

Product Brief

TLE9201SG

6A H-Bridge with SPI Diagnosis

TLE9201SG is a general purpose 6A H-Bridge for industrial and automotive applications, designed for the control of small DC motors and inductive loads. It meets the harsh automotive environmental conditions and it is qualified in accordance with the AEC-Q100 standard.

The outputs can be pulse width modulated at frequencies up to 20kHz by means of PWM/DIR control. While the signal at the direction input defines the direction of the DC motor, the PWM signal controls the duty cycle. PWM/DIR control reduces the number of PWM capable pins needed at the microcontroller.

For load currents above the current limitation threshold (7A typ.) the H-Bridge switches into chopper current limitation mode. The TLE9201SG is protected against short circuits and over temperature and provides diagnosis via SPI or basic error feedback via status flag. Open load can be detected when the bridge is disabled or during PWM operation of inductive loads.

The robust dual inline DSO-12 package provides excellent thermal performance due to the thick copper heat slug. Thanks to the protruding edges of the heat slug the package is well suited for automatic optical solder inspection.

Applications

- Exhaust Gas Recirculation (EGR)
- Variable Geometry Turbo (VGT)
- Idle Speed Control
- Swirl and Tumble Flaps
- Variable Intake Manifold
- Turbo Charger Waste Gate
- Auxiliary Water Pumps
- Industrial DC Motor applications

At a Glance

Key Features

- $R_{DS(on)}$ (typ.) < 100m Ω per switch
- Operation voltage: 4.5V to 28V
- Fully 3.3/5.5V compatible logic inputs
- Low standby current
- Short circuit and over-temperature protection
- VS under-voltage protection
- Open load detection in ON and OFF state
- Detailed SPI diagnosis or simple error flag
- Qualified according automotive standard AEC-Q100
- Green product (RoHS compliant)

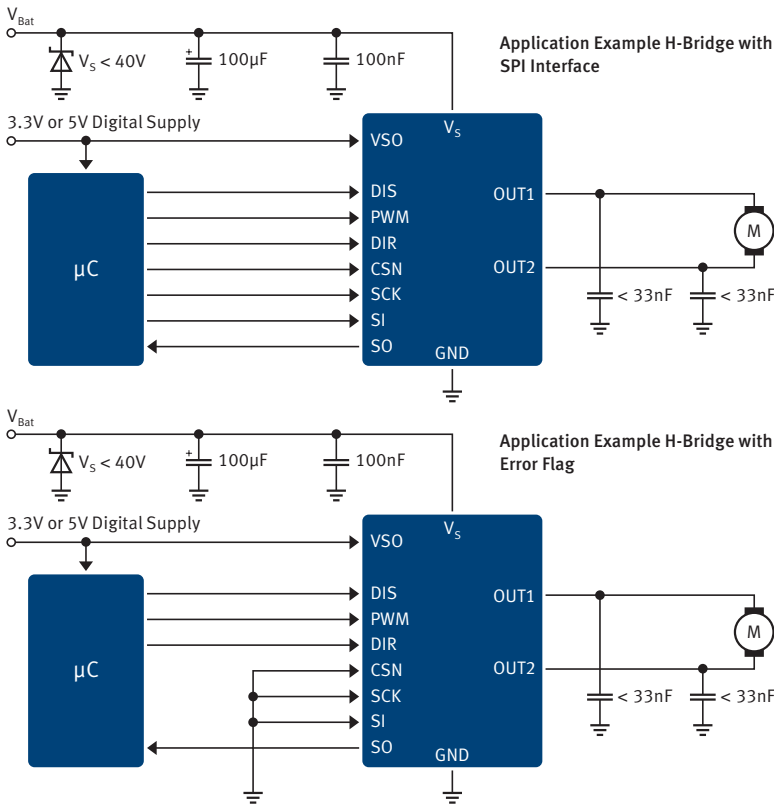
Key Benefits

- Small package saves board space
- Includes over current and over temperature protection
- Simple design with few external components
- SPI enables for easy diagnosis

TLE9201SG

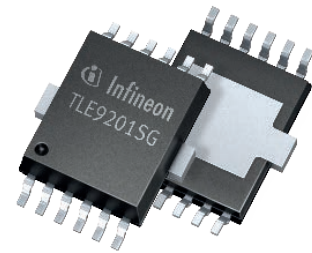
6A H-Bridge with SPI Diagnosis

Block Diagram



The DSO-12 Package

- Small footprint (66mm²)
- 1mm pitch
- Great thermal performance
R_{thjc} < 2K/W
- Easy optical inspection



Product Overview

Product Type	Current Limit (min.) [A]	Quiescent Current (max.)	Operating Range [V]	R _{DS(on)} (typ./switch) [mΩ]	R _{thjc} (max.) [K/W]	Packages Green
TLE5205-2G/2S	6.0	10mA	6.0–40	220	3.0	PG-T0263-7/PG-T0220-7
TLE5206-2G/2S	6.0	10mA	6.0–40	220	3.0	PG-T0263-7/PG-T0220-7
TLE6209R	3.4/4.25/5.1/5.95	50µA	5.2–40	140	1.5	PG-DSO-20, 430 mil
TLE7209-2R/3R	5.5	20mA	5.0–28	150	1.5	PG-DSO-20, 430 mil
TLE8209-2E/SA	7.7	20µA	4.5–28	120	4.6/1.6	PG-DSO-20, 300 mil/430 mil
TLE8209-4SA	9.0	20µA	4.5–28	120	1.6	PG-DSO-20, 430 mil
TLE9201SG	5.0	30µA	4.5–28	100	2.0	PG-DSO-12

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