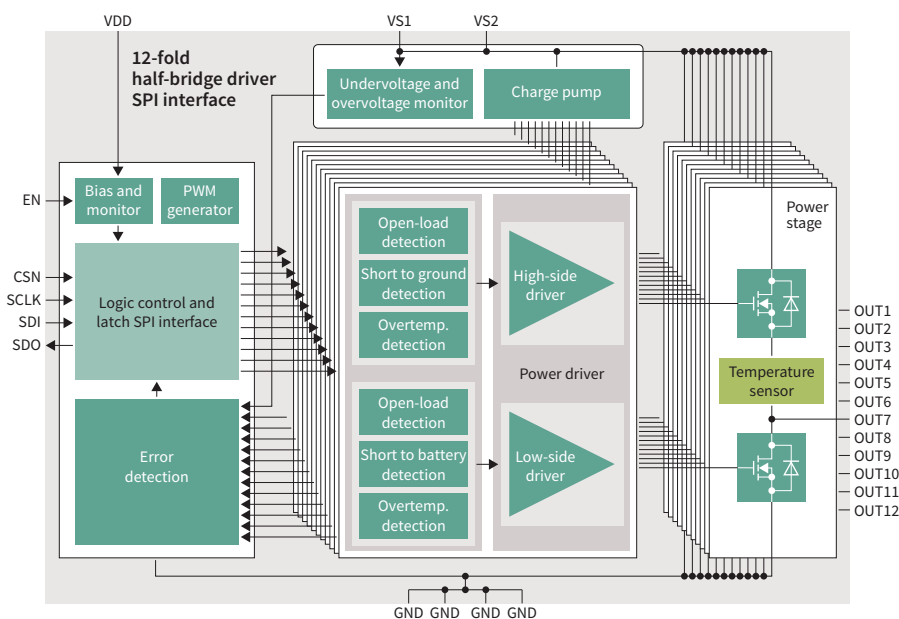# Product brief

# MOTIX™ Bridge TLE94xyz DC motor driver family

The MOTIX™ 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 MOTIX™ 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 benefits
› 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)
› OUT 1 and 2 optimized for driving HS loads (e.g. LED)

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

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

**Block diagram MOTIX™ TLE94112ES**



| HVAC flap | Side mirror | Brushed motor | Relay |

**Application note**

**Evaluation boards**

**Videos**

**Toolbox**

**Forums**

www.infineon.com/multihalfbridges

# MOTIX™ TLE94xyz DC motor driver

## Integrated multi half-bridge driver ICs

## Application diagram
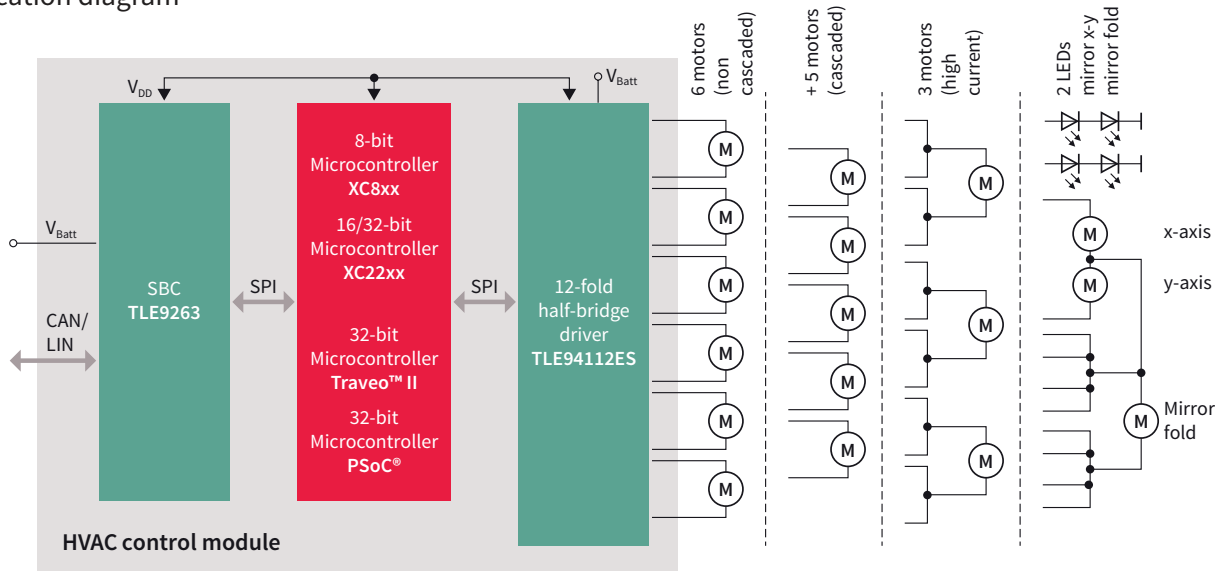


**Example:** The MOTIX™ TLE94112ES, 12-fold half-bridge, is designed to either drive 6 DC motors up to 0.9 A in parallel mode or 11 DC motors up to 0.9 A in cascaded mode or up to 3 DC motors up to 1.8 A by paralleling two outputs each. The device is sold in a PG-TSDSO-24 package and is pin and function compatible with the 6-, 8-, and 10-fold half-bridge of the TLE94xyz 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 table

| Type | Description | OUT1/2 configurable | Package |
|------|-------------|---------------------|---------|
| MOTIX™ TLE94112ES | 12-fold integrated half-bridge driver IC with SPI | Yes | PG-TSDSO-24 |
| MOTIX™ TLE94110ES | 10-fold integrated half-bridge driver IC with SPI | Yes | PG-TSDSO-24 |
| MOTIX™ TLE94108ES | 8-fold integrated half-bridge driver IC with SPI | Yes | PG-TSDSO-24 |
| MOTIX™ TLE94106ES | 6-fold integrated half-bridge driver IC with SPI | Yes | PG-TSDSO-24 |
| MOTIX™ TLE94004EP | 4-fold integrated half-bridge driver IC with DI | No | PG-TSDSO-14 |
| MOTIX™ TLE94104EP | 4-fold integrated half-bridge driver IC with SPI | No | PG-TSDSO-14 |
| MOTIX™ TLE94003EP | 3-fold integrated half-bridge driver IC with DI | No | PG-TSDSO-14 |
| MOTIX™ TLE94103EP | 3-fold integrated half-bridge driver IC with SPI | No | PG-TSDSO-14 |

Date: 2021-11

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