

TECHNICAL BRIEF

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LVDS (Low Voltage Differential Signal)

LVDS type of signal interface for color TFT displays is becoming quite popular in the LCD market. Such interface, first introduced in 1994, is based on a twisted-pair style of copper cables.



General Concept

LVDS transmits two different voltages that makes it a differential signaling system. LVDS uses this difference in these voltages between the two wires to encode the information. The transmitter injects a small current, nominally 3.5 mA, into one wire or the other, depending on the logic level to be sent. The current passes through a resistor of about 100 to 120 Ω at the receiving end, then returns in the opposite direction along the other wire.

As illustrated below, the small amplitude (y) of the signal cycles between positive and negative values. As result, this causes the tight electric and magnetic field coupling between the two wires and reduces the amount of radiated electromagnetic noise. The main advantages of the LVDS display interface are:

- Low voltage operation at about 3.3V or less
- Increased frequency transmission over long distances (up to 10 meters)
- Increased noise reduction
- Fewer cables and wires for integration

