1 Characteristics

Table 1. Absolute maximum ratings (T_{amb} = 25 °C)

Symbol	Parameter		Value	Unit
V_{PP}	Peak pulse voltage(1)	IEC 61000-4-2 contact discharge IEC 61000-4-2 air discharge	10 20	kV
T_j	Maximum junction temperature		125	°C
T_{op}	Operating temperature range		- 30 to + 85	°C
T_{stg}	Storage temperature range		- 55 to 150	°C

1. Measurements done on IEC 61000-4-2 test bench. For further details see Application note AN3353.

Figure 3. Electrical characteristics (definitions)

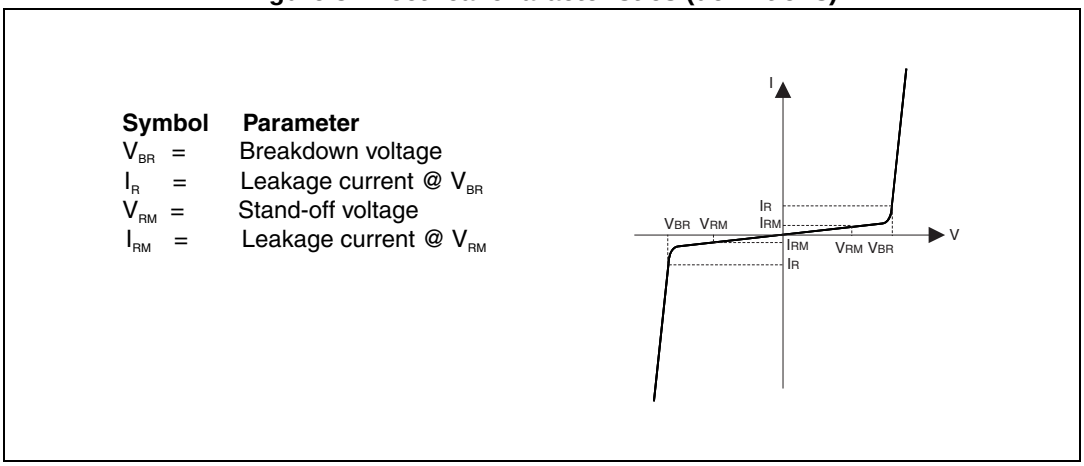


Table 2. Electrical characteristics (values, T_{amb} = 25 °C)

Symbol	Test conditions	Min.	Typ.	Max.	Unit
V_{BR}	I_R = 1 mA	6			V
I_{RM}	V_{RM} = 3 V per line			100	nA
R_{DC}	DC serial resistance		3	4	Ω

2 Application schematics

Figure 4. USB2.0 application

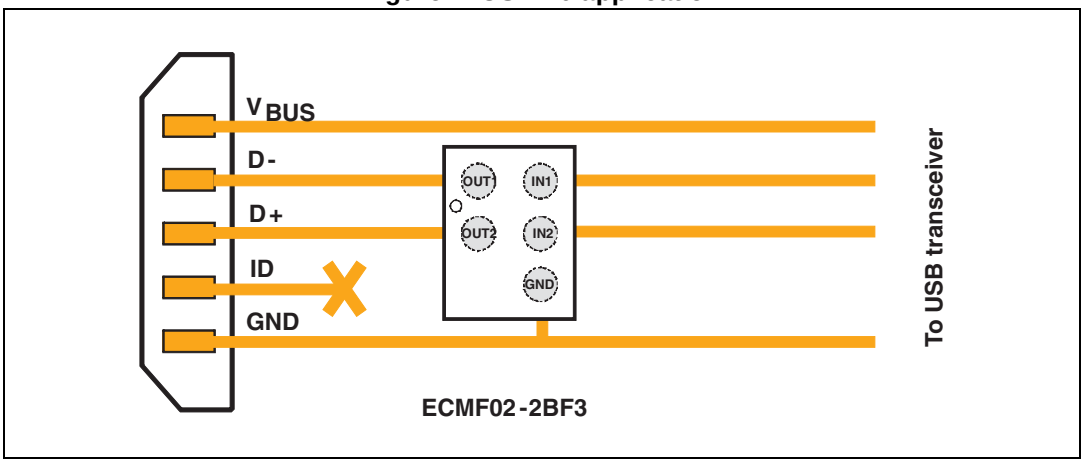
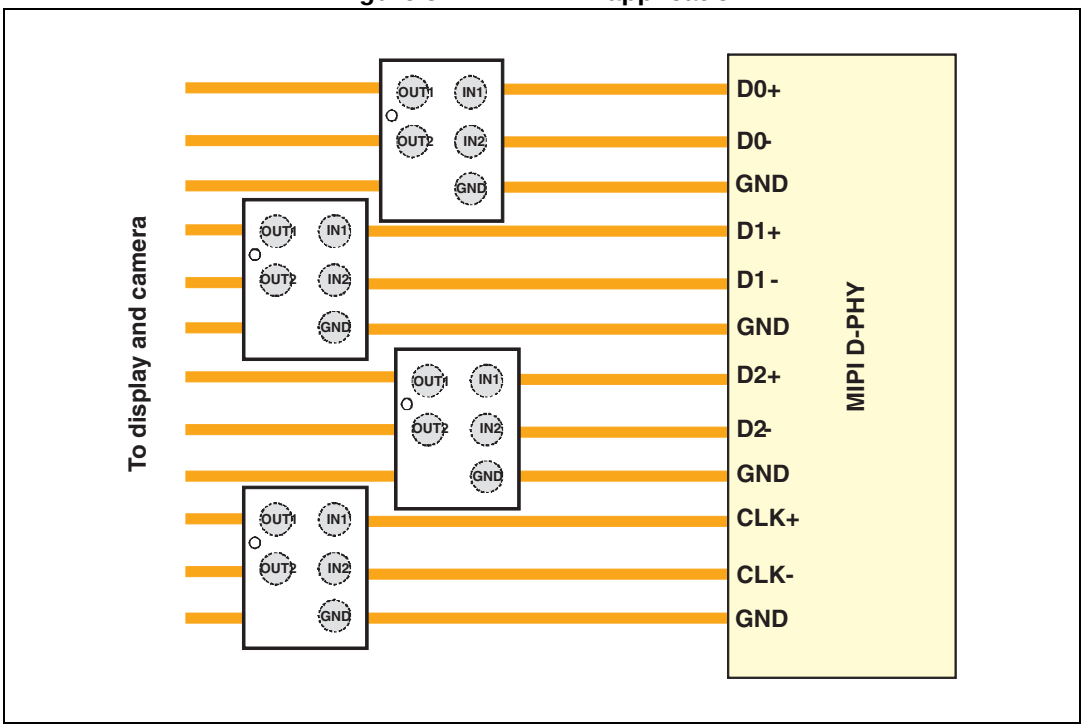


