NS6607 Automotive HSMT Deserializer

Introduction

The NS6607 Deserializer chip is compliant to Automotive Wired High-Speed Media Transmission (HSMT) standard. The NS6607 converts HSMT input to MIPI CSI-2 D-PHY or C-PHY formatted output. The NS6607 is a quad-receiving chip to accommodate as many as 4 remotely located sensors. HSMT link operates at a fixed data rate of 2.0Gbps in the forward direction, and 100Mbps in the backward direction. The NS6607 supports 22 meters Coaxial cable or 12 meters Shielded Twisted Pair (STP) cable, with multiple inline connectors. The NS6607 is ISO 26262 ASIL-B and AEC-Q100 Grade 2 certified with automotive temperature range of -40℃ to +105℃.

Table 1. Typical Maximum Cable Length vs. Attenuation

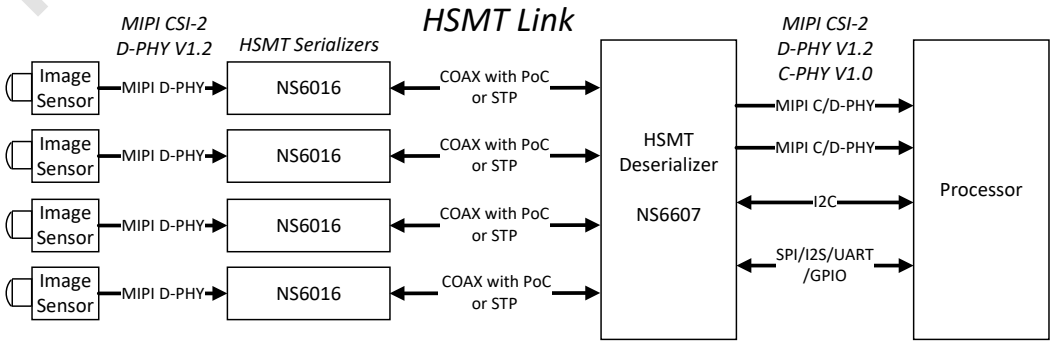
	Dacar 302-3 50Ω Coax	RG174 50Ω Coax	100Ω STP
Attenuation at 3GHz (Typ, Room Temp)	0.9dB/m	1.5dB/m	1.8dB/m
Attenuation at 3GHz (Max, Aged, 105℃)	1.1dB/m	1.8dB/m	2.2dB/m
HSMT Forward/ Backward Data Rate	Typical Max. Cable Length at 105℃		
2.0Gbps/100Mbps	22m	12m	12m

Applications

- High-Definition 3MP Camera Systems
- Advanced Driver Assistance Systems (ADAS)
- Front Vision Camera Systems (FVC)
- Surround View Systems (SVS)
- Driver Monitor Systems (DMS)
- Automatic Parking Assist (APA)

Features

- Full duplex over a single wire
  - 2.0Gbps forward-link rate
  - 100Mbps backward link rate allows small Power-over-Cable inductor
- Robust communication in automotive environement
  - Forward channel adaptive equalization
  - RS-FEC for protection of forward video and control-channel data
  - Retransmission
  - Advanced DSP continuously tracking changes in cable, connector, PCB and other channel characteristics over time and temperature
- MIPI CSI-2 output configurable as D-PHY and/or C-PHY
  - RAW8/10/12/14/16/20/24, RGB888, YUV422 8/10-bit
  - D-PHY V1.2 up to 2.5Gbps/lane, 2x4-lane, 1x4-lane + 2x2-lane, 4x2-lane
  - C-PHY V1.0 up to 5.7Gbps/trio, 2x4-trio, 1x4-trio + 2x2-trio, 4x2-trio
  - 16-channel virtual channel support (D-PHY)
  - 32-channel virtual channel support (C-PHY)
  - Supports aggregation and replication of video data
  - Supports superframe with frame concatenation
- Functional safety
  - ISO 26262 ASIL-B certified
  - CRC protection of control-channel data (I2C, SPI)
  - Video data error correction and retransmission
- Video watermark insertion and detection
- Line fault detection
- Supports 2x I2C, 2x SPI, 17x GPIO, 4x UART, 2x I2S
- Supports eight hardware-selectable device addresses
- 9mm x 9mm QFN package



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