Product Information

Never stop thinking

ESD5V3U4U-HDMI

Protection of High-Speed-Digital Interfaces

With this new TVS diode array Infineon combines ESD protection together with high speed signal integrity and with a straight forward - easy to implement - PCB layout. Digital televisions, DVD / Blu-ray players, -recorders, game consoles, digital set top boxes, LCD monitors, and also mobile communication equipment will greatly benefit from this INFINEON product.

ESD5V3U4U-HDMI enhances system's robustness as it is designed to protect effectively high speed interfaces from electrostatic discharges (ESD) generated by end-users. Applications include HDMI1.3, DisplayPort, USB 3.0, FireWire and also MicroSD interface.

ESD5V3U4U-HDMI makes ESD protection easy and adds value to the application:

- **Excellent ESD clamping performance**

ESD5V3U4U-HDMI is qualified to endure ESD strikes of up to 20kV (contact and air discharge), exceeding therefore the market standard IEC61000-4-2 level 4. According to tests performed at 8kV contact discharge (IEC61000-4-2), ESD-5V3U4U-HDMI reveals a much more efficient clamping performance than other TVS market's solutions that are offered in the same package. With Infineon's TVS diode, electrostatic discharges are clamped faster to a lower and safer voltage level for the application.

- **Fulfilment of high speed signal quality requirements**

One of the most critical tests in the HDMI certification is the TDR (time domain reflectometry) characterization of the HDMI sink e.g. for a HD-TV. Even a small amount of added capacitance on an HDMI port originates a drop in the impedance of the differential pair, which can lead to heavily attenuated signals and consequently to certification compliance issues.

www.infineon.com/highspeedinterfaces

Features & Benefits

- Excellent ESD clamping performance
- Fulfilment of high speed signal quality requirements
- Cleanest PCB layout for easy design

Further information

Kits including Samples and CD available under www.infineon.com/discretesamplekits.

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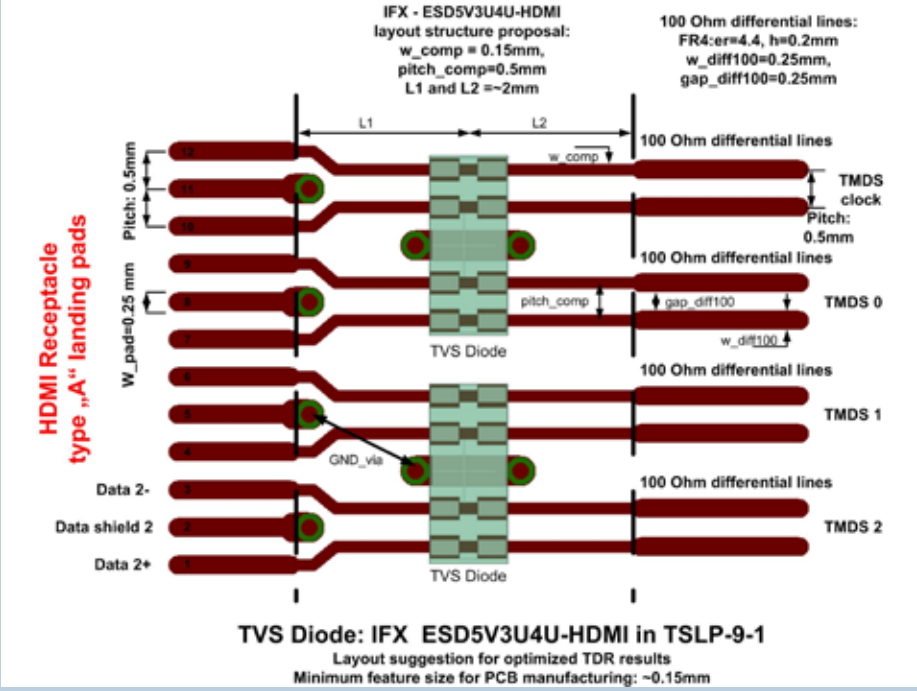
In cases of using TVS diodes showing a higher capacitance, very extreme modifications on the PCB layout are necessary in order to compensate the diode capacitance and be able to meet the TDR specification window of 100Ω ±15% and the more stringent value of +-10% for the HDMI load.

Therefore ultralow capacitance ESD protection devices like ESD5V3U4U-HDMI with a capacitance remaining at or below 0.4pF (line to ground) over a frequency range from 1MHz to beyond 3GHz are mandatory to keep signal's integrity at an optimum without complex compensation PCB structures.

Cleanest PCB layout for easy design

ESD5V3U4U-HDMI is a very effective solution supporting quicker time to market and reduces purchasing complexity as each array device can be easily implemented to replace 4 discrete components. ESD5V3U4U-HDMI can save up to 50% board space in comparison with e.g. ceramic protection devices in case size 0402 as one array device can protect four high speed data lines at the same time.

In applications like HDMI 1.3 or DisplayPort, the pin spacing of the connectors is 0.5mm, just the same as the pitch spacing of ESD5V3U4U-HDMI in TSLP-9 package. It means this array device can be placed on top of two differential microstrip line pairs, avoiding multiple stubs and bends in the PCB traces that would cause reflections and signal attenuation. For further information about this as well as other members from the ultralow capacitance TVS diode series check www.infineon.com/highspeedinterfaces.



TVS Diode: IFX ESD5V3U4U-HDMI in TSLP-9-1
Layout suggestion for optimized TDR results
Minimum feature size for PCB manufacturing: ~0.15mm

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Published by
Infineon Technologies AG
81726 Munich, Germany

Published by Infineon Technologies AG

Order Number: B132-H9407-X-X-7600