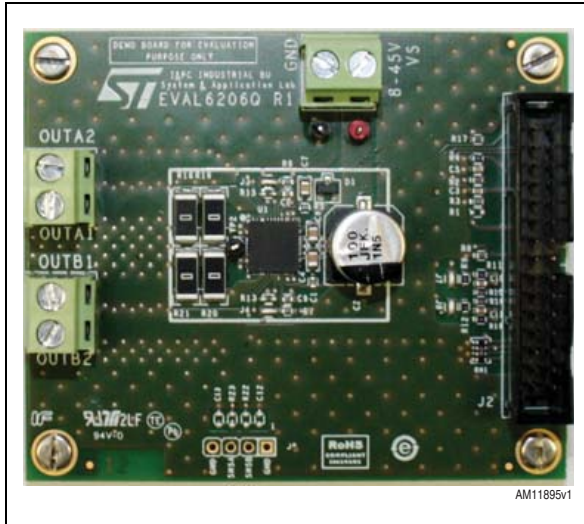


Dual full bridge with programmable overcurrent

Data brief

**Features**

- Voltage range from 8 to 52 V
- Phase current up to 2.5 A_{r.m.s.}
- Adjustable overcurrent threshold
- Logic inputs 5 V / 3.3 V compliant
- Small application footprint with high thermal performance
- Suitable for use in combination with PractiSPIN™ 2 software

Description

The EVAL6206Q demonstration board allows the user to test the L6206Q functions. The dual full bridges integrated into the L6206Q device can be used to drive a single 2-phase stepper motor or up to four DC motors (unidirectional). The bridges can also operate in parallel mode. The board can be driven using the STEVAL-PCC009V2 demonstration board and the PractiSPIN 2 evaluation software.

Contents

1	Board description	3
2	Schematic	5
3	Bill of material	6
4	Layout	7
5	Overcurrent threshold regulation	10
6	Revision history	11



1 Board description

Table 1. Electrical specifications

Parameter	Value
Supply voltage (VS)	8 to 52 V
Maximum output current (each phase)	2.5 A _{r.m.s.}
Low level logic input voltage	0 V
High level logic input voltage	5 V / 3.3 V ⁽¹⁾
Switching frequency	Up to 100 kHz
Operating temperature	- 25 to +125 °C
L6206Q thermal resistance junction-to-ambient	17 °C/W

