



4-Line Ultra Low Capacitance TVS Diode Array

Features

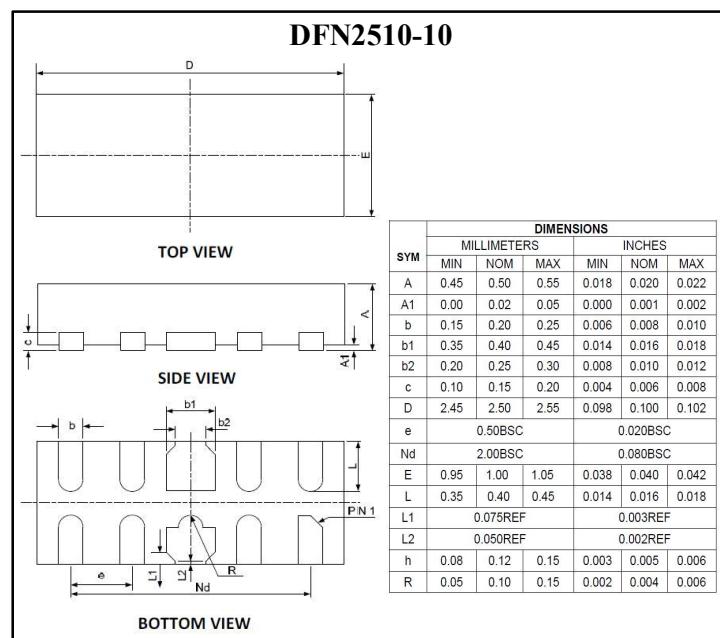
- Ultra low capacitance : 0.3pF typical (I/O to I/O)
- Ultra low leakage : nA level
- Low operating voltage : 5V
- Low clamping voltage
- Up to 4 lines protects
- Leadless flow-through package
- Complies with following standards :
 - IEC 61000-4-2(ESD) immunity test
Air discharge : $\pm 30\text{kV}$, Contact discharge : $\pm 25\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 5A (8/20us)
- RoHS Compliant

Mechanical Data

- Package : DFN2510-10 ($2.5 \times 1.0 \times 0.5\text{mm}$)
- Case Material : "Green" Molding Compound.
- Lead Finish : Matte Tin
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity : Level 3 per J-STD-020
- Terminal Connections : See Diagram Below
- Marking Information : See Below

Applications

- HDMI 1.3 & 1.4, USB 2.0 & 3.0 and MDDI ports
- Monitors and flat panel displays
- Set-top box and Digital TV
- Digital Video Interface (DVI),
- Video graphics cards
- Notebook Computers
- PCI Express and Serial SATA Ports



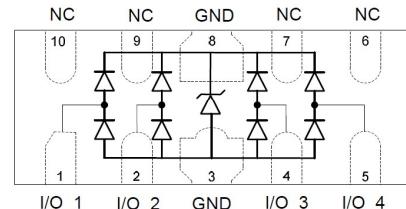
Marking

0524S
YYWW

0524S = Device Marking Code

YYWW = Date 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	80			W
Peak Pulse Current (8/20us)	Ipp	5			A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30			kV
ESD per IEC 61000-4-2 (Contact)		± 25			
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}	-	-	5.0	V	Any I/O pin to ground
Breakdown Voltage (any I/O pin to ground)	V _{BR}	6.0	-	-	V	I _T = 1mA
Reverse Leakage Current (any I/O pin to ground)	I _R	-	0.01	0.5	uA	V _{RWM} =5V
Clamping Voltage (any I/O pin to ground)	V _C	-	-	9	V	I _{PP} =1A(8×20us pulse)
Clamping Voltage (any I/O pin to ground)	V _C	-	-	16	V	I _{PP} =5A(8×20us pulse)
Junction Capacitance (between I/O pins)	C _J	-	0.3	0.4	pF	f=1MHz, V _R =0V
Junction Capacitance (any I/O pin to ground)	C _J	-	-	0.8	pF	f=1MHz, V _R =0V



Ratings and Characteristics Curves (Ta=25°C unless otherwise noted)

