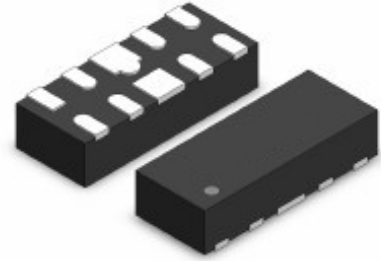




## Features

- 40Watts peak pulse power ( $t_p = 8/20\mu s$ )
- Bidirectional configurations
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ( $C_j=0.35pF$  typ. I/O to I/O)
- IEC 61000-4-2  $\pm 25kV$  contact  $\pm 25kV$  air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 4A (8/20 $\mu s$ )



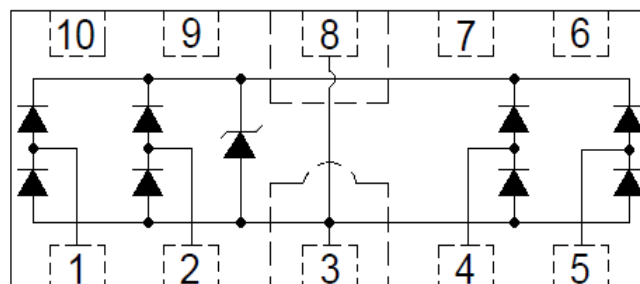
## Applications

- USB3.0, USB2.0, Ethernet
- HDMI 2.0, Displayport 1.3, eSATA
- Unified Display interface
- Digital Visual Interface
- High speed serial interface

## Mechanical Data

- Tiny DFN10L(2.5mmx1.0mm) package
- Molding compound flammability rating: UL 94V-0
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

## Schematic & PIN Configuration



## Absolute Maximum Rating

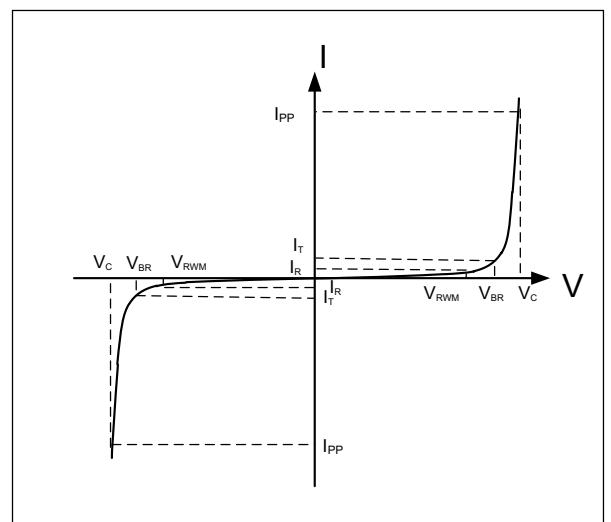
| Rating   | Symbol    | Value          | Units |
|--|-----------|----------------|-------|
| Peak Pulse Power ( $t_p = 8/20\mu s$ )                         | $P_{PP}$  | 40             | Watts |
| Peak Pulse Current ( $t_p = 8/20\mu s$ ) (note1)               | $I_{PP}$  | 4              | A     |
| ESD per IEC 61000-4-2 (Air)<br>ESD per IEC 61000-4-2 (Contact) | $V_{ESD}$ | 25<br>25       | kV    |
| Lead Soldering Temperature                                     | $T_L$     | 260(10seconds) | °C    |
| Junction Temperature   | $T_J$     | -55 to + 125   | °C    |
| Storage Temperature  | $T_{stg}$ | -55 to + 125   | °C    |