Figure 5. MIPI D-PHY application



3 Measurement curves

Figure 6. SDD21 differential attenuation measurement ($Z_{0\ diff}$ = 100 Ω)

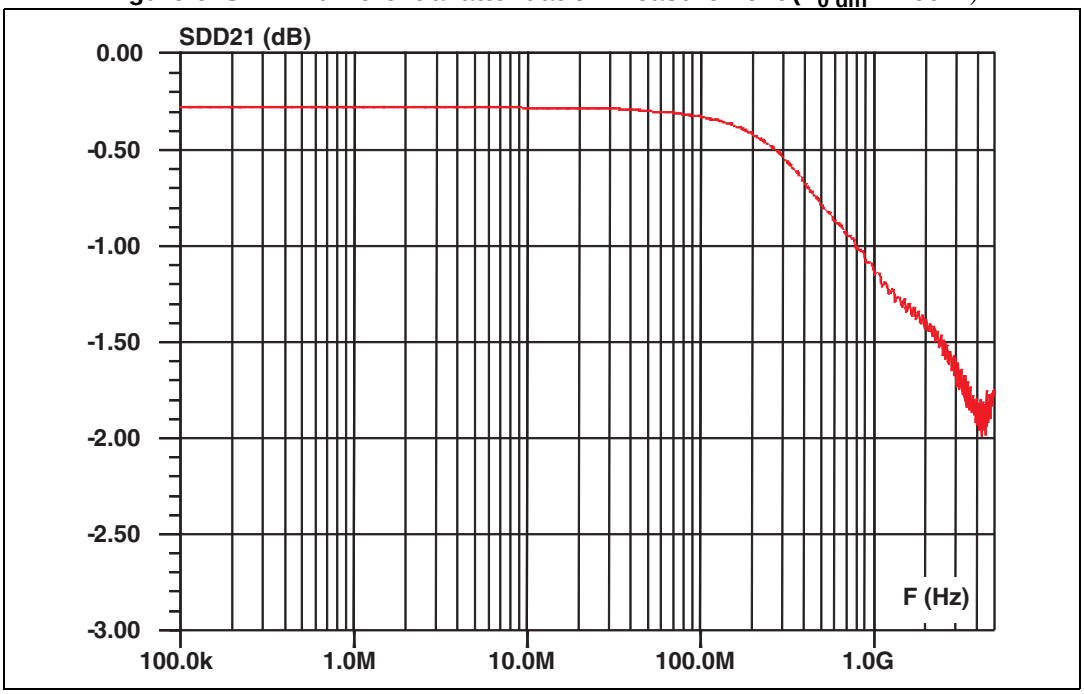


Figure 7. SCC21 common mode attenuation measurement ($Z_{0\ com}$ = 50 Ω)

