

DVI ESD Protection demonstration board

Introduction

This document presents the ST demonstration board for DVI ESD protection, including schematic, layout and ESD measurements according to IEC 61000-4-2 standard. The DVI ESD Protection demonstration board provides the means to show the effectiveness of the new, ultra low capacitance DVIULC6-4SC6 device in handling the most stringent requirements of the IEC 61000-4-2 standard.

Figure 1. Top Layer

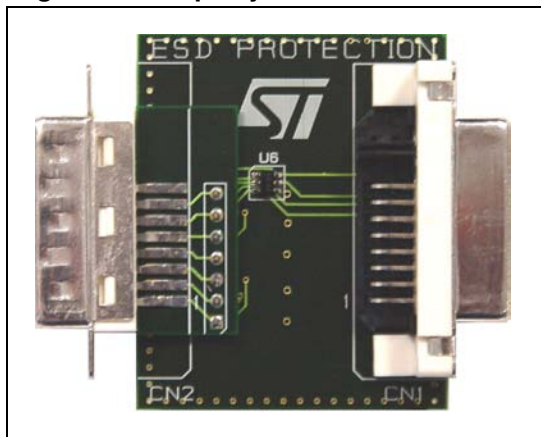
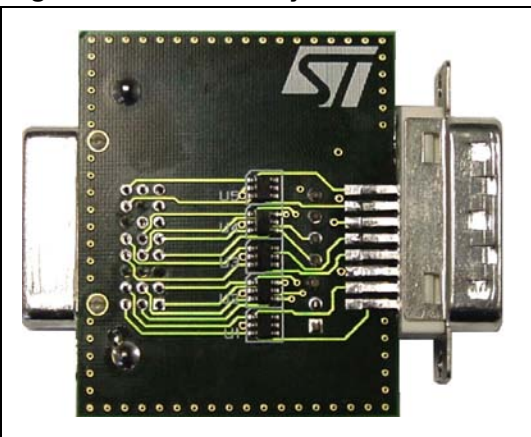


Figure 2. Bottom Layer



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1 Schematics

Figure 3. Circuit diagram

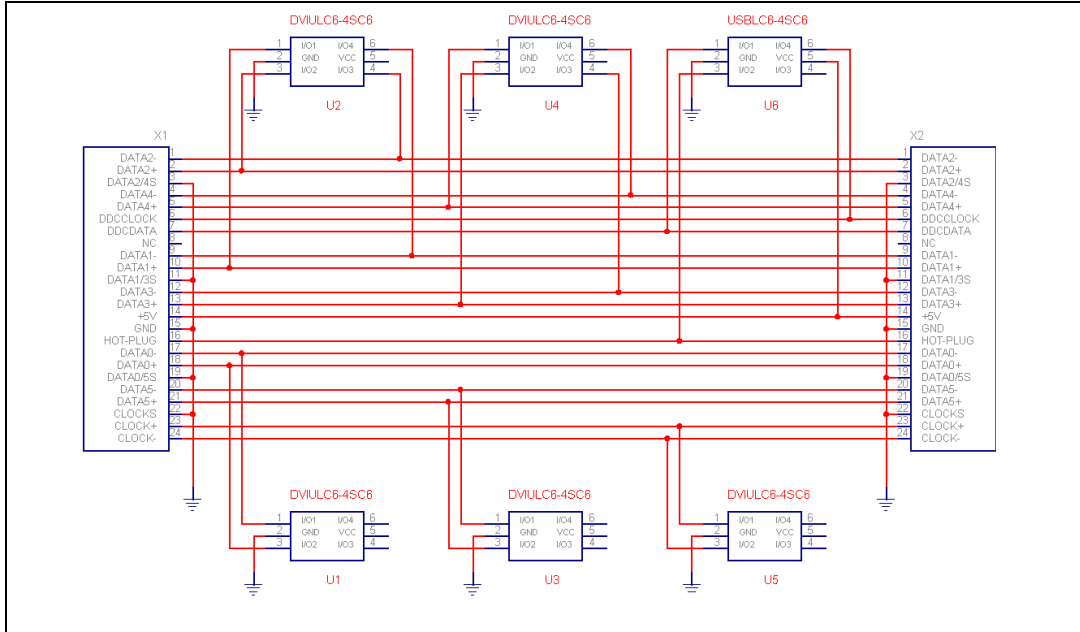
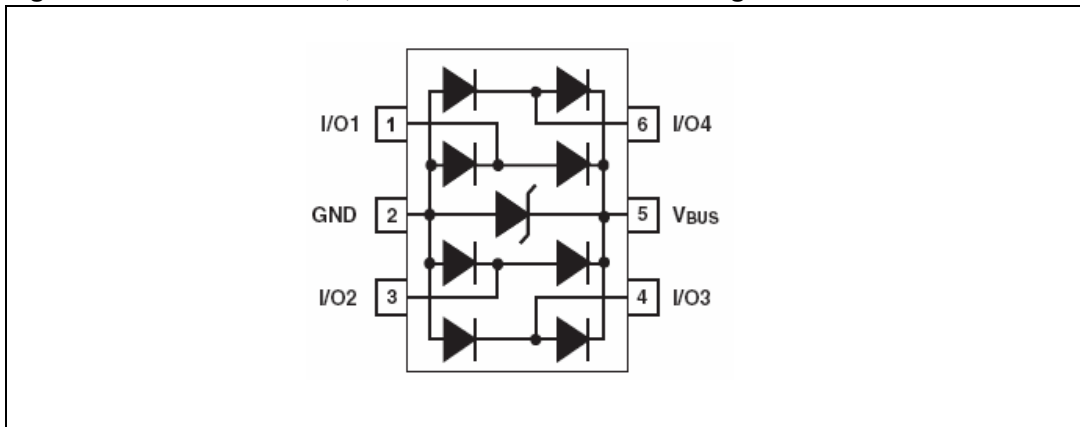


