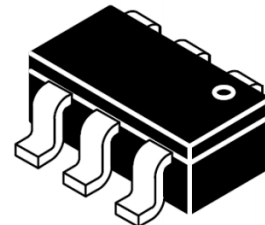


Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- 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) 25A (8/20 μs)
- RoHS Compliant
- AEC-Q101 qualified.

Dimensions SOT-26



Pin Configuration



Applications

- USB 2.0 power and data line
- Set-top box and digital TV
- Digital video interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100/1000 Ethernet

Mechanical Characteristics

- Package: SOT-26
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000pcs
- Reel Size: 7inch
- Device Marking: SRV05

Absolute Maximum Ratings (T_{amb}=25°C unless otherwise specified)

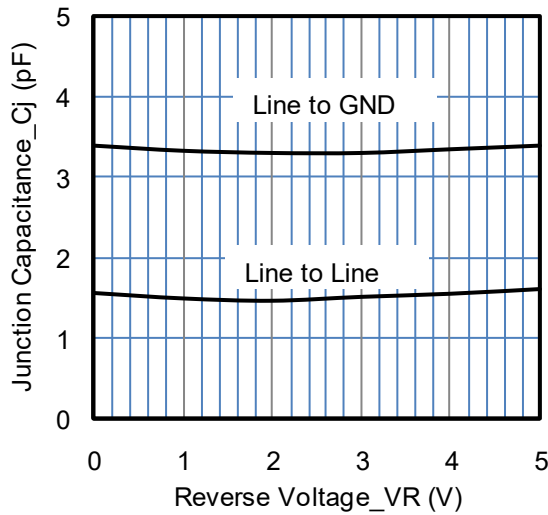
| Parameter | Symbol | Value | Unit |
|--|------------------|-------------|------|
| Peak Pulse Power (8/20 μs) | P _{pp} | 500 | W |
| ESD per IEC 61000-4-2 (Air) | V _{ESD} | ± 30 | Kv |
| ESD per IEC 61000-4-2 (Contact) | | ± 30 | |
| Operating Temperature Range | T _J | -55 to +125 | °C |
| Storage Temperature Range | T _{STJ} | -55 to +150 | °C |

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

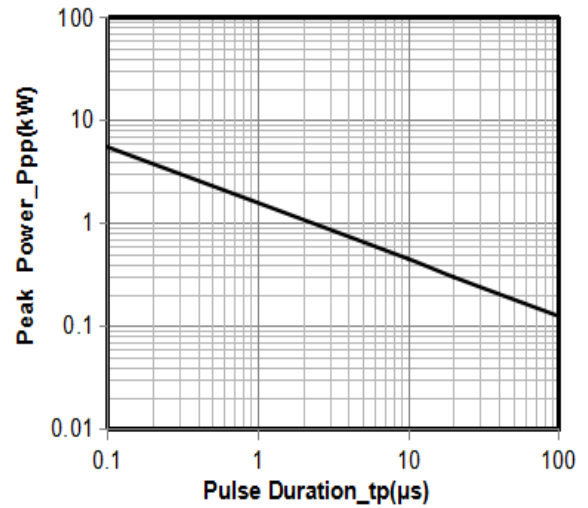
| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------|--------|-----|-----|-----|------|---|
| Reverse Working Voltage | VRWM | | | 5 | V | |
| Breakdown Voltage | VBR | 6 | | | V | IT = 1mA, Pin 5 to Pin 2 |
| Reverse Leakage Current | IR | | | 1 | μA | VRWM = 5V, Pin 5 to Pin 2 |
| Forward Voltage | VF | | | 1.2 | V | IF = 15mA |
| Clamping Voltage | VC | | | 12 | V | I _{PP} = 1A (8 x 20μs pulse), any I/O pin to ground |
| Clamping Voltage | VC | | | 20 | V | I _{PP} = 25A (8 x 20μs pulse), any I/O pin to ground |
| Junction Capacitance | CJ | | 1.5 | | pF | VR = 0V, f = 1MHz, between I/O pins |
| Junction Capacitance | CJ | | 3.0 | 5.0 | pF | VR = 0V, f = 1MHz, any I/O pin to ground |

