

Product brief

TLE888x

Flexible LIN alternator regulator IC family

The Infineon alternator control ICs are monolithic full featured regulators specifically designed for closed loop voltage control for 12 V automotive multi-phase alternators with a rotating field winding. They are qualified according to AEC-Q100 and tailored to withstand the harsh conditions of the automotive environment. The regulators are able to communicate with an engine management or energy management ECU through a standard LIN interface (LIN 1.3/LIN 2.1/LIN 2.2 – see product table on page 2). The battery voltage is regulated at a precise value between 10.6 V and 16 V. By using free-adjustable parameters, the regulators are able to operate even without any communication interface.

The family is compliant to various LIN alternator regulator specifications (see product table on page 2) and thus qualified and released by leading OEMs.

The output driver stage consists of a high-side DMOS for up to 12 A excitation current to the field winding. The product family provides 8 kV ESD protection for all alternator lines. The EEPROM with adjustable parameters offers a customization of the alternator to the specific OEM or application needs.

The TLE8881-2, latest addition to the Infineon LIN alternator regulator IC family, builds upon the success of the existing ICs (TLE8880, TLE8881, TLE8886) while also offering several advantages:

- > Easy switch from existing applications using MFC or LIN interface
- > Flexibility (LIN interface and enhanced EEPROM)
- > Enhanced regulation behavior.

Applications

- > 12 V automotive alternators with LIN interface
- > 12 V truck alternators with LIN interface
- > 12 V aftermarket alternators
- > 12 V industrial generators



Key features TLE888x family

- > Full digital and fast PI regulation
- > High-side DMOS with $R_{DS(on)}$ of 60 m Ω
- > LIN 1.3, LIN 2.1, LIN2.2
- > Very low stand-by current of 60 μ A typ.
- > Reverse battery protected up to -2.5 V
- > High ESD resistivity of 8 kV
- > Duty cycle-range from 0 to 100 percent
- > Load Response Control (LRC)
- > Temperature range -40°C to 175°C
- > Digital temperature compensation
- > Available in TO-220-5-12 with straight leads

Key benefits TLE8881-2TN

Easy switch

- > Assisting functions to simplify design-in into existing applications with MFC interface
- > Compatible to existing Infineon LIN alternator ICs
- > Compliant to various LIN generator regulator specifications

Flexibility

- > LIN 1.3, LIN 2.1 & LIN 2.2
- > Fully configurable LIN IDs and filters
- > Enhanced EEPROM for customer specific adjustments

Enhanced regulation behavior

- > Speed dependent current limitation
- > Speed and voltage dependent regulation parameter settings
- > Adapting overvoltage protection at low speed (Low HEO)

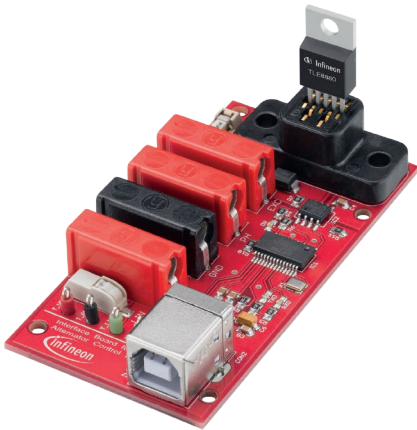
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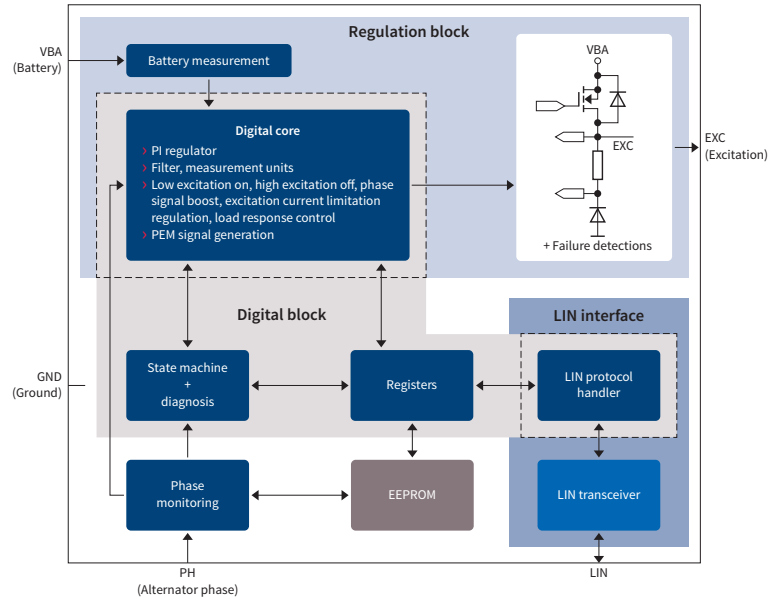
Application support

Infiniteon also provides an interface board (ACIC Board) together with interface software

- > Reliable and simple for fast design-ins
- > Easy EEPROM programming
- > Strong customer support



Block diagram



Product family

Product	OPN	Description	LIN interface
TLE8880TN	TLE8880TNAKSA1	Compliant to LIN VDA specification	LIN 1.3 (Datalink layer) LIN 2.1 (Physical layer)
TLE8881TN	TLE8881TNAKSA1	Compliant to LIN HKMC specification	LIN 1.3 (Datalink layer) LIN 2.1 (Physical layer)
TLE8886TN Variant 1	TLE8886TNAKSA1	Compliant to LIN Renault Nissan specification	LIN 2.1 (Datalink layer)
TLE8886TN Variant 2	TLE8886TNAKSA2	Compliant to LIN VDA specification	LIN 2.1 (Datalink layer)
TLE8881-2TN	TLE88812TNAKSA1	Compliant to LIN VDA, Renault Nissan and HKMC specification	LIN 1.3 (Datalink layer), LIN 2.1, LIN 2.2 (Datalink and Physical layer)
ACIC BOARD	ACICBOARDTOB01	Interface board for Infineon LIN alternator control IC family	-

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