



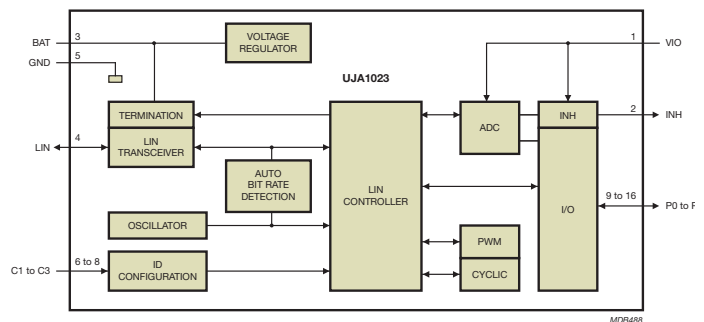
The most versatile approach to minimizing LIN system overheads

The stand-alone LIN I/O slave UJA1023 is the latest dedicated LIN product from NXP, an acknowledged leader in automotive networking solutions. With many on-chip features, including an integrated LIN2.0 / SAE-J2602 transceiver, it significantly enhances LIN systems and minimizes application-specific overheads.

Key features

- ▶ Automatic bit-rate synchronization to any bit-rate between 1 and 20 kbit/s
- ▶ Integrated LIN2.0 / SAE-J2602 transceiver (including 30 kΩ termination resistor)
- ▶ 8 bi-directional I/O pins
- ▶ 4x4 switch matrix to support reading a maximum number of 16 switches
- ▶ Outputs can be configured as high-and/or low-side driver, can be operated in cyclic or PWM mode
- ▶ Simple 8-bit A/D converter
- ▶ Advanced low-power behavior
- ▶ On-chip oscillator
- ▶ ID configuration via daisy chain or plug coding
- ▶ Inputs support local wake-up and edge capturing
- ▶ Configurable sleep mode
- ▶ Limp home configuration in case of error conditions
- ▶ Extremely low emission
- ▶ High immunity against electromagnetic interference
- ▶ Bus line protected against transients in an automotive environment
- ▶ Extended ambient temperature range (-40 °C to +125 °C)

A fully integrated LIN I/O slave node (LIN physical layer and protocol handling), the UJA1023 delivers a low-cost, single-chip solution for multiple application fields – replacing several components commonly used in control units for input and output handling. It incorporates an automatic bit-rate synchronization circuit, enabling the device to accept any bit-rate between 1 kbit/s and 20 kbit/s.



UJA1023 block diagram

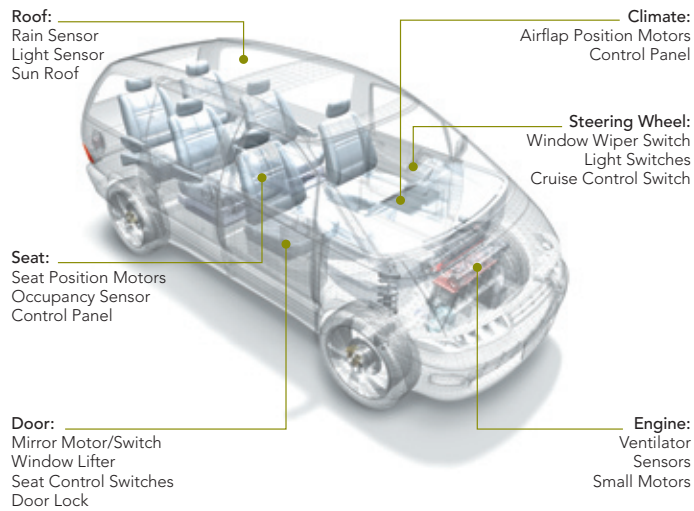
The on-chip LIN 2.0 transceiver, together with the LIN2.0 protocol handler, oscillator and 30 kΩ termination resistor necessary for LIN slaves, handles the LIN protocol

autonomously. ID programming is achieved by a master request and slave response message, combined with daisy chain or plug coding function, and the device also has a limp home configuration in case of error conditions, for example when LIN communication stops.

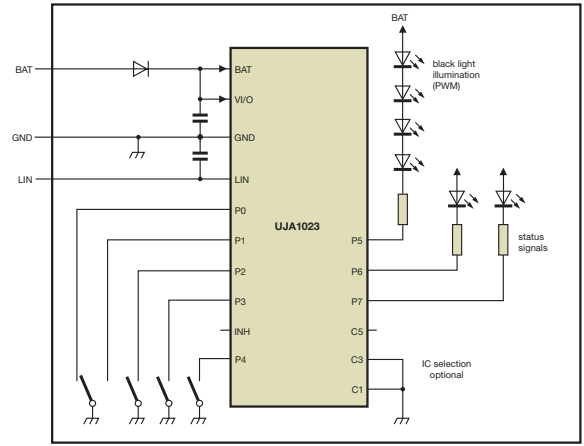
An advanced low-power concept ensures very low power consumption, augmented by an energy-saving, configurable sleep mode that also provides a local wake-up feature. As with all our IVN solutions, the UJA1023 offers extremely low emission and high immunity against electromagnetic interference, while the bus line is protected against automotive transient voltages.

The 8 programmable bi-directional I/O pins can have following functions:

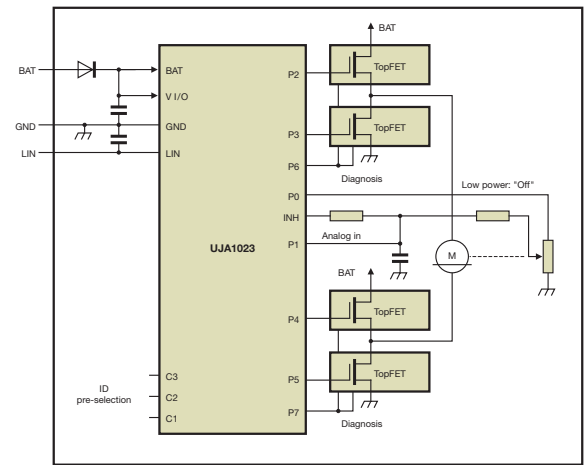
Input	Output
<ul style="list-style-type: none"> • Standard input pin • Local wake-up in case of sleep mode entered • Edge capturing on falling, rising or both edges • Analog input pin • 4x4 switch matrix 	<ul style="list-style-type: none"> • Standard output pin as high-side, low-side or push-pull driver • Cyclic mode for local wake-up • PWM mode, for example for controlling backlight intensity • 4x4 switch matrix



Integrated LIN Slave Nodes - Typical Target Applications



Switch panel with illumination and status feedback



Motor driver with position feed-back



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NXP Semiconductors is in the process of being established as a separate legal entity in various countries worldwide. This process will be finalized in the course of 2006.

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