



New Product Announcement

D3V3X4U10LP,
D3V3F4U10LP

New TVS Devices with Ultra-low Channel Input Capacitance for High-speed Dataline ESD Protection

Diodes Incorporated announces the introduction of two TVS devices with ultra-low channel input capacitance (C_j): D3V3X4U10LP, D3V3F4U10LP. These devices are designed to provide dataline protection for the sensitive mixed-signal SoCs (system-on-chip) which are manufactured on the low-power advanced process nodes and are compatible to the high-speed interface standards like USB, HDMI®, DisplayPort™.

With reverse breakdown voltage (V_{BR}) at 6.2V typ., peak pulse current (I_{PP}) per IEC61000-4-5 as much as 5A, ability to withstand ESD strike (V_{ESD}) per IEC61000-4-2 up to $\pm 12kV$ for air and contact discharge, these devices meet or exceed all requirements for protecting the high-speed interface like USB Type-C™ from possible ESD hazards. The ultra-low channel input capacitance (C_j) at 0.45pF ~ 0.5pF typical enables good signal integrity for reliable data transfers over the high-speed interfaces.

Housed in the low-profile and fully green DFN2501-10 package, these devices are well-suited to the fully automated manufacturing environment. With z-height at less than 0.58mm typical, they can be easily applied in systems where space is at a premium: computers & peripherals, smartphones, 4K/8K monitors, audio/visual equipment, AR/VR equipment, etc.



The Diodes Advantage

■ Ultra-low Channel Input Capacitance

With the input capacitance as low as 0.45pF, the insertion loss over any pair of high-speed differential transmission lines is minimized.

■ Low Reverse Working and Clamping Voltage

With reverse working voltage (V_{RWM}) at 3.3V max., reverse clamping voltage (V_C) of 3.5A typ. for $I_{PP} = 5A$, these devices ensure the mixed-signal SoC being protected operates comfortable within the safe limits.

■ IEC61000-4-2 and IEC61000-4-5 Compliance

4 channels of I/O port with protection for IEC61000-4-2 (ESD) up to $\pm 12kV$ air & contract, IEC61000-4-5 (lightning) up to peak pulse current (I_{PP}) of 5A (8/20 μs).

■ Low-profile DFN2510 Package

The combination of small footprint (2.5mm x 1.0mm) and ultra-low z-height (0.58mm) allow these devices to be applied in very tight environment.

Applications

- Smartphones
- 4K/8K Monitors
- AR/VR Equipment
- Computers & Peripherals
- Audio/Visual Equipment



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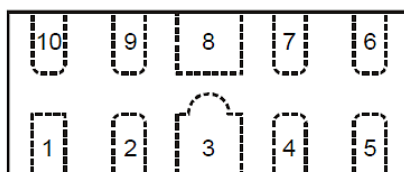
D3V3X4U10LP
D3V3F4U10LP

Product Portfolio

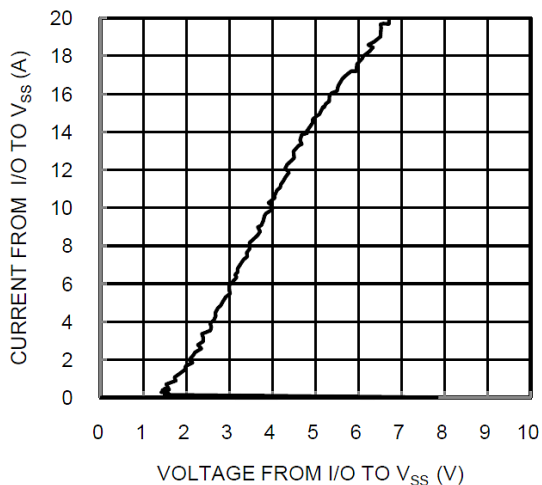
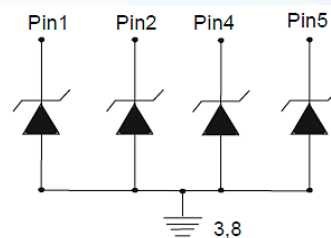
| Part Number | # of Ch. | Direction | Application | C _J (pF) | IEC61000-4-2 | V _{TRIGGER} | V _{SNAGBACK} | V _C @ TLP 16A | V _C @ I _{PP_MAX} (8/20μs) | Package |
|-------------|----------|-----------|---------------|---------------------|--------------------------|----------------------|-----------------------|--------------------------|---|---------|
| D3V3F4U10LP | 4 | Uni-dir | USB, HDMI, DP | 0.50pF | Air: ±12kV Con: ±12kV | 7.9V | 1.5V | 5V | 3.5V @ 5A | DFN2510 |
| D3V3X4U10LP | 4 | Uni-dir | USB, HDMI, DP | 0.45pF | Air: ±8kV Con: ±8kV | 7.8V | 1.4V | 6V | 3.0V @ 3A | DFN2510 |

U-DFN2510-10

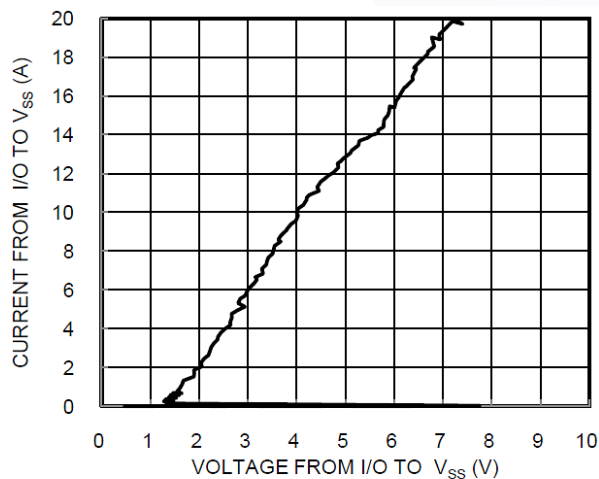
| Pin # | Description |
|-------------|-----------------|
| 1, 2, 4, 5 | I/O |
| 6, 7, 9, 10 | No Connection |
| 3, 8 | V _{SS} |



Device Schematic



D3V3F4U10LP : Current vs. Voltage



D3V3X4U10LP : Current vs. Voltage

Ordering Information

| Part Number | Compliance | Marking | Reel Size (Inch) | Tape Width (mm) | Quantity per Reel |
|---------------|------------|---------|------------------|-----------------|-------------------|
| D3V3F4U10LP-7 | Standard | QD6 | 7 | 8 | 3,000 |
| D3V3X4U10LP-7 | Standard | MU2 | 7 | 8 | 3,000 |