Note 1: I/O pins are Pin 1, 3, 4 and 6

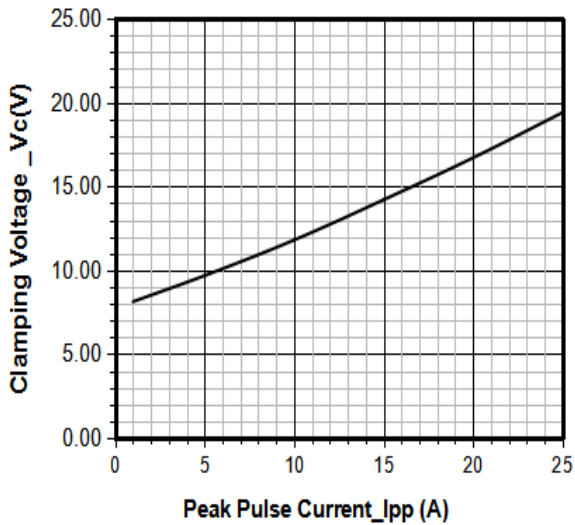
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



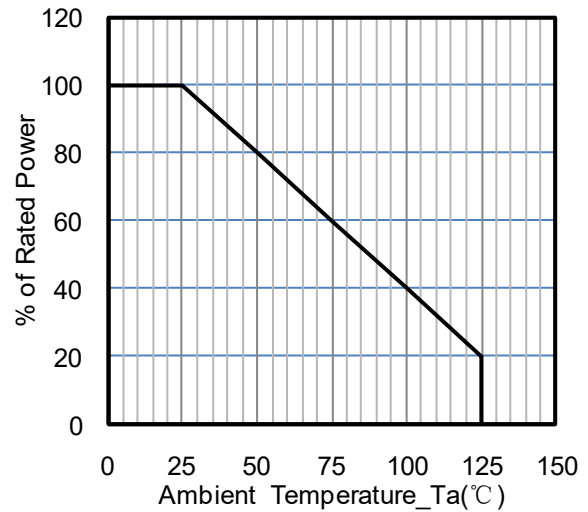
Junction Capacitance vs. Reverse Voltage



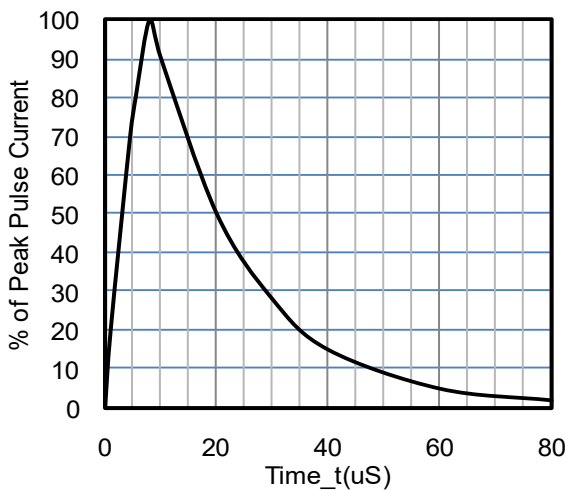
Peak Pulse Power vs. Pulse Time



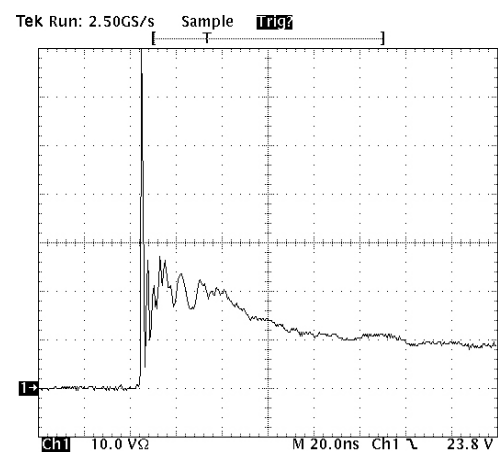
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



