



## DOOR ACTUATOR DRIVER

DATA BRIEF

### 1 FEATURES

- One half bridge for 7.4A load ( $r_{on} = 150m\Omega$ )
- Two half bridges for 5A load ( $r_{on} = 200m\Omega$ )
- Two highside drivers for 1.25A load ( $r_{on} = 800 m\Omega$ )
- Programmable Softstart function to drive loads with higher inrush currents (i.e. current  $>7.4A$ ,  $>5A$ ,  $>1.25A$ )
- Very low current consumption in standby mode ( $I_s < 3\mu A$ , typ.  $T_j \leq 85^\circ C$ )
- All outputs short circuit protected
- Current monitor output for all highside drivers
- All outputs over temperature protected
- Open load diagnostic for all outputs
- Overload diagnostic for all outputs
- Programmable PWM control of all outputs
- Charge Pump output for reverse polarity protection

### 2 APPLICATION

- Rear Door Actuator Driver with bridges for door lock and safe lock and two 5W or 10W-light bulbs.

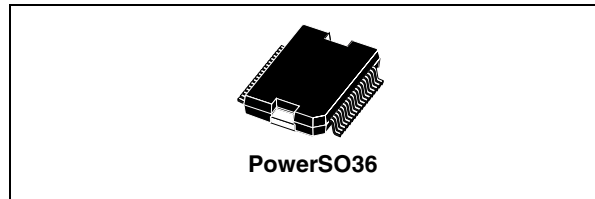


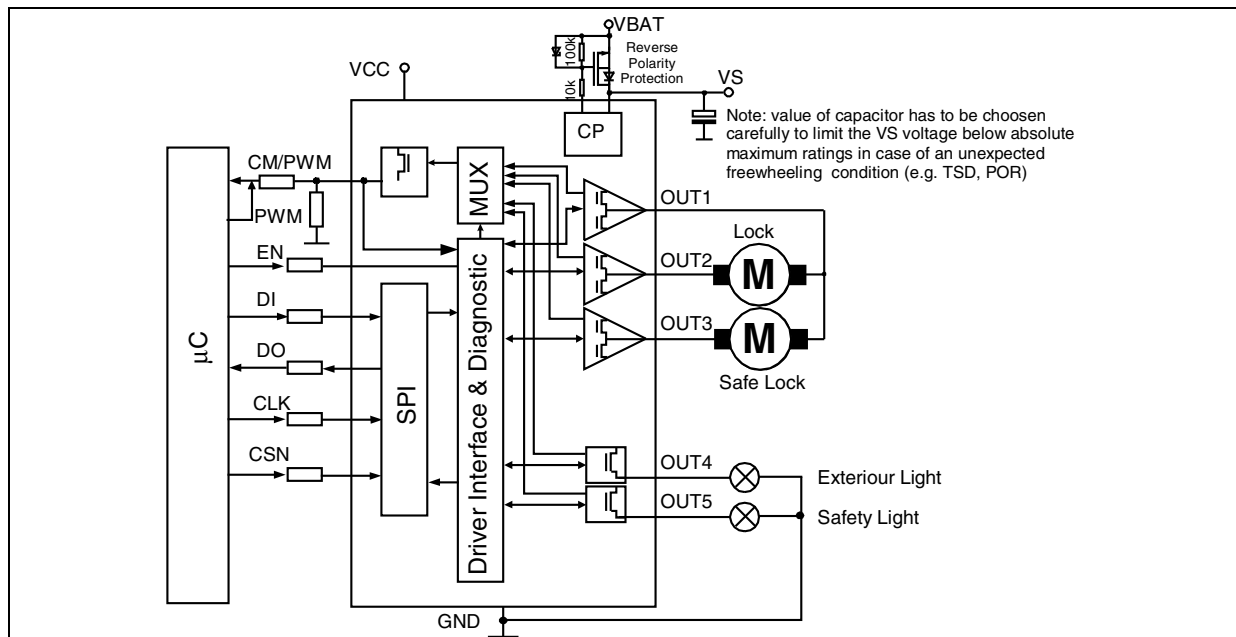
Table 1. Order Codes

Part Number	Package
L9951	PowerSO36

