

## TLE 7810/24/26G

### Relay Driver Family with Embedded MCU & LIN Transceiver



THIS SINGLE-PACKAGED solution incorporates an 8-bit state-of-the-art microcontroller compatible to the standard 8051 core with On-Chip Debug Support (OCDS) and a System-Basis-Chip (SBC). The product family includes three devices offering scalability of the program memory from 16 Kbyte to 32 Kbyte. The SBC is equipped with LIN 2.0 compliant LIN transceiver, low-dropout voltage regulator (LDO) as well as two low-side switches (relay driver) and supply, e.g. to supply hall sensors (TLE 4966). An additional high-side driver for driving LEDs is also available.

For microcontroller supervision and additional protection of the circuit a programmable window watchdog circuit with a reset feature, supply voltage supervision and integrated temperature sensor is implemented.

SBC, microcontroller and LIN module offer low power modes in order to support terminal 30 connected automotive applications. A wake-up from the low power mode is possible via a LIN bus message or wake-up inputs.

This integrated circuit is realized as Multi-Chip-Module (MCM) in a P-DSO-28 package, and is designed to withstand the severe conditions of automotive applications.

#### Applications

- Window Lift module
- Seat module
- Sun-roof module

#### Features of Relay Driver

- Voltage regulator 5 V
- LIN transceiver (single wire), compliant with LIN Spec. 2.0 / SAE J2602
- Standard 16-bit SPI-interface
- High-side switch, e.g. for driving LEDs or small lamps
- Supply output, e.g. for supplying an on-board Hall Sensor
- 2 low-side drivers
- 5 high-voltage wake-up inputs

- Progr. window watchdog
- Power saving modes
- Power-on and under-voltage reset generator
- Measurement interface
- Over-temperature protection

#### Features of 8-bit Microcontroller

- Compatible to 8051  $\mu$ C Core
- Two clocks per machine cycle
- Integrated Boot ROM for test and dedicated flash routines
- 256 Byte RAM / up to 1536 KBytes X-RAM
- 16 KByte flash memory for program code and data, with integrated E<sup>2</sup>PROM
- Power saving modes [slow-down & idle mode]
- Programmable watchdog timer
- 10-bit A/D converter, 3 channels [temperature &  $V_{\text{Bat}}$  supervision]
- Three 16-bit timers
- Capture/compare unit (PWM)
- On-chip debug support (JTAG)
- UART and synchronous serial channel (SSC) utilized for LIN and internal communication

#### General Characteristics

- Package P-DSO-28
- Therm. resistance  $R_{\text{th}} = 65 \text{ K/W}$
- Wide temperature range
- Sleep Mode Current  $< 40 \mu\text{A}$  (max)
- AEC (Automotive Electronics Council) qualified