Fig.1 Power Derating Curve

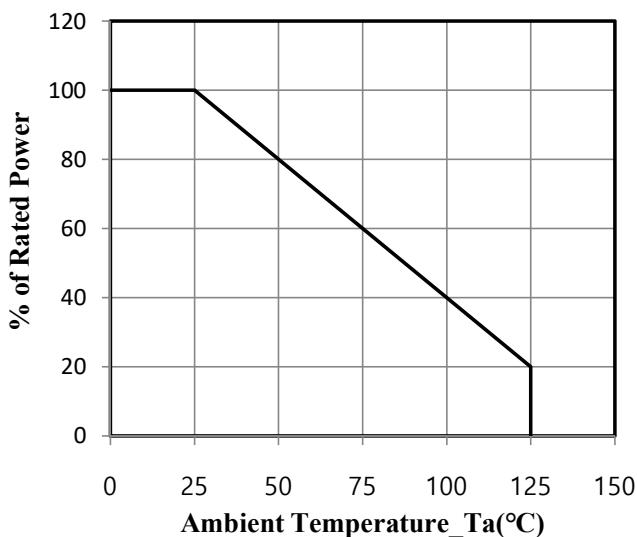


Fig.2 Peak Pulse Power vs. Pulse Time

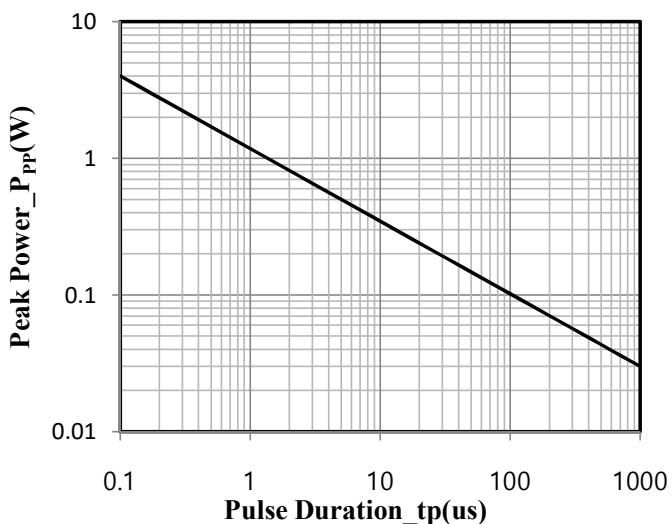


Fig.3 Clamping Voltage vs. Peak Pulse Current (tp=8/20us)