### 3 DESCRIPTION

The L9951 is a microcontroller driven multifunctional rear door actuator driver for automotive applications. Up to two DC motors and two grounded resistive loads can be driven with three half bridges and two highside drivers. The integrated standard serial peripheral interface (SPI) controls all operation modes (forward, reverse, brake and high impedance). All diagnostic informations are available via SPI.

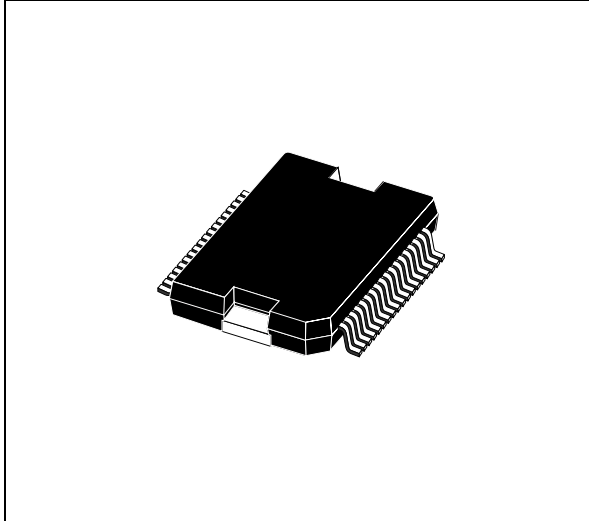
### BLOCK DIAGRAM



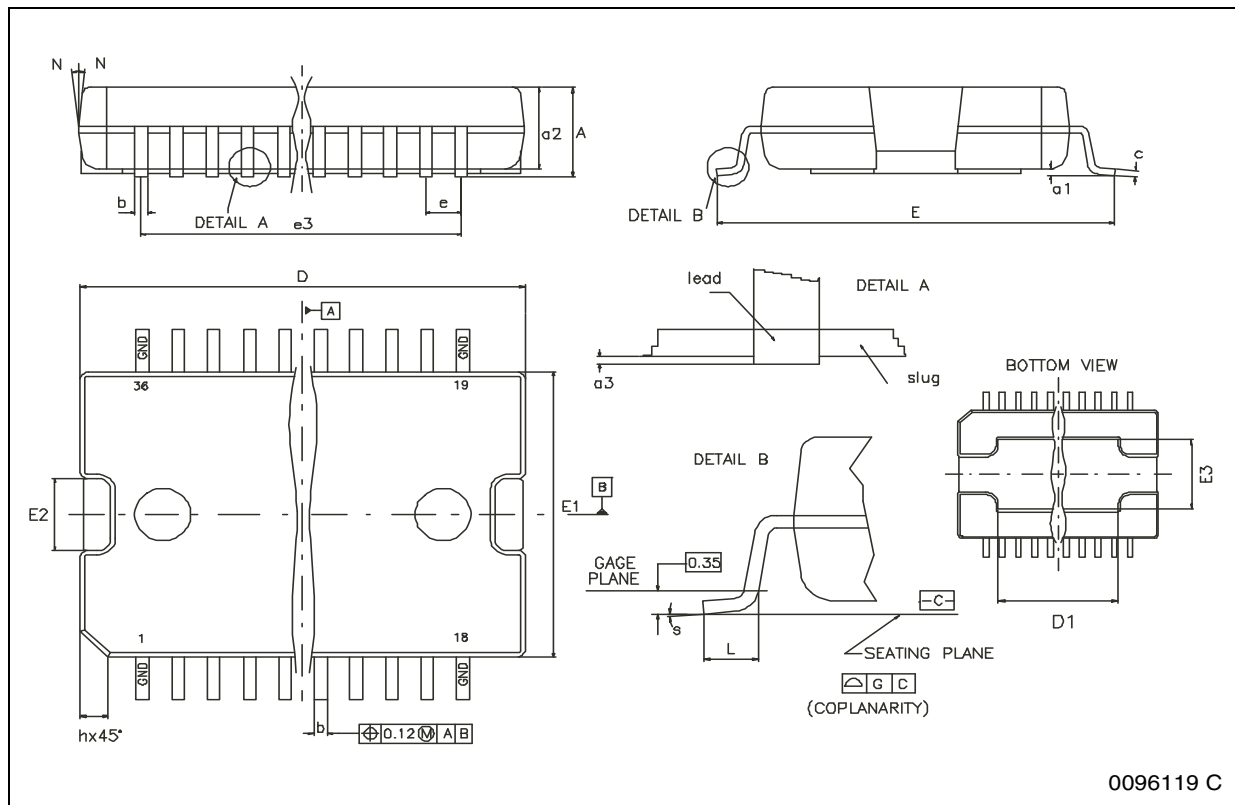
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			3.60			0.1417
a1	0.10		0.30	0.0039		0.0118
a2			3.30			0.1299
a3	0		0.10			0.0039
b	0.22		0.38	0.0087		0.0150
c	0.23		0.32	0.0091		0.0126
D	15.80		16.00	0.6220		0.6299
D1	9.40		9.80	0.3701		0.3858
E	13.90		14.5	0.5472		0.5709
E1	10.90		11.10	0.4291		0.4370
E2			2.90			0.1142
E3	5.80		6.20	0.2283		0.2441
e		0.65			0.0256	
e3		11.05			0.4350	
G	0		0.10			0.0039
H	15.50		15.90	0.6102		0.6260
h			1.10			0.0433
L	0.8		1.10	0.0315		0.0433
N	10° (max)					
s	8° (max)					

