

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

[www.msksemi.com](http://www.msksemi.com)

**Features**

- Ultra-Low capacitance:0.35pF(typ.)
- Reverse stand-off voltage:5V
- IEC 61000-4-2 (Air): ±15KV  
IEC 61000-4-2 (Contact): ±10KV

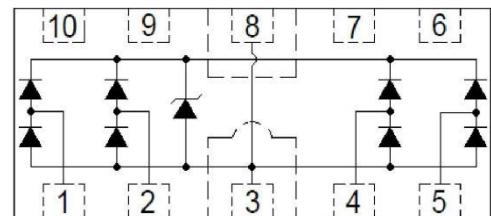
**Pin Description**



**Applications**

- USB 3.0, USB 2.0
- HDMI 1.3/1.4, Display Port 1.3, eSATA
- Unified Display Interface (UDI)
- Digital Visual Interface (DVI)
- High speed serial interfaces

**Schematic Diagram**



Top View

**Limiting Values(T<sub>A</sub> = 25 °C, unless otherwise specified)**

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>ESD</sub>	Electrostatic Discharge Voltage	IEC 61000-4-2; Contact Discharge	-	±10	kV
		IEC 61000-4-2; Air Discharge	-	±15	kV
I <sub>PPM</sub>	Rated Peak Pulse Current	t <sub>p</sub> = 8/20 μs	-	2.5	A
T <sub>A</sub>	Ambient Temperature Range	-	-55	125	°C
T <sub>stg</sub>	Storage Temperature Range	-	-55	150	°C

**Electrical Characteristics(T<sub>A</sub> = 25 °C unless otherwise specified)**

Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V <sub>RWM</sub>	Reverse Working Voltage	T <sub>A</sub> = 25 °C	-	-	5	V
V <sub>BR</sub>	Breakdown Voltage	I <sub>R</sub> = 1 mA	6	7.2	9.5	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V	-	0.01	1	μA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> =2.5A, T <sub>P</sub> =8/20μs	-	10	-	V
		V <sub>ESD</sub> =+8kV	-	20	-	V
V <sub>T</sub>	Trigger Voltage	V <sub>ESD</sub> =+8kV	-	135	-	V
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1 MHz, I/O to I/O	-	0.15	-	pF
		V <sub>R</sub> = 0V, f = 1 MHz, I/O to GND	-	0.35	-	pF

**Typical Characteristics**

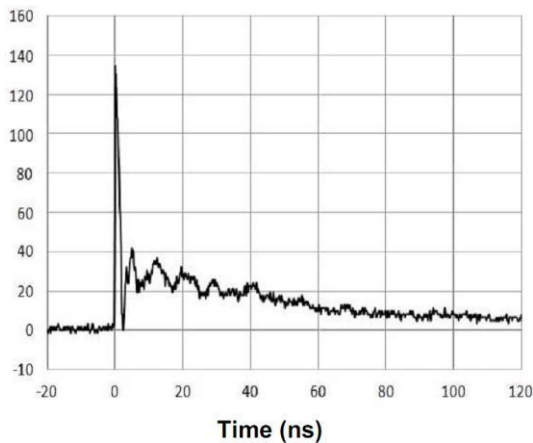


Fig.1 IEC61000-4-2 +8kV Contact ESD Clamping Waveform

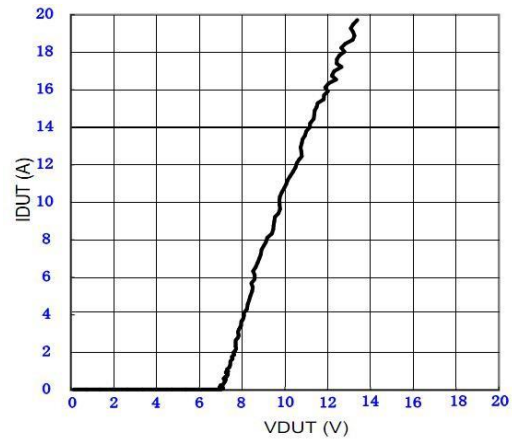


Fig.2 Transmission Line Pulse (t<sub>p</sub>=100ns)