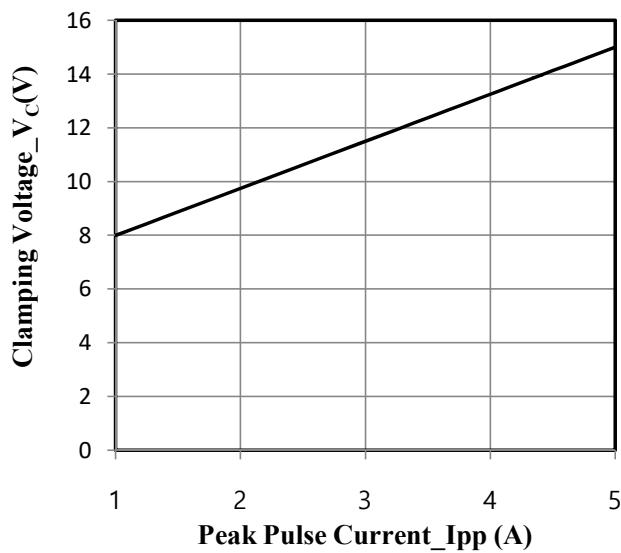


Fig.5 8 × 20us Pulse Waveform

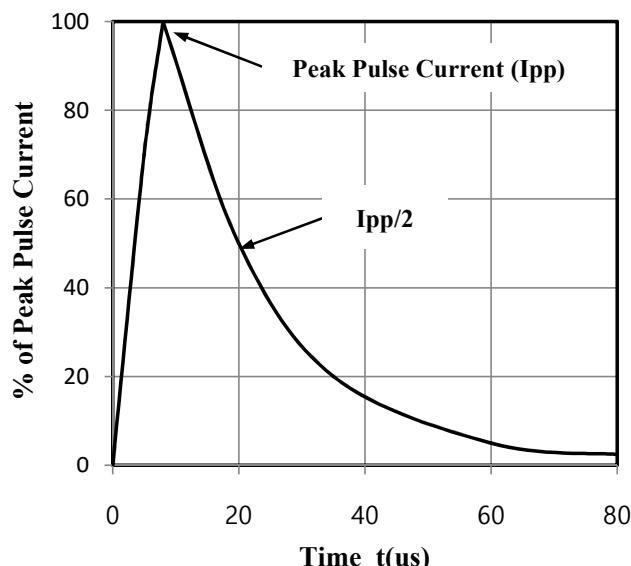


Fig.4 Junction Capacitance vs. Reverse Voltage

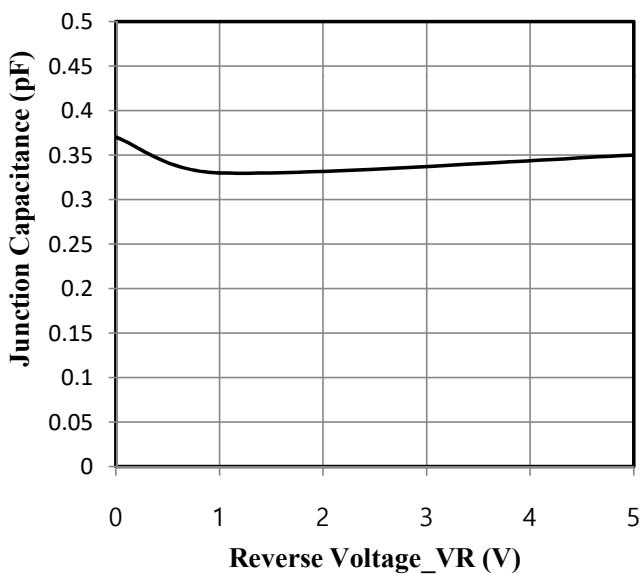
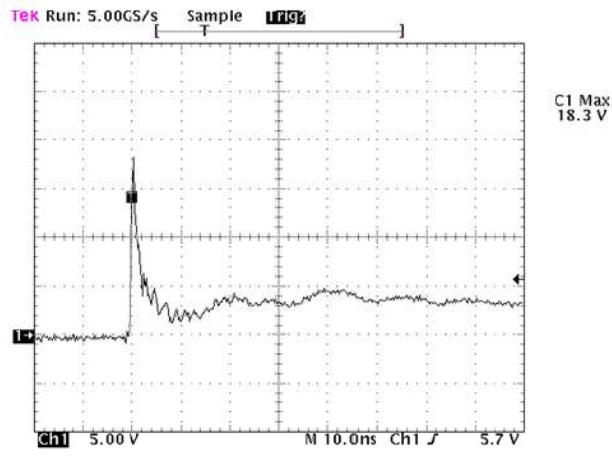


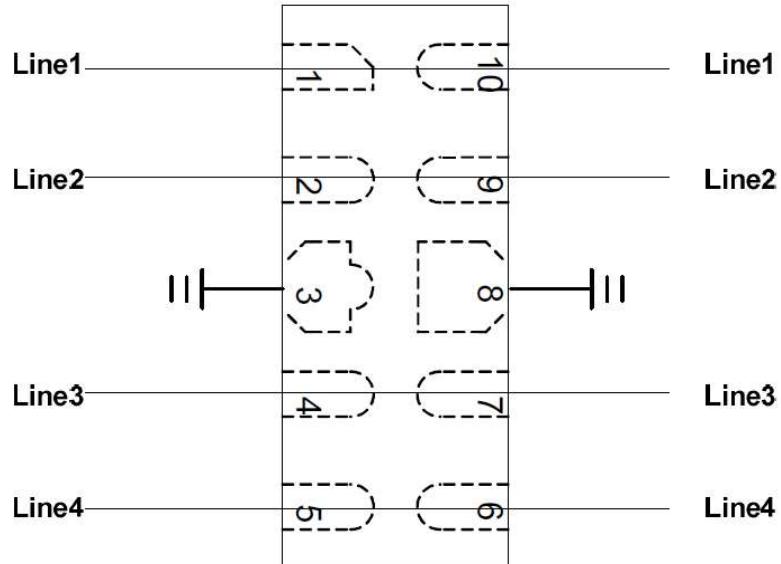
Fig. 6 ESD Clamping Voltage 8kV Contact per IEC61000-4-2



