



4-Line Low Capacitance TVS Diode Array

Features

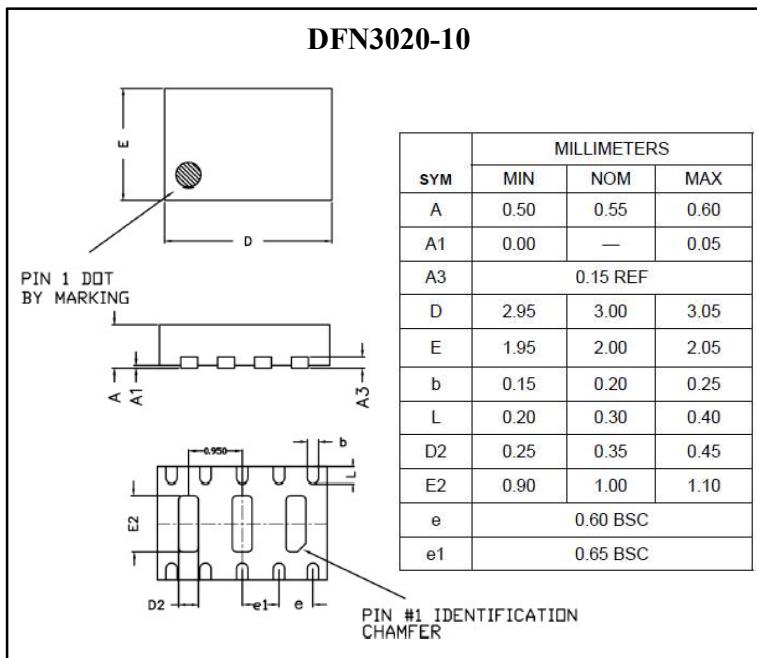
- Ultra low capacitance : 1.5pF typical (I/O to I/O)
- Ultra low leakage : nA level
- Operating voltage : 5V
- Low clamping voltage
- Up to 4 lines and one power line protects
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
Air discharge : $\pm 30\text{kV}$, Contact discharge : $\pm 30\text{kV}$
 - IEC61000-4-5(Lightning) 25A (8/20us)
- RoHS Compliant

Mechanical Data

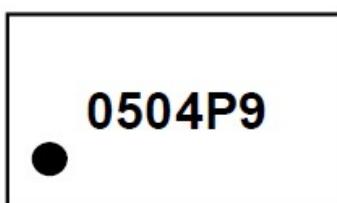
- Package : DFN3020-6
- Lead Finish : NiPdAu
- Case Material : "Green" Molding Compound.
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information: See Below

Applications

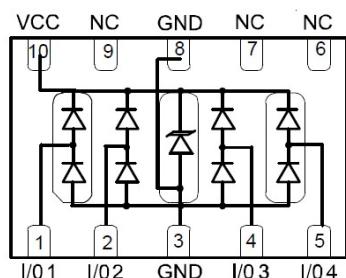
- USB 2.0 power and data line
- Monitors and Flat Panel Displays
- Video Graphics Cards
- Digital Video Interface (DVI)
- Notebook Computers
- 10/100 Ethernet
- Networking Equipment



