L99PM60S
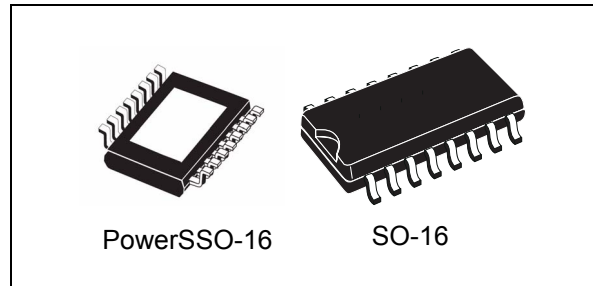
Power management system IC

Features

- One 5 V low-drop voltage regulators (100 mA, continuous mode)
- Low standby current: V_{BAT}-standby, 7 µA; V_1-standby, 45 µA
- Window watchdog and fail-safe functionality
- Configurable fail safe output
- Programmable reset threshold (4.6 V, 3.5 V)
- VS monitoring / temperature measurement
- LIN 2.1 compliant (SAEJ2602 compatible) transceiver
- High-speed LIN Flash mode up to 100 kbit/s
- ST SPI interface for mode control and diagnostic
- 2 high-side drivers for e.g. LED or HALL ($R_{DSon,typ} = 7\ \Omega$)
- 2 relay drivers ($R_{DSon,typ} = 2\ \Omega$)
- Outputs are short-circuit protected
- Direct drive feature for high-sides
- Temperature warning and thermal shutdown

PowerSSO-16   SO-16

Applications

- Automotive ECU such as door zone and body control modules.

Description

The L99PM60S is a power management system IC containing one low-drop regulator direct drive feature for high-side drivers and LIN 2.1 compliant SAEJ2602 transceiver.

The integrated standard serial peripheral interface (SPI) controls all L99PM60S operation modes and provides driver diagnostic functions.

Table 1.   Device summary

| Package	Order codes	
	Tube	Tape and reel
SO-16	L99PM60S	L99PM60STR
PowerSSO-16	L99PM60J	L99PM60JTR

Contents

1 Block diagram

Figure 1. Block diagram
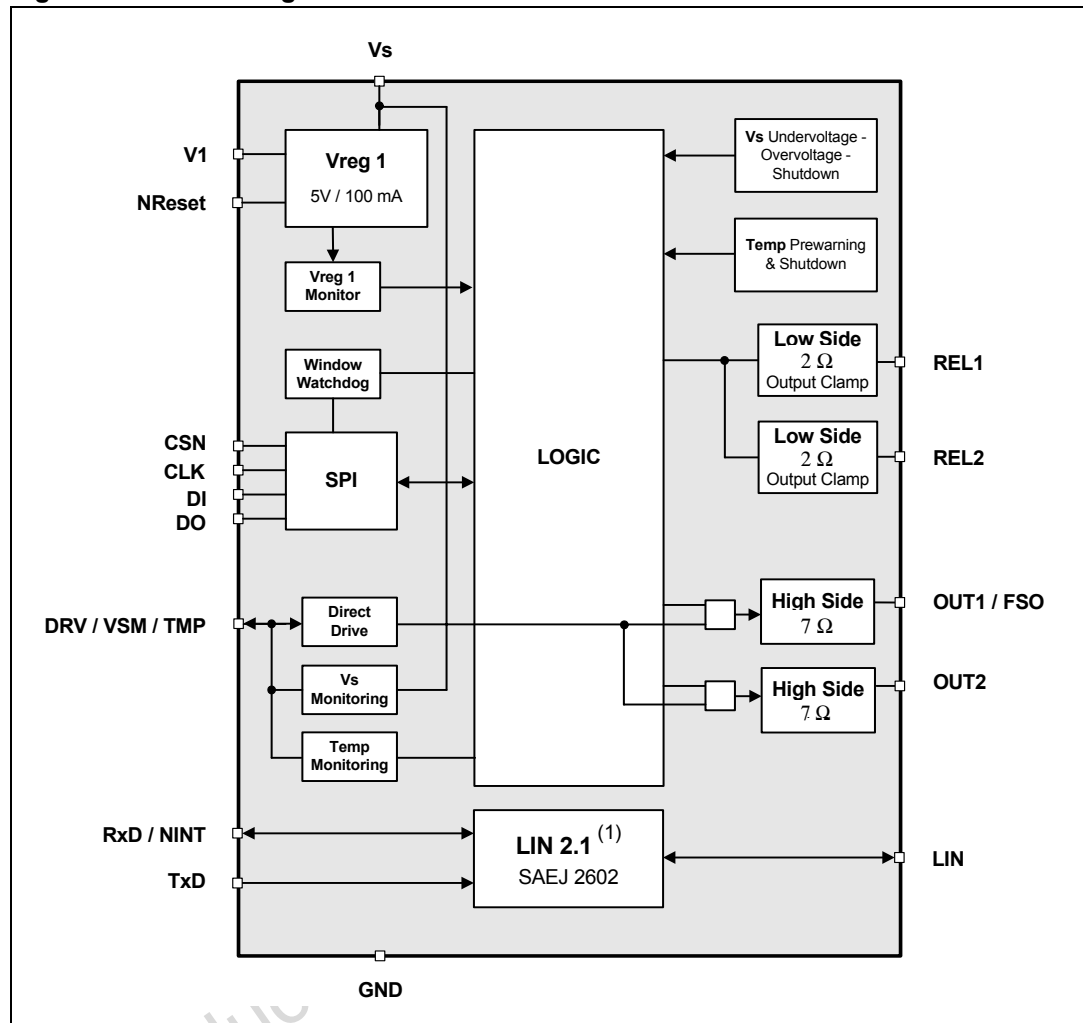
1. LIN 2.1 compliant

