

4-Line TVS for Ethernet Interfaces

Features

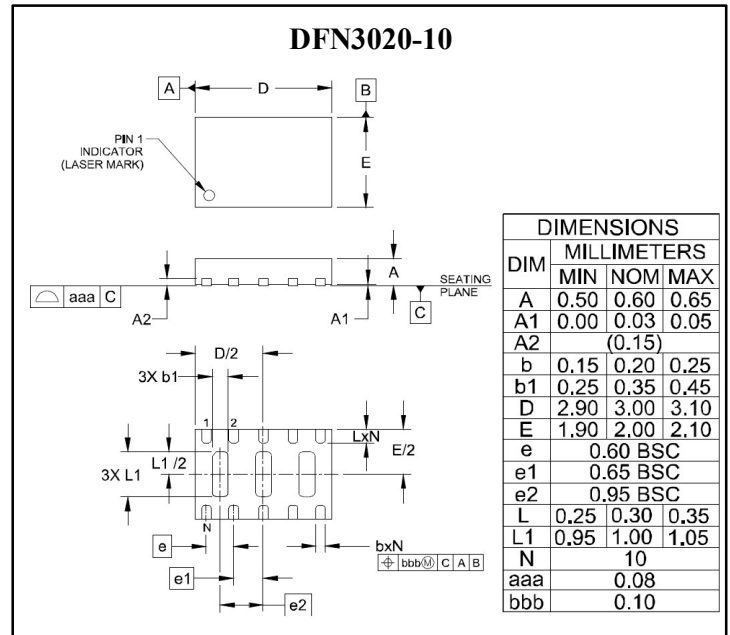
- Low capacitance : 1.7pF typical (I/O to I/O)
- Ultra low leakage : nA level
- Ultra low operating voltage : 3.3V
- Ultra low clamping voltage
- Protects up to eight lines
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
Air discharge : $\pm 30\text{kV}$,
Contact discharge : $\pm 30\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 40A (8/20us)
- RoHS Compliant

Mechanical Data

- Package : DFN3020-10
- Case Material : "Green" Molding Compound.
- Lead Finish : NiPdAu
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information : See Below

Applications

- LVDS Interfaces
- 10/100/1000 Ethernet
- Notebooks, Desktops, Servers
- Networking Equipment
- Switching Systems
- Audio/Video Inputs

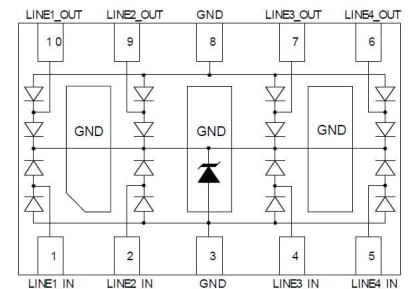


Marking



3344 = Device Marking Code

Dot denotes pin1



Circuit and Pin Schematic

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	Ppk	1000	W
Peak Pulse Current (8/20us)	Ipp	40	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Electrical Characteristics (Ta= 25°C unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	-	-	3.3	V	
Breakdown Voltage	V _{BR}	3.5	-	-	V	I _T = 2uA
Reverse Leakage Current	I _R	-	-	0.5	uA	V _{RWM} = 3.3V
Clamping Voltage (any I/O pin to ground)	V _C	-	-	5.5	V	I _{PP} = 1A (8×20us pulse)
Clamping Voltage (any I/O pin to ground)	V _C	-	-	10.5	V	I _{PP} = 10A (8×20us pulse)
Clamping Voltage (any I/O pin to ground)	V _C	-	-	18	V	I _{PP} = 25A (8×20us pulse)
Clamping Voltage (line to line) (Note 1)	V _C	-	-	25	V	I _{PP} = 40A (8×20us pulse)
Junction Capacitance (between I/O pins)	C _J	-	1.7	2.5	pF	f = 1MHZ, V _R = 0V
Junction Capacitance (any I/O pin to ground)	C _J	-	3.8	5.0	pF	f = 1MHZ, V _R = 0V

