BTS5562E BTS5662E BTS5572E BTS5672E BTS5682E

2nd Generation SPI Power Controller for Advanced Lighting Control

INFINEON 2nd generation SPI Power Controller family (so called SPOC) consists of a family of 5- or 6-channel integrated high-side switches suitable for driving rear and central lighting loads into a body control module (BCM).
The complexity and density of BCMs is constantly increasing with more loads and features inside the module, and car manufacturers are looking for modular BCM concepts, allowing them to use the same platform, with various options, for multiple car models, with or without LED option, for example.

The SPOC II family, scaled by number of channels and features (basic, LED mode, cranking), addresses this trend and integrates multiple channels inside one package to reduce board space. SPOC II devices feature a serial peripheral interface (SPI), enabling customers to save I/Os in the microcontroller and reduce the amount of external components required for a discrete implementation. The LED mode in BTS5672E and BTS5682E is programmable via SPI.

SPI Power Controller - BTS55x2E/56x2E in exposed pad package P/PG-DSO-36-36

Parameter	Symbol	Value
Operating Voltage Power Switch	V_{bb}	5.5 ... 28 V
Logic Supply Voltage	V_{dd}	3.8 ... 5.5 V
Over Voltage Protection	$V_{bb(AZ, min)}$	40 V
Nominal Loads (bulbs) ■ Channel 0, 1, 2 ■ Channel 3, 4 ■ Channel 5 (only in BTS56x2E)		 21 W (27 W) 10 W (5 W)
SPI Access Frequency	$f_{SCLK(max)}$	2 MHz

Fully Pin- & Software Compatible

5 Channels 6 Channels	BTS5562E BTS5662E	BTS5572E BTS5672E	BTS5682E
Basic	✓	✓	✓
LED Mode		✓	✓
Cranking			✓

Features

- Load type configuration via SPI (bulbs or LEDs) for load optimization
- Integration of 5 or 6 channels inside one device
- 8-bit SPI for control and diagnostic
- Selectable AND-/OR- combination for parallel inputs (PMW control)
- Multiplexed proportional load-current sense signals

Benefits

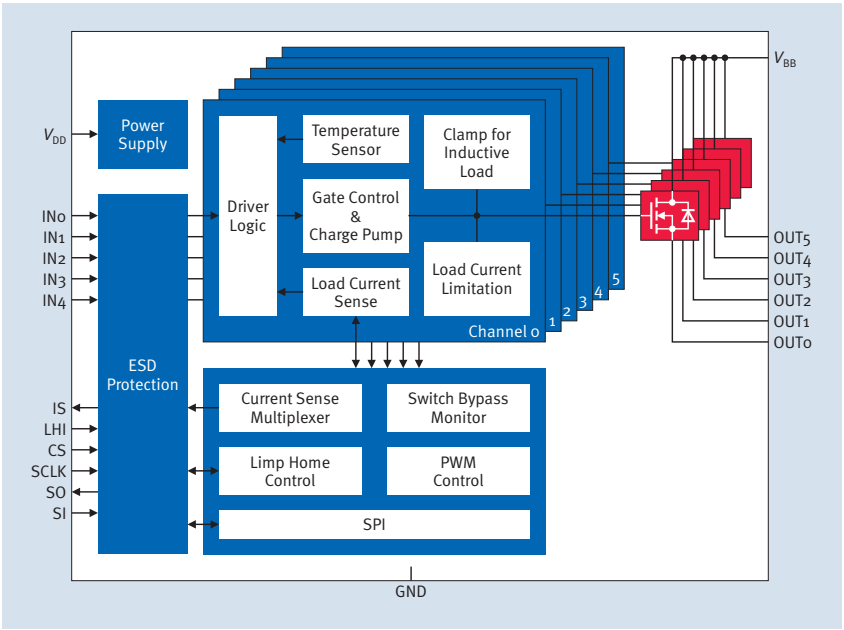
- Scalability per features (basic, LED mode, cranking) and number of channels (5 or 6)
- I/O saving whit SPI daisy chain configuration, particularly for BCMs whit higher complexity/load density
- Less routing effort and reduced PCB space
- Fewer external components required in the BCM
- PWM via SPI possible

www.infineon.com/SPOC

Power Semiconductors

Never stop thinking

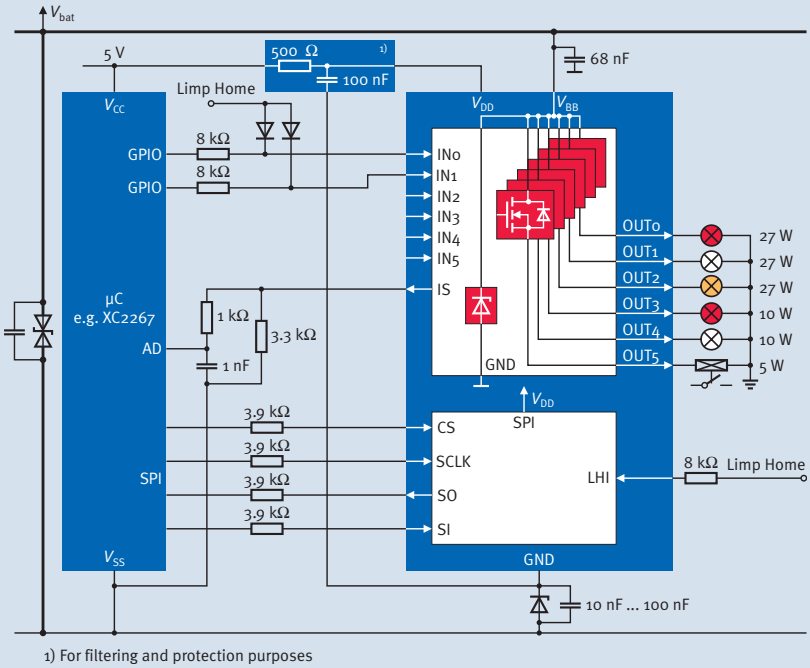
Block Diagram of the 6-Channel BTS5672E, with LED Mode



Block Diagram

- High-side power switch designed with load current sense and limitation, clamping for inductive loads
- Temperature sensor protection
- Multiplexed current sense signal available
- 8-bit SPI interface used for control and diagnostics, and provides daisy chain capability
- Inputs/Outputs are ESD protected

Application Description Using a 6-Channel SPOC Device (i.e. BTS5672E)



1) For filtering and protection purposes

Application Example

- High-side power switch for 12 V grounded loads in automotive application
- Especially designed for standard exterior lighting: tail light, stop light, parking light, license plate, rear fog light, indicators and equivalent LEDs

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