Product Brief

TLE984x Infineon Embedded Power IC

Relay Driver ICs with integrated ARM® Cortex® M0 MCU

The TLE984x product family integrates an ARM® Cortex® M0 microcontroller core along with relay drivers, high side switches, LIN transceiver and a power supply system that enables the device to operate at the vehicle battery level.

Its peripheral set includes a 10-bit ADC with 13 multiplexed analog inputs to process up to 5 High Voltage Monitoring Inputs, 6 Low Voltage Inputs and 2 High Voltage inputs for sensing the battery voltage and the supply of the device. It further includes an 8-Bit ADC with 7 multiplexed inputs for voltage and temperature supervision. Its digital peripherals include a PWM signal generator unit and 16 bit timers along with a number of general purpose I/Os (Serial Interfaces and UARTs). It includes an on-chip linear voltage regulator to supply external loads.

The TLE984x family concept offers scalability in terms of Flash memory sizes ranging from 36kB to 64kB with pin-compatible devices. It is specifically designed to drive a wide range of LIN-slave motor control automotive applications via a relay or via a PN MOSFET Half-Bridge, such as window lifts, sunroofs, wipers, electric fans and pumps to name a few.

Key benefits

- **Enable cost and board space improvements** – Our system-on-chip solution integrates data processing, actuation and sensing. The chip comes in a leadless VQFN package with 7x7mm footprint and enables PCB space saving.
  The TLE984x family allows driving relays and MOSFETS at V_{BATT} ≥ 6V without external components, providing a very cost effective solution on a system level.
- **Enable high levels of system reliability** – Extensive diagnostics and protections are embedded within the system-on-chip, more than a discrete approach can offer. In addition both the Embedded Power IC and the external MOFESTS can be protected.
- **Support multiple and flexible designs with minimal effort** – All TLE984x devices are pin and software compatible, maximizing a single design through scalability.

Key features

- ARM® Cortex® M0 MCU
- System clock up to 40MHz
- Up to 64kB Flash memory
- Up to 4KB RAM
- High-Side & Low-Side Switches with PWM capability
- 5V power supply output
- Integrated LIN transceiver compatible with LIN standard 2.2 and SAE J2602-supports fast programming via LIN
- Measurement Unit:
  - 8-bit ADC with 7 channels for Voltage and Temperature supervision
  - 10-bit ADC with 13 channels (6 Analog Inputs, 5 HV Monitor inputs and battery sense)
  - On chip temperature and battery voltage measurement
- On chip oscillator & PLL
- AEC Q-100 Qualified

Key applications

- Window Lift
- Sunroof
- Wiper
- Electric Fans
- Electric Pumps

www.infineon.com/tle984x

TLE984x Infineon Embedded Power ICs

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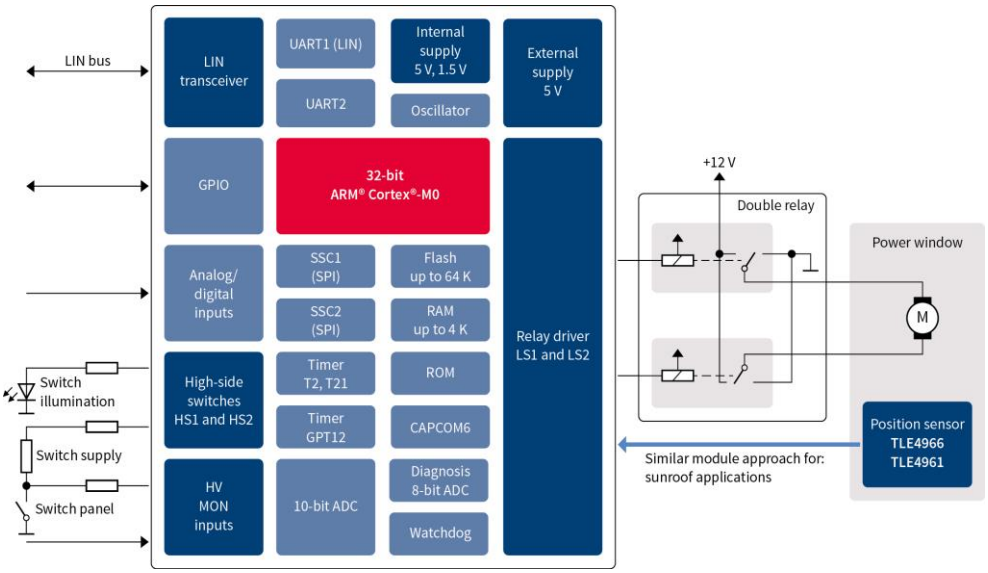
Application Diagram: Smart window lift



Product Overview

Relay Driver ICs with Integrated Microcontroller

Product name	Flash [kB]	RAM [kB]	EEPROM in Flash included [kB]	Freq [MHz] (Max)	High Side Switch	High Voltage Monitor Input	PN MOS Driver
TLE9842QX	36	2	4	25	1	4	NO
TLE9842-2QX	40	2	4	40	2	5	NO
TLE9843QX	48	4	4	25	1	4	NO
TLE9843-2QX	52	4	4	40	2	5	NO
TLE9844QX	64	4	4	25	1	4	NO
TLE9844-2QX	64	4	4	40	2	5	NO

Half Bridge Driver IC with Integrated Microcontroller

Product name	Flash [kB]	RAM [kB]	EEPROM in Flash included [kB]	Freq [MHz] (Max)	High Side Switch	High Voltage Monitor Input	PN MOS Driver
TLE9845QX	48	4	4	40	2	5	YES

Application Kits & Evaluation Boards

Product name	Description
TLE9844-2QX Appkit	Relay driven DC motor application board
TLE9845QX Appkit PN	Unidirectional DC motor application board. Motor connected to GND.
TLE9845QX Appkit N	Unidirectional DC motor application board. Motor connected to VBAT.
TLE984x EVALBOARD	Evaluation of all functions and peripherals of the relay driver IC product family (TLE984x)
TLE9845 EVALBOARD	Evaluation of all functions and peripherals of TLE9845QX (with P-N-MOSFET half-bridge)

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