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Automotive grade High-speed protection against ESD



Extra low capacitance, automotive-grade ESD protection for HDMI, USB 3.0 APIX, LVDS and Ethernet communication buses

Infotainment systems such as in-seat multimedia screens or central information displays require high-speed communication interfaces made of surge sensitive ICs.
Due to automotive reliability standards, the use of AEC-Q101 compliant protection is mandatory.

ST's automotive grade HSP device meets high-speed interface needs in terms of robustness (IEC 61000-4-2 compliant), transparency (high bandwidth and low capacitance) and design constraints. Indeed, our small package and flow-through pinout allow high-density PCBs and improve signal integrity. The HSP061 in particular is AEC-Q101 compliant and compatible with all communication ports. This makes it the most versatile and easy-to-design product on the market.

KEY FEATURES

- AEC-Q101 compliant
- 1-, 2-, 4-line ESD protection
- Capacitance (IO/IO) down to 0.3 pF
- Best-in-class bandwidth: up to 10 GHz
- Compliant with
  - 8 kV ESD (IEC 61000-4-2)
  - ISO 7637 3a and 3b
- Ultra small package

KEY BENEFITS

- Enables high-density PCB due to small package
- Simplifies design with :
  - Transparency: large bandwidth
  - Flow-through routing for improved signal integrity

KEY APPLICATIONS

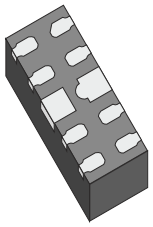
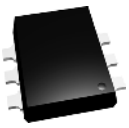
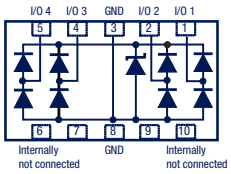
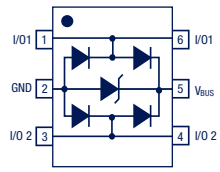
- High-speed interfaces (LVDS, HDMI, Ethernet, USB 3.0 APIX)
- Infotainment (including in-seat multimedia screens, central displays, cameras)

ELECTRICAL PARAMETERS

Product	Number of lines	V_{BR} min	Capacitance (IO/IO) typ	Bandwidth
HSP061-4M10Y	4	6 V	0.3 pF	8.7 GHz
HSP061-2P6Y	2	6 V	0.3 pF	6 GHz
ESDAXLC6-1BT2Y*	1	6 V	0.4 pF	10 GHz

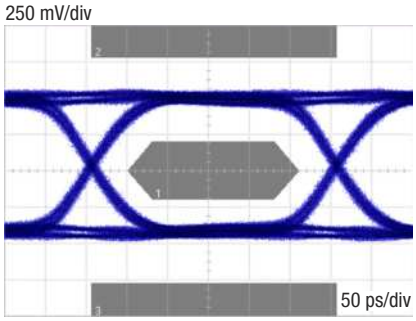
Note : *Available in March 2014

PACKAGE DRAWING

HSP061-4M10Y		HSP061-2P6Y		ESDAXLC6-1BT2Y	
µQFN-10L 2.5x1x0.5 mm 500 µm pitch		SOT666 1.6x1.6x0.6 mm 500 µm pitch		SOD882 Thin 1x0.6x0.4 mm 600 µm pitch	
					

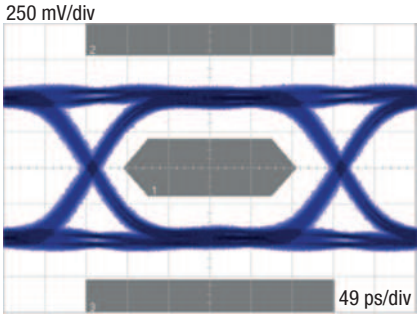
HSP061-4M10Y

HDMI (3.4 Gbit/s) eye diagram



HSP061-2P6Y

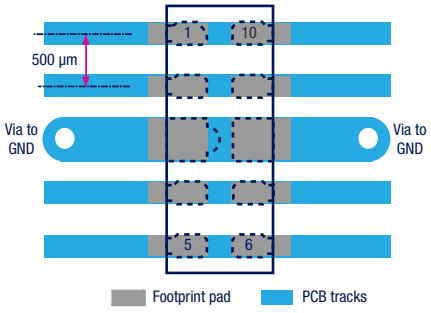
HDMI (3.4 Gbit/s) eye diagram





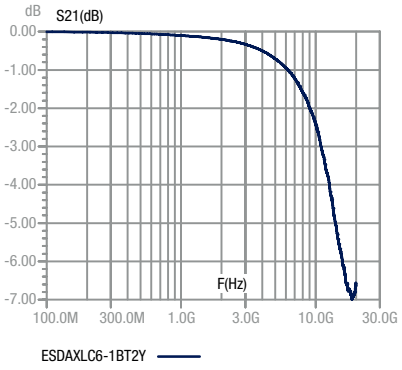
HSP061-4M10Y

Layout recommendation



ESDAXLC6-1BT2Y

Attenuation versus frequency



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