* Note 1. two I/O pins connected together on each line

Ratings and Characteristics Curves ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Fig.1 Power Derating Curve

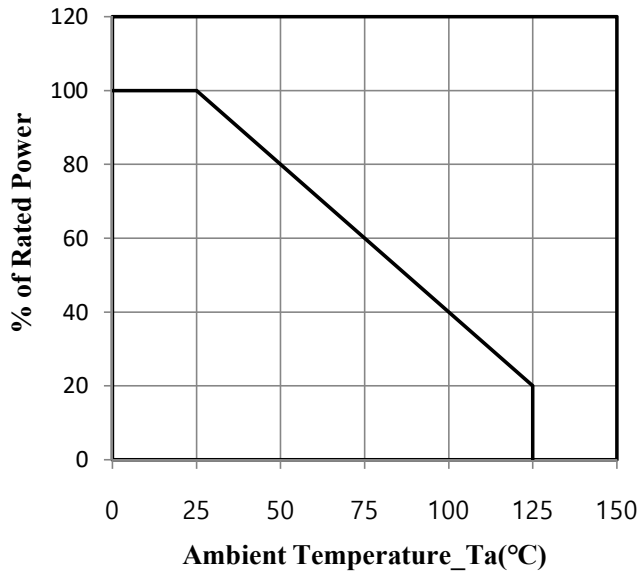


Fig.2 Peak Pulse Power vs. Pulse Time

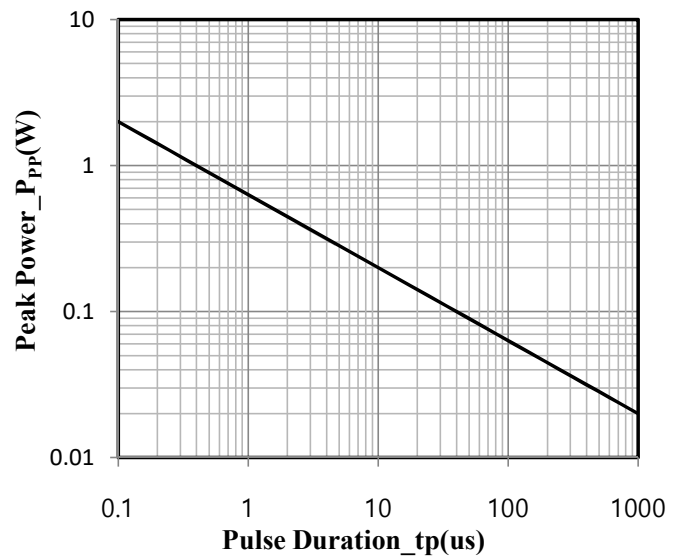


Fig.3 Clamping Voltage vs. Peak Pulse Current ($t_p=8/20\mu\text{s}$)