1. Logic inputs are 3.3 V and 5 V compliant.

Figure 1. Trimmer and connector locations

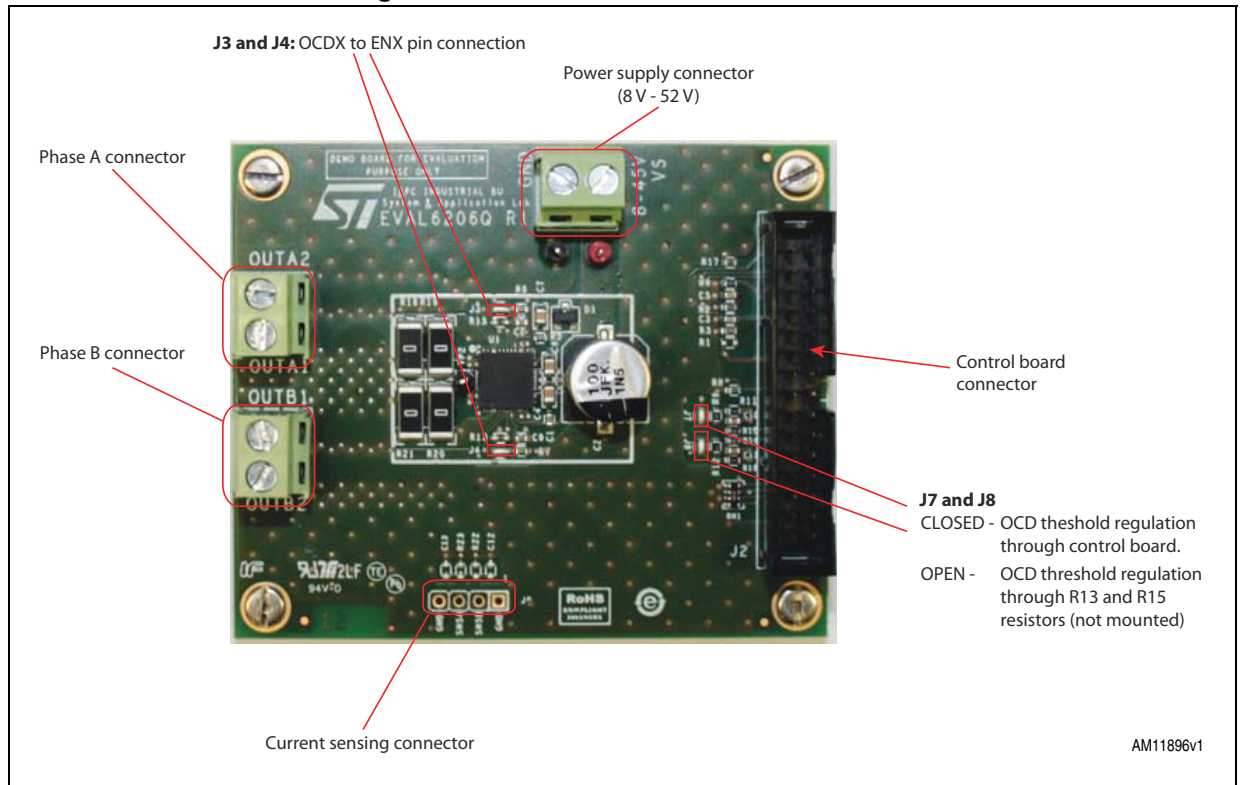


Table 2. Control board connector pinout (J2)

Pin	Type	Function
2	Ground	Ground
3	Logic input	Input IN1A of L6206Q
4	Logic input	Input IN2A of L6206Q
5	Logic input	Input IN1B of L6206Q
6	Logic input	Input IN2B of L6206Q
11	Analog input	Overcurrent threshold regulation for A bridge
12	Analog input	Overcurrent threshold regulation for B bridge
13	Ground	Ground
14	Supply voltage	3.3 V supply voltage
16	Logic input	Input ENA of L6206Q
23	Ground	Ground
24	Analog output	Board identification system ID0
25	Analog output	Board identification system ID1
27	Logic output	Fault output for A bridge (OCDA output of L6206Q)
28	Ground	Ground
29	Logic output	Fault output for B bridge (OCDB output of L6206Q)
30	Logic input	Input ENB of L6206Q
Others	Unconnected	