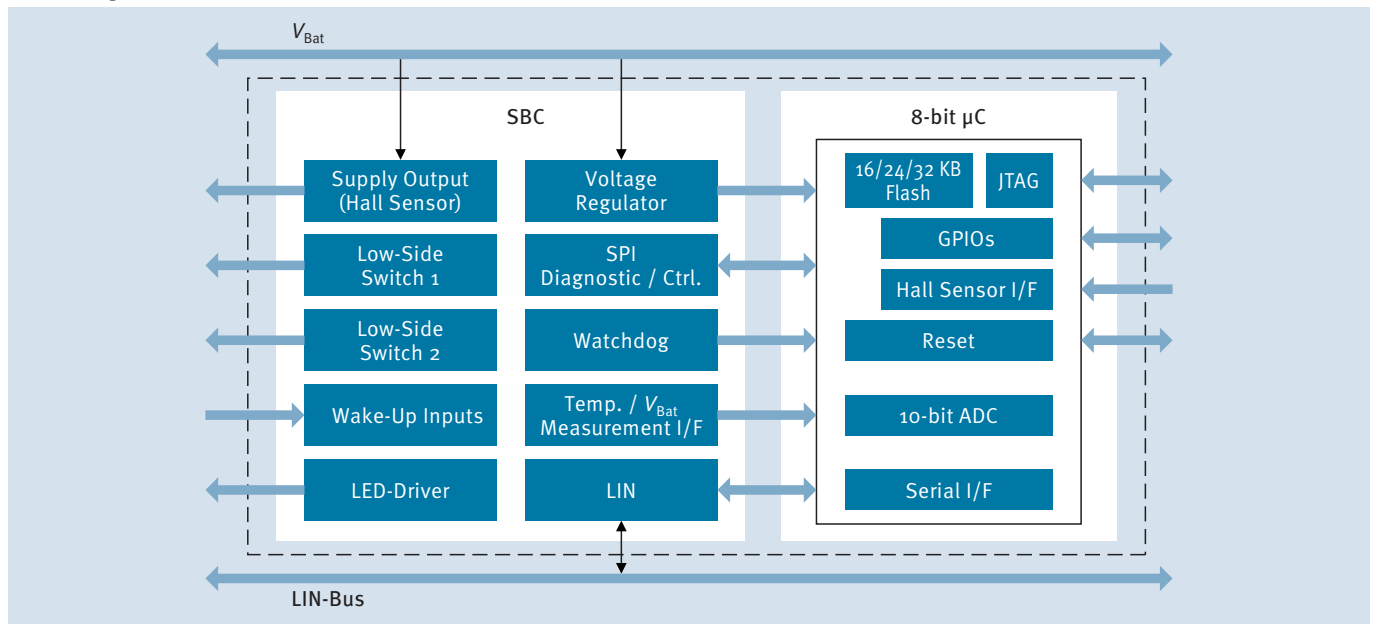
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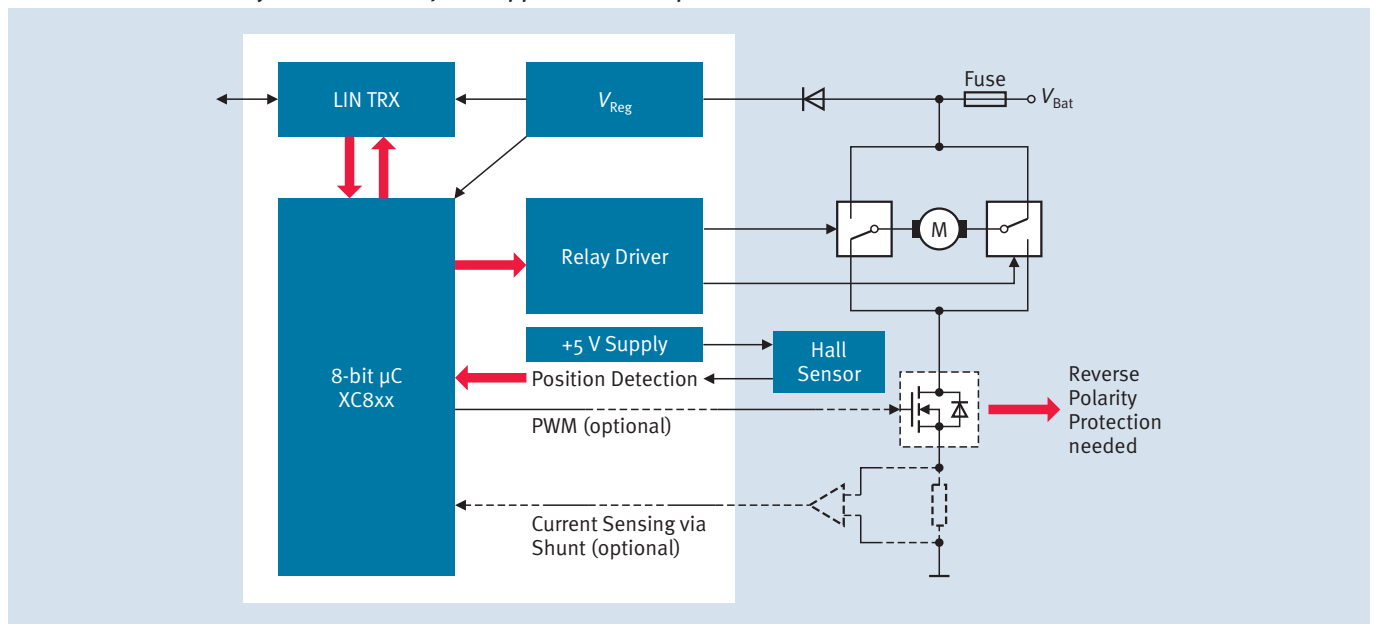
## Block Diagram



## Product Summary

Type	Sales Code	Package	Flash Memory	X-RAM
TLE 7810G	Available upon request	P-DSO-28	16 KByte	512 Byte
TLE 7824G	Available upon request	P-DSO-28	24 KByte	1536 Byte
TLE 7826G	Available upon request	P-DSO-28	32 KByte	1536 Byte

## Embedded Power - Relay Driver ICs - TLE78xx: Application Example



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