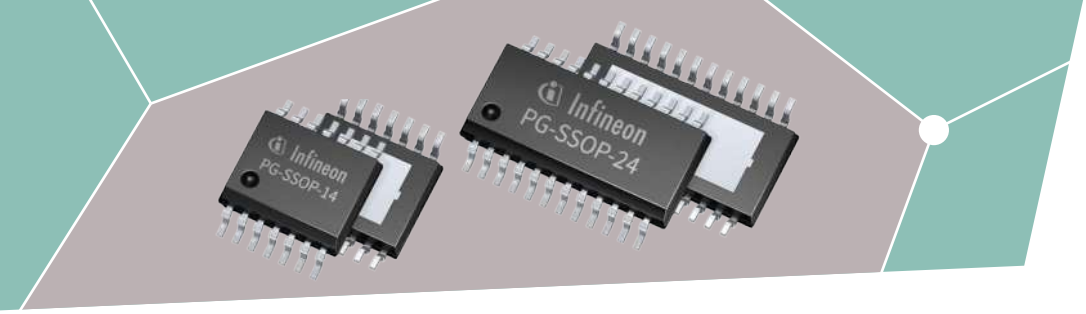


Product Brief

SPIDER+ New SPI driver family

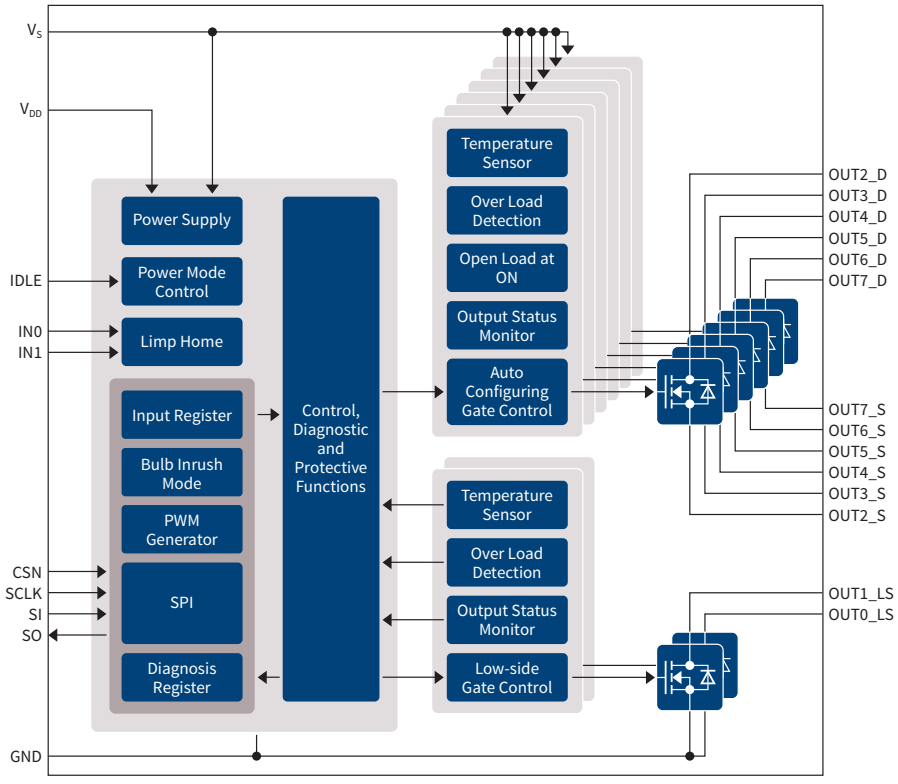
Low-side, high-side and flexible devices (9 products)

Infineon's new integrated SPIDER+ family comprises 9 value scalable products. The simplified portfolio includes 2 LS (8 + 4 ch), 2 HS (8 ch) and 5 flexible devices (8 ch) with up to 6 configurable channels. Hence, a broad range of applications is addressable. Above all, the new 8 ch HS device offers a very cost efficient solution to drive small HS loads, including open load at ON detection.

SPIDER+ devices have improved and additional functions, such as Limp Home and Cranking, very low current consumption, enhanced diagnosis features, excellent thermal performance (exposed pad packages) and an input mapping function for the 2 direct inputs. The family approach with consistent SPI registers, identical output stages for all channels and a comprehensive pin-to-pin compatibility reduce the design effort and offers cost down options/partitioning adjustments without a PCB re-design. Small 150 mil packages secures PCB space savings (= cost savings).

A so called **LED packet**, optional available for HS and flexible devices, provides additional functions to optimize the control of LEDs and small bulbs (open load detection @ ON state, a bulb inrush mode and 2 internal PWM generators).

Block diagram of TLE75602-ESH



www.infineon.com/spider

Key features

- Limp Home and Cranking functionality implemented for all products (down to 3 V battery)
- Short circuit, overload and overtemperature protection
- Paralleling of outputs
- Very low current consumption in sleep mode
- 16-bit SPI communication (5 MHz)
- Enhanced diagnosis capability
- 2 PWM inputs with mapping function
- Optional LED packet for HS and flexible devices

Key benefits

- Highest operational safety
- Only one time design effort required (family concept)
- High design flexibility: Up to 6 configurable channels
- Cost down options without re-design
- Entire path from microcontroller to loads trackable (supports ISO 26262)
- Cost efficient HS driver available
- PCB space savings (small packages)
- Unique functions with LED packet
- Value scalable product portfolio
- Excellent perform./price relation

