BORN SEMICONDUCTOR

BDFN10A056U1

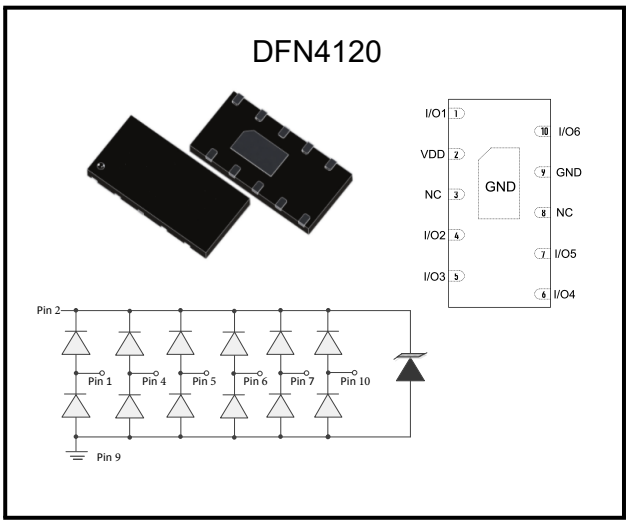
ESD Protection Diode Array

Features

- 45Watts peak pulse power (tp = 8/20μs)
- Protect up to 6-lines
- Solid-state silicon-avalanche technology
- Low clamping Voltage
- Low leakage current
- Low capacitance (C_j=0.3pF typ.I/O to GND)
- IEC 61000-4-2 ±8kV contact ; ±15kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 3A (8/20μs)

Package

DFN4120



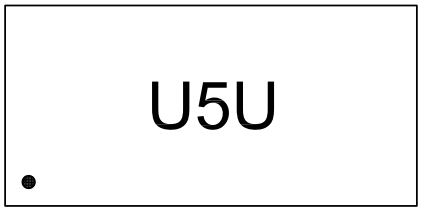
Applications

- USB 3.0/3.1,Type C
- HDMI 1.4/2.0,Display Port 1.3
- Unified Display interface
- Digital Visual Interface

Mechanical Data

- Tiny DFN4120 package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
BDFN10A056U1	DFN4120	3k	Tape and reel

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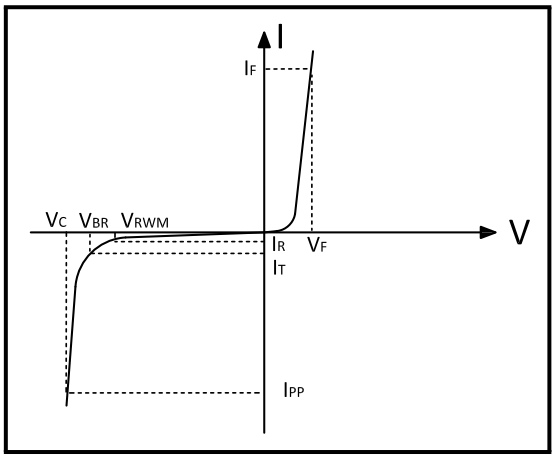
Electrical Parameters (T_A = 25°C unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



Note:8/20us pulse Waveform.

Absolute Maximum Rating

Rating	Symber	Value	Units
Peak Pulse Power (tp =8/20μs)	P_{PP}	45	Watts
Peak Pulse Current (tp =8/20μs)	I_{PP}	3	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	15 8	KV
Lead Soldering Temperature	T_L	260(10seconds)	°C
Junction Temperature	T_J	-55 to + 150	°C
Storage Temperature	T_{stg}	-55 to + 150	°C

Electrical Characteristics

Parameter	Symber	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}	–	–	–	5.0	V
Reverse Breakdown Voltage	V_{BR}	I_T=1mA	6.0	7.5	9.5	V
Reverse Leakage Current	I_R	V_{RWM}=5V,T=25°C	–	–	0.5	uA
Peak Pulse Current	I_{PP}	tp =8/20us	–	–	3.0	A
Clamping Voltage	V_C	I_{PP}=3A, tp =8/20us	–	15	–	V
Junction Capacitance	C_j	V_R=0V,f=1MHZ,I/O to I/O	–	0.2	0.3	pF
		V_R=0V,f=1MHZ,I/O to GND	–	0.3	0.4	

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Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

