

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: $\pm 20\text{kV}$
Contact discharge: $\pm 15\text{kV}$
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS Compliant
- Compliant to Halogen-free

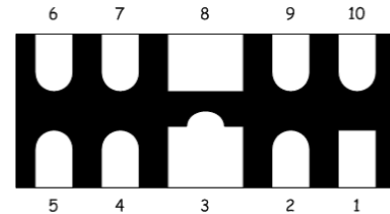
Applications

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

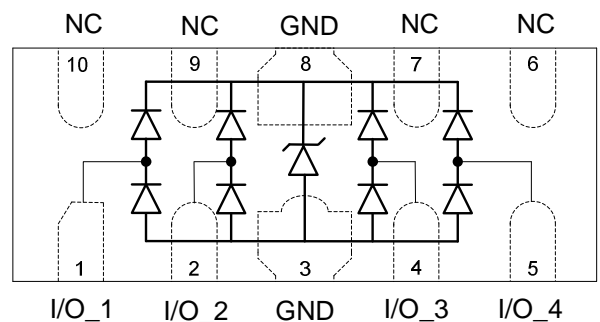
Mechanical Characteristics

- Package: DFN2510 (2.5x1.0x0.5mm)
- Lead Finish: Matte Tin
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking:0524P

Dimensions DFN2510



Pin Configuration



Ordering Information

| Part Number | Packaging | Reel Size |
|-------------|------------------|-----------|
| AESD0524P | 3000/Tape & Reel | 7 inch |

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

| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|--------------------|
| Peak Pulse Power (8/20 μs) | Ppk | 80 | W |
| Peak Pulse Current (8/20 μs) | I _{PP} | 5 | A |
| ESD per IEC 61000-4-2 (Air) | V _{ESD} | ± 20 | kV |
| ESD per IEC 61000-4-2 (Contact) | | ± 15 | |
| Operating Temperature Range | T _J | -55 to +125 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T _{stg} | -55 to +150 | $^{\circ}\text{C}$ |

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

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|------------------|-----|-----|-----|---------------|--|
| Reverse Working Voltage | V _{RWM} | | | 5 | V | Any I/O pin to ground |
| Breakdown Voltage | V _{BR} | 6 | | | V | I _T = 1mA, any I/O pin to ground |
| Reverse Leakage Current | I _R | | | 1 | μA | V _{RWM} = 5V, any I/O pin to ground |
| Clamping Voltage | V _C | | | 12 | V | I _{PP} = 1A (8 x 20 μs pulse), any I/O pin to ground |
| Clamping Voltage | V _C | | | 16 | V | I _{PP} = 5A (8 x 20 μs pulse), any I/O pin to ground |
| Junction Capacitance | C _J | | 0.3 | 0.4 | pF | V _R = 0V, f = 1MHz, between I/O pins |
| Junction Capacitance | C _J | | | 0.8 | pF | V _R = 0V, f = 1MHz, any I/O pin to ground |

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)