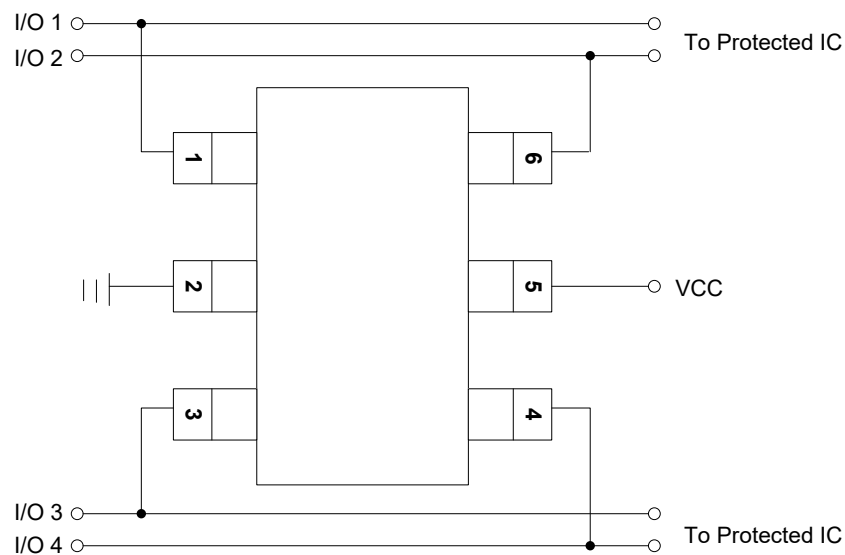
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