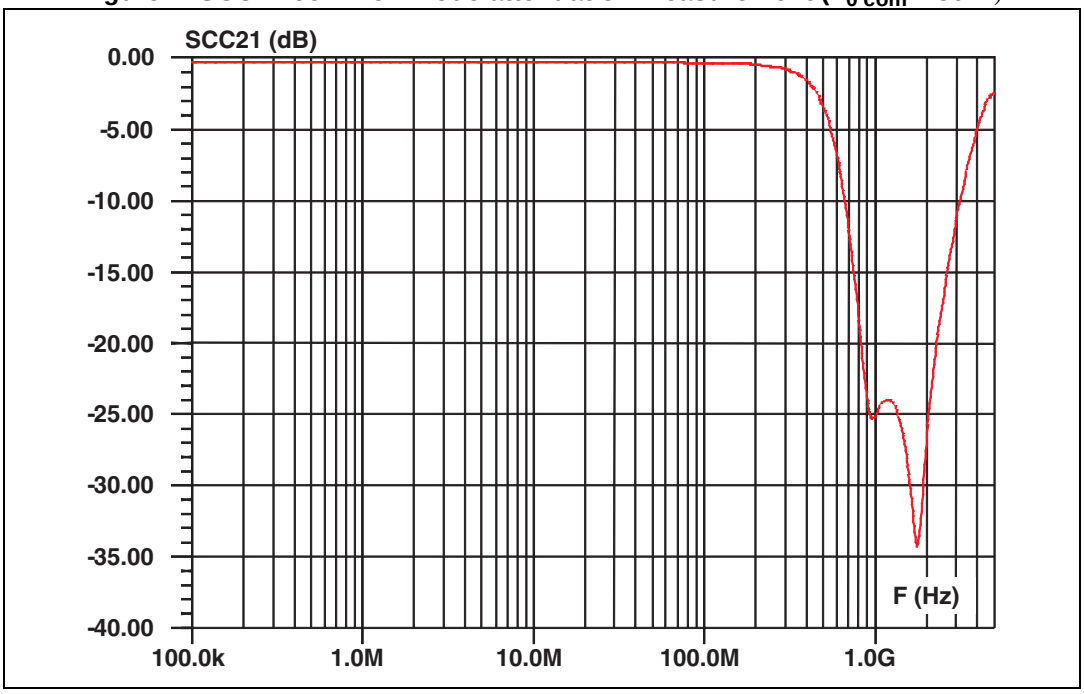


Figure 8. SDD11 and SDD22 differential return loss measurement ($Z_{0\ diff}$ = 100 Ω)

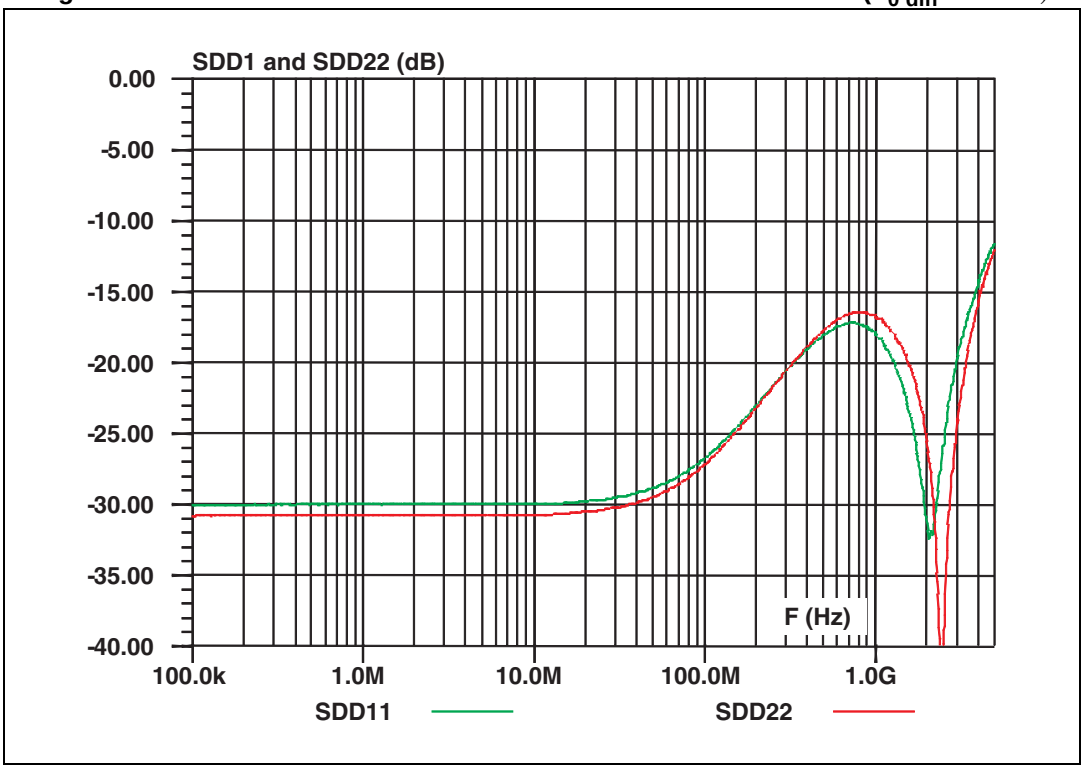


Figure 9. ESD response to IEC 61000-4-2 (+8 kV contact discharge)