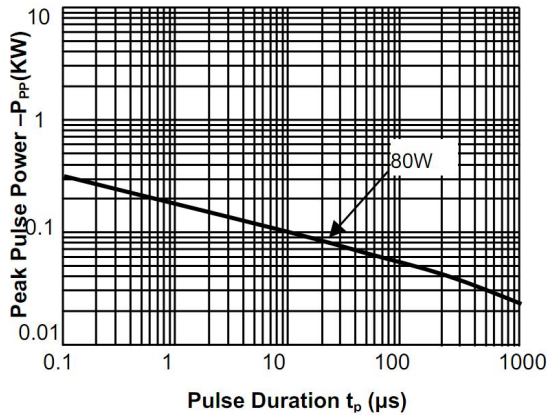


Fig.1 Peak Pulse Power Rating Curve

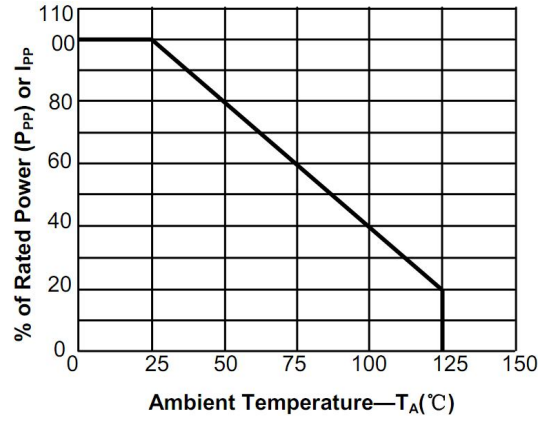


Fig.2 Pulse Derating Curve

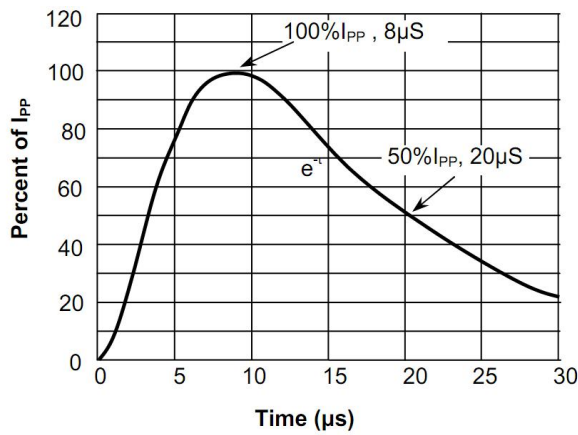


Fig.3 Pulse Waveform-8/20μs

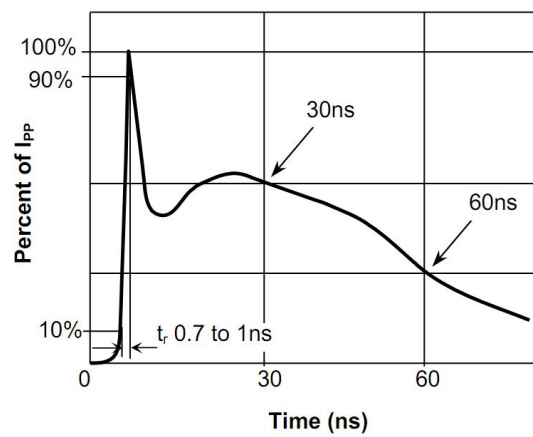
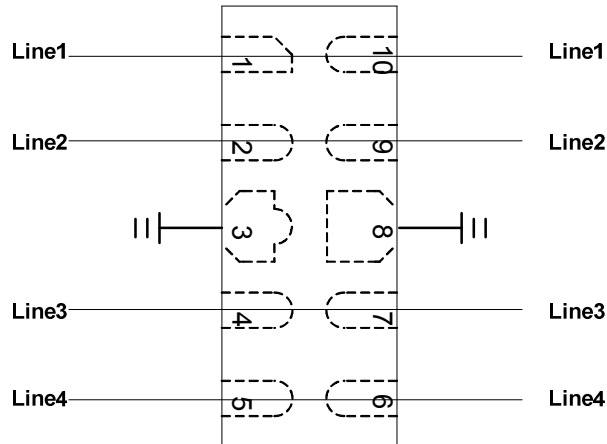