## Electrical Characteristics

| Parameter                 | Symbol    | Conditions                         | Min | Typical | Max | Units   |
|---------------------------|-----------|------------------------------------|-----|---------|-----|---------|
| Reverse Stand-Off Voltage | $V_{RWM}$ |                                    |     |         | 5.0 | V       |
| Reverse Breakdown Voltage | $V_{BR}$  | $I_T = 1mA$                        | 5.5 | 7.8     |     | V       |
| Reverse Leakage Current   | $I_R$     | $V_{RWM} = 5V, T = 25^\circ C$     |     |         | 0.5 | $\mu A$ |
| Peak Pulse Current        | $I_{PP}$  | $t_p = 8/20\mu s$                  |     |         | 4   | A       |
| Clamping Voltage          | $V_C$     | $I_{PP} = 4A, t_p = 8/20\mu s$     |     | 10      | 11  | V       |
| Junction Capacitance      | $C_j$     | $V_R = 0V, f = 1MHz$<br>I/O to I/O |     | 0.35    |     | pF      |
|                           |           | $V_R = 0V, f = 1MHz$<br>I/O to GND |     | 0.70    |     |         |

## Electrical Parameters (TA = 25°C unless otherwise noted)

|           | Parameter                                   |
|-----------|---|
| $I_{PP}$  | Maximum Reverse Peak Pulse Current          |
| $V_C$     | Clamping Voltage @ $I_{PP}$                 |
| $V_{RWM}$ | Working Peak Reverse Voltage                |
| $I_R$     | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $V_{BR}$  | Breakdown Voltage @ $I_T$                   |
| $I_T$     | Test Current                                |
|           |   |
|           |   |



Note: .8/20 $\mu s$  pulse waveform.

## Typical Characteristic Curves

Fig.1 Peak Pulse Power Rating Curve

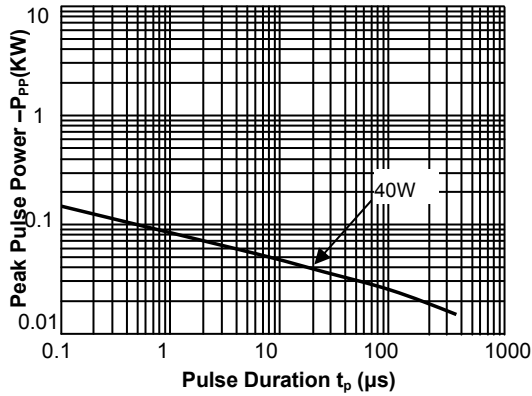


Fig.2 Pulse Derating Curve

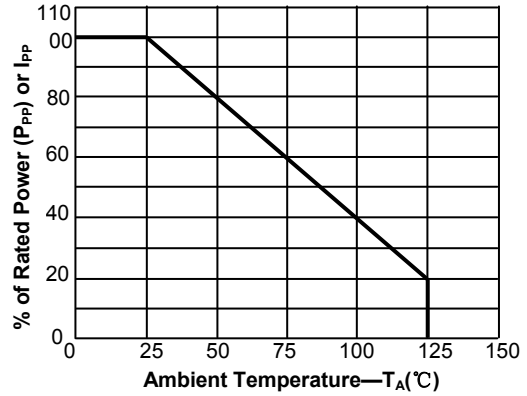


Fig.3 Pulse Waveform-8/20 $\mu s$

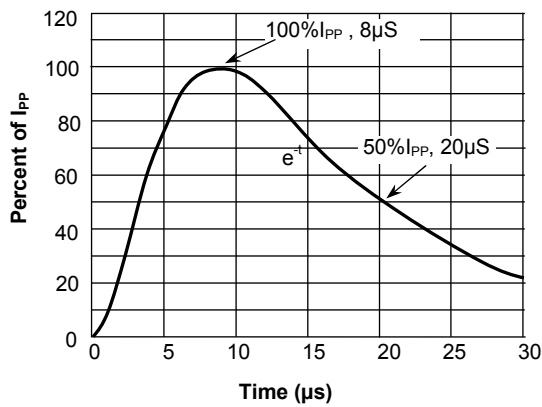


Fig.4 Pulse Waveform-ESD(IEC61000-4-2)