Note: "D and E1" do not include mold flash or protrusions.  
 - Mold flash or protrusions shall not exceed 0.15mm (0.006")  
 - Critical dimensions are "a3", "E" and "G".

## OUTLINE AND MECHANICAL DATA



### PowerSO-36



0096119 C



**Table 2. Revision History**

<b>Date</b>	<b>Revision</b>	<b>Description of Changes</b>
March 2004	1	First Issue
April 2004	2	Modified the style sheet following Design Guide last rev. rules.
24-Sep-2013	3	Updated Disclaimer

**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.**

**ST PRODUCTS ARE NOT DESIGNED OR AUTHORIZED FOR USE IN: (A) SAFETY CRITICAL APPLICATIONS SUCH AS LIFE SUPPORTING, ACTIVE IMPLANTED DEVICES OR SYSTEMS WITH PRODUCT FUNCTIONAL SAFETY REQUIREMENTS; (B) AERONAUTIC APPLICATIONS; (C) AUTOMOTIVE APPLICATIONS OR ENVIRONMENTS, AND/OR (D) AEROSPACE APPLICATIONS OR ENVIRONMENTS. WHERE ST PRODUCTS ARE NOT DESIGNED FOR SUCH USE, THE PURCHASER SHALL USE PRODUCTS AT PURCHASER'S SOLE RISK, EVEN IF ST HAS BEEN INFORMED IN WRITING OF SUCH USAGE, UNLESS A PRODUCT IS EXPRESSLY DESIGNATED BY ST AS BEING INTENDED FOR "AUTOMOTIVE, AUTOMOTIVE SAFETY OR MEDICAL" INDUSTRY DOMAINS ACCORDING TO ST PRODUCT DESIGN SPECIFICATIONS. PRODUCTS FORMALLY ESCC, QML OR JAN QUALIFIED ARE DEEMED SUITABLE FOR USE IN AEROSPACE BY THE CORRESPONDING GOVERNMENTAL AGENCY.**

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.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2013 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

[www.st.com](http://www.st.com)

