ESDAULC6-8F3

8-line ultralarge bandwidth ESD protection

Features

- 8-line 15 kV ESD protection
- ultralarge bandwidth:
  - no influence on signal rise and fall times
  - maximized number of signal harmonics
- low PCB space consumption:
  1.2 x 1.2 mm² (1.44 mm²)
- very low leakage current: 0.1 µA max
- high reliability offered by monolithic integration
- high reduction of parasitic elements through integration and wafer level packaging

Complies with the following standards:

- IEC 61000-4-2 Level 4:
  - ± 15 kV (air discharge)
  - ± 8 kV (contact discharge)
- IEC 61000-4-2 Level 1:
  - ± 2 kV (air discharge)
  - ± 2 kV (contact discharge)

Applications

Where transient overvoltage protection in ESD sensitive equipment is required using high speed differential interfaces:

- mobile phones
- portable navigation devices
- portable multimedia players

Description

The ESDAULC6-8F3 is a monolithic application specific discrete device dedicated to ESD protection of high speed differential interfaces.

This device is ideal for applications where both reduced print circuit board space and power absorption capability are required.

Leed-free Flip-Chip package (9 bumps)

Figure 1. Pin configuration (bump side)

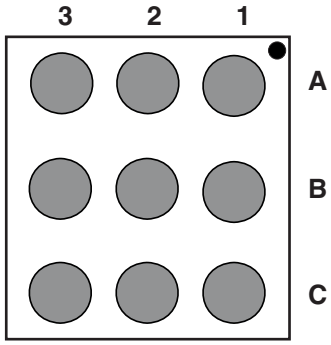
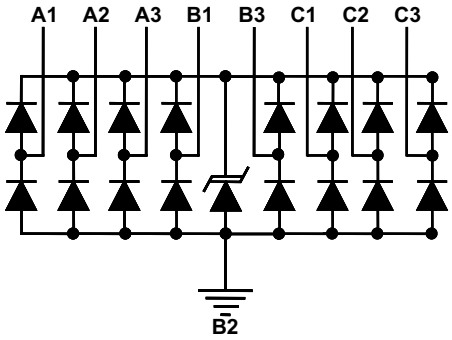


Figure 2. Schematic



TM: HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

1 Characteristics

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

Symbol	Parameter	Value	Unit
V_{PP}	ESD IEC 61000-4-2, level 4 - on all pins: Air discharge Contact discharge	 15 15	kV
T_{op}	Operating temperature range	-30 to + 85	°C
T_{stg}	Storage temperature range	-55 to + 150	°C

Figure 3. Electrical characteristics - definitions

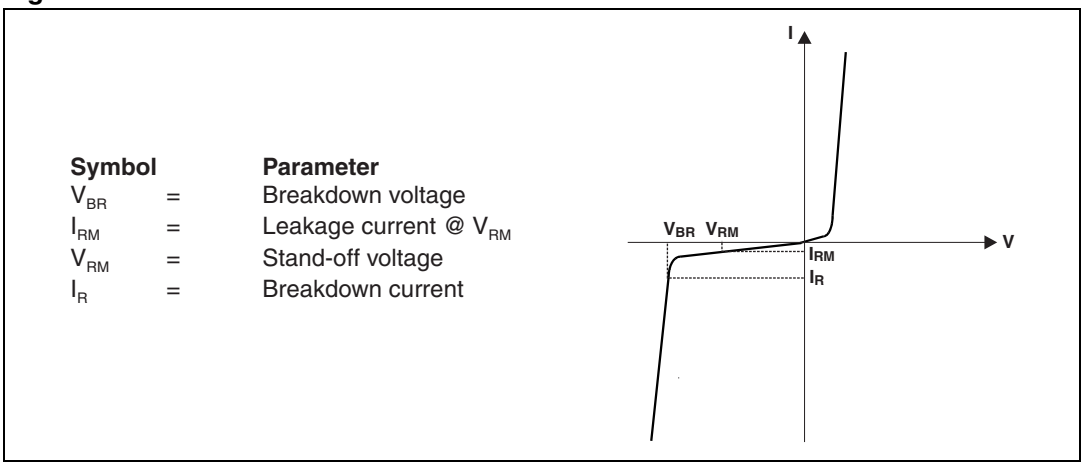


Table 2. Electrical characteristics (T_{amb} = 25 °C)

