

FlexRay Transceiver

μPD72751

The μPD72751 is Renesas Electronics' first FlexRay transceiver and designed in accordance with the FlexRay Electrical Physical Layer Specification V2.1 Rev. B. It works as a bidirectional interface between the FlexRay communication controller and the twisted pair wires, converting the digital signals into analog and vice versa with a baud rate of up to 5Mbit/s.



The μPD72751 supports local and remote wake up and can enable the ECU power supplies through inhibit switches. The low power modes save energy when the ECU is in sleep mode. Several error and status information can be detected as well the current, voltage and temperature can be monitored by the microcontroller. The μPD72751 is available in a 20-pin SSOP package.

Applications

The μPD72751 is used for high-speed, fault tolerant communication between ECUs in automotive FlexRay networks mainly for chassis and safety real-time applications. In this rough environment integrity of the FlexRay bus signals is very important. Renesas considered this in the design phase of the μPD72751 and optimized the EMC performance and reduced the asymmetric time delay which is a key item for a FlexRay protocol.

Supported architectures:

- Gateway and Backbone architecture
- Active and passive star
- Passive bus and point to point topologies
- Dual channel bus systems

Features

- Compatible with the FlexRay electrical physical layer specification V2.1 Rev. B
- Data transfer up to 5Mbps
- Power management system
 - » Local wake-up capability via wake pin
 - » Remote wake-up capability via FlexRay bus
 - » Control of ECU power supplies via two inhibit switch pins
- Bus guardian interface included
- Bus failure detection
- Over temperature detection
- Over current protection
- Under voltage detection on pins VBAT, VCC and VIO
- Low ElectroMagnetic Emission (EME), High ElectroMagnetic Immunity (EMI)
- ESD protection: ±4 kV HBM
- Support of low power mode
- Microcontroller interface voltage: VIO = 3.0V ~ 5.25V
- Operating temperature: -40 °C ~ 125 °C

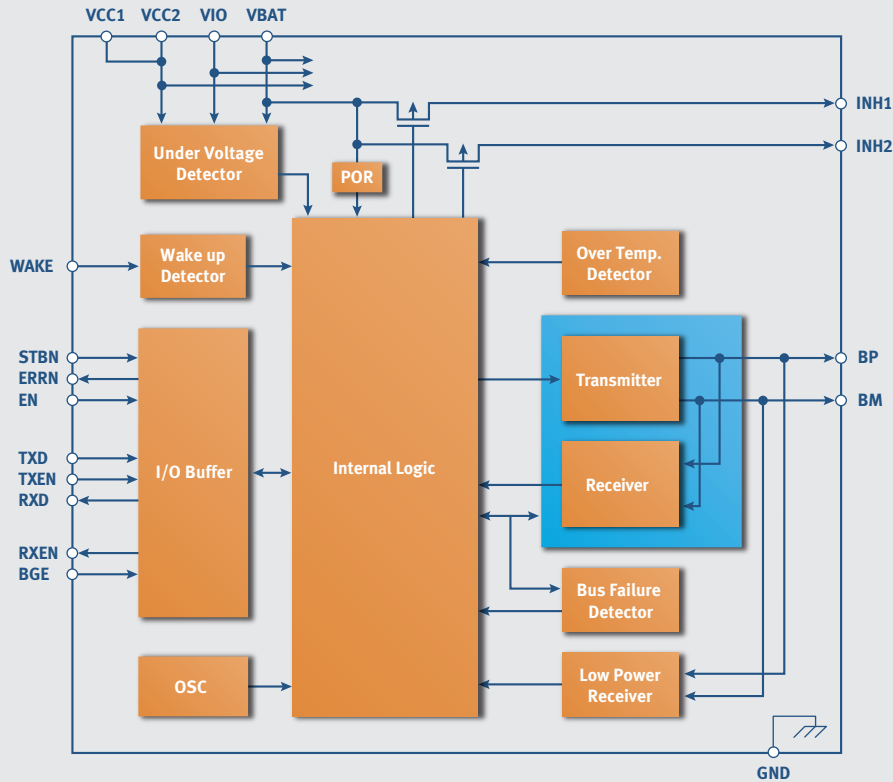
- Package type: 20-pin plastic SSOP
- Automotive qualified with AEC-Q100

Supported Functional Classes

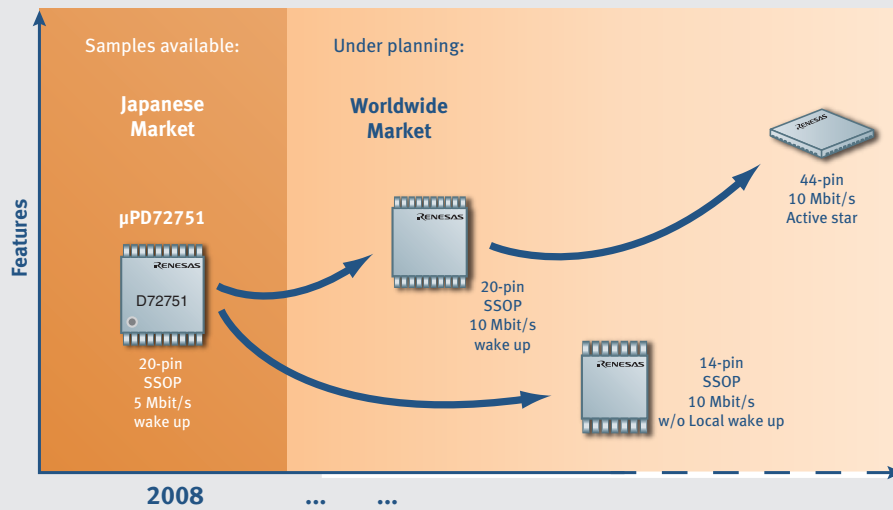
- Bus driver voltage regulator control
- Bus driver bus guardian control interface
- Bus driver logic level adaptation

Datasheet and samples are available.

Block Diagram



Roadmap (tentative)



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