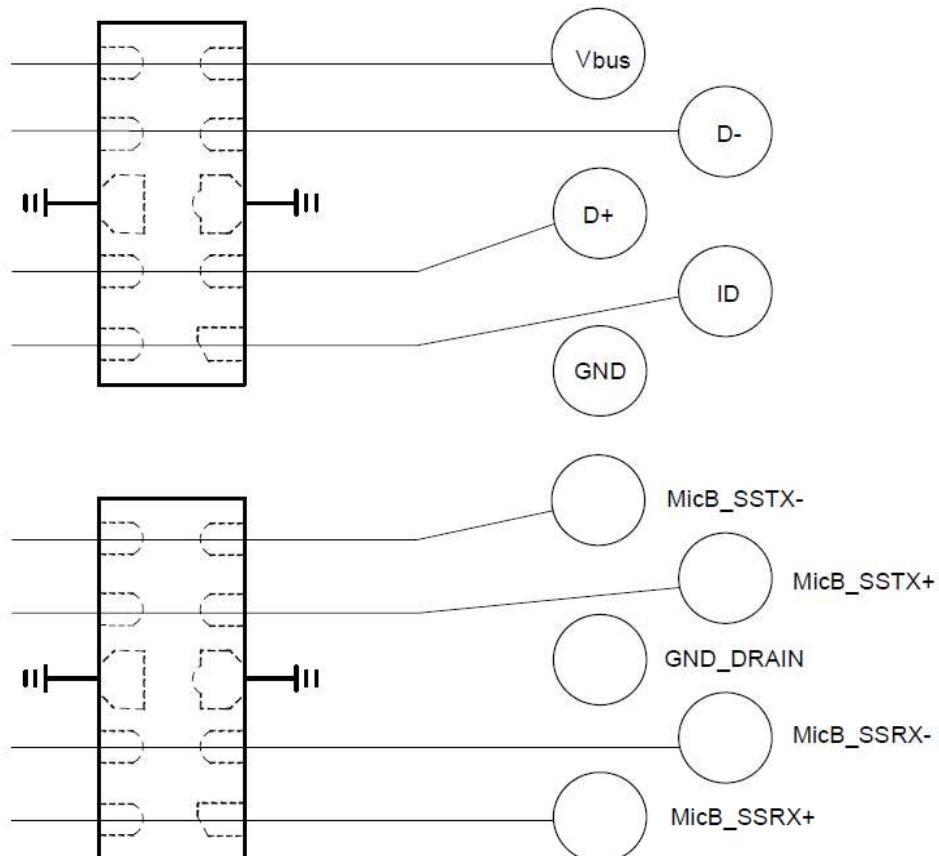


Typical Application

The AR0524P5 is designed for easy PCB layout by allowing the traces to run straight through the device. The PCB traces could be used to connect the pin pairs for each line. For example, line 1 enters at Pin 1 and exits at Pin 10 and the PCB trace connects Pin 1 and Pin 10 together. Ground is connected at Pin 3 and Pin 8.