Symbol	Test condition	Min.	Typ.	Max.	Unit
V_{BR}	I_R = 1 mA	6		10	V
I_{RM}	V_{RM} = 3 V per line		3	100	nA
$C_{I/O-GND}$	V_{line} = 0 V, V_{osc} = 30 mV, F = 1 MHz			1.2	pF

Figure 4. S21(dB) attenuation measurement

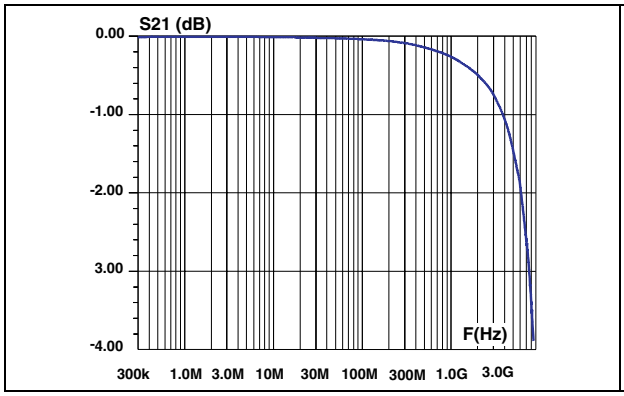


Figure 5. Analog crosstalk measurements

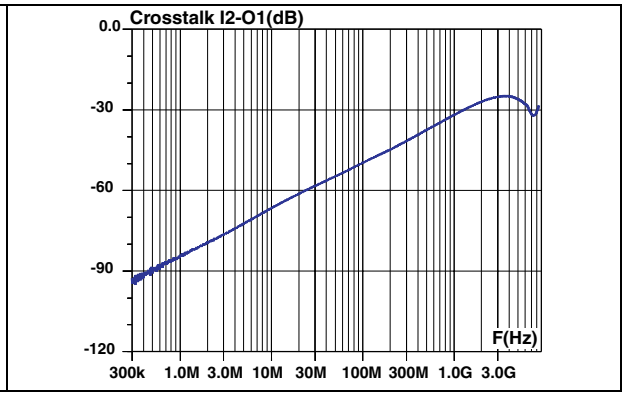


Figure 6. Digital crosstalk measurement

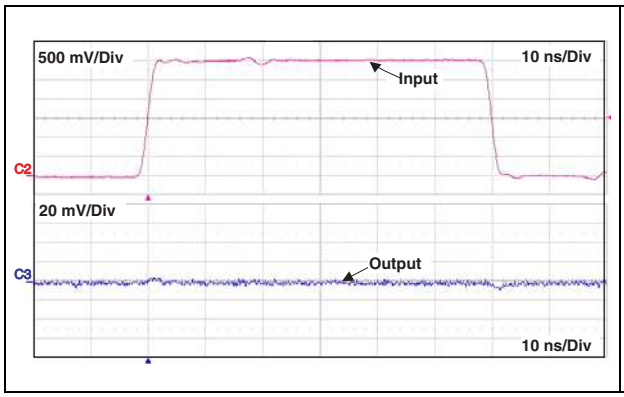


Figure 7. ESD response to IEC 61000-4-2 (+8 kV contact discharge)

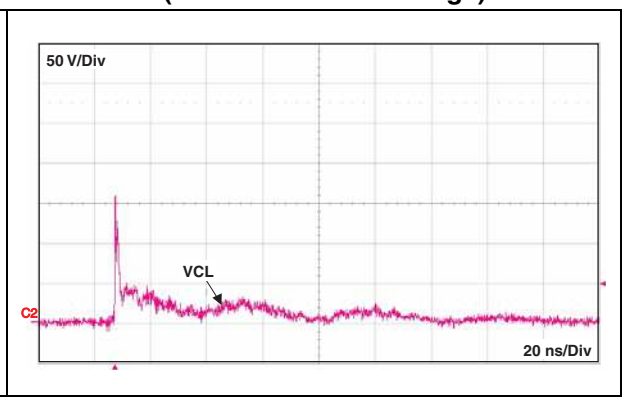


Figure 8. ESD response to IEC 61000-4-2 (-8 kV contact discharge)

