

Product brief

TLE94x03EP, TLE94x04EP

3- and 4-fold integrated half-bridge driver IC

The TLE94x03EP and TLE94x04EP are protected 3- and 4-fold half-bridge drivers designed for automotive motion control applications such as mirror x-y-adjustment and DC flap motors for Heating, Ventilation and Air Conditioning systems (HVAC). The devices are part of a family which includes also 6-, 8-, 10-, and 12-fold half-bridge driver ICs. The devices can drive DC motor loads up to 0.9 A per half-bridge in cascaded or parallel operation. They offer diagnosis features such as short circuit, open load, power supply failure and over-temperature detection to ensure safe operation. In combination with their low quiescent current and very small package they are attractive for automotive and other applications.

Key features

- > 3- and 4-half-bridges with integrated output stages and PWM capability
- > 16-bit SPI or DI for control and diagnosis
- > Voltage supply range: 5.5–20 V

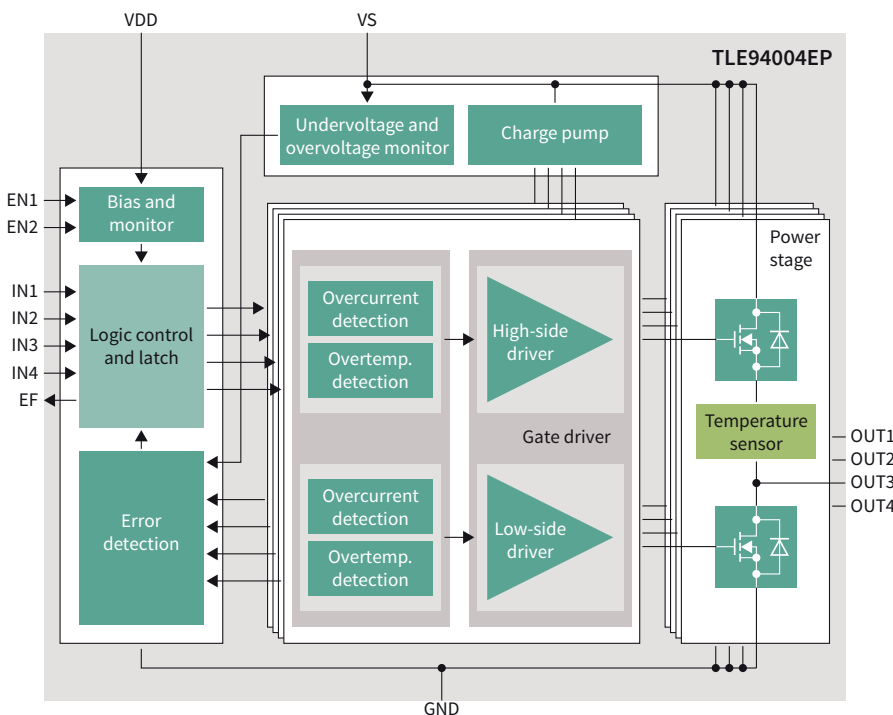
Key benefits

- > Variable driving schemes for up to 3 motors
- > Control and diagnosis of each output via SPI or DI
- > Device operates down to 5.5 V (supporting start stop system of fuel efficient vehicles)

Applications

- > Mirror x-y-adjustment
- > Flap motor for HVAC systems
- > Bi-stable relays
- > Small DC motors (up to 0.9 A/half-bridge)

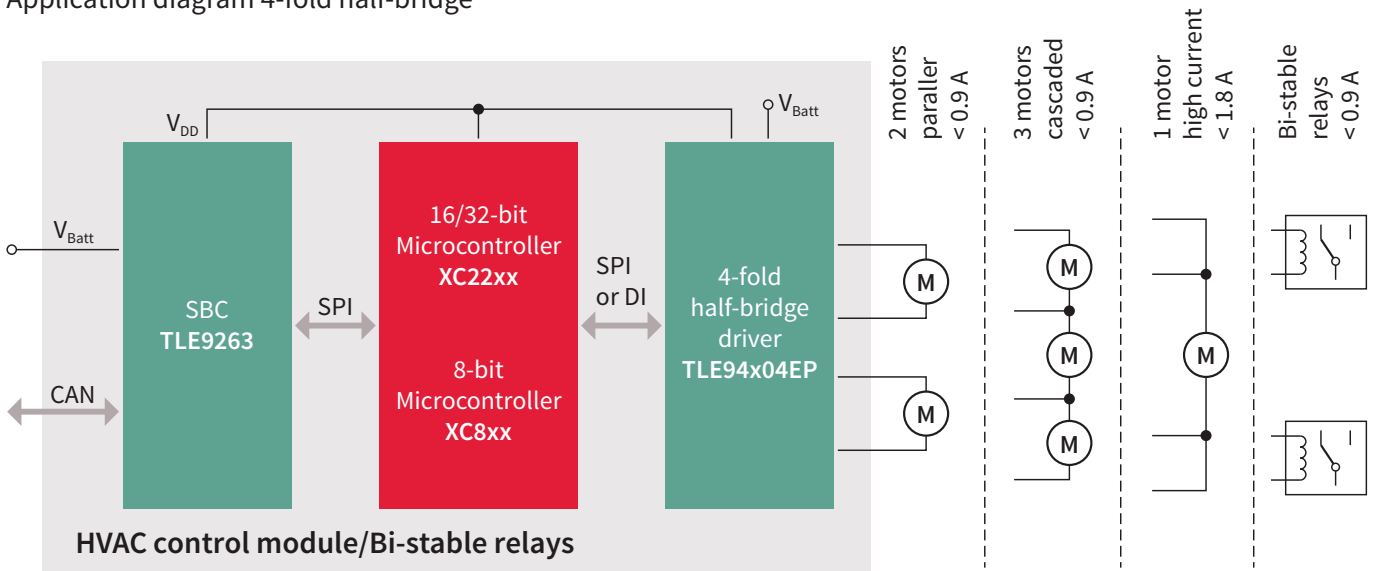
Block diagram 4-fold half-bridge with direct interface



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Application diagram 4-fold half-bridge



The TLE94x03EP is designed to drive 2 DC motors with loads up to 0.9 A in cascaded mode while the TLE94x04EP can either drive 2 DC motors in parallel or up to 3 motors in cascaded mode (see application diagram). Both devices can also be used to drive bi-stable relays. The devices are sold in a TSDSO-14 package and are pin and function compatible with each other. The package enables compact/space saving designs with a minimum footprint of 19 mm².

Both types (3- and 4-fold bridge driver) are available either with a direct interface (DI) or a 16-bit SPI interface (see overview with ordering codes below). The DI offers basic control and diagnostics, while the SPI offer control and detailed diagnosis of each half-bridge. Using the SPI version all outputs can be programmed for PWM and the user can select between active and passive free-wheeling for each output. The device can be operated in a daisy chain mode.

Product summary

Type	Description	Ordering code
TLE94003EP	3-fold integrated half-bridge driver IC with DI	SP001256576
TLE94103EP	3-fold integrated half-bridge driver IC with SPI	SP001256580
TLE94004EP	4-fold integrated half-bridge driver IC with DI	SP001256578
TLE94104EP	4-fold integrated half-bridge driver IC with SPI	SP001256582

Published by
Infineon Technologies AG
81726 Munich, Germany

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