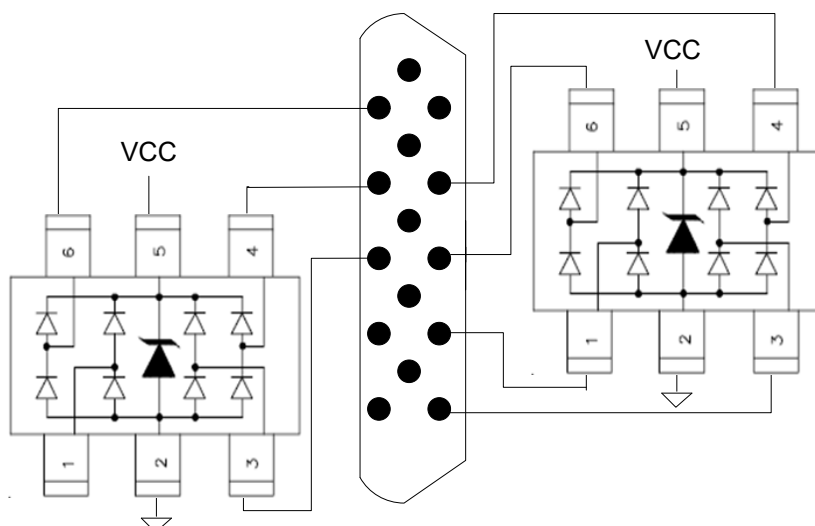
8 kV Contact per IEC61000-4-2

Typical Application

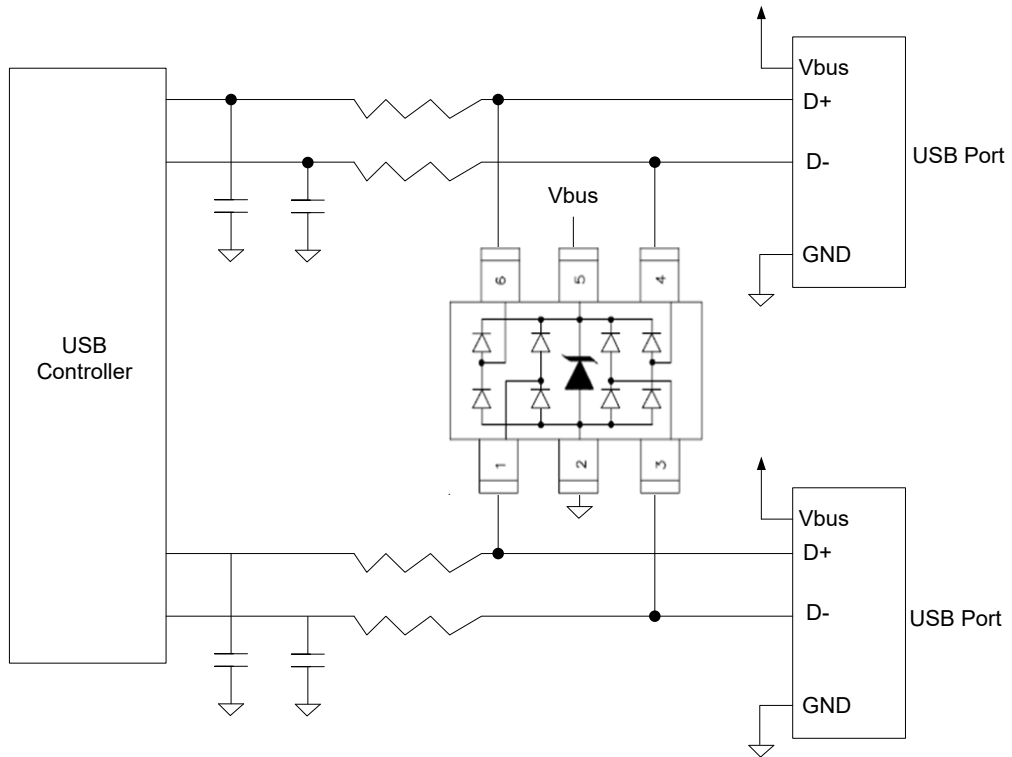
The SRV05-4W is designed to protect four data lines from transient overvoltages by clamping them to fixed reference. When the voltage on the protected line exceeds the reference voltage (plus diode VF) the steering diodes are forward biased, conducting the transient current away from the sensitive circuitry. Data lines are connected at pins 1, 3, 4 and 6. The negative reference (REF1) is connected at pin 2. This pin should be connected directly to a ground plane on the board for best results. The path length is kept as short as possible to minimize parasitic inductance. The positive reference (REF2) is connected at pin 5.