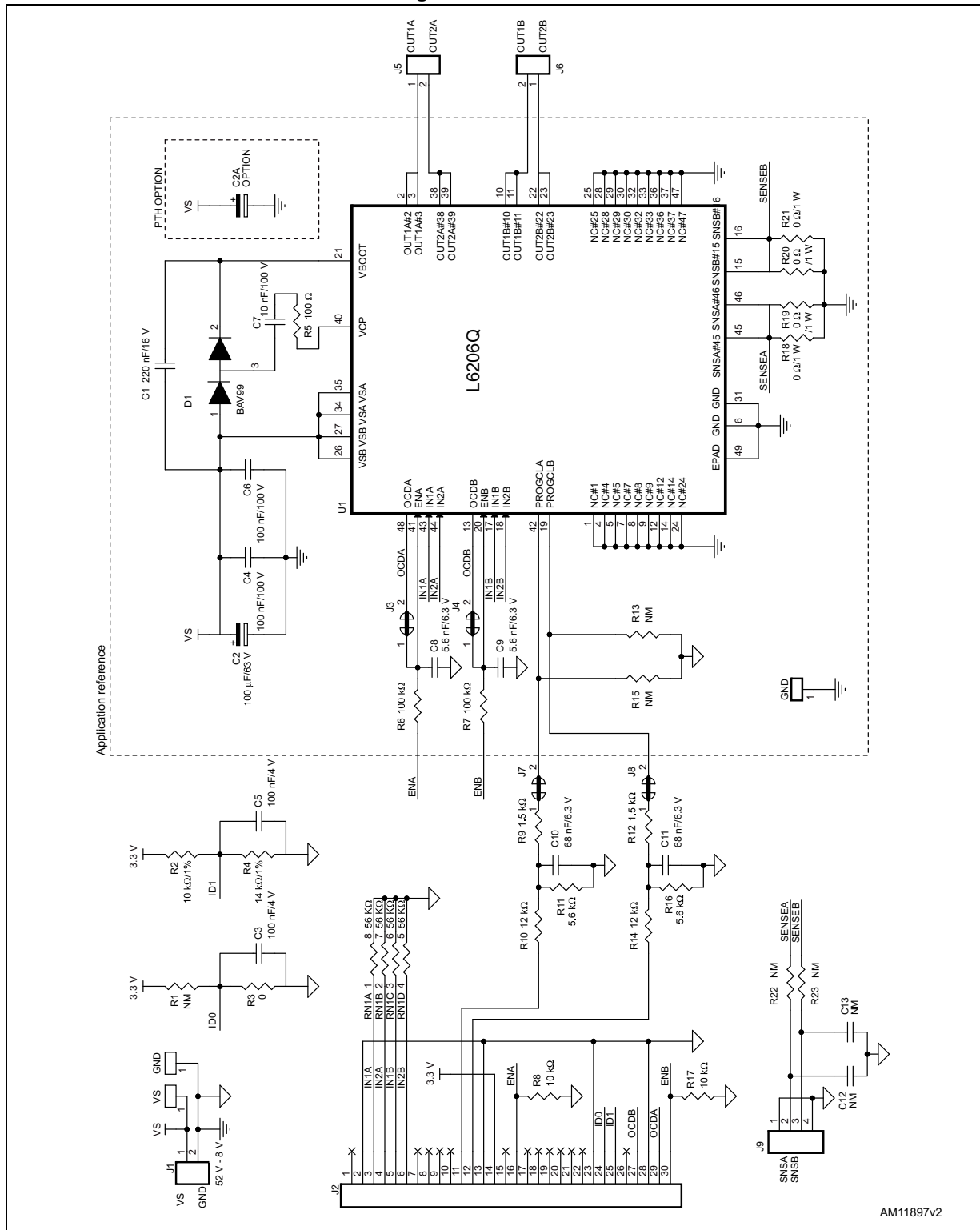
Table 3. Current sensing connector (J9)

Pin	Type	Function
1	Ground	Ground
2	Analog output	SENSEA pin of L6206Q ⁽¹⁾
3	Analog output	SENSEB pin of L6206Q ⁽¹⁾
4	Ground	Ground

1. The R22/23 resistor and C12/13 capacitor must be added when output is used. The value of the RC network should be chosen according to the target low-pass frequency of the filter.