2   Pin definitions and functions

Table 2.   Pins definitions and functions

Pin	Symbol	Function
1	GND	Ground
2	NRESET	NRESET output to microcontroller; internal pull-up of typ. 100 KΩ (reset state = low)
3	DO	SPI: serial data output
4	DI	SPI: serial data input
5	V_1	Voltage regulator 1 output: 5 V supply e.g. microcontroller
6	CLK	SPI: serial clock input
7	RXD/NINT	Receiver output of the LIN 2.1 transceiver or interrupt:
8	DRV/VSM/TMP	Direct drive for high-side drivers OUT1/OUT2; V_S and temperature monitoring
9	CSN	SPI: chip select not input
10	OUT2	High-side drivers (7 Ω, typ.) : to supply e.g. LED's, HALL sensors, external contacts
11	OUT1/FSO	High-side driver (7 Ω, typ.) : to supply e.g. LED's, HALL sensors, external contacts. Default configuration is Fail Safe output.
12	TXD	Transmitter input of the LIN 2.1 transceiver
13	V_S	Power supply voltage
14	REL1	Low-side driver (2 Ω typ.): e.g. relay
15	REL2	Low-side driver (2 Ω typ.): e.g. relay
16	LIN	LIN bus line

Figure 2.   Pins configuration
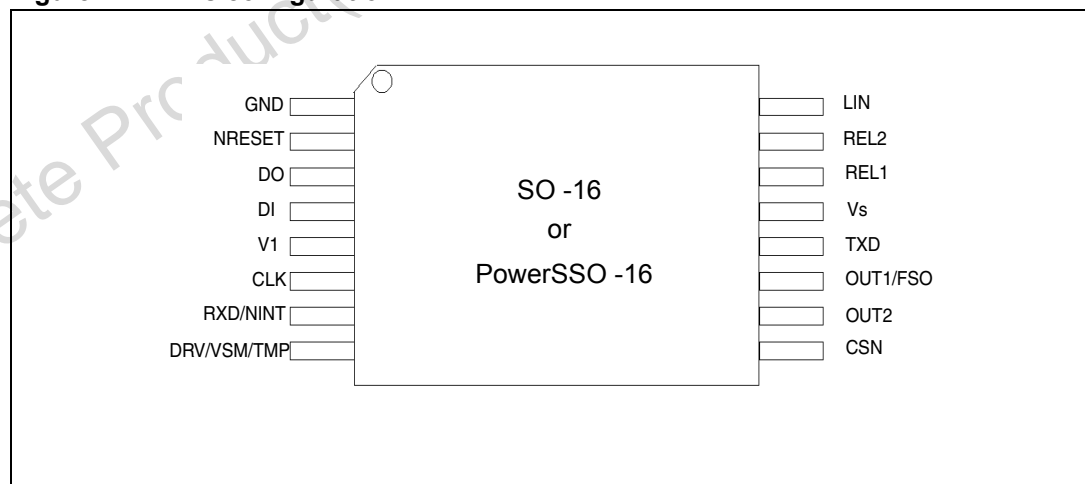
3   Revision history

Table 3.   Document revision history

Date	Revision	Description of changes
01-Jul-2009	1	Initial release.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.