

# TJA1080 FlexRay Bus Driver

As Philips' first silicon solution for the FlexRay electrical physical layer, the TJA1080 high-speed time-triggered communication system transceiver chip highlights FlexRay's power and versatility. Offering an extensive feature set, excellent EMC performance and unique possibility to be used also in active star couplers the TJA1080 is helping drive this new advanced communications system into tomorrow's cars.

## High-speed time-triggered communication system transceiver chip



Philips' high-speed time-triggered communication system transceiver chip offers an extensive feature set, excellent EMC performance and unique potential for use in active star couplers. Combining FlexRay transceiver and FlexRay active star device on a single chip, the TJA1080 supports the full bandwidth of FlexRay, from 500 kbit/s to 10 Mbit/s. Internal voltage and temperature monitoring, bus error detection and a safety time-out make the TJA1080 a cornerstone of any FlexRay ECU.

Dedicated error and status information – readable by any microcontroller – allows precise monitoring of system performance. In active star and node configurations, features such as Sleep and Standby modes serve the need for automotive power management. A Bus Guardian interface rounds out the feature list and enables the TJA1080 to be used in systems that require additional supervisions.

### Key features

- Data transfer up to 10 Mbits/s
- Compliant with FlexRay electrical physical layer specification
- Fail-silent behavior via Bus Guardian control input
- Interface to optional Bus Guardian available for bus access supervision
- Excellent EMC performance (due to 3rd generation Silicon-On-Insulator process)
- High common mode range ensures excellent EMI
- 12, 24 and 42 V system support with low sleep current (maximum 50  $\mu$ A)
- Supports 2.5, 3.0, 3.3 and 5 V microcontrollers and automatically adapts to interface levels
- Integrated automotive power management system
  - two INH-pins enabling power consumption optimized ECU design
  - local wake-up input
  - remote wake-up capability via FlexRay bus in low power modes
  - autonomous power modes, when used in active stars
- $\pm$  8 kV ESD protection (HBM) on BP and BM pins
- Automotive temperature range  $-40$  °C to  $+125$  °C
- Small footprint SSOP20 package (5.4 mm x 7.4 mm body)

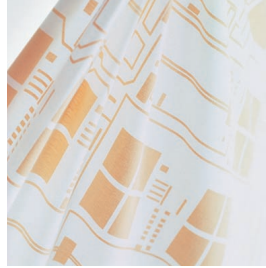
### Key benefits

- Supports wide range of microcontrollers, maximizing flexibility and lowering cost of nodes
- Enables autonomous active star couplers without a microcontroller
- Identical mode control as for TJA1041(A) and TJA1054(A) CAN transceivers
- Simplifies development of robust and fully fail-silent communication nodes

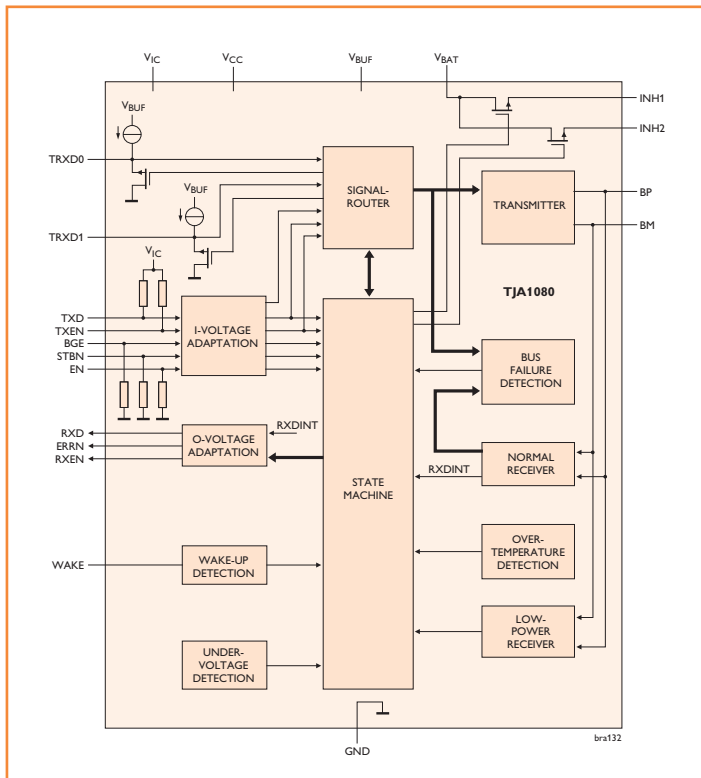


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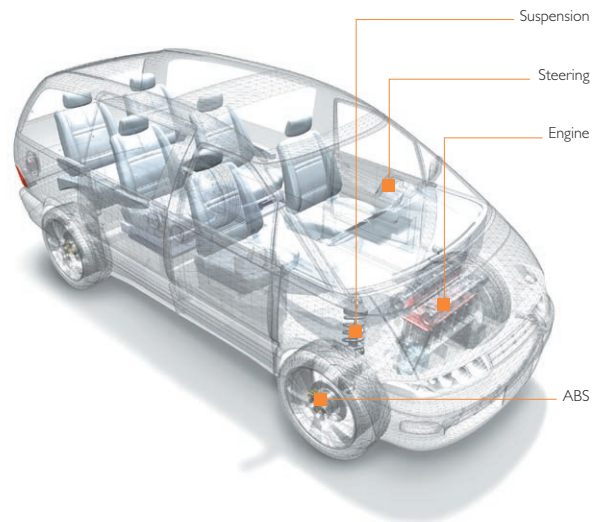
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TJA1080 block diagram



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