Table 1. Components

Item	Qty	Designators	P/N	Manufacturer & Part Description
1	1	X1	DV2R024N11	JAE DVI-D receptacle
2	1	X2	DV2P024M11	JAE DVI-D plug
3	5	U1, U2, U3, U4, U5	DVIULC6-4SC6	STMicroelectronics Ultra low capacitance ESD protection
4	1	U6	USBLC6-4SC6	STMicroelectronics Very low capacitance ESD protection

Figure 4. DVIULC6-4SC6, USBLC6-4SC6 Functional diagram



2 PCB Layout

Figure 5. PCB layer description

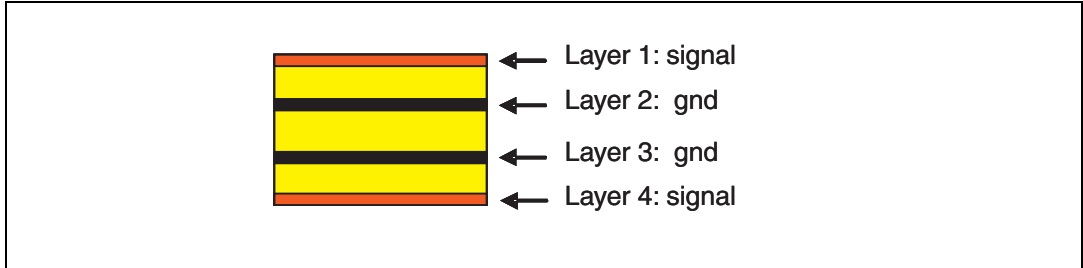


