

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

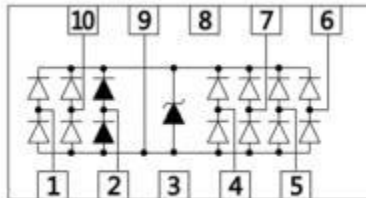
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**PACKAGE OUTLINE**



DFN4120-10

**CIRCUIT DIAGRAM**



**FEATURES**

- ✦ Transient protection for high-speed data lines  
IEC 61000-4-2(ESD) ±20KV(Contact)  
±25KV(Air)
- IEC 61000-4-4(EFT) 40A(5/50ns)  
Cable Discharge Event (CDE)
- ✦ Package optimized for high-speed lines
- ✦ Small package (4.1mm\*2.0mm\*0.5mm)
- ✦ Protects six data lines and one Vcc line
- ✦ Low capacitance: 0.2pF (I/O to I/O)
- ✦ Low leakage current
- ✦ Low clamping voltage
- ✦ Each I/O pin can withstand over 1000 ESD strikes  
for ±8KV contact discharge

**MACHANICAL DATA**

- ✦ DFN4120- 10 package
- ✦ Flammability Rating: UL 94V-0
- ✦ Packaging: Tape and Reel
- ✦ High temperature soldering guaranteed:  
260C/10s
- ✦ Reel size: 7 inch

**APPLICATIONS**

- ✦ USB3.0
- ✦ HDMI1.4
- ✦ High Speed I/O Ports in any electronic product

**ABSOLUTE MAXIMUM RATING**

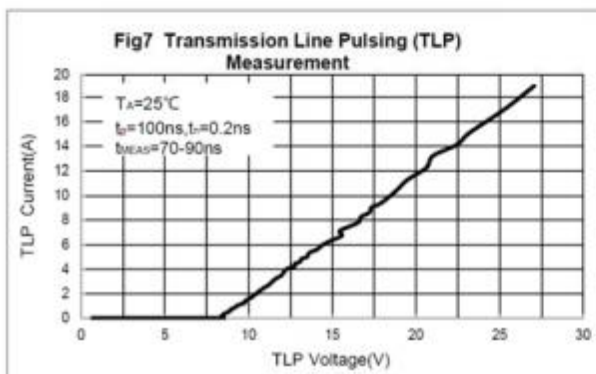
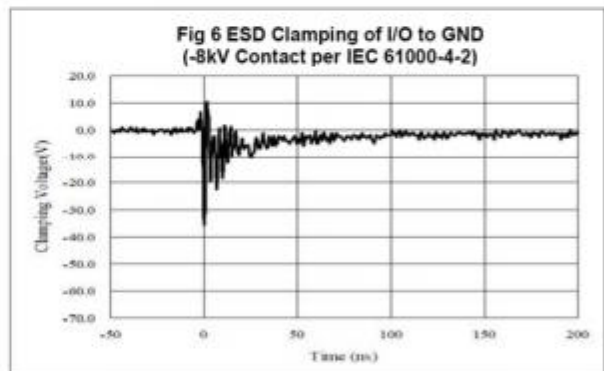
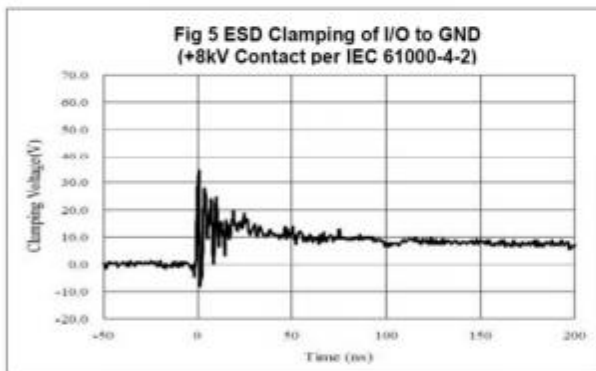
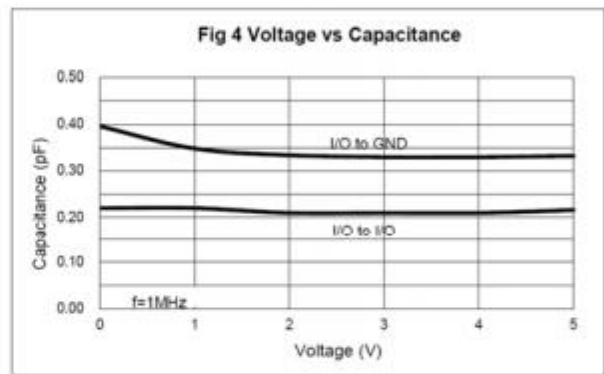
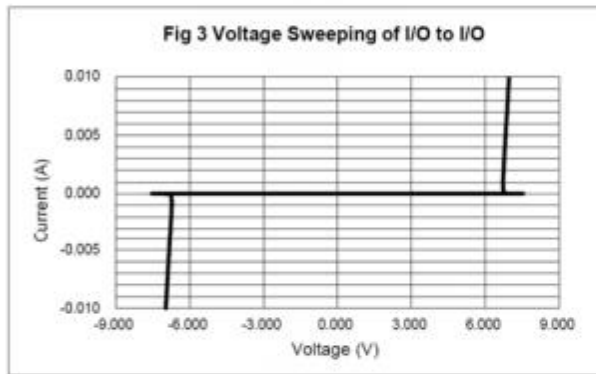
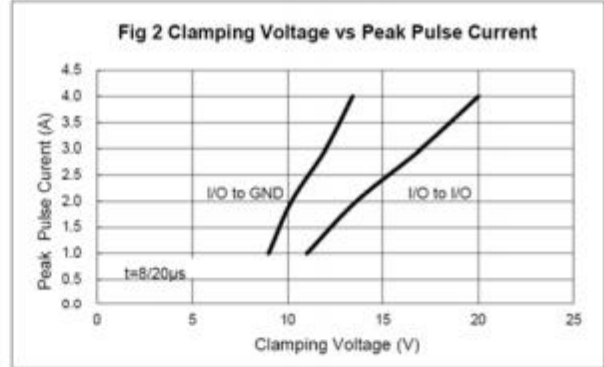
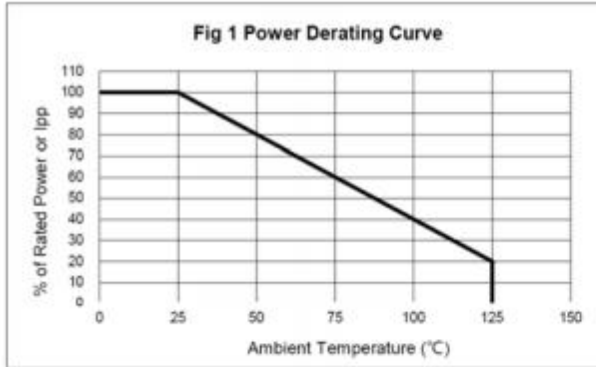
Symbol	Parameter	Value	Units
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	60	W
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±20 ±25	kV
T <sub>OPT</sub>	Operating Temperature	-55/+125	°C
T <sub>STG</sub>	Storage Temperature	-55/+150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25 °C)**