2 Schematic

Figure 2. Schematic



AM11897v2

3 Bill of material

Table 4. Bill of material

Index	Quantity	Reference	Value	Package
1	1	C1	220 nF / 16 V	CAPC-0603
2	1	C2	100 μ F / 63 V	CAPE-R10HXX
3	1	C2A	100 μ F / 63 V (OPTION)	CAPE-R8H12-P35
4	2	C3, C5	100 nF / 4 V	CAPC-0603
5	2	C4, C6	100 nF / 100 V	CAPC-0805
6	1	C7	10 nF / 100 V	CAPC-0805
7	2	C8, C9	5.6 nF / 6.3 V	CAPC-0603
8	2	C10, C11	68 nF / 6.3 V	CAPC-0603
9	2	C12, C13	NM	CAPC-0603
10	1	D1	BAV99	SOT-23
11	3	J1, J5, J6	Screw connector 2 poles	MORSV-508-2P
12	1	J2	Pol. IDC male header vertical 30 poles	CON-FLAT-15X2-180M
13	4	J3, J4, J7, J8	Jumper - CLOSE	JP2SO
14	1	J9	NM	STRIP254P-M-4
15	1	RN1	56 k Ω	RESN-CAY16
16	5	R1, R13, R15, R22, R23	NM	RESC-0603
17	1	R2	10 k Ω / 1%	RESC-0603
18	1	R3	0 Ω	RESC-0603
19	1	R4	14 k Ω / 1%	RESC-0603
20	1	R5	100 Ω	RESC-0603
21	2	R6, R7	100 k Ω	RESC-0603
22	2	R8, R17	10 k Ω	RESC-0603
23	2	R9, R12	1.5 k Ω	RESC-0603
24	2	R10, R14	12 k Ω	RESC-0603
25	2	R11, R16	5.6 k Ω	RESC-0603
26	4	R18, R19, R20, R21	0 Ω / 1 W	RESC-2512
27	1	TP1	TPTH-RING-1MM RED	TH
28	2	TP2, TP3	TPTH-RING-1MM BLACK	TH
29	1	U1	L6206Q	QFN (7x7_48)

4 Layout

Figure 3. Layout (silk screen)

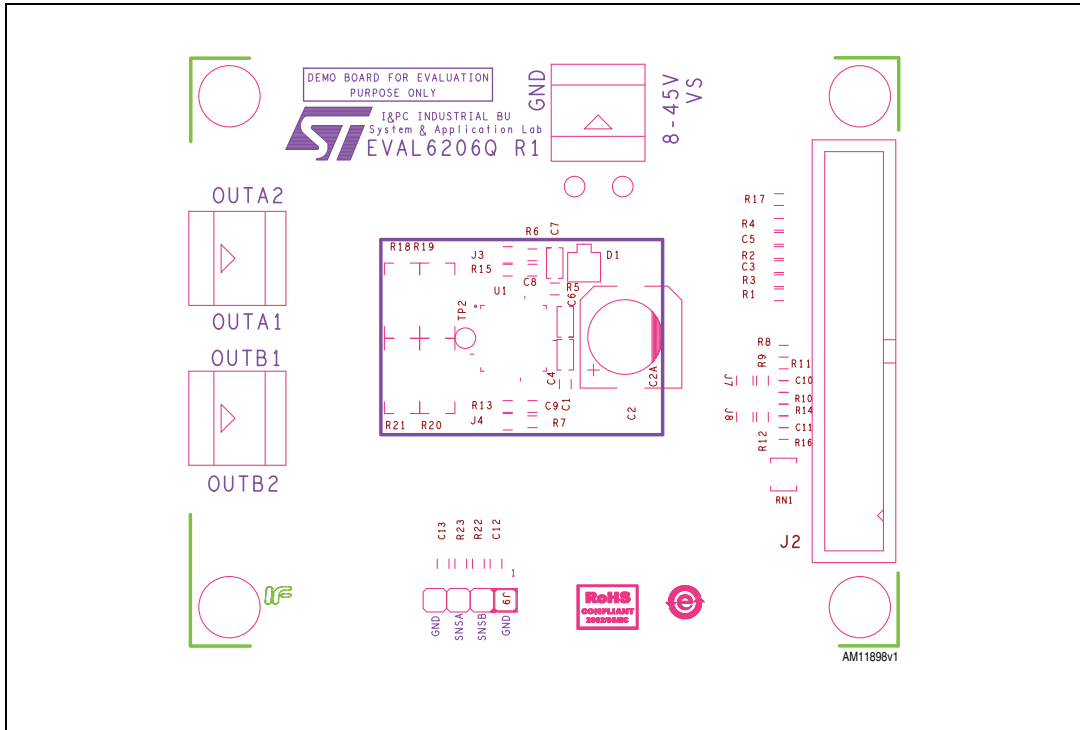


Figure 4. Layout (top layer)