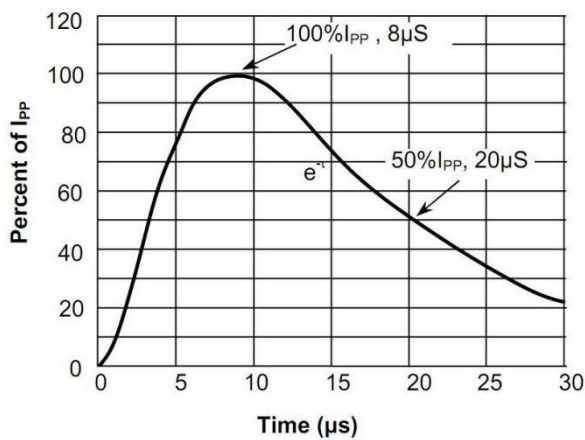


Fig.3 Pulse Waveform-8/20μs

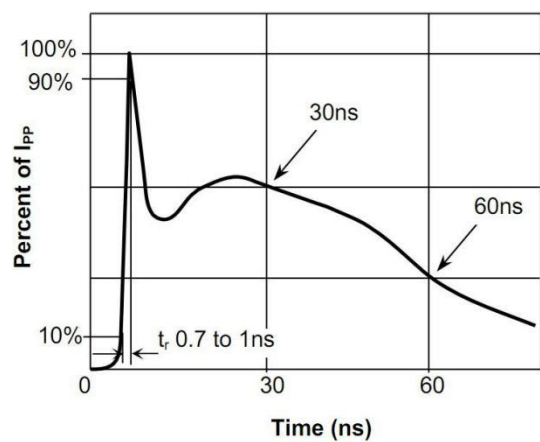
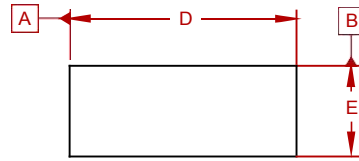
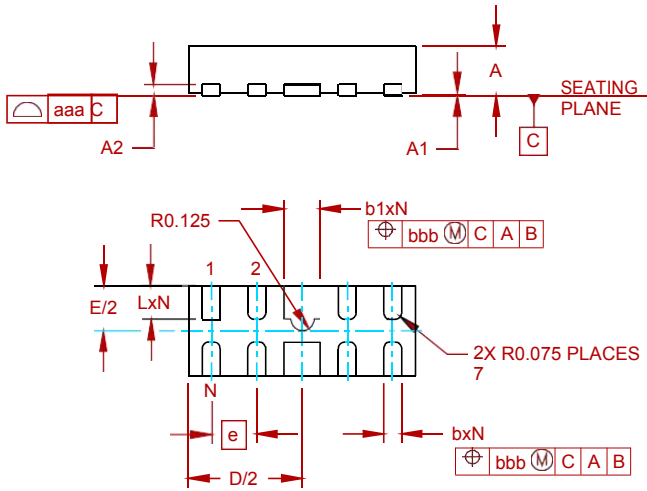


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

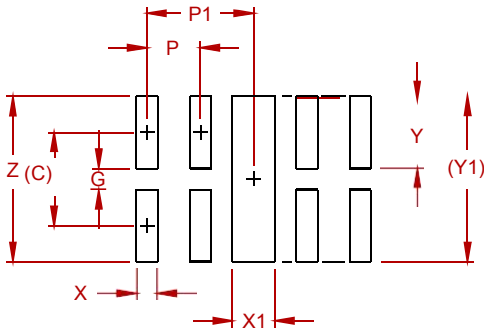
**PACKAGE MECHANICAL DATA**



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		

Dimensions in millimeters

**Suggested Pad Layout**



DIM	DIMENSIONS	
	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

**NOTES:**

CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).  
THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY.  
CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

**REEL SPECIFICATION**

P/N	PKG	QTY
MS1045-04F	DFN2510P10E	3000

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