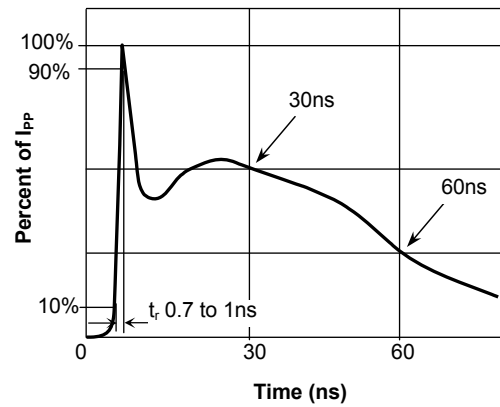


Fig.5 Eye Diagram - HDMI mask at 3.4Gbps per channel

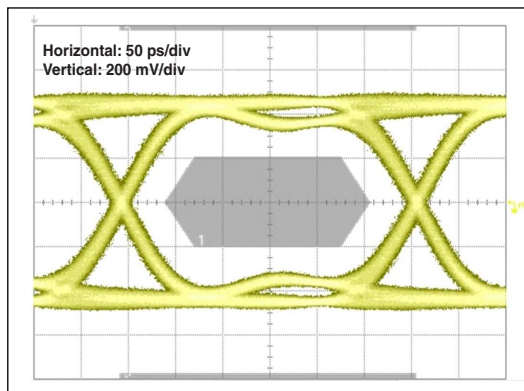
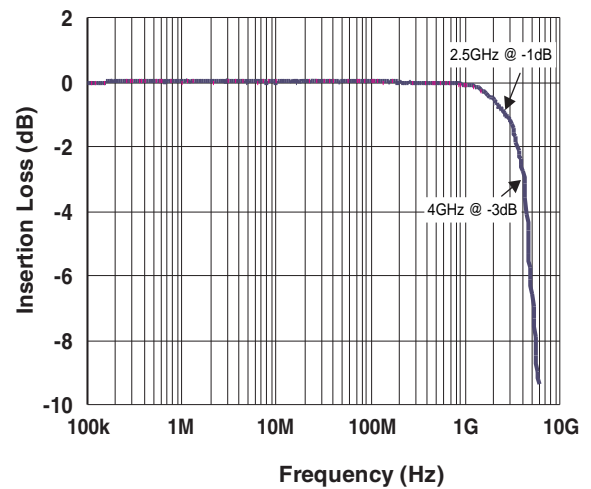
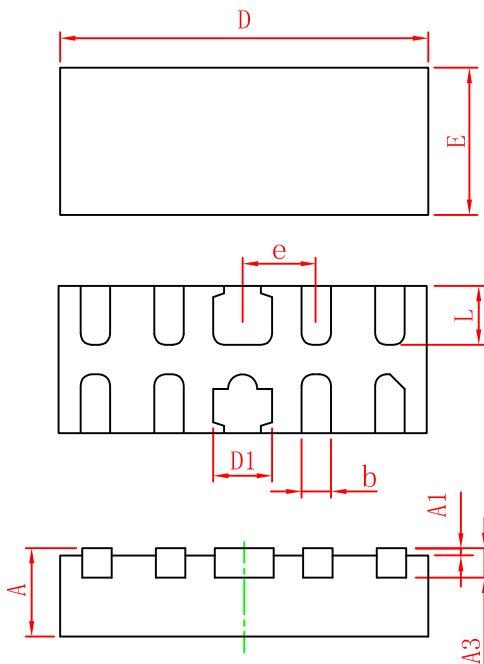


Fig.6 Insertion Loss S21 - I/O to GND





Outline Drawing – DFN10L(2.5mmx1.0mm)



| Symbol | Dimensions in millimeters |      |      |
|--------|---------------------------|------|------|
|        | Min                       | Nom  | Max  |
| A      | 0.45                      | 0.50 | 0.55 |
| A1     | -                         | 0.02 | 0.05 |
| A3     | 0.10                      | 0.15 | 0.20 |
| D      | 2.45                      | 2.50 | 2.55 |
| E      | 0.95                      | 1.00 | 1.05 |
| D1     | 0.35                      | 0.40 | 0.45 |
| b      | 0.15                      | 0.20 | 0.25 |
| e      | 0.50BSC                   |      |      |
| L      | 0.35                      | 0.40 | 0.45 |

Marking

5UE

0524P

Ordering Information

| Order code  | Package             | Base qty | Delivery mode |
|-------------|---------------------|----------|---------------|
| RCLAMP0524P | DFN10L(2.5mmx1.0mm) | 3k       | Tape and reel |