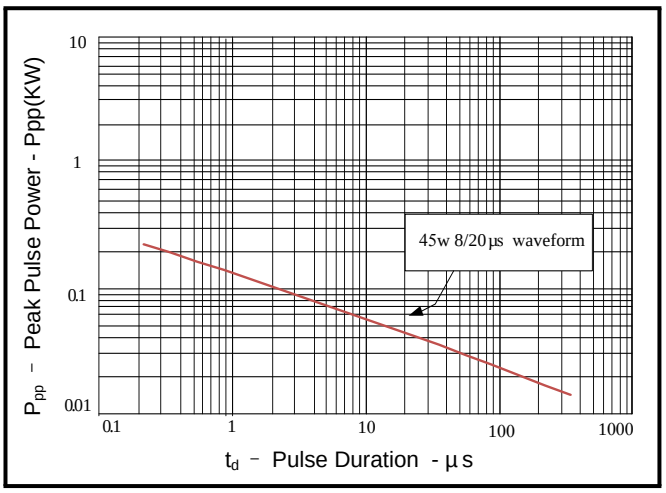


Figure 2: Power Derating Curve

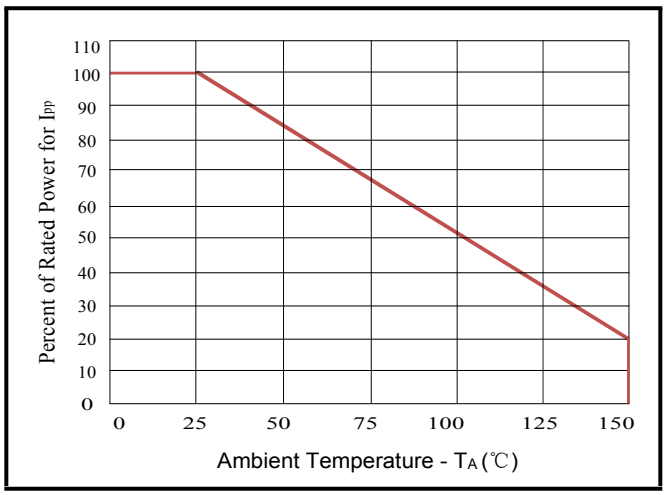


Figure 3: Pulse Waveform

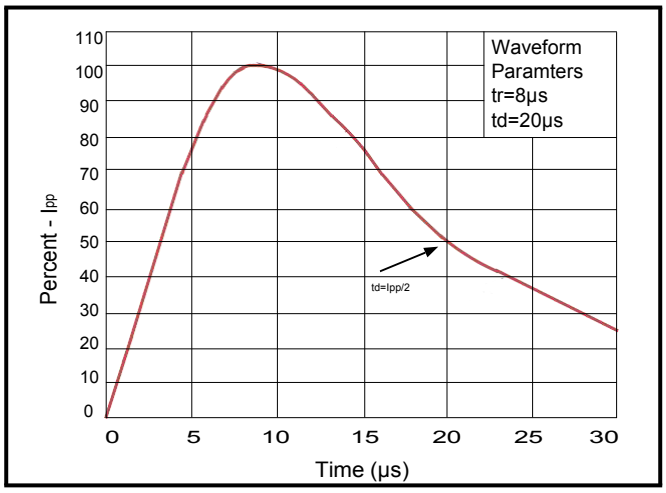
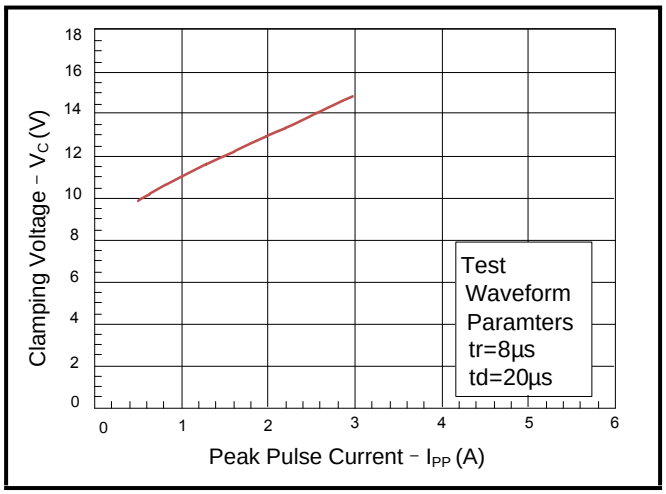


Figure 4: Clamping Voltage vs. I_{PP}



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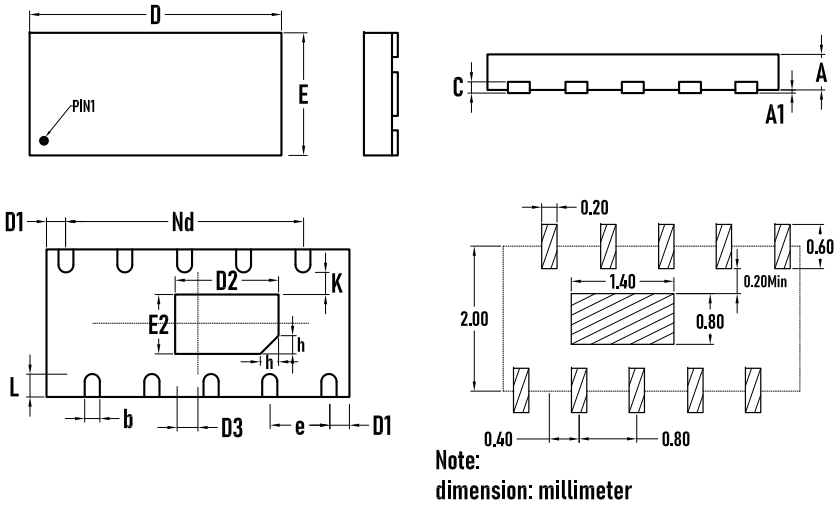
Outline Drawing – DFN4120



Note:
dimension: millimeter

SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.45	0.50	0.55
A1	–	0.02	0.05
b	0.15	0.20	0.25
c	0.10	0.15	0.20
D	4.00	4.10	4.20
D1	0.20	0.25	0.30
D2	1.30	1.40	1.50
D3	0.25	0.30	0.35
e	0.80BSC		
Nd	3.20BSC		
E	1.90	2.00	2.10
E2	0.70	0.80	0.90
K	0.20	–	–
L	0.25	0.30	0.35
h	0.15	0.20	0.25

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