Marking and Circuit



0504P9=Device Marking Code
Dot denotes Pin 1



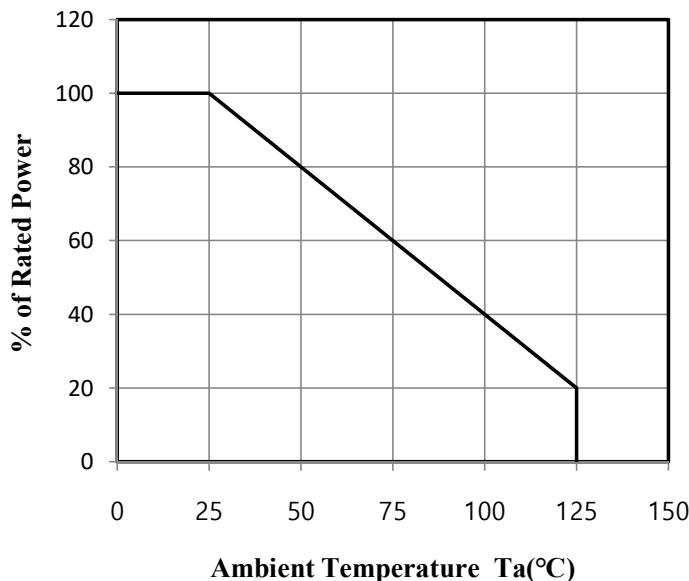
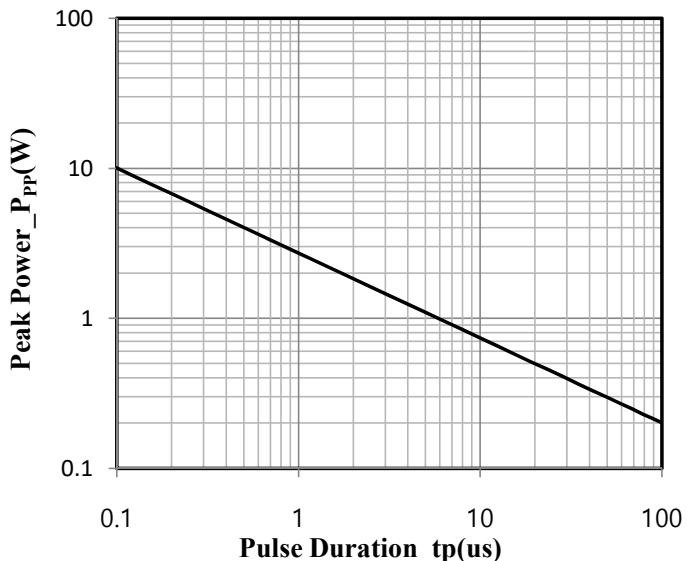
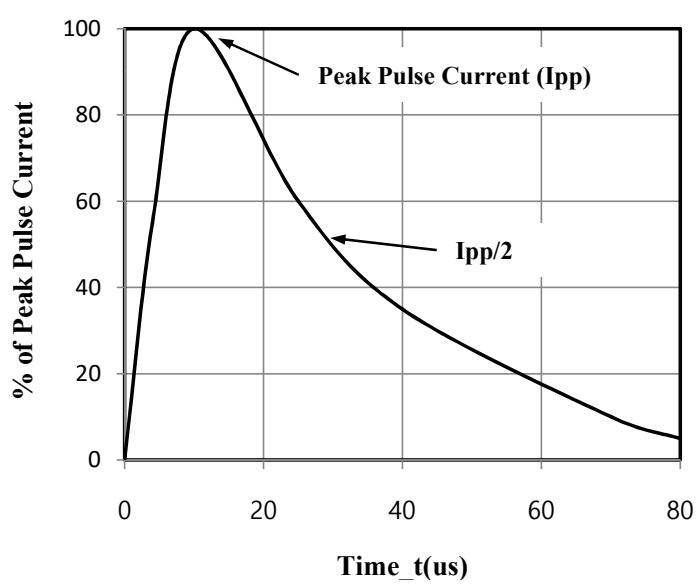
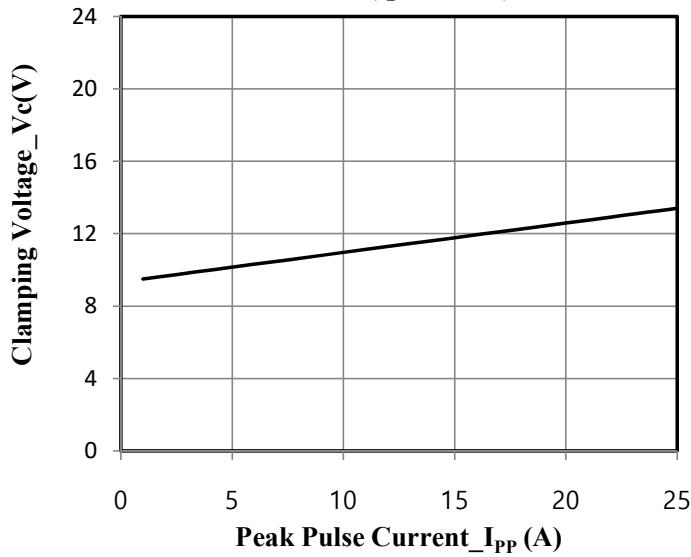
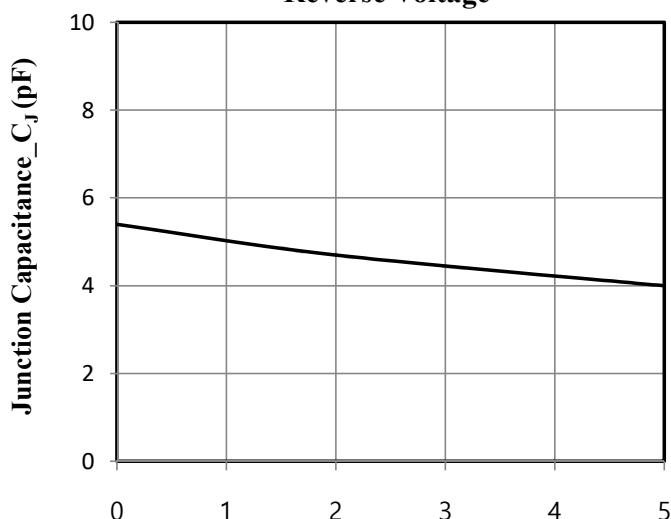
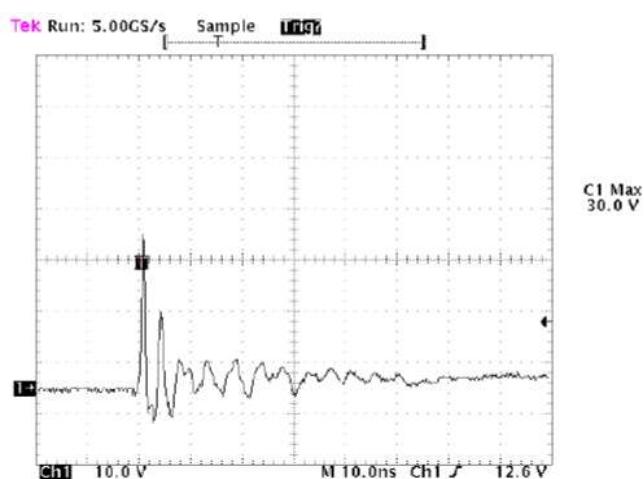
Circuit and Pin Schematic