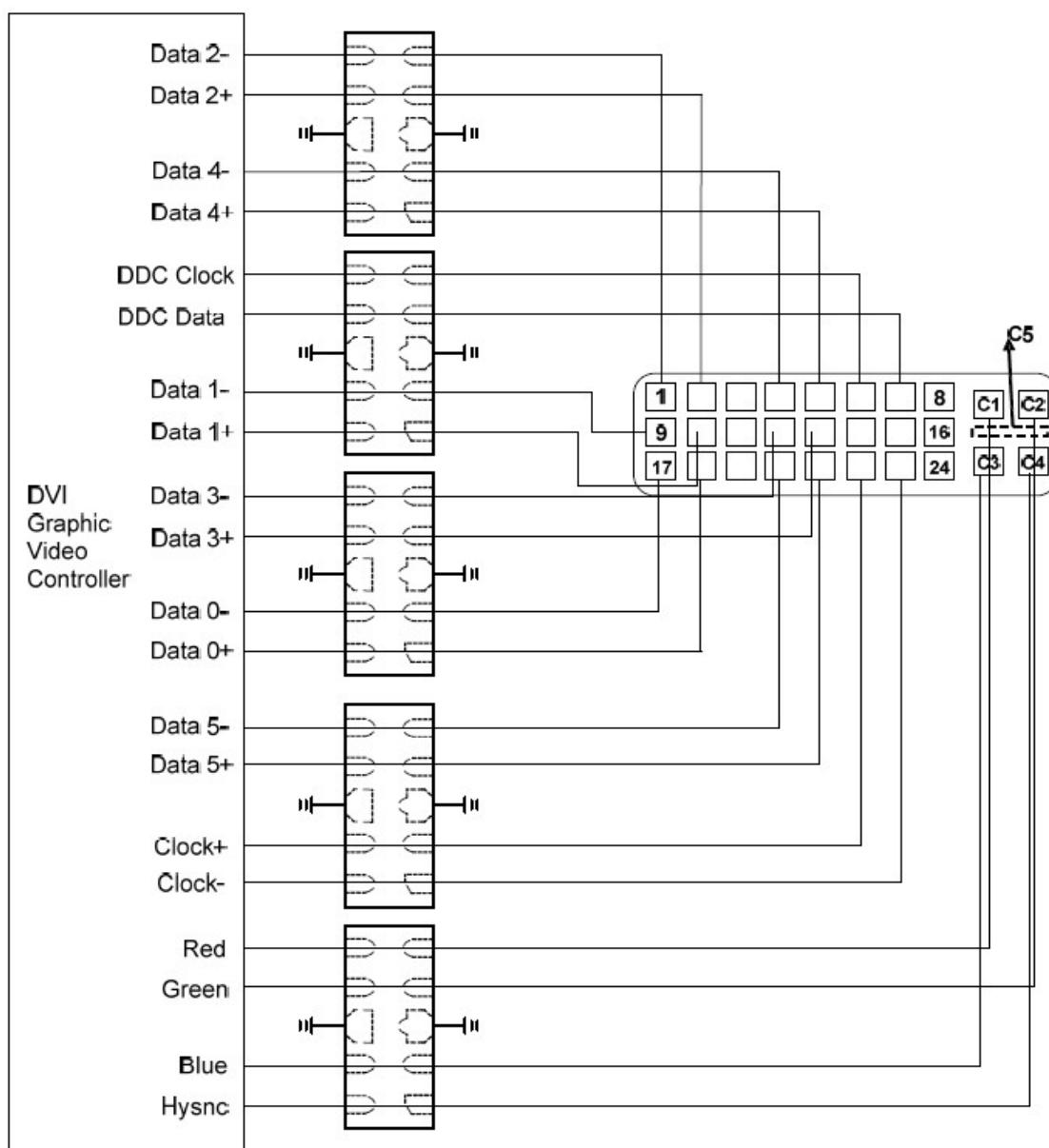


AR0524P5 on USB 3.0 Port Application

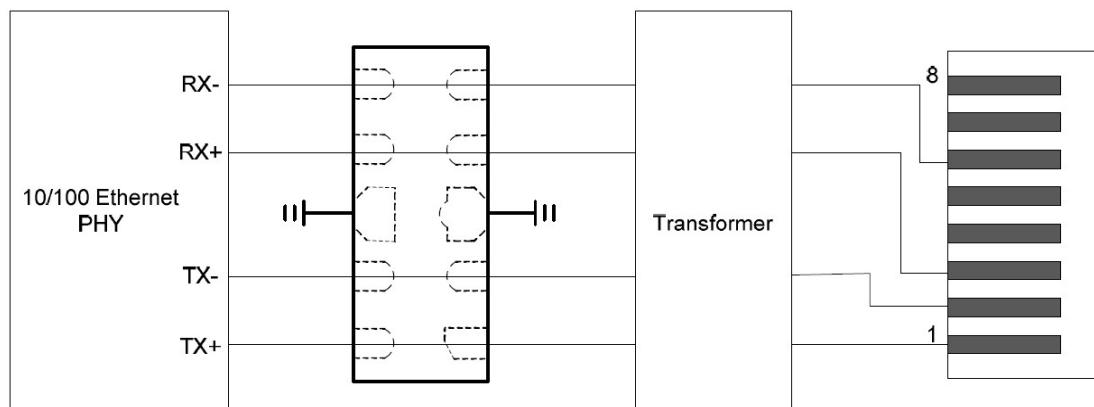




AR0524P5 on DVI Port Application

