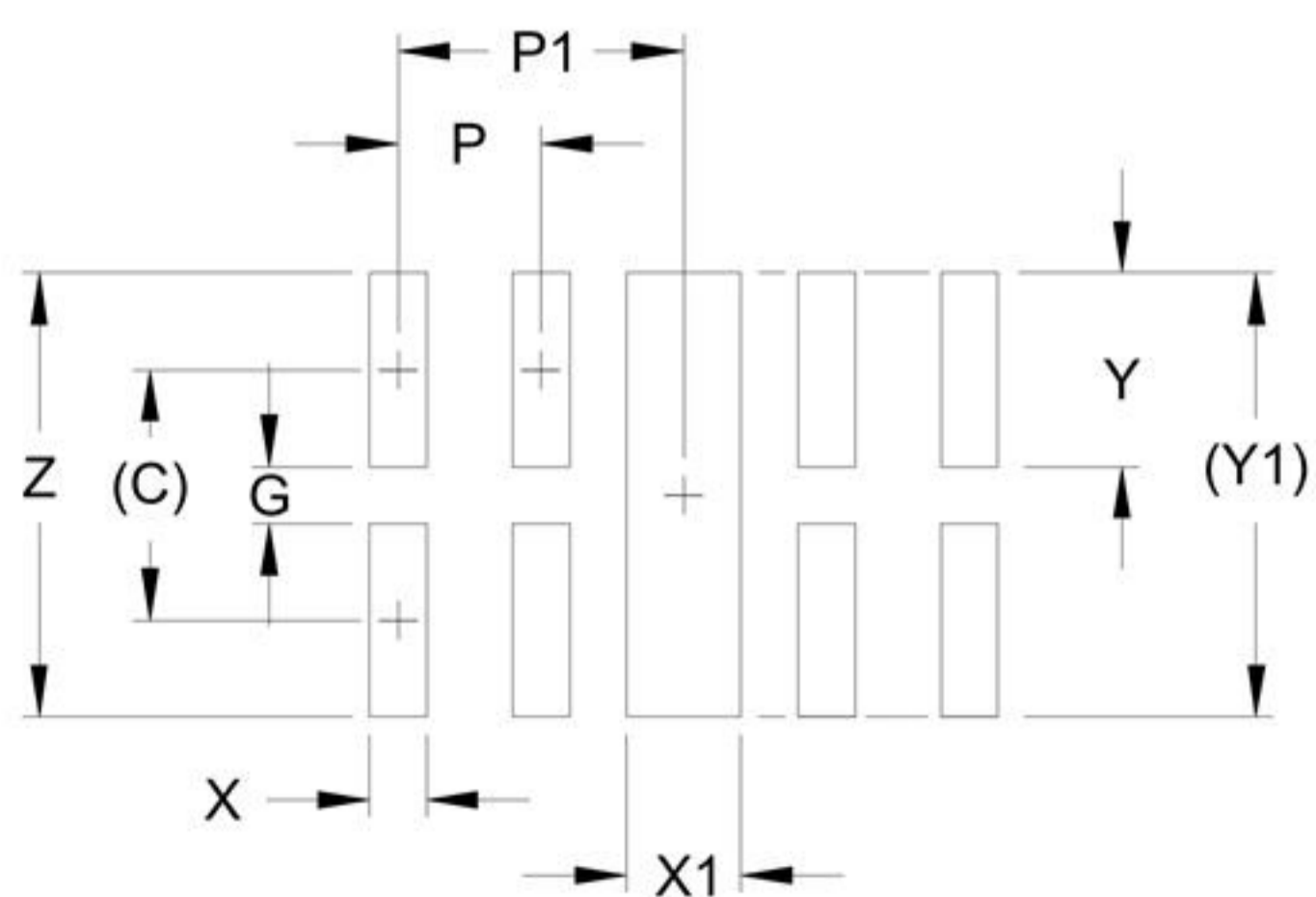
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### Outline Drawing - DFN2510-10



### 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