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20us)	Ppk	500	W
Peak Pulse Current (8/20us)	I _{PP}	25	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Junction Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

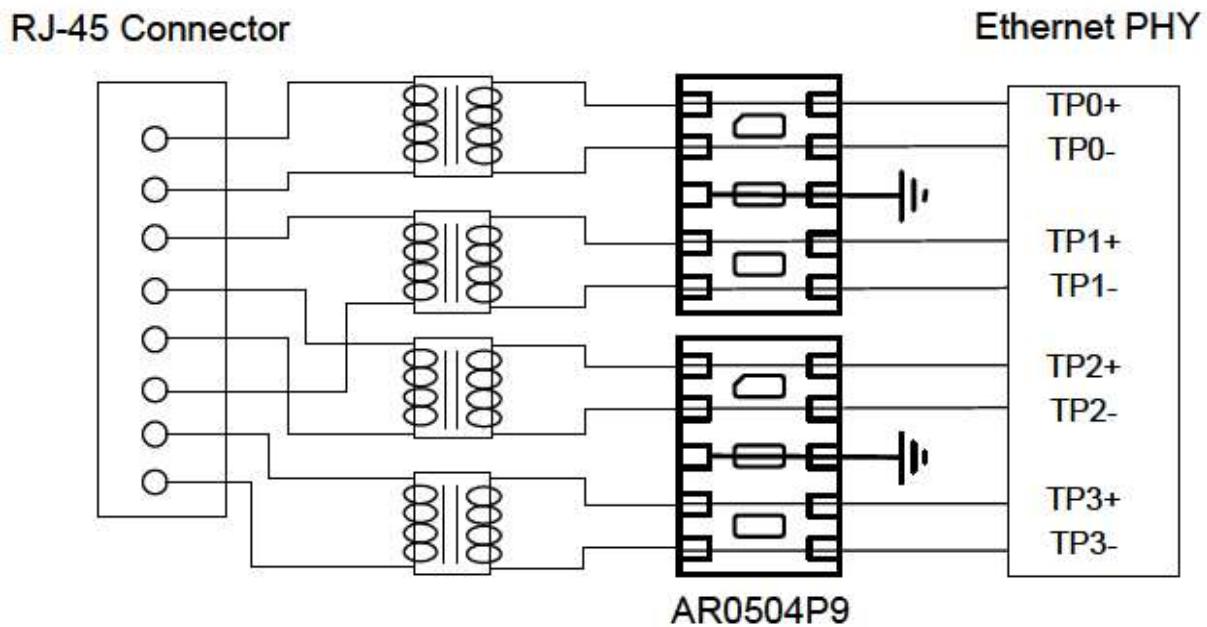
Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Reverse Working Voltage	V _{RWM}	-	-	5.0	V	
Breakdown Voltage	V _{BR}	6.0	-	-	V	I _T = 1mA
Reverse Leakage Current	I _R	-	-	0.5	uA	V _{RWM} = 5V
Clamping Voltage (8/20us pulse)	V _C	-	-	10	V	I _{PP} =1A, any I/O pin to ground
	V _C			12	V	I _{PP} =10A, any I/O pin to ground
	V _C	-	-	20	V	I _{PP} =25A, any I/O pin to ground
Junction Capacitance	C _J	-	1.5	-	pF	f=1MHz, V _R =0V, between I/O pins
	C _J	-	3.0	5.0	pF	f=1MHz, V _R =0V, any I/O pin to ground

