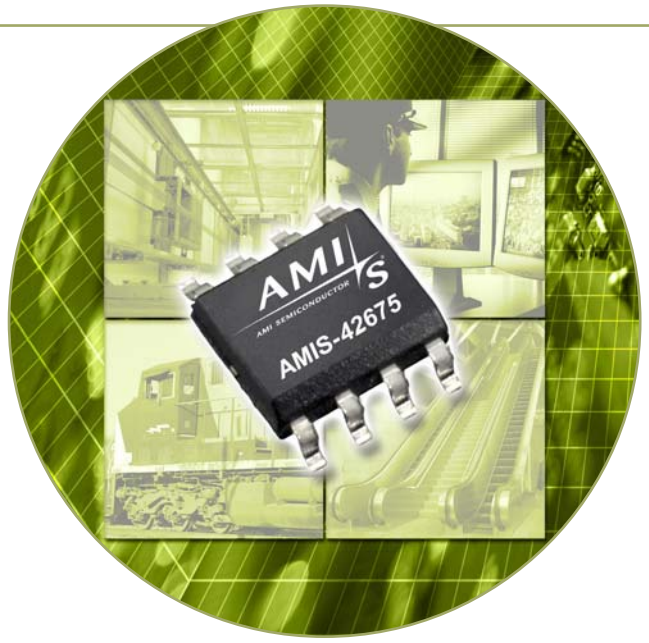
AMIS-42675 - High-Speed CAN Transceiver Feature Sheet

*AMI Semiconductor*

# AMIS-42675 High-Speed CAN Transceiver
## For Long Networks

## Key Features




- Compatible with the "ISO 11898" standard (ISO 11898-2, ISO 11898-5 and SAE J2284)
- Wide range of bus communication speeds (0 up to 1Mbit/s)
- Ideally suited for 12V and 24V applications
- Allows low transmit data rate in networks exceeding 1km
- Extremely low current stand-by mode with wake-up via the bus
- Low electromagnetic emission (EME): common-mode choke is no longer required
- Differential receiver with wide common-mode range (+/- 35V) for high electromagnetic susceptibility (EMS)
- Voltage source via $V_{SPLIT}$ pin for stabilizing the recessive bus level (further EMC improvement)
- No disturbance of the bus lines with an un-powered node
- Thermal protection
- Bus pins protected against transients
- Power down mode in which the transmitter is disabled
- Bus and $V_{SPLIT}$ pins short circuit proof to supply voltage and ground
- Logic level inputs compatible with 3.3V devices
- At least 110 nodes can be connected to the same bus

## Product Description

The AMIS-42675 CAN transceiver is the interface between a controller area network (CAN) protocol controller and the physical bus. It may be used in both 12V and 24V systems. The transceiver provides differential transmit capability to the bus and differential receive capability to the CAN controller.

The AMIS-42675 is the low power member of the CAN high-speed transceiver family and offers the following additional features:

- Ideal passive behavior when supply voltage is removed
- Wake-up over bus
- Extremely low current stand-by mode

Due to the wide common-mode voltage range of the receiver inputs, the AMIS-42675 is able to reach outstanding levels of EMS. Similarly, extremely low EME is achieved by the excellent matching of the output signals.

## Important Characteristics

| Symbol | Parameter | Conditions | Min. | Max. | Units |
|---|---|---|---|---|---|
| $V_{CANH}$ | DC voltage at pin CANH | $0 < V_{CC} < 5.25V$; no time limit | -35 | +35 | V |
| $V_{CANL}$ | DC voltage at pin CANL | $0 < V_{CC} < 5.25V$; no time limit | -35 | +35 | V |
| $V_{SPLIT}$ | DC voltage at pin VSPLIT | $0 < V_{CC} < 5.25V$; no time limit | -35 | +35 | V |
| $V_{O(dif)(bus\_dom)}$ | Differential bus output voltage in dominant state | $42.5\Omega < R_{LT} < 60\Omega$ | 1.5 | 3 | V |
| $C_{M\text{-}range}$ | Input common-mode range for comparator | Guaranteed differential receiver threshold and leakage current | -35 | +35 | V |
| $t_{pd(rec\text{-}dom)}$ | Propagation delay TxD to RxD | See data sheet | 70 | 230 | ns |
| $t_{pd(dom\text{-}rec)}$ | Propagation delay TxD to RxD | See data sheet | 100 | 245 | ns |

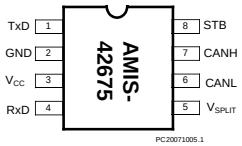
## Applications and Benefits

The AMIS-42675 is the industrial version of the AMIS-42665 and primarily intended for applications where long network lengths are mandatory. Examples are elevators, in-building networks, process control, and trains. To cope with the long bus delay the communication speed needs to be low. The AMIS-42675 allows low transmit data rates down 10kbit/s or lower.

For additional information: www.amis.com/products/transceivers/amis_42675.html

# Ordering Codes

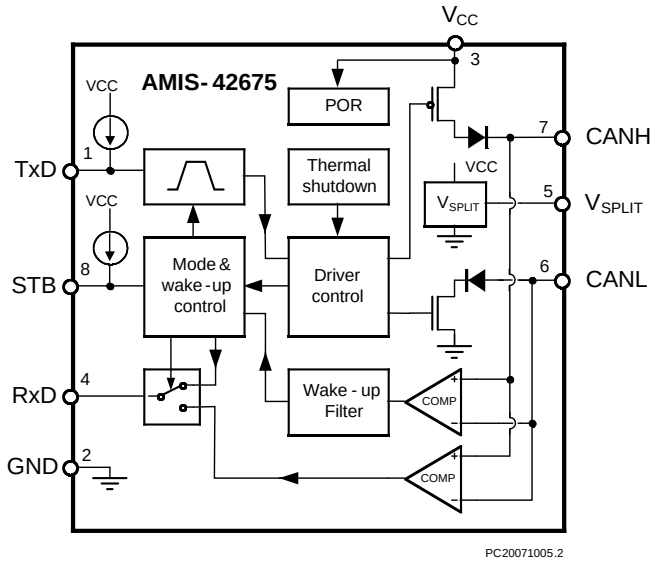
| Marketing Name | Package | Packing | Ordering Code |
|---|---|---|---|
| AMIS-42675 AGA | SOIC-8 Green | Tape | 0ICAA-001-XTP |
| | | Tube | 0ICAA-001-XTD |




# Pin Description

| Pin No. | Name | Function |
|---|---|---|
| 1 | TXD | Transmit data input; low input => dominant driver; internal pull-up current |
| 2 | GND | Ground |
| 3 | $V_{CC}$ | Supply voltage |
| 4 | RXD | Receive data output; dominant transmitter => low output |
| 5 | $V_{SPLIT}$ | Common-mode stabilization output |
| 6 | CANL | LOW-level CAN bus line (low in dominant mode) |
| 7 | CANH | HIGH-level CAN bus line (high in dominant mode) |
| 8 | STB | Stand-by mode control input |

# Block Diagram




# Typical Application