

Delphi Low Voltage Differential Signaling (LVDS) Cable Assemblies and Connectors

Delphi's Low Voltage Differential Signaling (LVDS) Cable Assemblies and Connectors address the need for high performance data transmission applications. LVDS technology allows products to offer high data rates up to 2 gigabits per second.

The LVDS standard, ANSI/TIA/EIA-644-A, is an important differential data transmission standard from the Telecommunications Industry Association/Electronic Industries Association (TIA/EIA). Delphi's products conform to the established standards for multiple indexes and colors. This helps assure proper manufacturing of the assemblies.

Delphi's wide range of products to support LVDS includes cable, cable assemblies, connectors, and headers.

Cable

- 2 wire and 4 wire shielded twisted pairs (STP)
- 28 gauge conductors
- Multiple colors available
 - Blue (2 wire)
 - Gray (4 wire)

Cable assemblies

- Customization available
 - Color coded connector indexing
 - In-lines and device connections
 - Custom cable lengths
 - Clips, clamps, and fixing elements for mounting available

Connectors

- USB Mini-B
 - Presently used in high volume production globally
 - Conform to United States Council for Automotive Research (USCAR) industry standard design specifications
 - Multiple configurations, indexes and variations
- Mini High Speed Digital Data (HSDD)
 - Compact, high speed connection design
 - Compatible with other industry standard products
 - Capable of multiple protocols

Headers

- Color coded, multiple indexes
- Surface mount
- Through hole capabilities
 - Pin and paste
 - Selective soldering process
- Can accommodate different printed circuit board (PCB) thicknesses
- Conform to USCAR industry standard design specifications



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▶ Delphi Benefits

- Complete portfolio of LVDS products
- Built to industry standard interfaces
 - USB interfaces
 - USCAR design connector footprints
- Global engineering and manufacturing facilities
- Expertise with electrical/electronic architecture data connectivity integration
- Active participant in data connectivity industry standards committees
- Restriction of Hazardous Substances (RoHS) compliant

▶ LVDS Benefits

- Delivers high data rates while consuming significantly less power than competing technologies
 - Up to 2 Gbps
- Low voltage power supply compatibility
- Low noise generation
- High noise rejection
- Robust transmission signals
- Ability to be integrated into system level integrated circuits (ICs)

▶ Typical Applications

Delphi LVDS Cable Assemblies and Connectors can be used in many vehicle applications wherever the need for high speed data and low power is required.

- Video entertainment
 - DVDs
 - Blu-ray™
 - MPEG videos
 - Gaming
- Driver information systems
 - 360° view cameras
 - Occupant recognition
 - Driver awareness systems
- Video navigation
 - Upload routing
 - GPS
- Digital video recognition and monitoring

▶ Availability

Certain Delphi LVDS components are currently in production. Delphi's LVDS systems are currently under development. Contact Delphi for further information.

Mechanical Data	
Compliant to USCAR specifications	
Mating cycles	≥ 25
Engagement force	≤ 30 N
Disengagement force	≥ 5 N
Retention force latch	≥ 110 N
Retention force primary lock	≥ 80 N
Retention force secondary lock	≥ 60 N
Polarization feature effectiveness	≥ 80 N
Cable torsion	≥ 20 Ncm

Environmental Data	
Compliant to USCAR specifications	
Temperature range	-40°C to +105°C
Thermal shock	DIN EN 60068-2-14
Vibration	DIN EN 60068-2-64
Mechanical shock	DIN EN 60068-2-27
Temperature and humidity	USCAR 2.4. - 5.6.2
Dry heat (high temperature exposure)	DIN EN 60068-2-2
Water intrusion rating	Unsealed and sealed
Dust intrusion rating	Unsealed and sealed
Maximum soldering temperature	DIN EN 60068-2-58, group 3 & 4

Materials	
Outer contact	Copper alloy, tin plated
Signal contacts	Copper alloy, gold plated
Dielectric	PA, LCP or equivalent
Plastic housing	PA, PBT or equivalent

LVDS Cable Specifications		
	2 Wire	4 Wire
Gauge	0.08 mm ² (28 AWG)	
Color	Blue (PANTONE® 2905C)	
Shielding coverage	65% minimum	
Twist rate	50 twists per meter	
Impedance	90Ω ± 15% at time-domain reflectometer (TDR)	
Temperature range	-40°C to +85°C	
Jacket outside diameter	4.0 ± 0.20 mm	5.30 ± 0.15 mm

► Performance Advantages

Delphi is able to provide data connectivity solutions across a wide range of protocols, including LVDS. The experience and expertise provides broad capabilities across a wide range of customer requirements, including:

- Extensive automotive applications experience with multiple protocols
- Integration of high speed data into vehicle wiring system
- Technical support to engineer unique solutions
- Global participation in development of automotive standards for high speed data
- Ability to collaborate with other device manufacturers for technology development
- A global leader in manufacturing connectors, cable assemblies, terminals and wiring harnesses