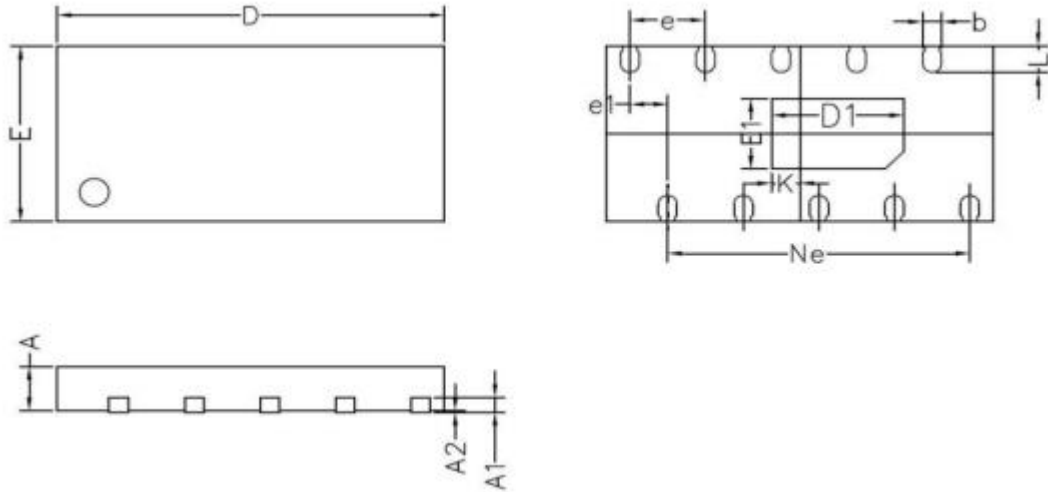
Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage	Any I/O or V <sub>CC</sub> pin to GND			5.0	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA Any I/O or V <sub>CC</sub> pin to GND	6.0		9.0	V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V Any I/O or V <sub>CC</sub> pin to GND			1.0	μA
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, t <sub>p</sub> = 8/20μs Any I/O pin to GND			10	V
		I <sub>PP</sub> = 4A, t <sub>p</sub> = 8/20μs Any I/O pin to GND			15	V
		I <sub>PP</sub> = 8A, t <sub>p</sub> = 8/20μs V <sub>CC</sub> pin to GND			15	V
V <sub>CTLP</sub>	TLP Clamping Voltage	I <sub>PP</sub> = 8A IEC61000-4-2 Level 2 equivalent (±4kV Contact, ±8kV Air) Between I/O and GND		16		V
		I <sub>PP</sub> = 16A IEC61000-4-2 Level 4 equivalent (±8kV Contact, ±16kV Air) Between I/O and GND		23		V
C <sub>ESD</sub>	Parasitic Capacitance	V <sub>R</sub> = 0V, f = 1MHz Between I/O and I/O		0.2	0.3	pF
		V <sub>R</sub> = 0V, f = 1MHz Between I/O and GND		0.4	0.5	pF
		V <sub>R</sub> = 0V, f = 1MHz Between V <sub>CC</sub> and GND		0.80		pF

Note: I/O are pin 1,4,5,6,7,10; V<sub>CC</sub> is pin 2; GND are pin9 and heatsink.

**ELECTRICAL CHARACTERISTICS CURVE**



**DFN4120-10L PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions (mm)		
	Min.	Nom.	Max.
A	0.45	0.50	0.55
A1	0.15 REF		
A2	0.00	0.02	0.05
D	4.05	4.10	4.15
E	1.95	2.00	2.05
D1	1.35	1.40	1.45
E1	0.75	0.80	0.85
L	0.25	0.30	0.35
b	0.15	0.20	0.25
e	0.80 BSC		
Ne	3.20 BSC		
e1	0.40 BSC		
K	0.25	0.30	0.35

**REEL SPECIFICATION**

P/N	PKG	QTY
MS1065-06F	DFN4120-10	3000

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