

Product brief

TLE94xyz DC motor driver family

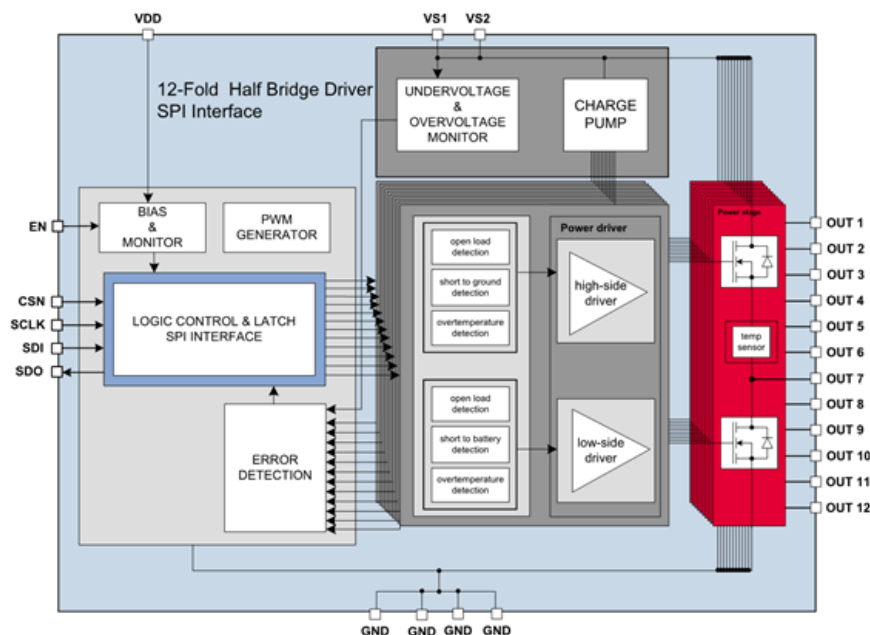
Integrated multi half-bridge driver ICs

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 0.9A per output in cascaded or parallel operation. They provide diagnosis of short circuit, open load, power supply failure and over-temperature 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 Benefits

- > Variable driving schemes for up to 11 motors
- > Diagnosis of each output via SPI
- > Device operates down to 5.5V (supporting Start Stop systems of fuel efficient vehicles)
- > OUT 1 and 2 optimized for driving HS loads (e.g. LED)

Block Diagram TLE94112ES



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: 5.5V-20V
- > Adjustable open load threshold for two outputs

Key applications

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



Application note

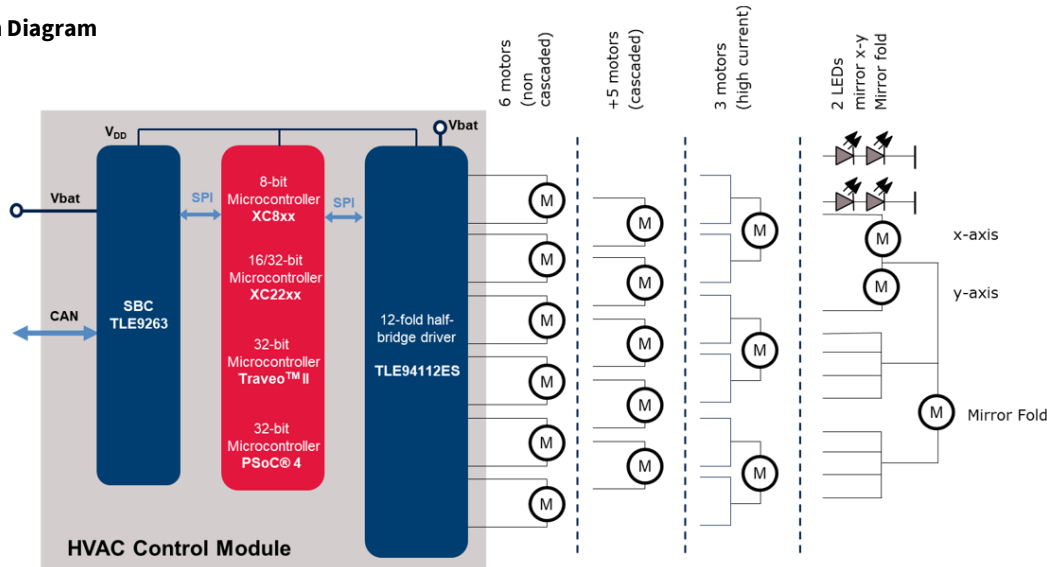
Evaluation boards

Videos

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Application Diagram



Example: The TLE94112ES, 12-fold half-bridge, is designed to either drive 6 DC motors up to 0.9A in parallel mode or 11 DC motors up to 0.9A in cascaded mode or up to 3 DC motors up to 1.8A by paralleling two outputs each. The device is sold in a 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	OPN
TLE94112ES	12-fold integrated half-bridge driver IC with SPI	Yes	PG-TSDSO-24	TLE94112ESXUMA1
TLE94110ES	10-fold integrated half-bridge driver IC with SPI	Yes	PG-TSDSO-24	TLE94110ESXUMA1
TLE94108ES	8-fold integrated half-bridge driver IC with SPI	Yes	PG-TSDSO-24	TLE94108ESXUMA1
TLE94106ES	6-fold integrated half-bridge driver IC with SPI	Yes	PG-TSDSO-24	TLE94106ESXUMA1
TLE94004EP	4-fold integrated half-bridge driver IC with DI	No	PG-TSDSO-14	TLE94004EPXUMA1
TLE94104EP	4-fold integrated half-bridge driver IC with SPI	No	PG-TSDSO-14	TLE94104EPXUMA1
TLE94003EP	3-fold integrated half-bridge driver IC with DI	No	PG-TSDSO-14	TLE94003EPXUMA1
TLE94103EP	3-fold integrated half-bridge driver IC with SPI	No	PG-TSDSO-14	TLE94103EPXUMA1

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