Figure 6. Top side

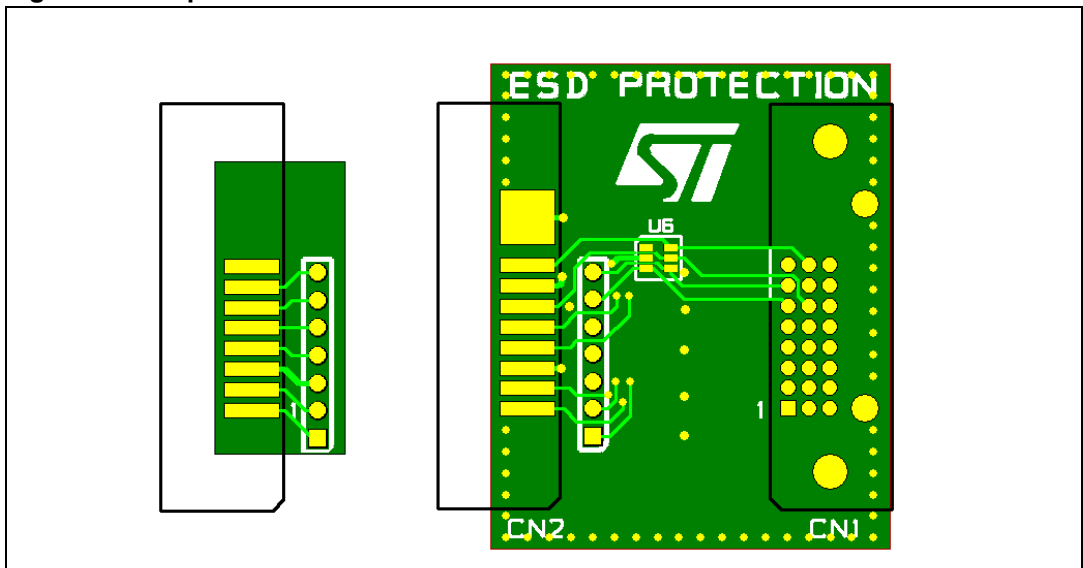
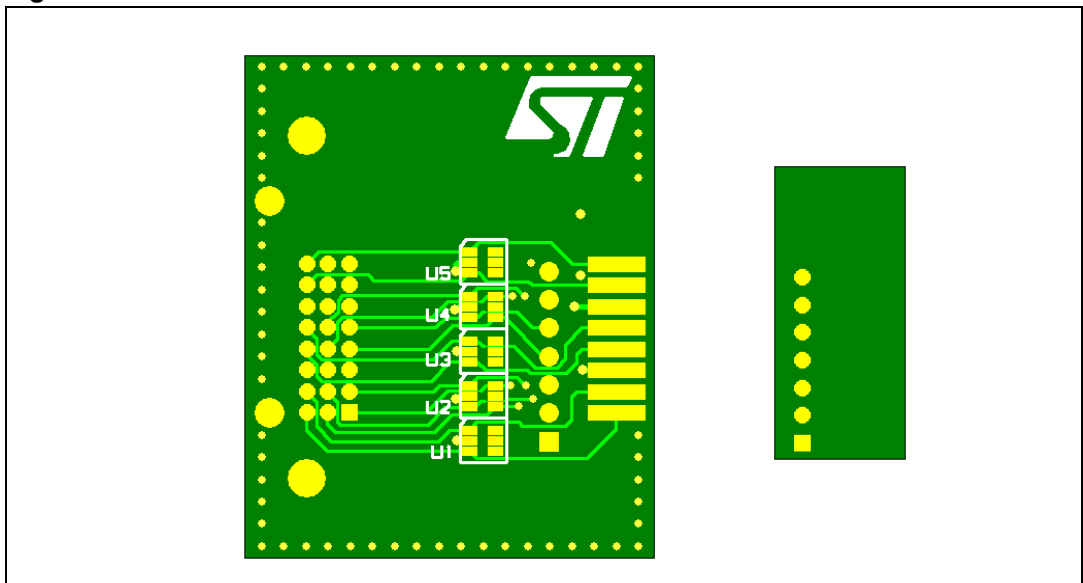
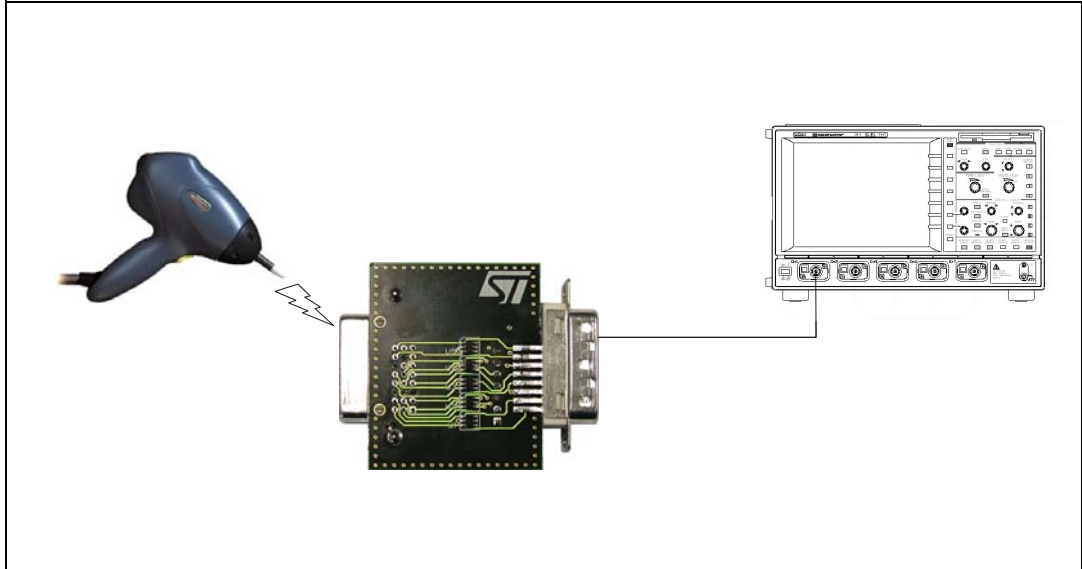


Figure 7. Bottom side



3 ESD Measurement

Figure 8. Measurement setup



- ESD Generator: Schaffner NSG 438
- Oscilloscope: Lecroy 9354
- Probe: Lecroy PP006

3.1 Measurement Results

ESD measurements have been performed according to IEC61000-4-2 level 4 air discharge standard.

