



Product brief

MOTIX™ MCU Embedded Power IC TLE984x

The MOTIX™ 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 MOTIX™ TLE984x family concept offers scalability in terms of flash memory sizes ranging from 36 kB to 64 kB 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 7 x 7 mm footprint and enables PCB space saving. The MOTIX™ TLE984x family allows driving relays and MOSFETS at V_{BATT} ≥ 6 V 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 MOTIX™ TLE984x devices are pin and software compatible, maximizing a single design through scalability.

Key features

- > ARM® Cortex®-M0 MCU
- > System clock up to 40 MHz
- > Up to 64 kB flash memory
-) Up to 4 kB RAM
- > High-side & low-side switches with PWM capability
- > 5 V 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
- > E-latch
- > Relay-driven applications

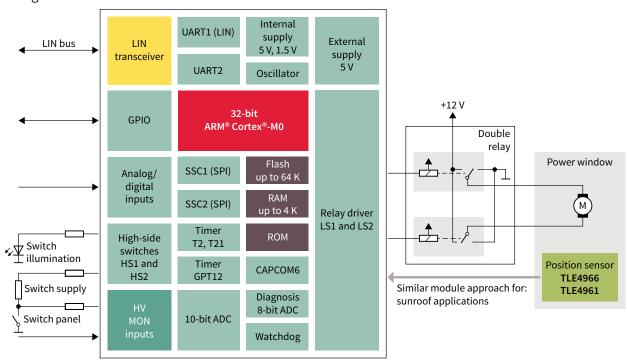




MOTIX™ Embedded Power IC TLE984x

Relay driver ICs with integrated ARM® Cortex®-M0 MCU

Block diagram



Product overview

Relay driver ICs with integrated microcontroller

Product name	FLash [kB]	RAM [kB]	EEPROM in flash included [kB]	Freq (max) [MHz]	High-side switch	High-voltage monitor input	PN MOS driver
MOTIX™ TLE9842QX	36	2	4	25	1	4	No
MOTIX™ TLE9842-2QX	40	2	4	40	2	5	No
MOTIX™ TLE9843QX	48	4	4	25	1	4	No
MOTIX™ TLE9843-2QX	52	4	4	40	2	5	No
MOTIX™ TLE9844QX	64	4	4	25	1	4	No
MOTIX™ 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 (max) [MHz]	High-side switch	High-voltage monitor input	PN MOS driver
MOTIX™ TLE9845QX	48	4	4	40	2	5	Yes

Published by Infineon Technologies AG 81726 Munich, Germany

© 2021 Infineon Technologies AG. All Rights Reserved.

Please note

This Document is for information purposes only and any information given herein shall in no event be regarded as a warranty, guarantee or description of any functionality, conditions and/or quality of our products or any suitability for a particular purpose. With regard to the technical specifications of our products, we kindly ask you to refer to the relevant product data sheets provided by us. Our customers and their technical departments are required to evaluate the suitability of our products for the intended application.

We reserve the right to change this document and/or the information given herein at any time.

Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warning

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.