

Product brief

TLE94xyz DC motor driver family

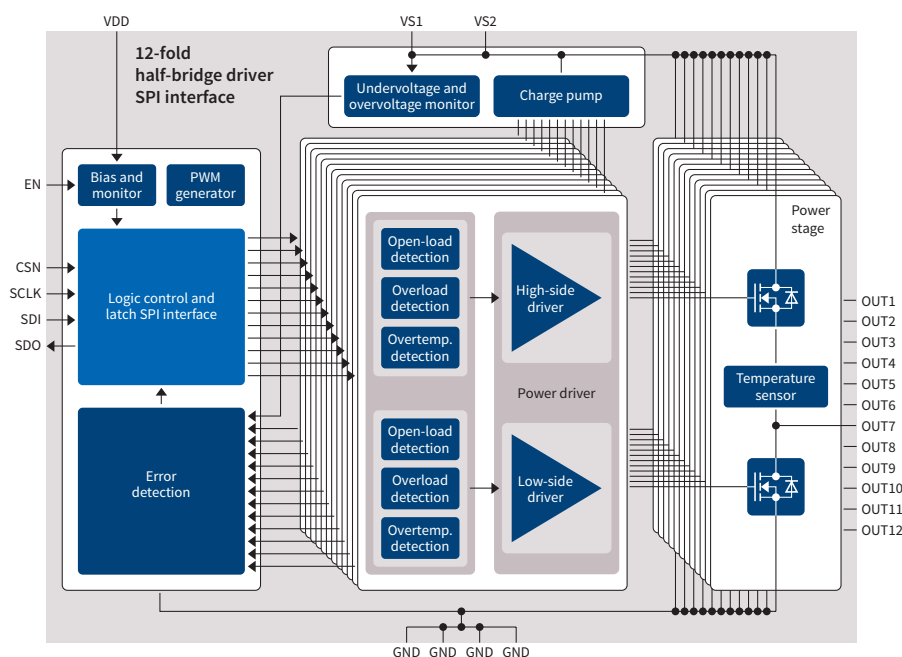
Integrated multi half-bridge driver ICs

The TLE94xyz are protected half-bridge drivers designed for automotive motion control applications such as small DC motors for Heating, Ventilation and Air Conditioning (HVAC), as well as mirror adjustment and fold. The family offers 3-, 4-, 6-, 8-, 10-, and 12-fold integrated half-bridge driver. All devices can drive DC motor loads up to 0.9 A per output in cascaded or parallel operation. They provide diagnosis of short circuit, open load, power supply failure and overtemperature for each half-bridge to ensure safe operation in HVAC or other systems. The TLE94xyz offers enhanced EMC performance, which in combination with the low quiescent current and a small package makes the products attractive for automotive and other applications.

Key features¹⁾

- > 3, 4, 6, 8, 10, 12-half-bridges with integrated output stages and PWM
- > 16-bit SPI or DI for control and diagnosis
- > Voltage supply range: 5.5–20 V
- > Adjustable open load threshold for two outputs

Block diagram TLE94112EL



Key benefits¹⁾

- > Variable driving schemes for up to 11 motors
- > Diagnosis of each output via SPI
- > Device operates down to 5.5 V (supporting start stop systems of fuel efficient vehicles)
- > OUT1 and 2 optimized for driving HS loads (e.g. LED)

Applications

- > Flap motors in HVAC systems
- > Mirror adjustment and fold
- > Small DC motors (≤ 0.9 A/output)
- > Bi-stable relays

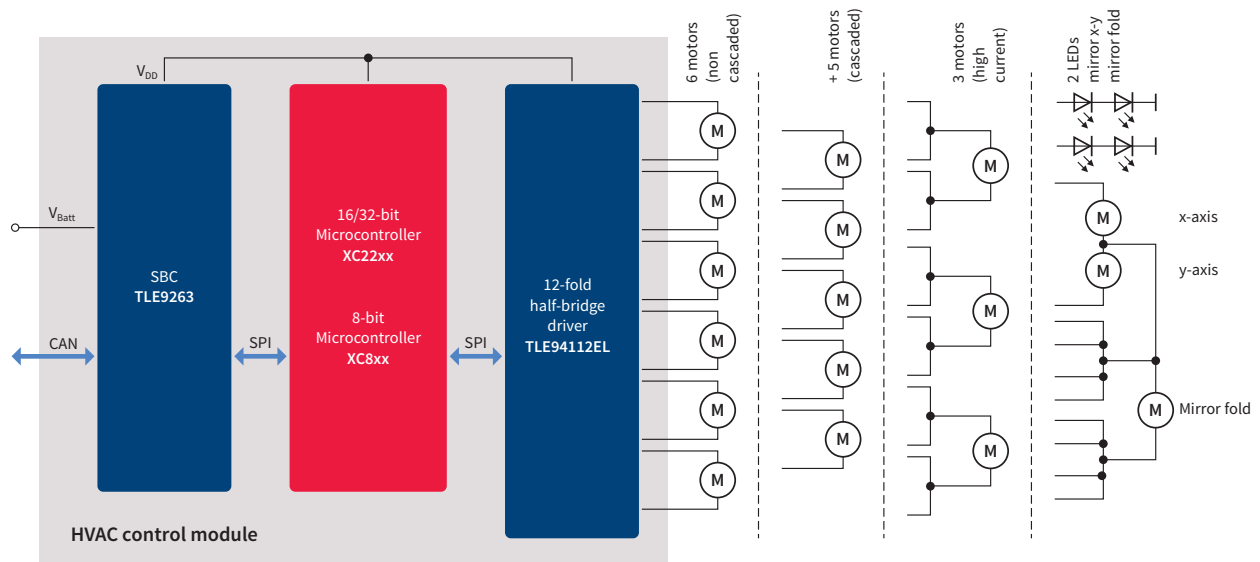
¹⁾ Not all features are available in each variant



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Application diagram TLE94112EL



Example: 12-fold HB – the TLE94112EL is designed to either drive 6 DC motors up to 0.9 A in parallel mode or 11 DC motors up to 0.9 A in cascaded mode or up to 3 DC motors up to 1.8 A by paralleling two outputs each. The device is sold in a SSOP-24 package and is pin and function compatible with the 6-, 8-, and 10-fold half-bridge of the TLE94xxx family.

The driver is connected via a 16-bit SPI to the microcontroller. The enhanced SPI protocol allows independent control and diagnosis of each half-bridge. All outputs can be programmed for PWM and the user can select between active and passive freewheeling for each output. The device can be operated in daisy chain mode.

Product summary

Type	Description	OUT1/2 configurable	Package	Ordering code
TLE94112EL	12-fold integrated half-bridge driver IC with SPI	Yes	SSOP-24	SP001209010
TLE94110EL	10-fold integrated half-bridge driver IC with SPI	Yes	SSOP-24	SP001209008
TLE94108EL	8-fold integrated half-bridge driver IC with SPI	Yes	SSOP-24	SP001209006
TLE94106ES	6-fold integrated half-bridge driver IC with SPI	Yes	TSDSO-24	SP001686398
TLE94004EP	4-fold integrated half-bridge driver IC with DI	No	TSDSO-14	SP001256578
TLE94104EP	4-fold integrated half-bridge driver IC with SPI	No	TSDSO-14	SP001256582
TLE94003EP	3-fold integrated half-bridge driver IC with DI	No	TSDSO-14	SP001256576
TLE94103EP	3-fold integrated half-bridge driver IC with SPI	No	TSDSO-14	SP001256580

Published by
Infineon Technologies AG
81726 Munich, Germany

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