Figure 9. Remaining voltage (V_{out}) after an ESD pulse of +15 kV (V_{in}) was applied to a DVIULC6-4SC6 device

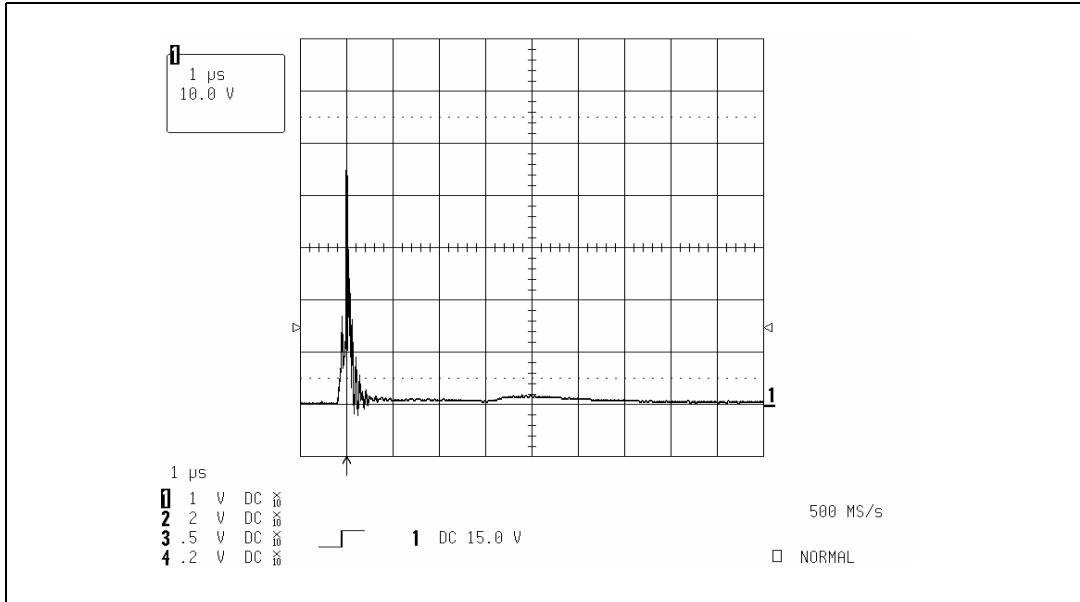
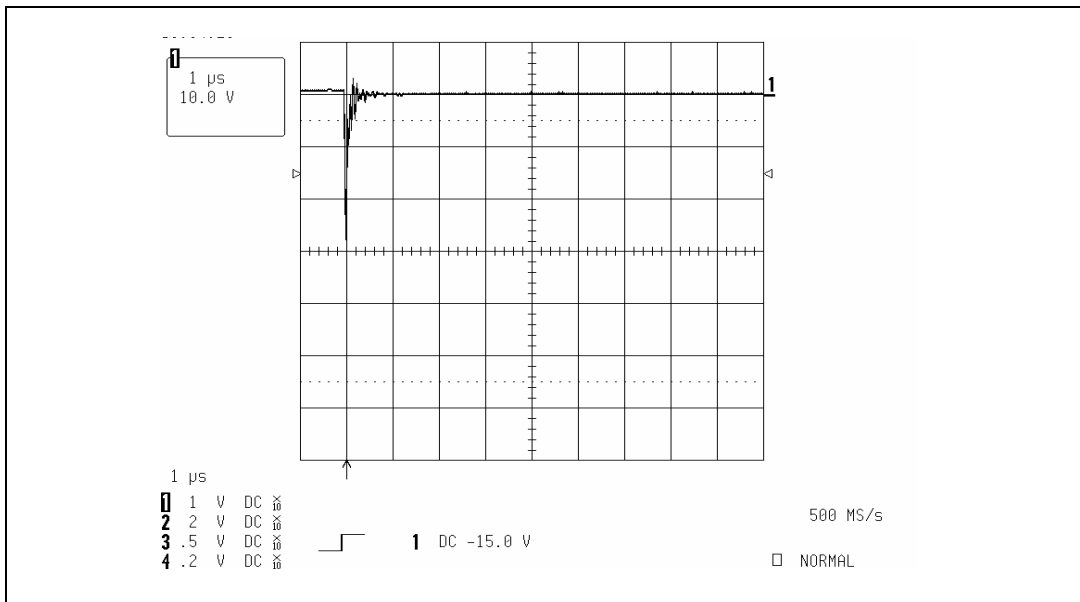


Figure 10. Remaining voltage (V_{out}) after an ESD pulse of -15 kV (V_{in}) was applied to a DVIULC6-4SC6 device



These measurements show the high level of immunity obtained using the DVIULC6-4SC6 device. The combination of ultra low capacitance and high level of ESD protection makes the DVIULC6-4SC6 device ideal for DVI applications.

4 Revision history

Date	Revision	Changes
10-Apr-2006	1	Initial release.

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