Applications

- Automotive/industrial. relays & solenoids
- Single LEDs and small bulbs
- Unipolar stepper motors

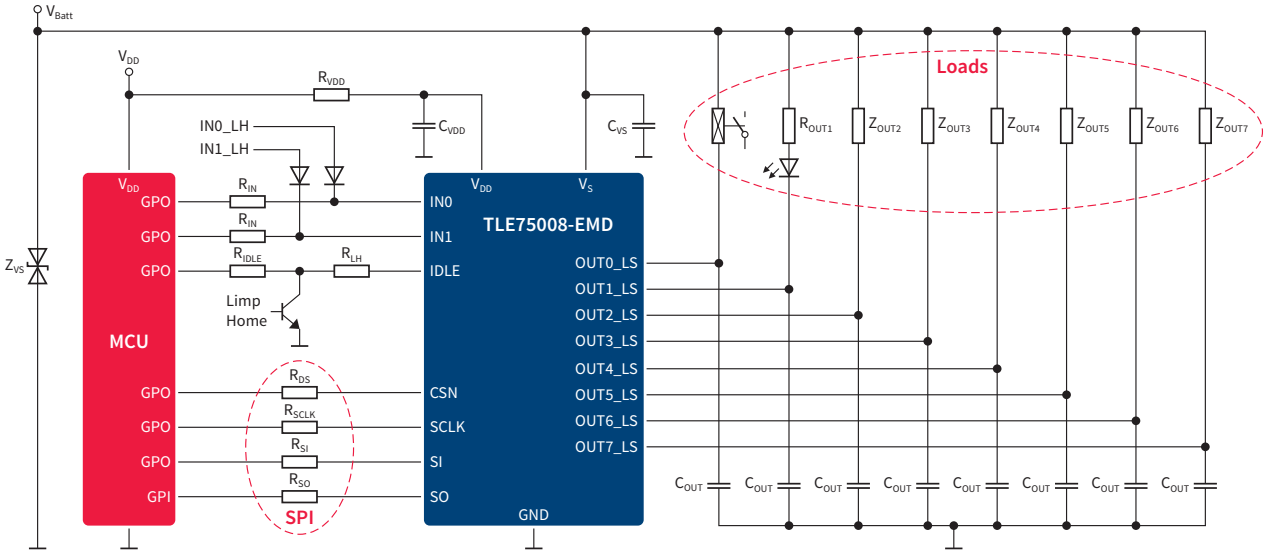
RoHS

AEC Qualified

SPIDER+ New SPI driver family

Low-side, high-side and flexible devices (9 products)

Application diagram example for TLE75008-EMD



The 16-bit Serial Peripheral Interface (SPI) is used to control and diagnose the device and the loads. Input and output status registers in combination with the open load detection allows the diagnosis of the entire path from microcontroller to the loads.

In limp home (fail safe mode) the input pins (IN0 + IN1) are directly routed to output channels 2 and 3. When the IDLE pin is “low”, the 2 output channels can be operated even w/o the presence of the digital supply voltage V_{DD}, resp. the microcontroller.

SPIDER+ product overview

Product	SOP	Nominal load current (@ T_{amb} = 85° C) [mA]	$R_{DS(on)}$ (typ @ 25 °C) [Ω]	LED packet	Number of flex channels	Number of HS channels	Number of LS channels	Package	Order number
TLE75008-EMD	Released	330	1.0				8	PG-SSOP24-EP	SP001082100
TLE75004-ELD	Released	470	1.0				4	PG-SSOP14-EP	SP001082104
TLE75080-EMD	07/2016	330	1.0			8		PG-SSOP24-EP	SP001082110
TLE75080-EMH	07/2016	330	1.0	✓		8		PG-SSOP24-EP	SP001082246
TLE75242-EMD	08/2016	330	1.0		2	4	2	PG-SSOP24-EP	SP001117344
TLE75242-EMH	08/2016	330	1.0	✓	2	4	2	PG-SSOP24-EP	SP001117342
TLE75602-EMD	Released	330	1.0		6		2	PG-SSOP24-EP	SP001082102
TLE75602-EMH	Released	330	1.0	✓	6		2	PG-SSOP24-EP	SP001082252
TLE75620-EMT	Q4/2016	330	1.0	✓	6	2		PG-SSOP24-EP	SP001117340

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

© 2016 Infineon Technologies AG.
All Rights Reserved.

Order Number: B127-I0168-V2-7600-EU-EC-P
Date: 02 / 2016

Please note!
THIS DOCUMENT IS FOR INFORMATION PURPOSES ONLY AND ANY INFORMATION GIVEN HEREIN SHALL IN NO EVENT BE REGARDED AS A WARRANTY, GUARANTEE OR DESCRIPTION OF ANY FUNCTIONALITY, CONDITIONS AND/OR QUALITY OF OUR PRODUCTS OR ANY SUITABILITY FOR A PARTICULAR PURPOSE. WITH REGARD TO THE TECHNICAL SPECIFICATIONS OF OUR PRODUCTS, WE KINDLY ASK YOU TO REFER TO THE RELEVANT PRODUCT DATA SHEETS PROVIDED BY US. OUR CUSTOMERS AND THEIR TECHNICAL DEPARTMENTS ARE REQUIRED TO EVALUATE THE SUITABILITY OF OUR PRODUCTS FOR THE INTENDED APPLICATION.

WE RESERVE THE RIGHT TO CHANGE THIS DOCUMENT AND/OR THE INFORMATION GIVEN HEREIN AT ANY TIME.

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.