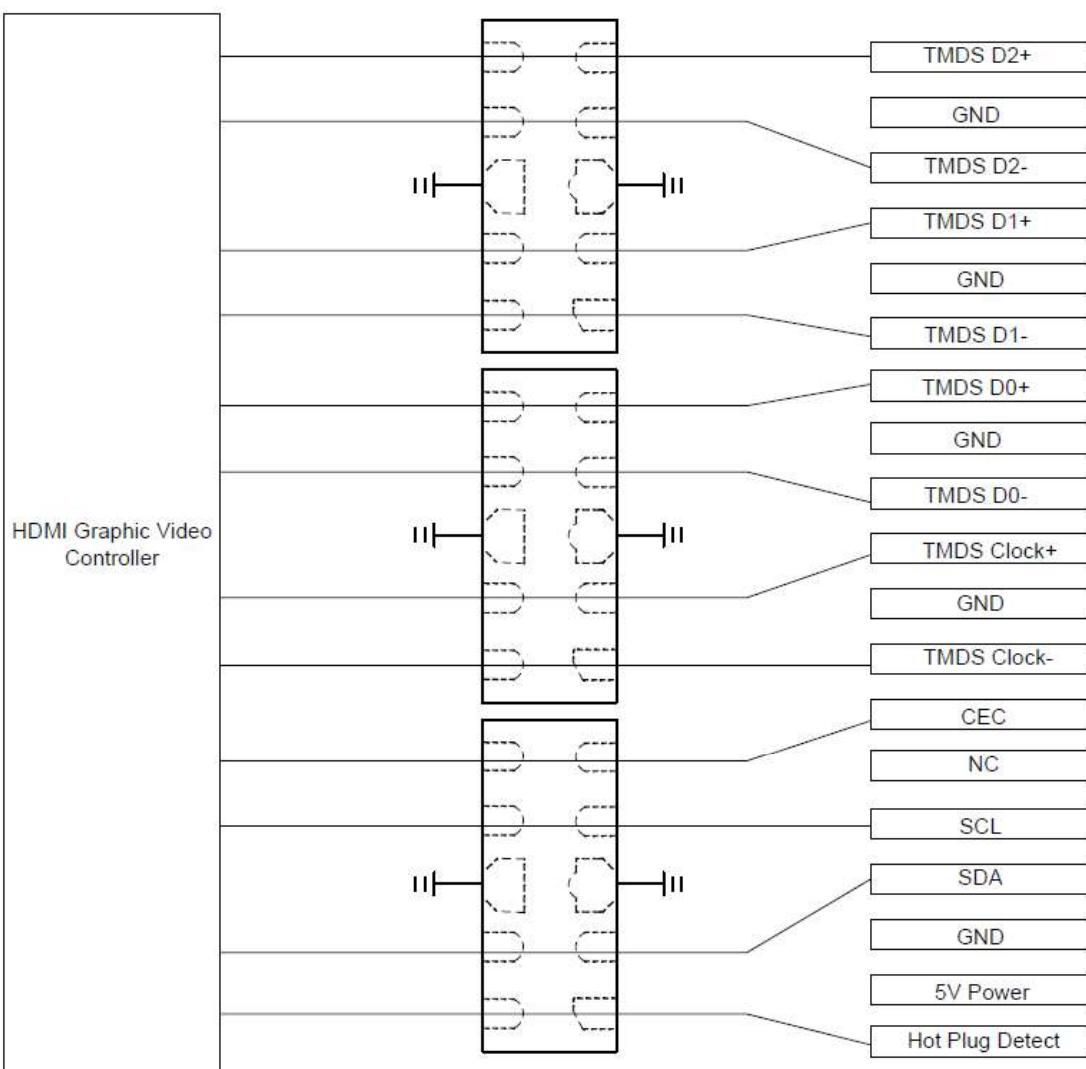


AR0524P5 on 10/100 Base Ethernet Port Application

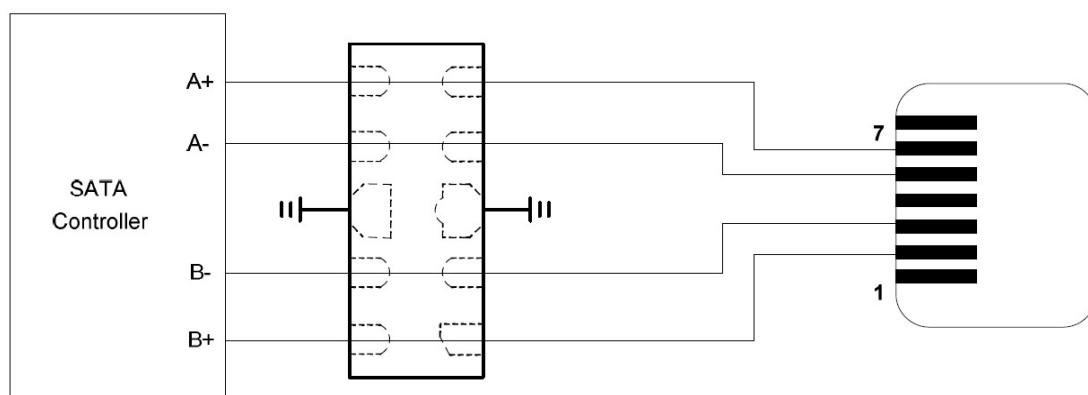




AR0524P5 on HDMI Port Application