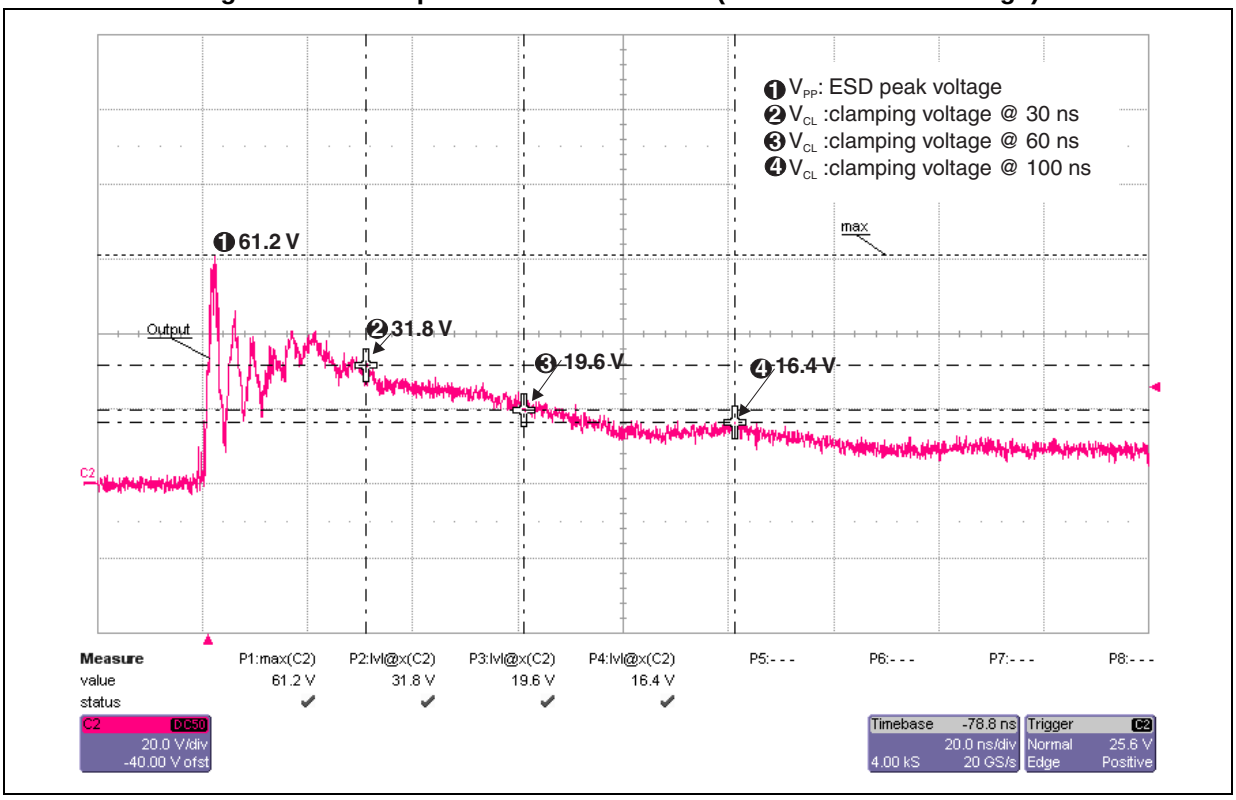
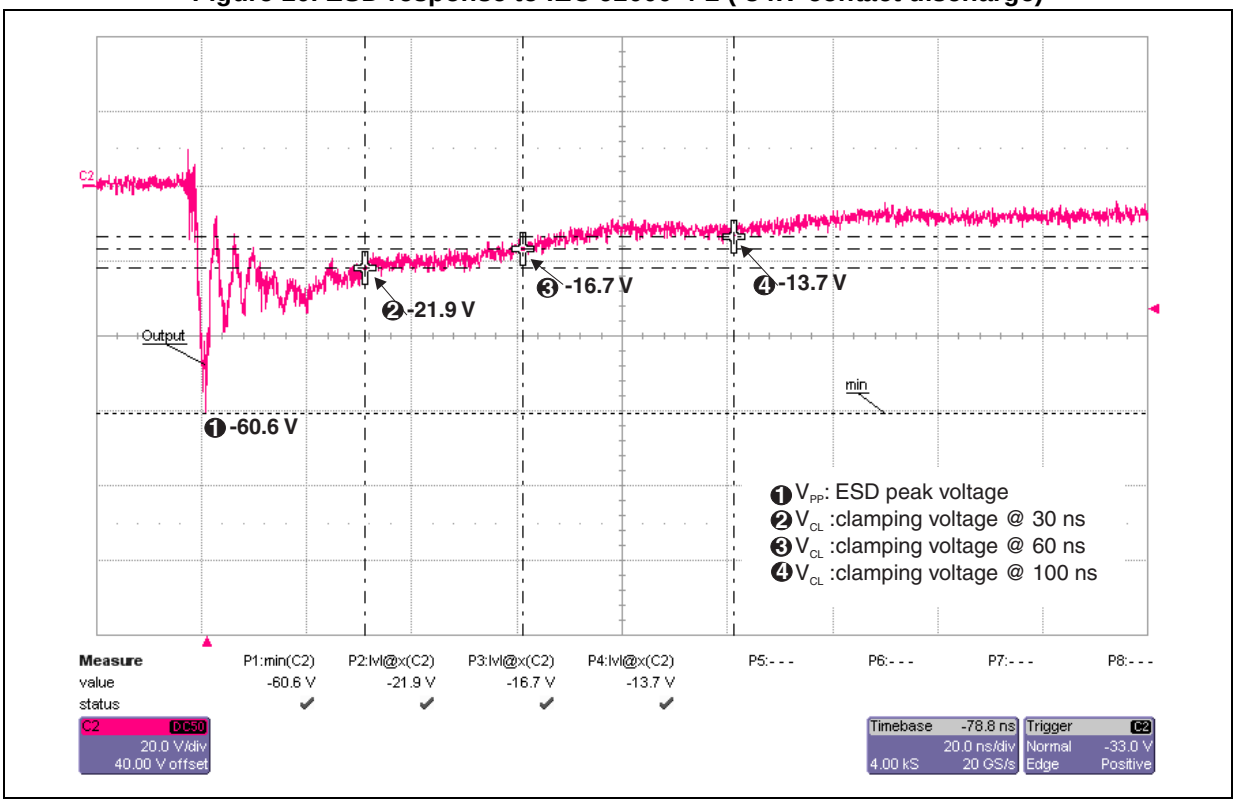