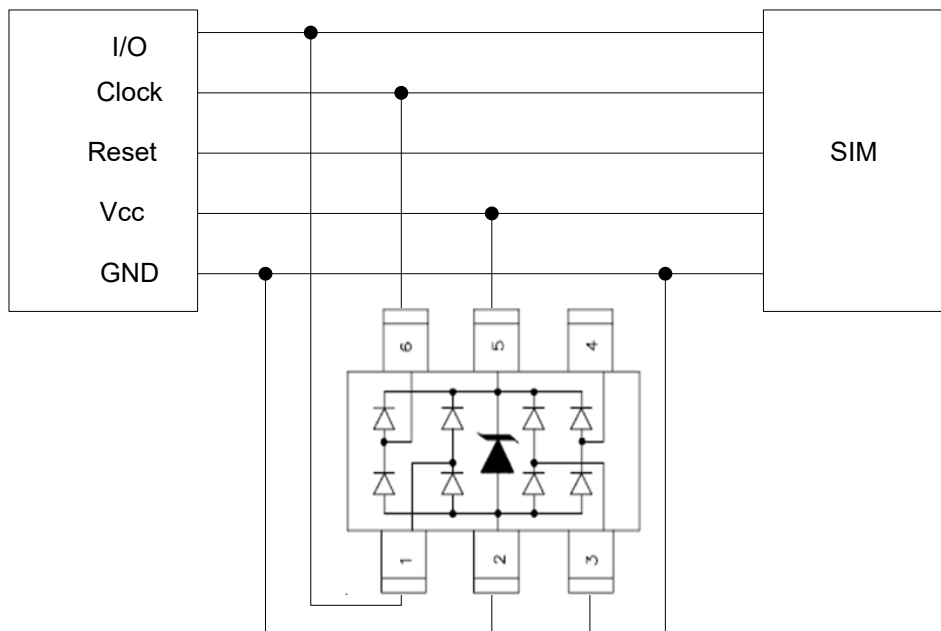
SRV05-4W on Video Interface Application



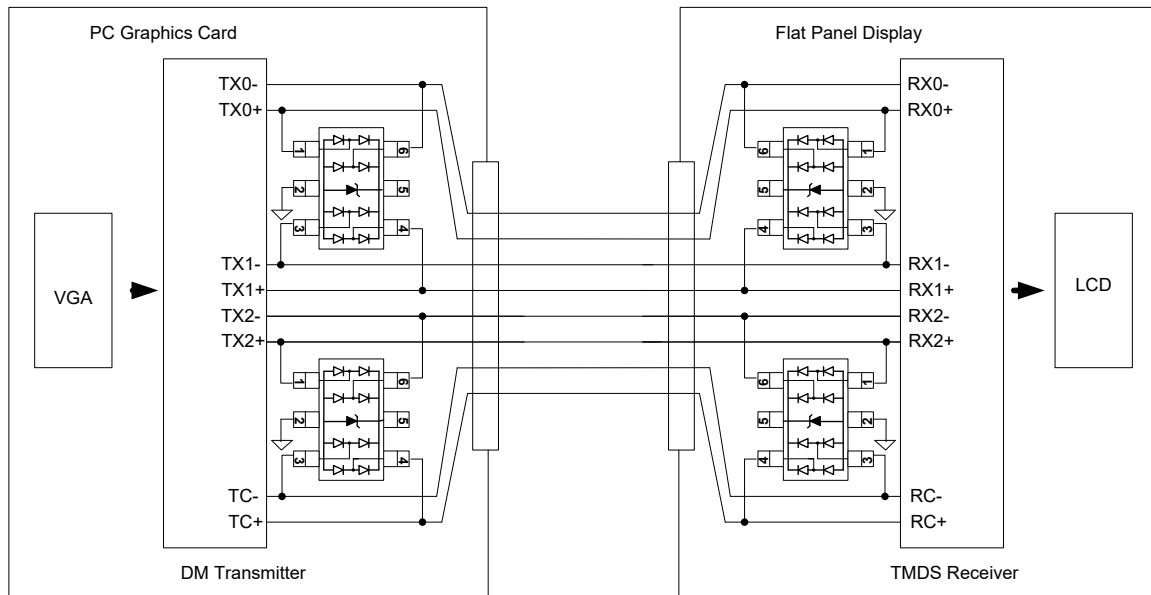
SRV05-4W on USB Port Application