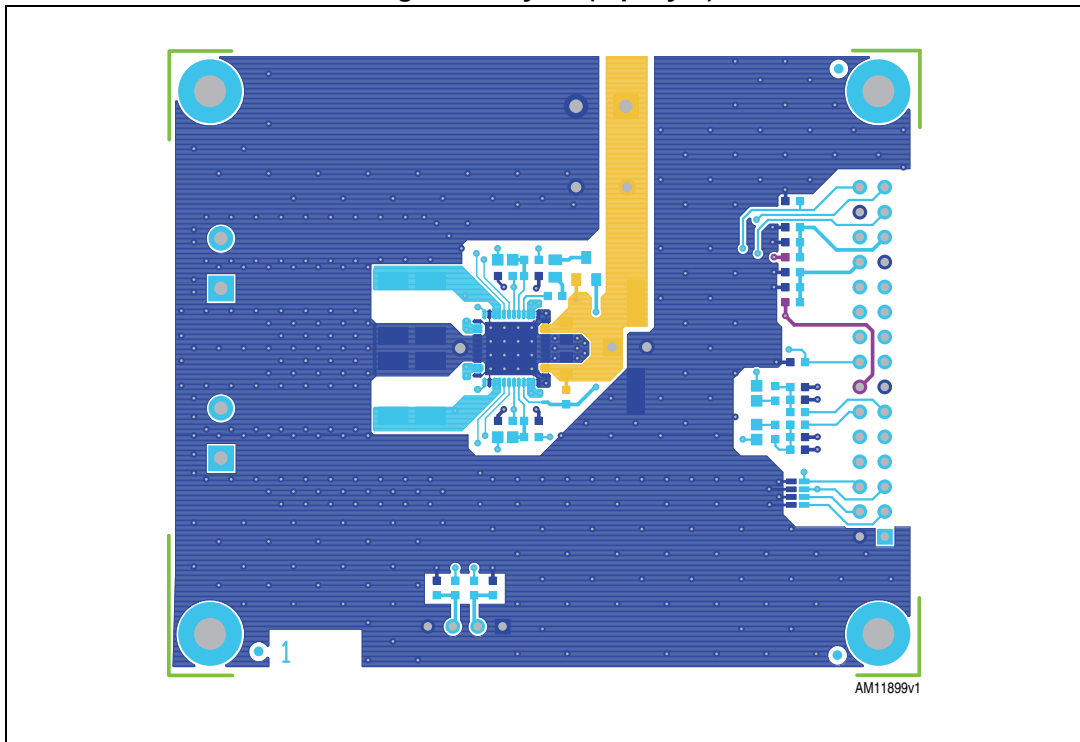


Figure 5. Layout (inner layer 2)