Figure 10. ESD response to IEC 61000-4-2 (-8 kV contact discharge)



4 High speed differential standard compliance tests

4.1 USB2.0 compliance tests

Figure 11. TDR measurement (loaded by Z_{diff} = 90 Ω)

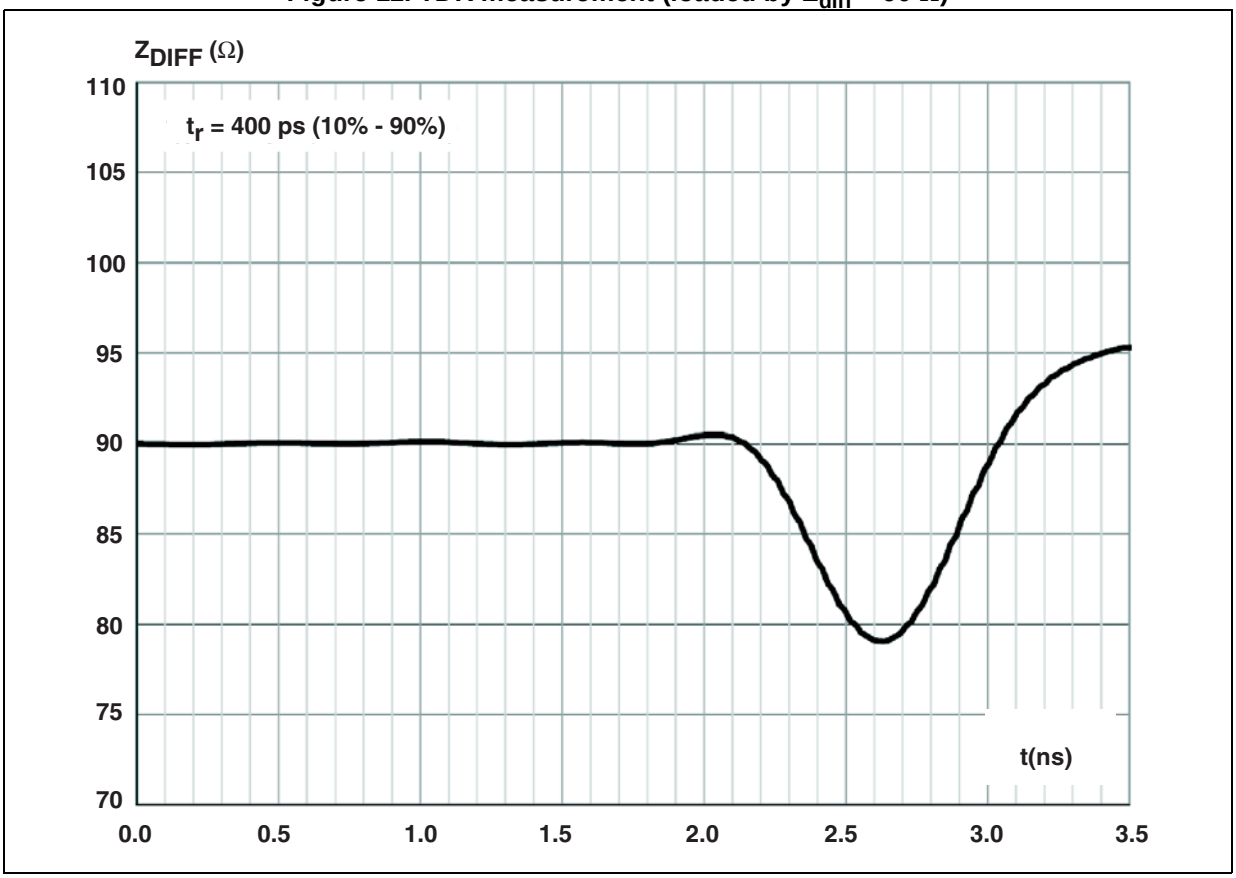
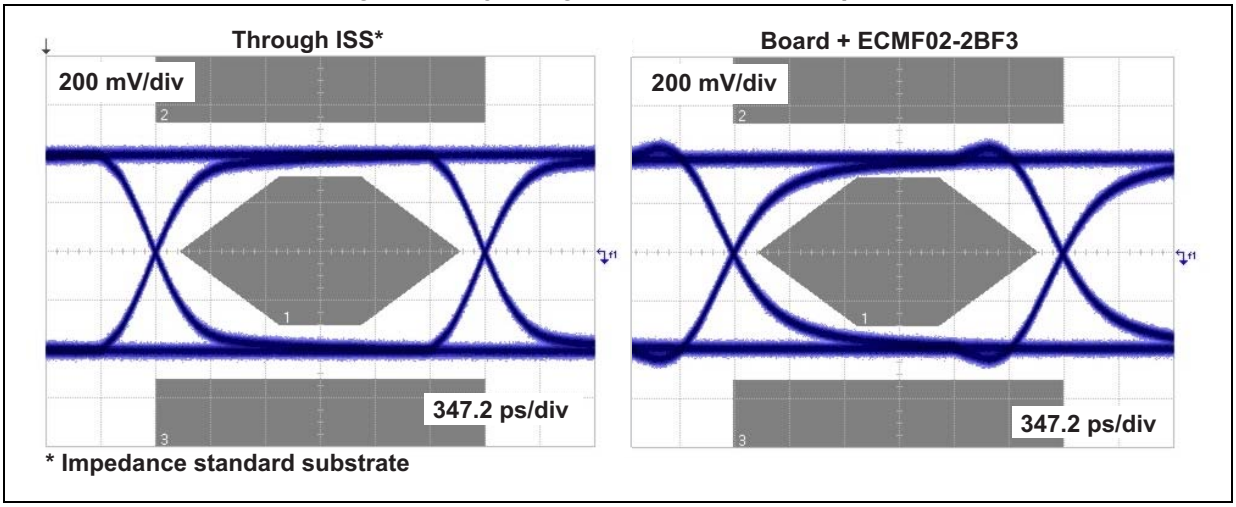
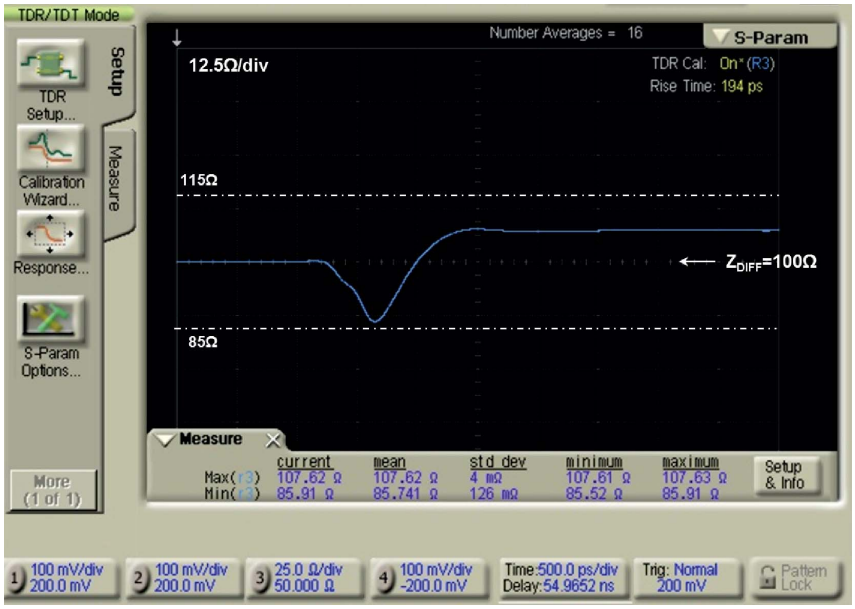