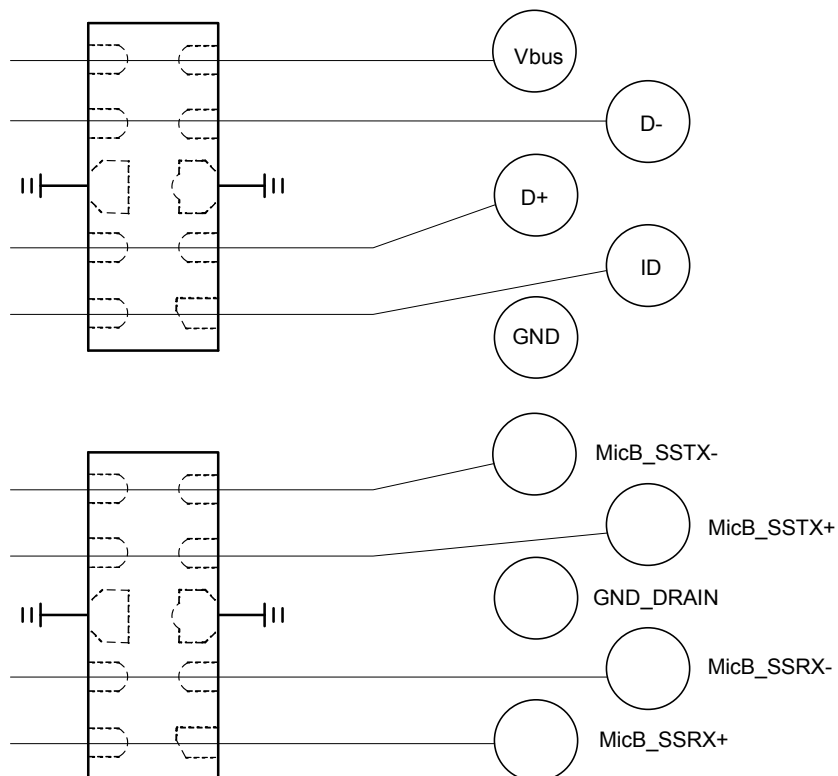
Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

Typical Application

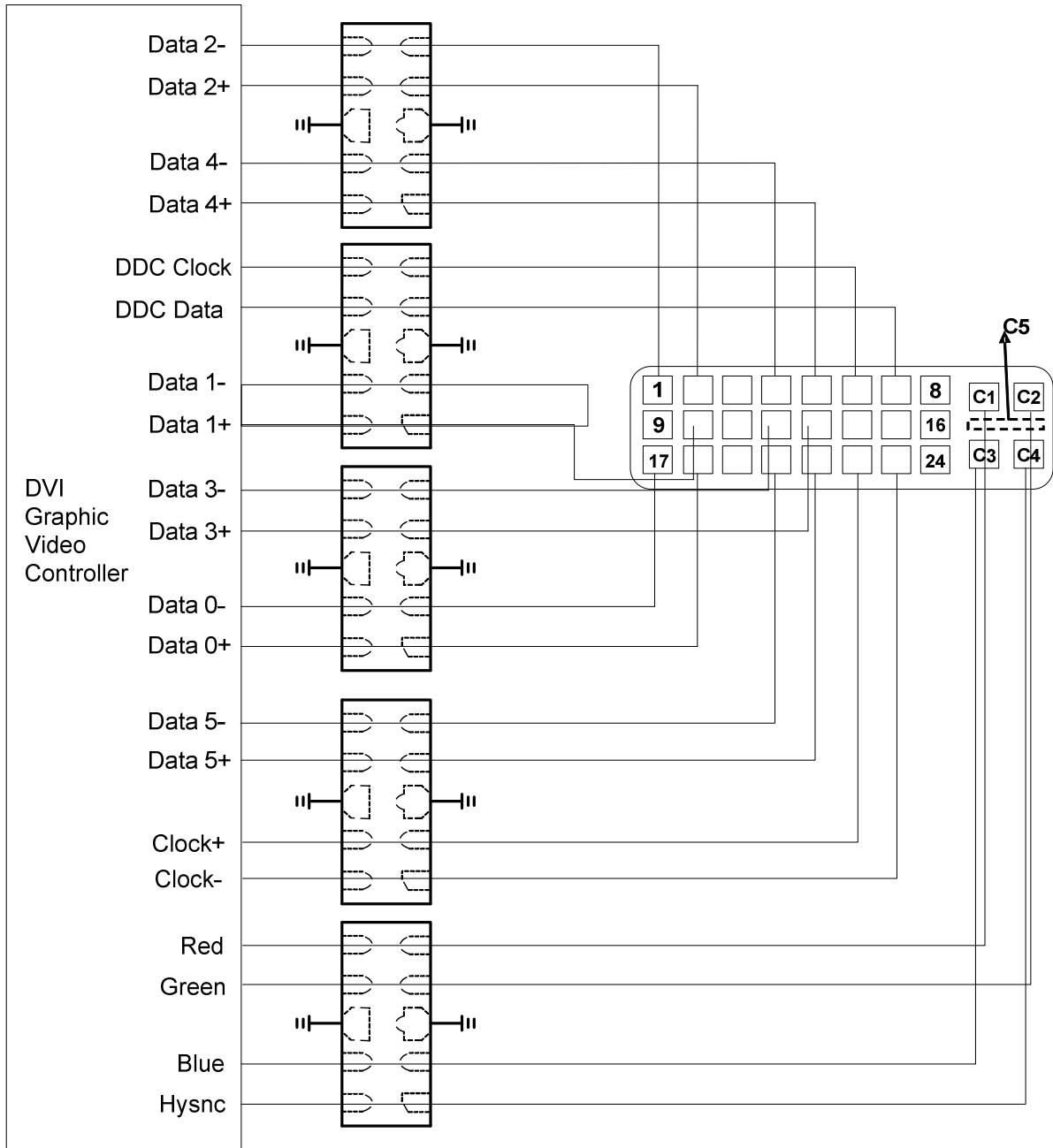
The AESD0524P is designed for easy PCB layout by allowing the traces to run straight through the device. The PCB traces could be used to connect the pin pairs for each line. For example, line 1 enters at pin 1 and exits at pin 10 and the PCB trace connects Pin 1 and Pin 10 together. Ground is connected at Pin 3 and Pin 8.