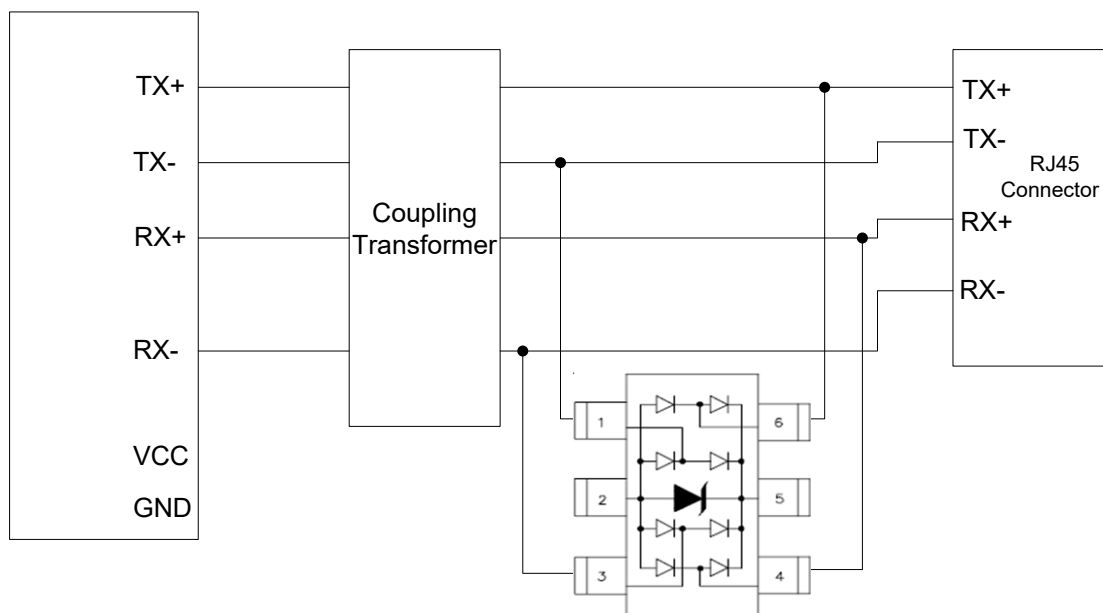
SRV05-4W on SIM Port Application



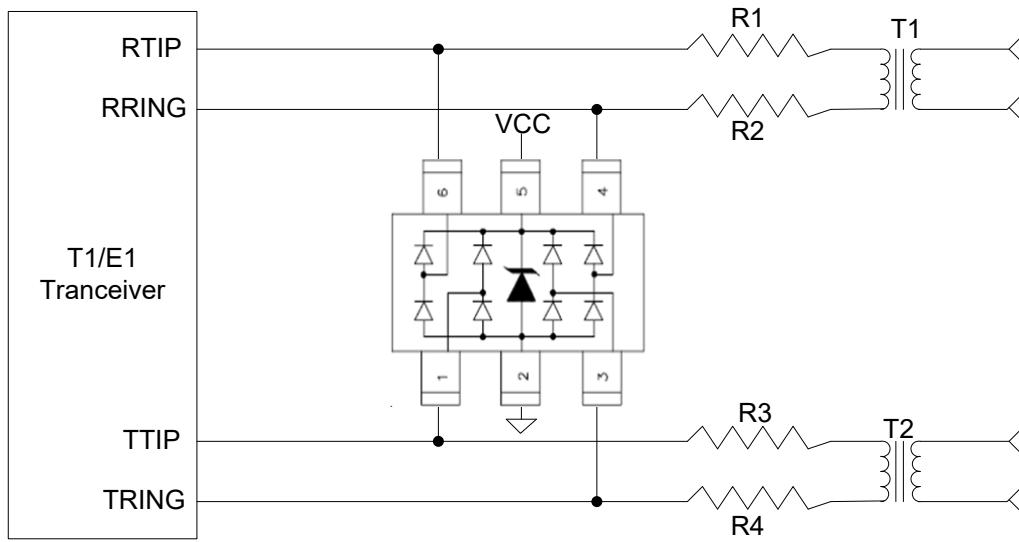
SRV05-4W on Digital Visual Interface (DVI) Application