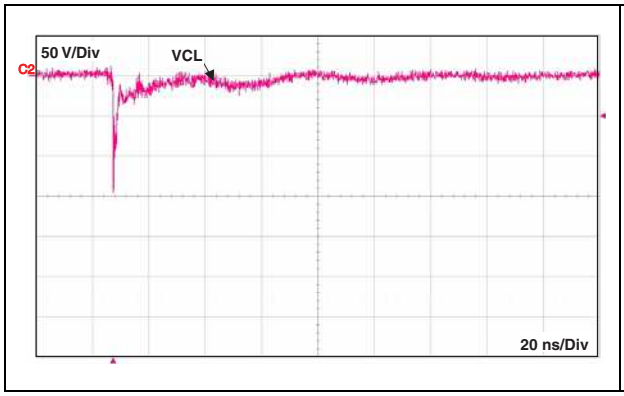


Figure 9. Line to ground capacitance versus applied voltage (typical values)

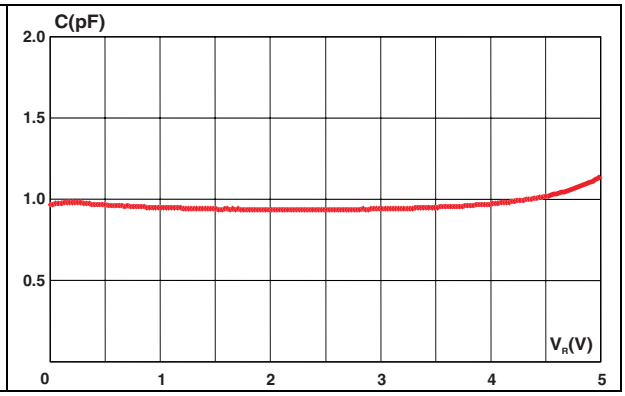
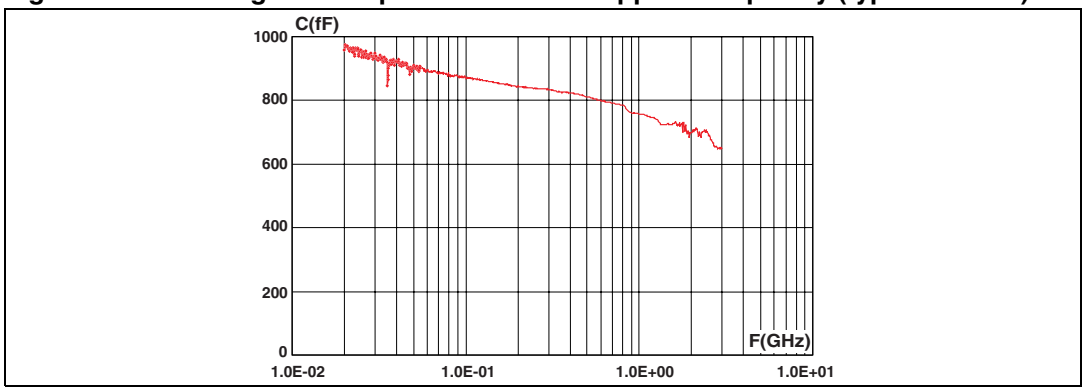
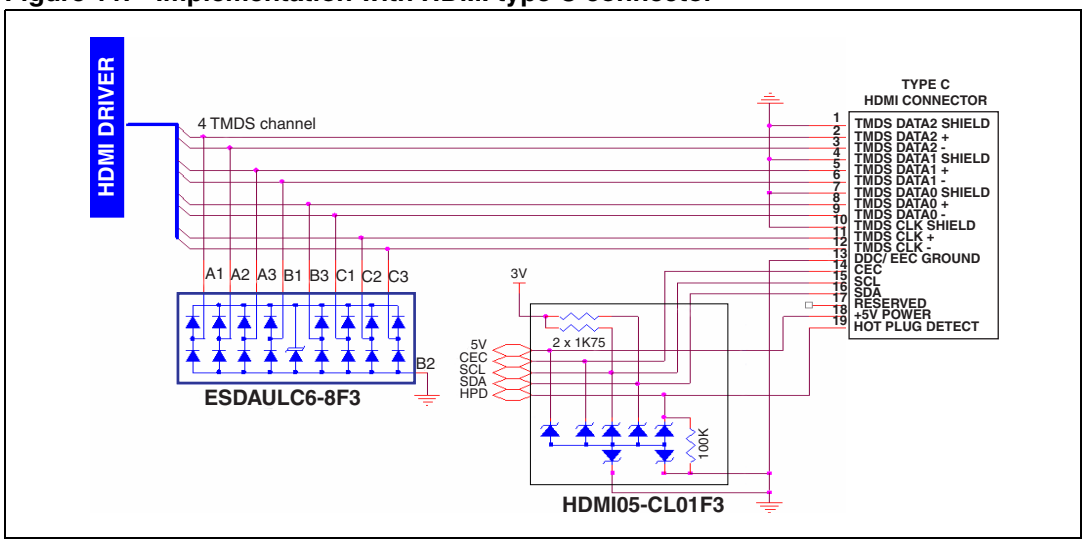