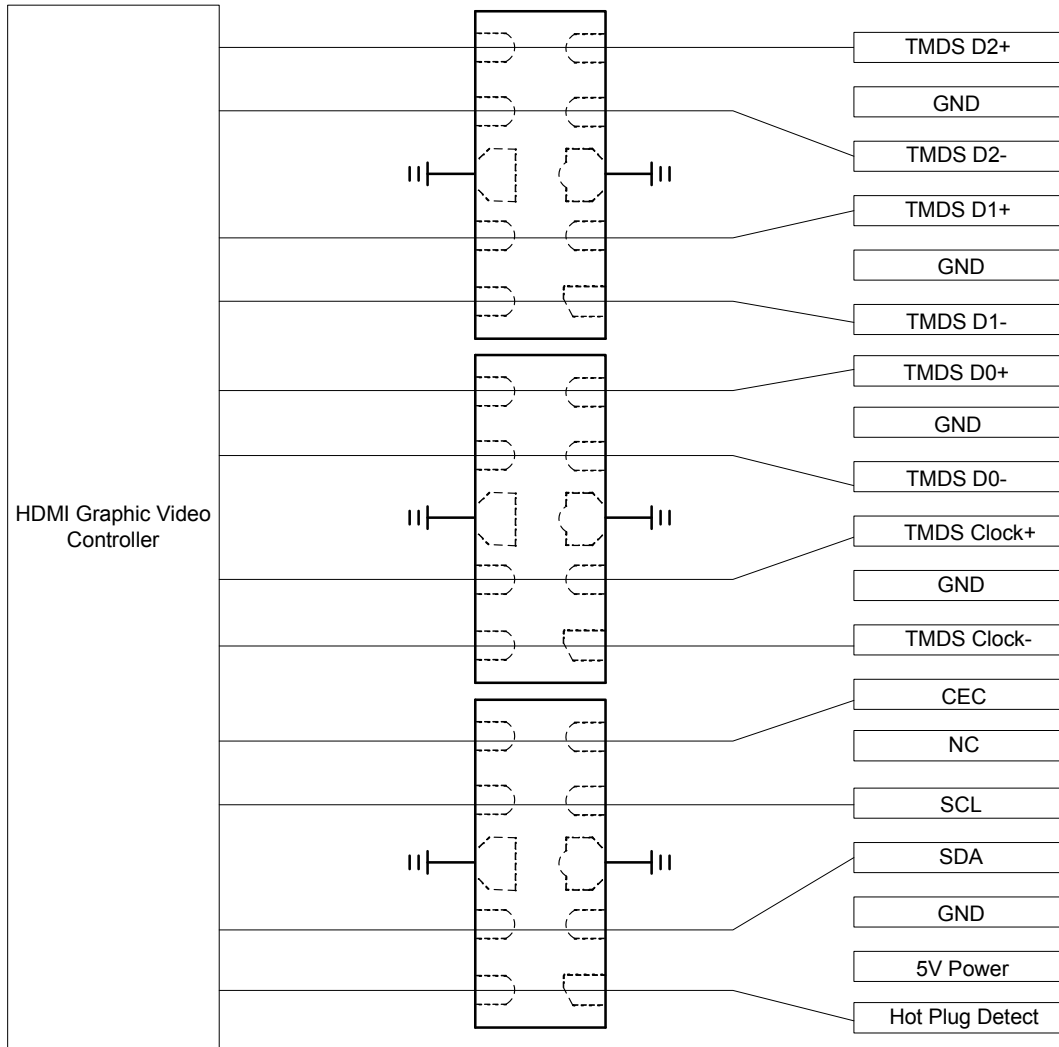
AESD0524P on USB 3.0 Port Application



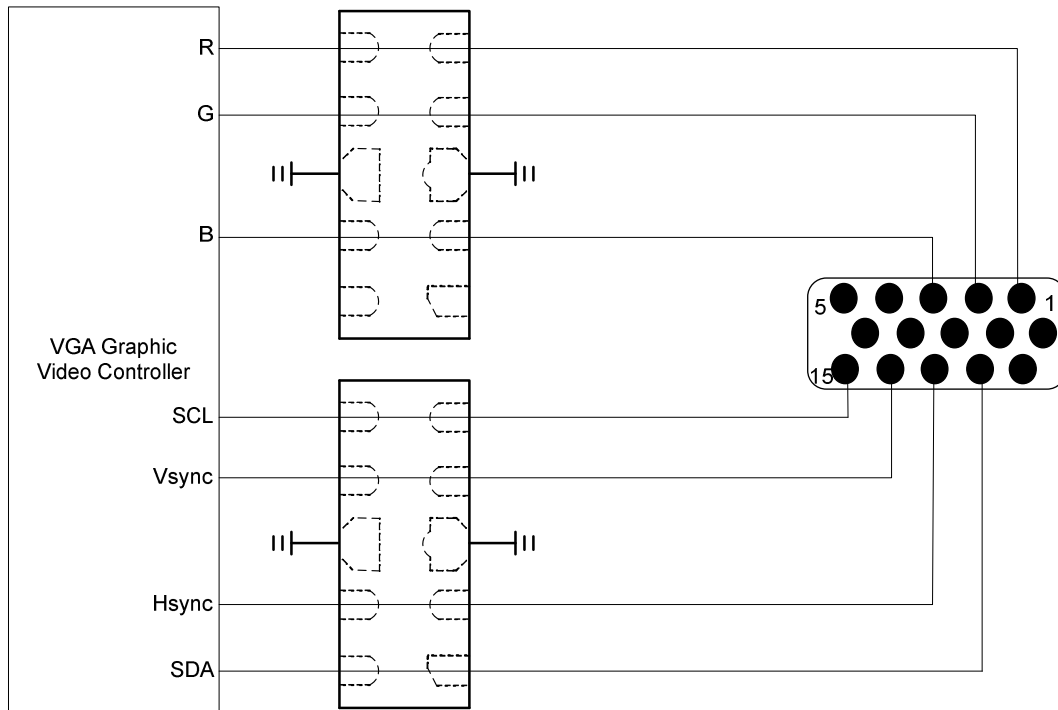
AESD0524P on DVI Port Application



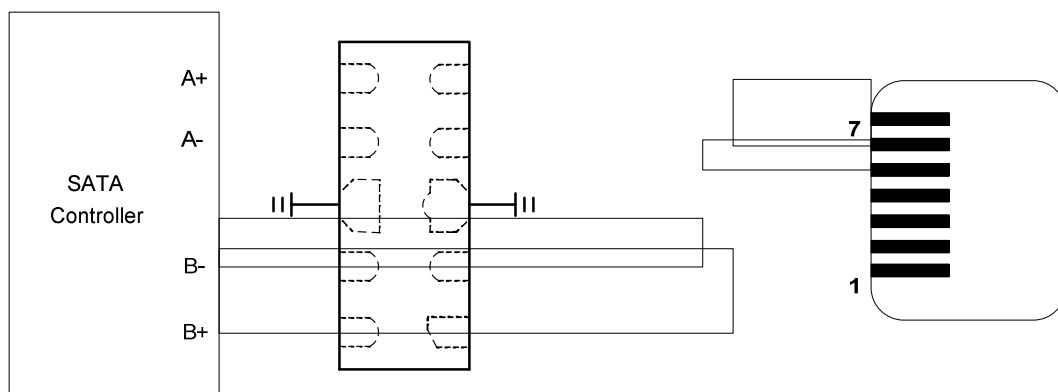
AESD0524P on HDMI Port Application



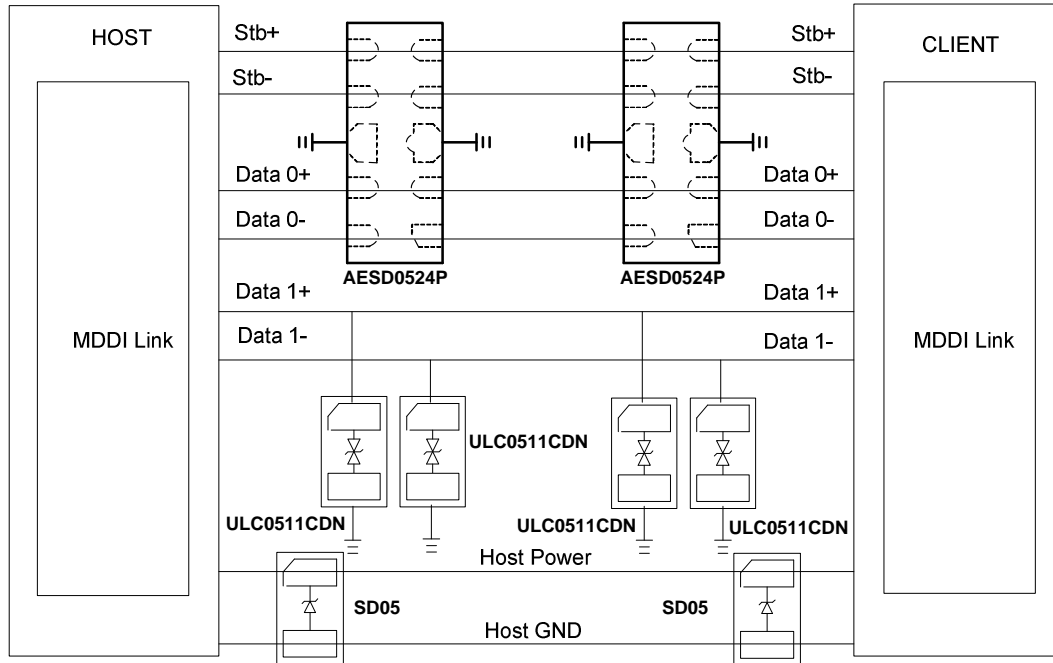
AESD0524P on VGA Port Application



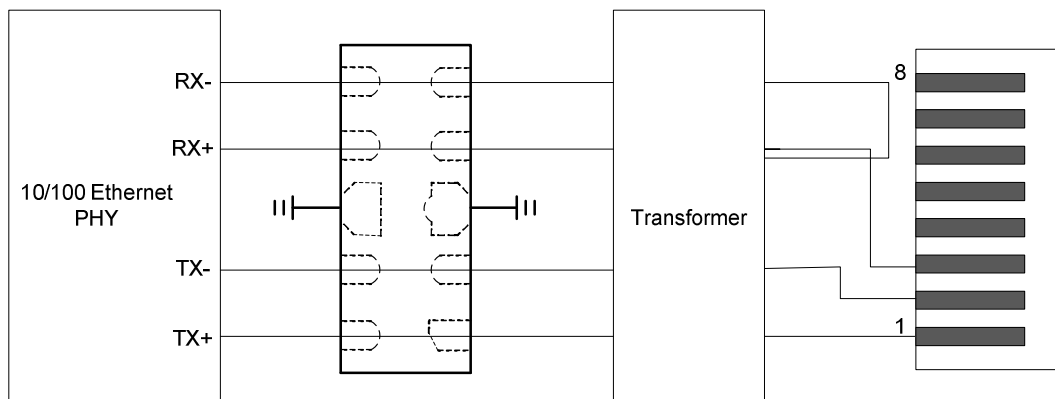
AESD0524P on eSATA Port Application



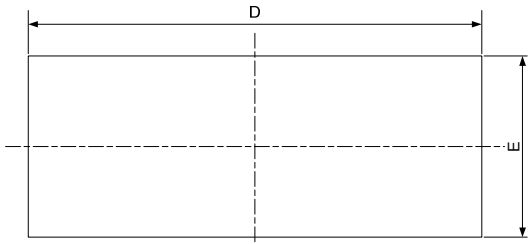
AESD0524P on MDDI Port Application



