

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, I²C, and mixed UART/I²C 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 | Signal Type | Functions | Rx | Tx | Data Rates (Mbps) | V _{SUPPLY} (V) | Package/Pins |
|-------------|-------------|-------------|------------|----|----|-------------------|-------------------------|--------------|
| | Rx | Tx | | | | | | |
| MAX96705A | CMOS | CML | Serializer | 16 | 1 | 1500 | 1.8 | TQFN/32 |
| | LVC MOS | | | | | | 3.3 | |