Figure 12. Eye diagram with USB2.0 template



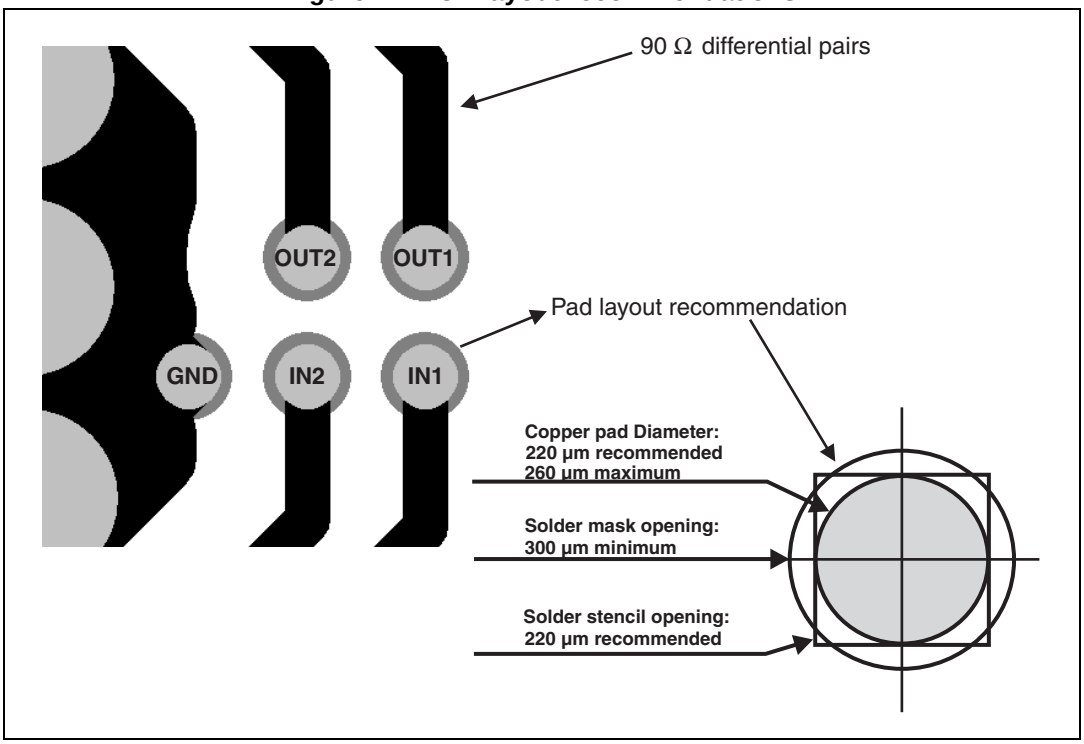
4.2 HDMI1.4 compliance tests

Figure 13. TDR measurement (loaded by Z_{diff} = 100 Ω), t_r = 194 ps (10% - 90%)