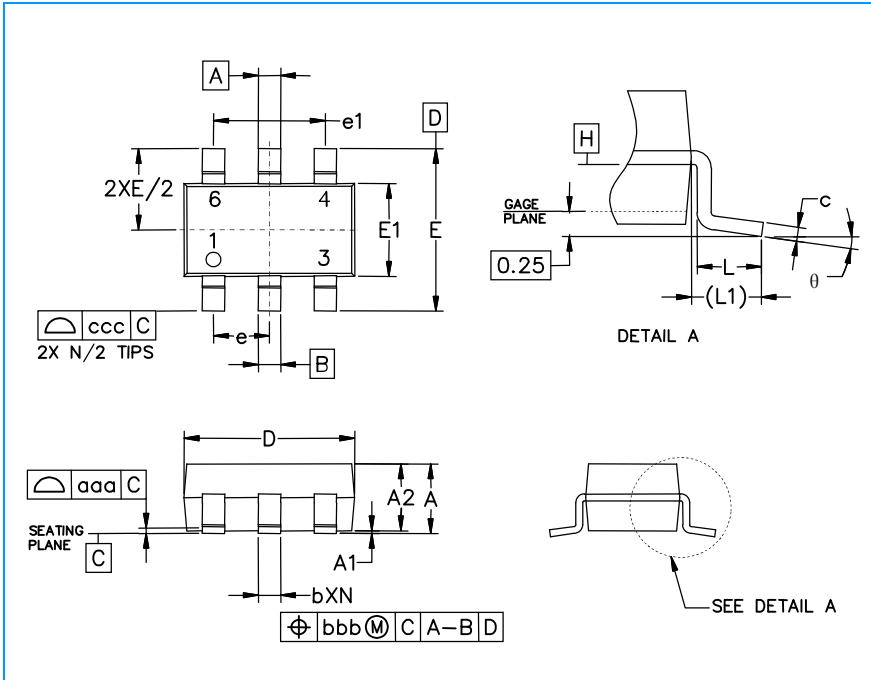
SRV05-4W on Ethernet 10/100 (Differential mode) Application



SRV05-4W on T1/E1 Interface Application

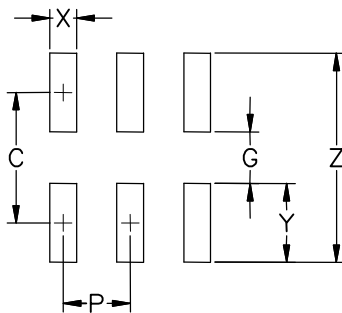


SOT-26 Package Outline & Dimensions



| Symbol | Inches | | | Millimeters | | |
|--------|-----------|-------|-------|-------------|------|------|
| | Min. | Nom. | Max. | Min. | Nom. | Max. |
| A | 0.035 | - | 0.057 | 0.90 | - | 1.45 |
| A1 | 0.000 | - | 0.006 | 0.00 | - | 0.15 |
| A2 | 0.035 | 0.045 | 0.051 | 0.90 | 1.15 | 1.30 |
| b | 0.010 | - | 0.020 | 0.25 | - | 0.50 |
| c | 0.003 | - | 0.009 | 0.08 | - | 0.22 |
| D | 0.110 | 0.114 | 0.122 | 2.80 | 2.90 | 3.10 |
| E1 | 0.060 | 0.063 | 0.069 | 1.50 | 1.60 | 1.75 |
| E | 0.110 BSC | | | 2.80 BSC | | |
| e | 0.037 BSC | | | 0.95 BSC | | |
| e1 | 0.075 BSC | | | 1.90 BSC | | |
| L | 0.012 | 0.018 | 0.024 | 0.30 | 0.45 | 0.60 |
| L1 | (0.024) | | | (0.60) | | |
| θ | 0° | - | 10° | 0° | - | 10° |
| aaa | 0.004 | | | 0.10 | | |
| bbb | 0.008 | | | 0.20 | | |
| ccc | 0.008 | | | 0.20 | | |

Soldering Footprint



| Symbol | Inches | Millimeters |
|--------|---------|-------------|
| C | (0.098) | (2.50) |
| G | 0.055 | 1.40 |
| P | 0.037 | 0.95 |
| X | 0.024 | 0.60 |
| Y | 0.043 | 1.10 |
| Z | 0.141 | 3.60 |