MAX96705A

16-Bit GMSL Serializer with High-Immunity/Bandwidth Mode and Coax/STP Cable Drive

Compact 1.6Gbps Serializer with Crosspoint and CRC Protection of Video and Control Data for ADAS Applications

Description

The MAX96705A is a compact serializer with features especially suited for automotive camera applications. It is function and pin compatible with the MAX9271. In high-bandwidth mode, the parallel-clock maximum is 116MHz for 12-bit linear or combined HDR data types.

The embedded control channel operates at 9.6kbps to 1Mbps in UART, I^2C, and mixed UART/I^2C modes, allowing programming of serializer, deserializer, and camera registers independent of video timing.

For driving longer cables, the IC has programmable pre/deemphasis. Programmable spread spectrum is available on the serial output. The serial output 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 MAX96705A is available in a 32-pin (5mm x 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 Detection

    - Best-in-Class Supply Current: 93mA (max)
    - Pre/Deemphasis Allows 15m Cable at Full Speed
    - 32-Pin (5mm × 5mm) TQFN Package with 0.5mm Lead Pitch
- High-Speed Data Serialization for Megapixel Cameras
    - Up to 1.74Gbps Serial-Bit Rate
    - 12.5MHz to 87MHz × 14 Bit + H/V Data
    - 36.66MHz to 116MHz × 12-Bit + H/V Data (through Internal Encoding)
- Multiple Modes for System Flexibility
    - 9.6kbps to 1Mbps Control Channel in UART, I²C (with Clock Stretch), or UART-to-I²C Modes
    - Crosspoint Switch Accepts Any Input Bitmap
    - Modes for Encoded VSYNC and HSYNC
- Reduces EMI and Shielding Requirements
    - Programmable Output Spread Spectrum
    - Tracks Spread Spectrum Applied at the Parallel Input
    - 1.7V to 3.6V I/O Supply
- Peripheral Features for Camera Power-Up and Verification
    - Built-In PRBS Generator for BER Testing
    - Dedicated GPO for Camera Frame-Sync Trigger and Other Uses
    - Remote/Local Wake-Up from Sleep Mode
- Meets AEC-Q100 Automotive Specification
    - -40°C to +115°C Operating Temperature
    - ±8kV Contact and ±15kV Air IEC 61000-4-2 and ISO 10605 ESD Protection

Applications/Uses

- Automotive Camera Applications

Part Number	Signal Type Rx	Signal Type Tx	Functions	Rx	Tx	Data Rates (Mbps)	V_{SUPPLY} (V)	Package/Pins
MAX96705A	CMOS LVCMOS	CML	Serializer	16	1	1500	1.8 3.3	TQFN/32