Figure 10. Line to ground capacitance versus applied frequency (typical values)



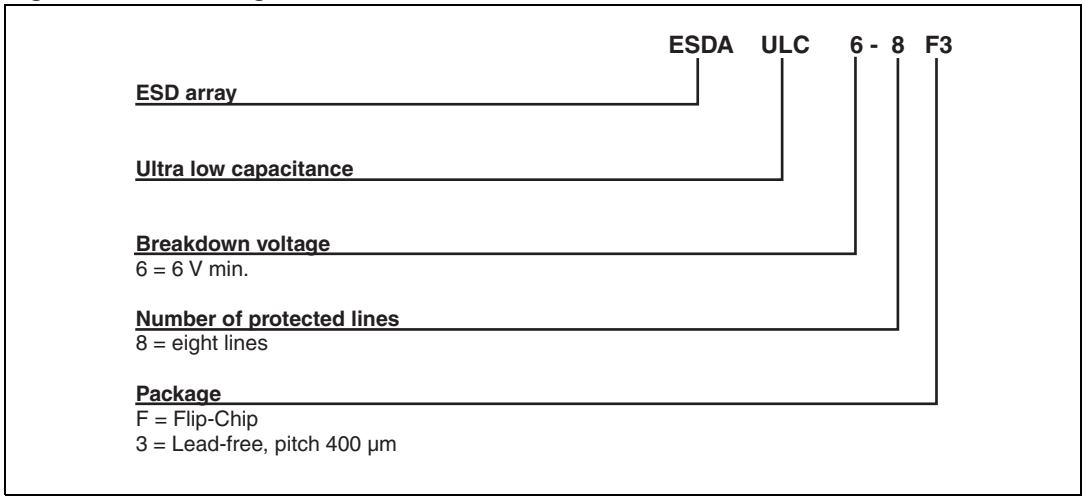
2 Typical application schematic

Figure 11. Implementation with HDMI type C connector



3 Ordering information scheme

Figure 12. Ordering information scheme



4 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 13. Flip Chip dimensions

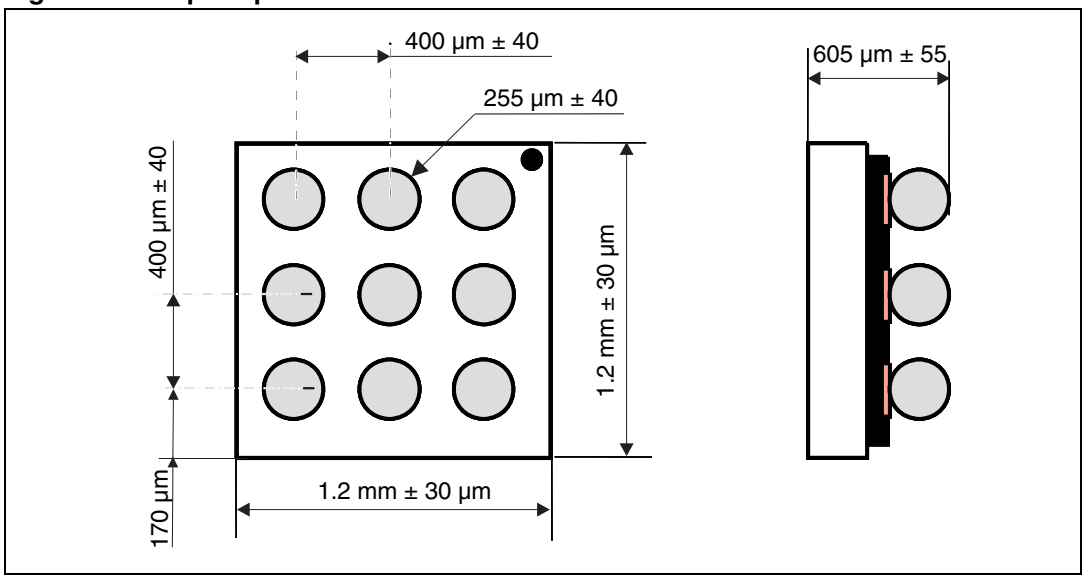


Figure 14. Footprint

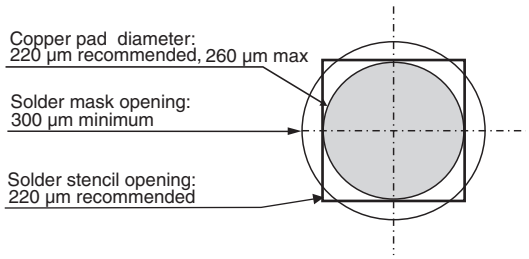


Figure 15. Marking

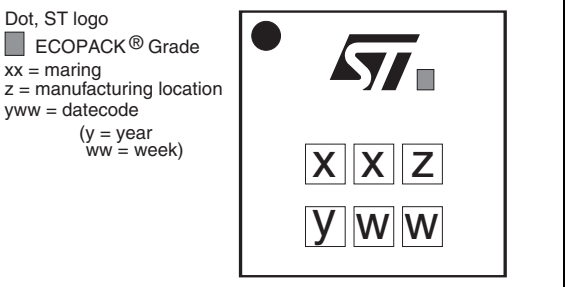
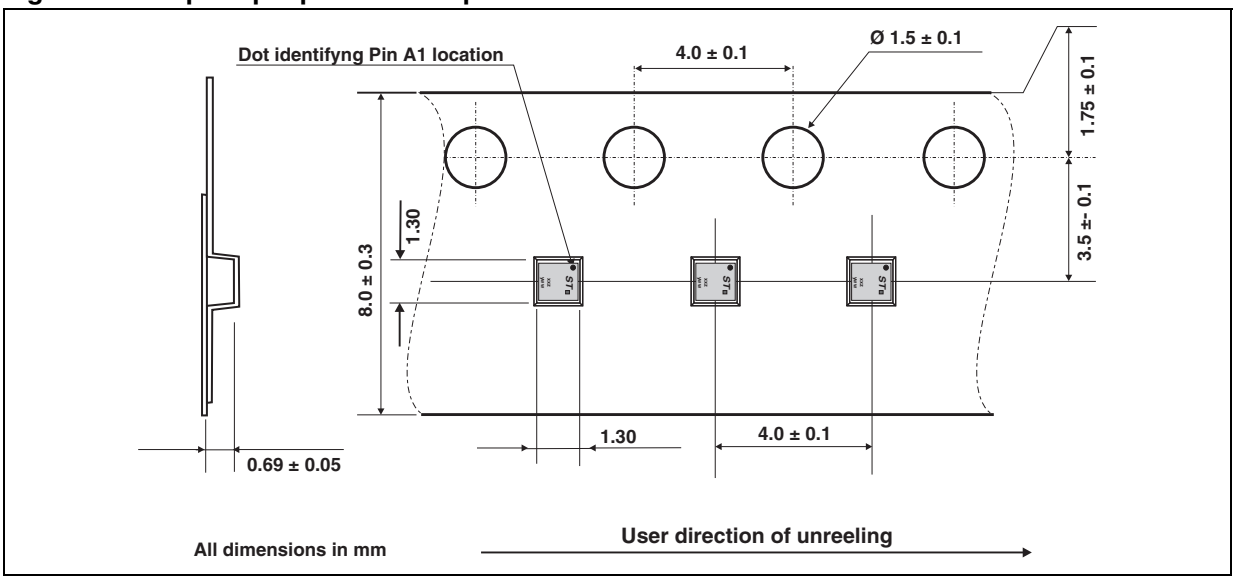


Figure 16. Flip Chip tape and reel specification



Note: More packing information is available in the application notes:
AN2348: "Flip Chip: Package description and recommendations for use"
AN1751: "EMI Filters: Recommendations and measurements"

5 Ordering information

Table 3. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
ESDAULC6-8F3	ER	Flip Chip	1.88 mg	5000	Tape and reel (7”)

6 Revision history

Table 4. Document revision history

Date	Revision	Changes
06-Oct-2010	1	First issue.
15-Oct-2010	2	Corrected typographical error in document title.

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