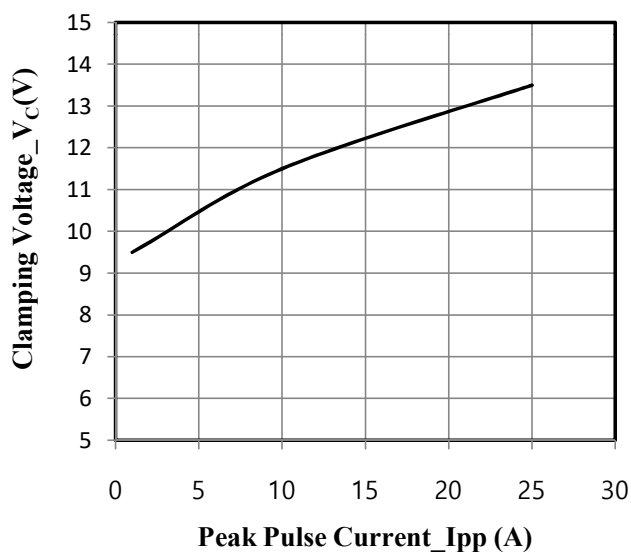


Fig.4 Junction Capacitance vs. Reverse Voltage

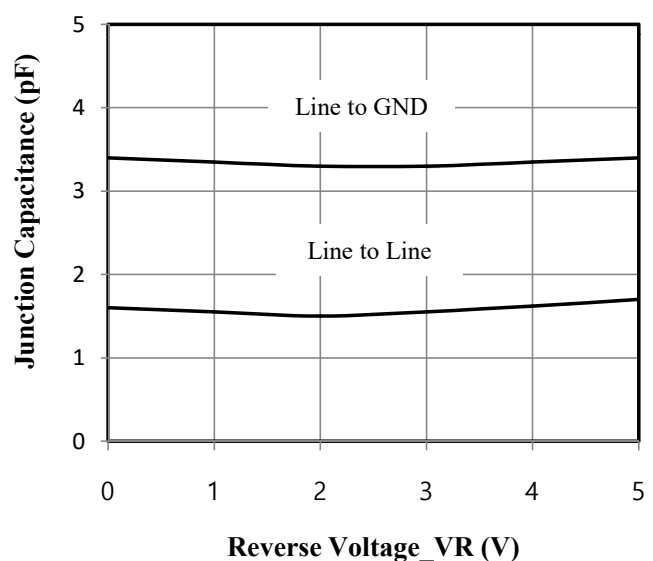


Fig.5 8 × 20us Pulse Waveform

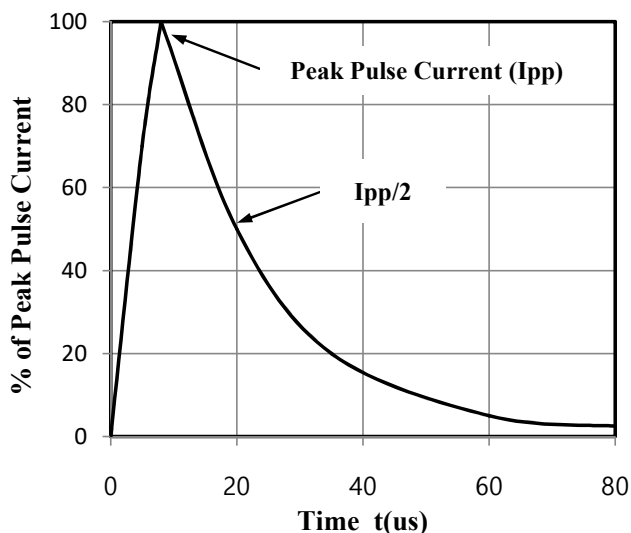
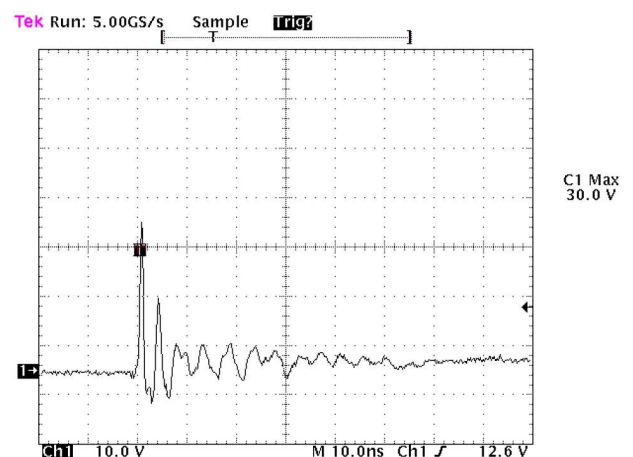


Fig. 6 ESD Clamping Voltage 8kV Contact per IEC61000-4-2



Typical Application

Electronic equipment is susceptible to damage caused by a variety of sources, including Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and Lightning strikes. The AR3304P9 is designed to protect the sensitive equipment from damage which may be induced by such transient events. This product can be configured in different connections to meet the requirement of common-mode and differential-mode

AR3304P9 on Gigabit Ethernet Application

