MAX96700

14-Bit GMSL Deserializer with Coax or STP Cable Input

Compact 1.6Gbps Deserializer with Eye-Width Monitor and CRC Protection of Video and Control Data for ADAS Applications

Description

The MAX96700 is a compact deserializer especially suited for automotive camera applications. Features include adaptive equalization and an output crosspoint switch. An embedded control channel operates at 9.6kbps to 1Mbps in UART, I^2C, and mixed UART/I^2C modes, allowing programming of serializer, deserializer (SerDes), and camera registers, independent of video timing.

The deserializer can track data from a spread-spectrum serial input. The serial input meets ISO 10605 and IEC 61000-4-2 ESD standards. The core supply range is 1.7V to 1.9V and the I/O supply range is 1.7V to 3.6V. The device is available in a 32-pin (5mm × 5mm) TQFN package with 0.5mm lead pitch, and operates over the -40°C to +115°C temperature range.

Key Features

- Ideal for Safety Camera Applications
  - Works with Low-Cost 50Ω Coax (100Ω STP) Cables
  - Error Detection of Video/Control Data
  - High-Immunity Mode for Robust Control-Channel EMC Tolerance
  - Retransmission of Control Data Upon Error
  - Best-in-Class Supply Current: 190mA (max)
  - Adaptive Equalization for 15m Cable at Full Speed
  - 32-Pin (5mm × 5mm) TQFN Package
  - Horizontal- and Vertical-Sync Encoding and Tracking
- High-Speed Deserialization for Megapixel Cameras
  - Up to 1.74Gbps Serial-Bit Rate
  - 6.25MHz to 87MHz ×12-Bit + H/V Data
  - 36.66MHz to 116MHz ×12-Bit + H/V Data (through Internal Encoding)
- Multiple Modes for System Flexibility

- o 9.6kbps to 1Mbps Control Channel in UART, I²C (with Clock Stretch), or UART-to-I²C Modes
  - o 2:1 Input Mux for Camera Selection
  - o 15 Hardware-Selectable I²C-Device Addresses
  - o Pairs with Any Maxim GMSL Serializer
  - o Crosspoint Switch Maps Data to any Output
- Reduces EMI and Shielding Requirements
  - o Spread-Spectrum Serial-Input Tracking and Transfer to the Parallel Output
  - o 1.7V to 1.9V Core and 1.7V to 3.6V I/O Supply
- Peripheral Features for System Verification
  - o Built-In PRBS Receiver for BER Testing
  - o Eye-Width Monitor Allows In-System Test of High-Speed Serial Link
  - o Dedicated "Up/Down" GPI for Camera Frame Sync Trigger and Other Uses
- Meets AEC-Q100 Automotive Specification
  - o -40°C to +115°C Operating Temperature Range
  - o ±8kV Contact and ±15kV Air IEC 61000-4-2 and ISO 10605 ESD Protection

Applications/Uses

- Automotive Camera Applications

Part Number	Signal Type	Signal Type	Functions	Rx	Tx	Data Rates (Mbps)	V_{SUPPLY} (V)	Package/Pins
	Rx	Tx						
MAX96700	CML	CMOS LVCMOS	Deserializer	1	14	1500	1.8 3.3	TQFN/32