Ratings and Characteristics Curves (Ta=25°C unless otherwise noted)
Fig.1 Power Derating Curve

Fig.2 Peak Pulse Power vs. Pulse Time

Fig.3 8 × 20us Pulse Waveform

Fig.5 Clamping Voltage vs. Peak Pulse Current ($t_p=8/20\mu s$)

Fig.4 Junction Capacitance vs. Reverse Voltage

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


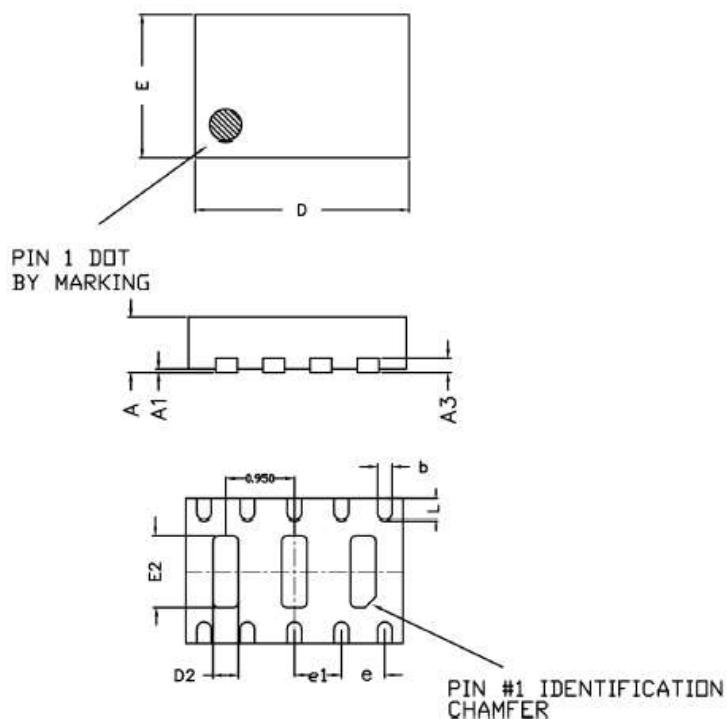
Note: Data is taken with a 10x attenuator

AR0504P9 on Ethernet Application



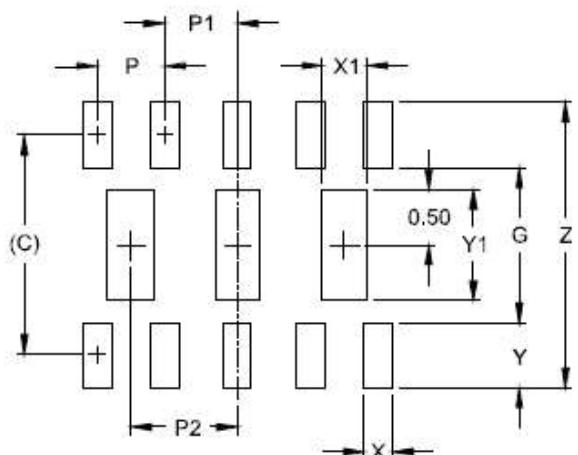


DFN3020-10 Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.55	0.60
A1	0.00	—	0.05
A3	0.15 REF		
D	2.95	3.00	3.05
E	1.95	2.00	2.05
b	0.15	0.20	0.25
L	0.20	0.30	0.40
D2	0.25	0.35	0.45
E2	0.90	1.00	1.10
e	0.60 BSC		
e1	0.65 BSC		

Suggested Land Pattern



MILLIMETERS	
C	(1.98)
G	1.40
P	0.60
P1	0.65
P2	0.95
X	0.25
X1	0.40
Y	0.58
Y1	1.00
Z	2.56