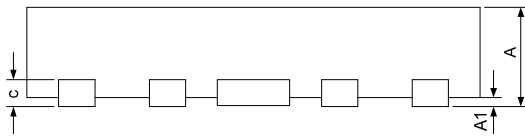
AESD0524P on 10/100 Base Ethernet Port Application



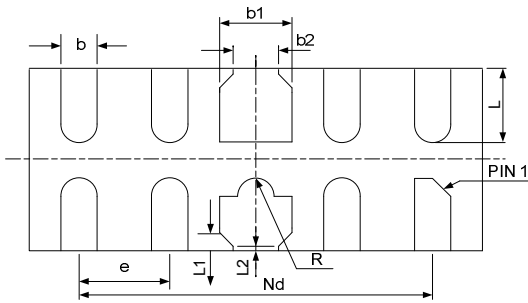
DFN2510 Package Outline Drawing



TOP VIEW



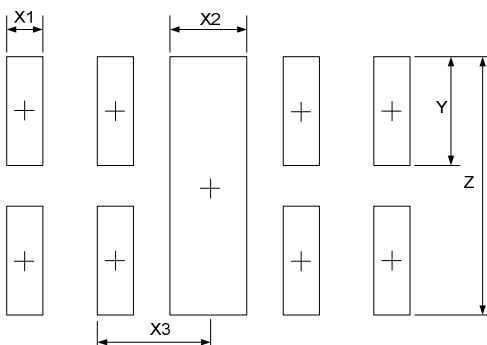
SIDE VIEW



BOTTOM VIEW

| SYM | DIMENSIONS | | | | | |
|-----|-------------|------|------|----------|-------|-------|
| | MILLIMETERS | | | INCHES | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.45 | 0.50 | 0.55 | 0.018 | 0.020 | 0.022 |
| A1 | 0.00 | 0.02 | 0.05 | 0.000 | 0.001 | 0.002 |
| b | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| b1 | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |
| b2 | 0.20 | 0.25 | 0.30 | 0.008 | 0.010 | 0.012 |
| c | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| D | 2.45 | 2.50 | 2.55 | 0.098 | 0.100 | 0.102 |
| e | 0.50BSC | | | 0.020BSC | | |
| Nd | 2.00BSC | | | 0.080BSC | | |
| E | 0.95 | 1.00 | 1.05 | 0.038 | 0.040 | 0.042 |
| L | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |
| L1 | 0.075REF | | | 0.003REF | | |
| L2 | 0.050REF | | | 0.002REF | | |
| h | 0.08 | 0.12 | 0.15 | 0.003 | 0.005 | 0.006 |
| R | 0.05 | 0.10 | 0.15 | 0.002 | 0.004 | 0.006 |

Suggested Land Pattern



| SYM | DIMENSIONS | |
|-----|-------------|--------|
| | MILLIMETERS | INCHES |
| X1 | 0.200 | 0.008 |
| X2 | 0.400 | 0.016 |
| X3 | 0.500 | 0.020 |
| Y | 0.600 | 0.024 |
| Z | 1.400 | 0.056 |