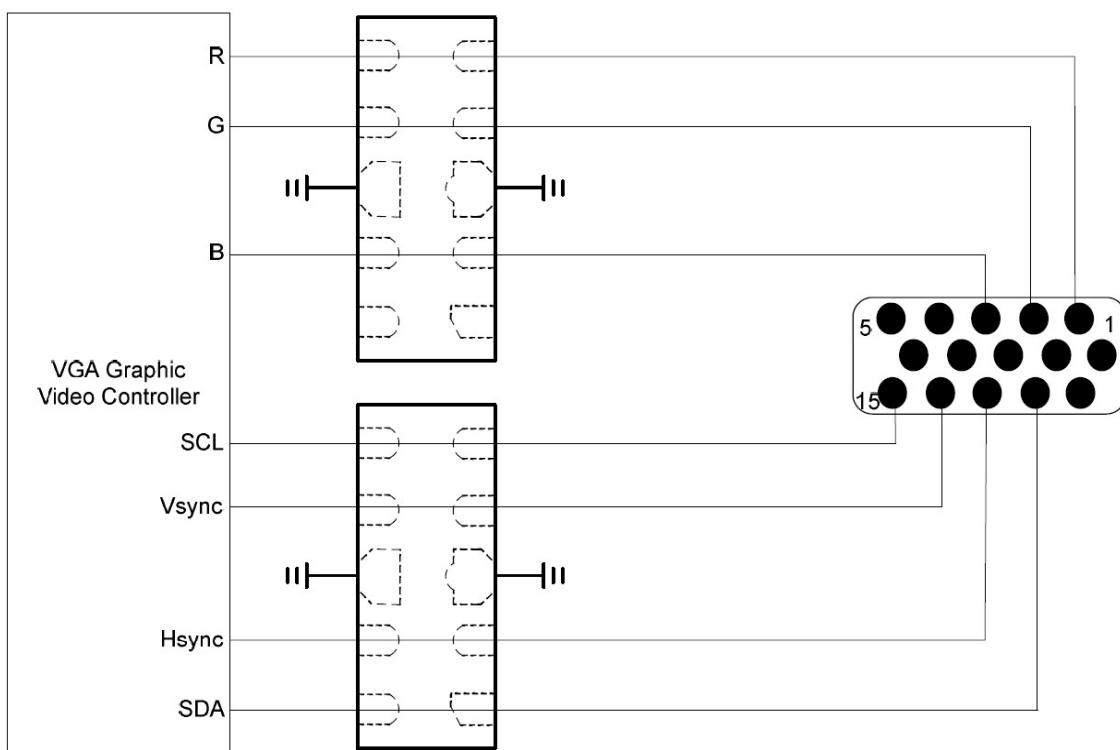


AR0524P5 on eSATA Port Application





AR0524P5 on VGA Port Application



AR0524P5 on MDDI Port Application