5 PCB layout recommendations

Figure 14. PCB layout recommendations



6 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

Figure 15. Package dimensions

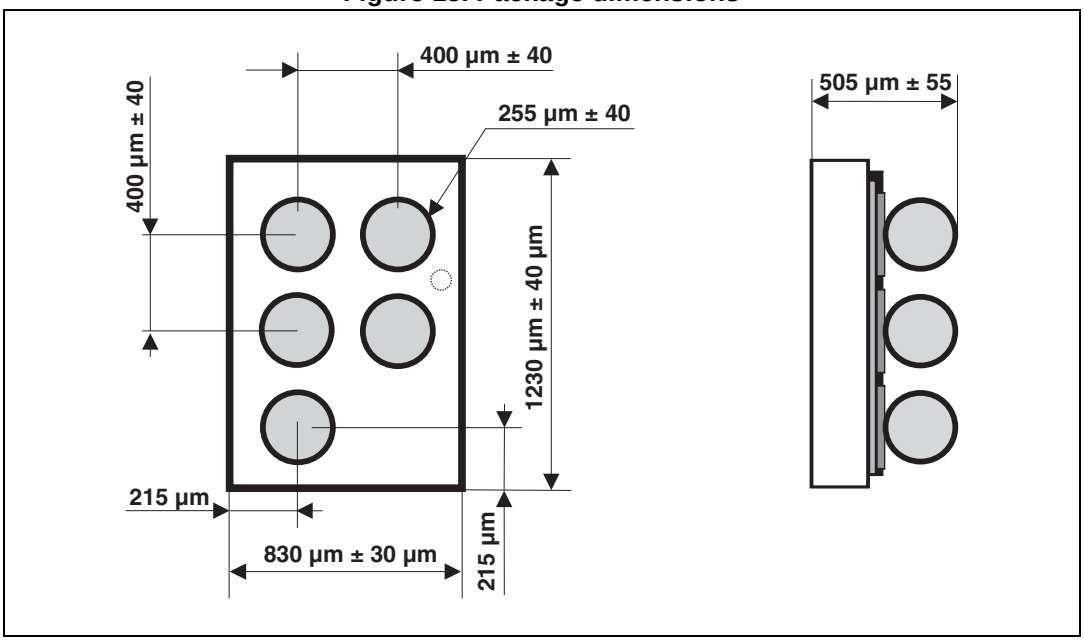


Figure 16. Marking

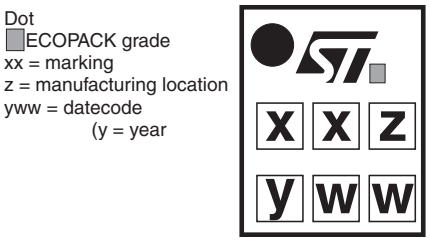
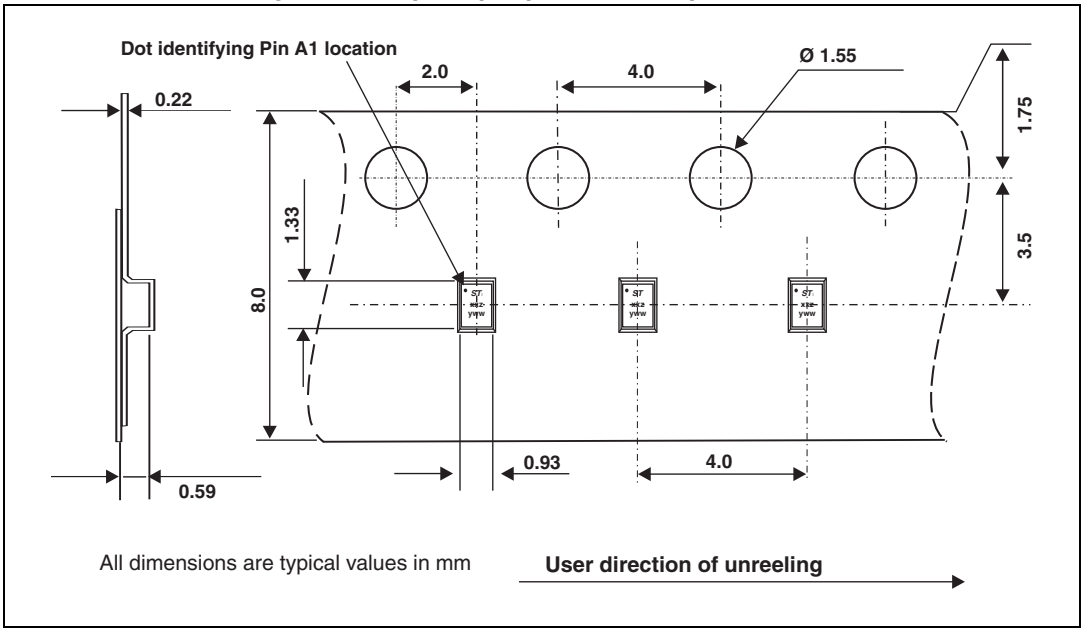


Figure 17. Flip Chip tape and reel specification



Note: More information is available in the application notes:
AN2348, "IPAD™ 400 µm Flip Chip: package description and recommendations for use"
AN1751, "EMI filters: recommendations and measurements"

7 Ordering information

Figure 18. Ordering information scheme

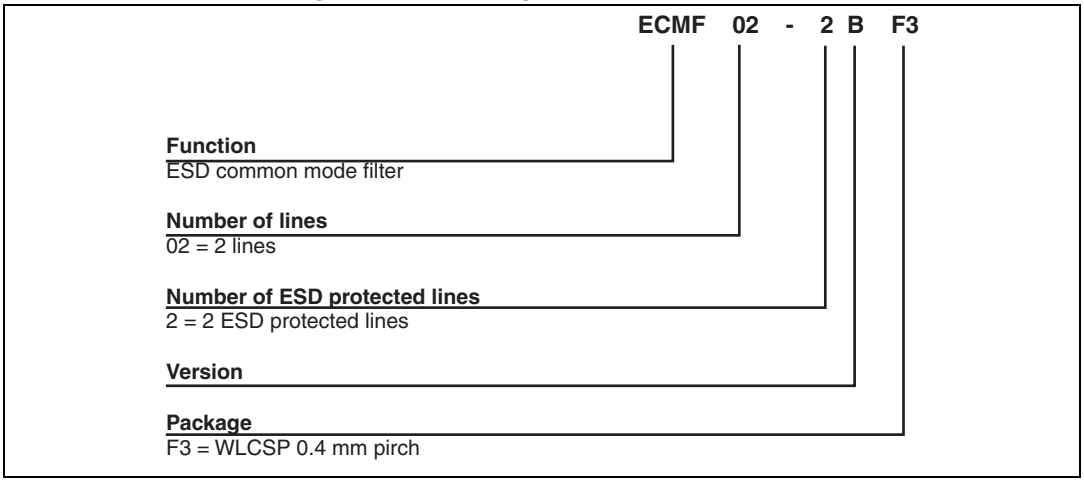


Table 3. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
ECMF02-2BF3	KE	Flip Chip	1.15 mg	5000	Tape and reel 7"

8 Revision history

Table 4. Document revision history

Date	Revision	Changes
09-Feb-2012	1	Initial release.
07-Mar-2014	2	Updated *Figure 13*.

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