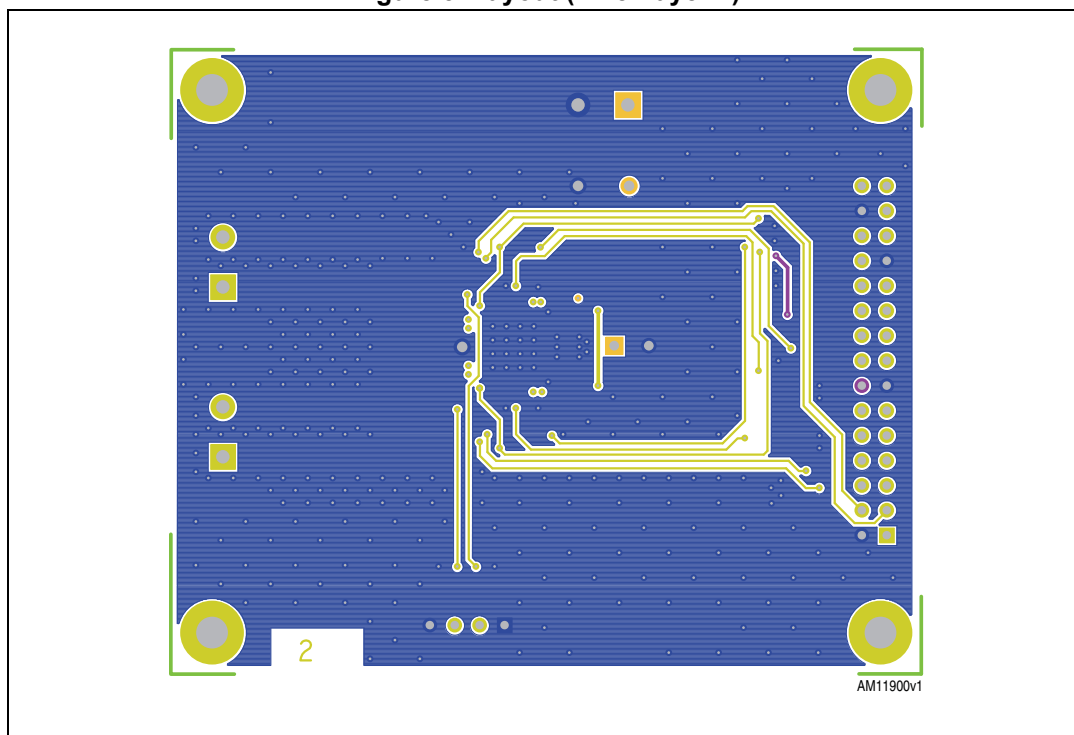


Figure 6. Layout (inner layer 3)

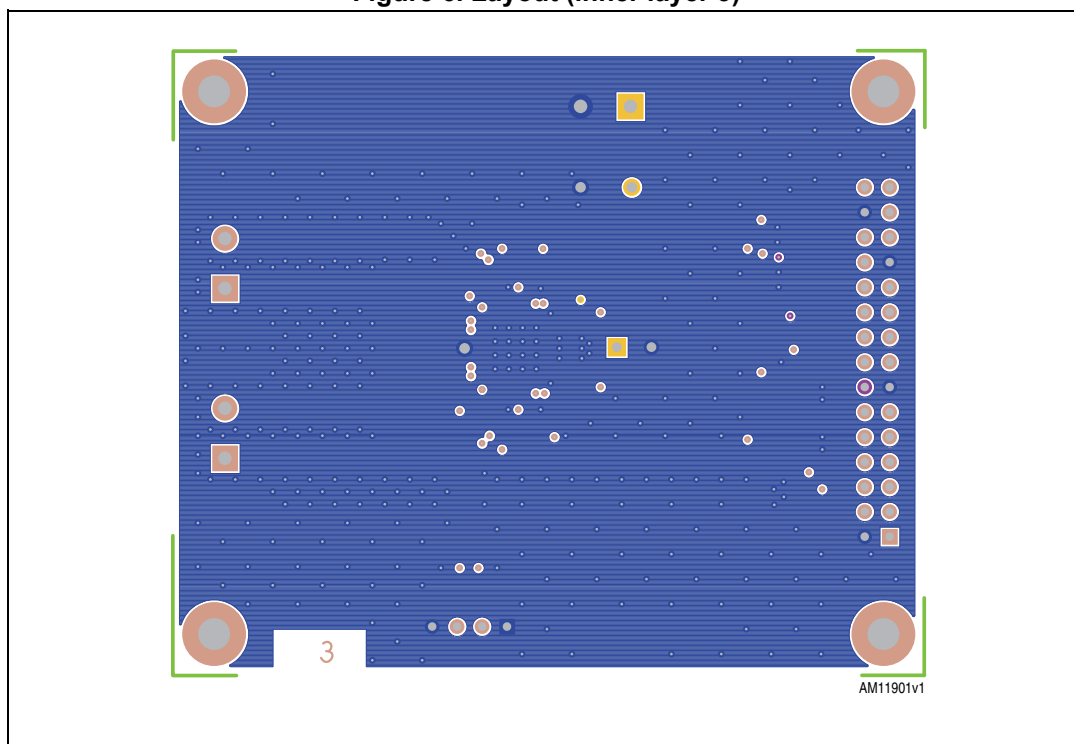
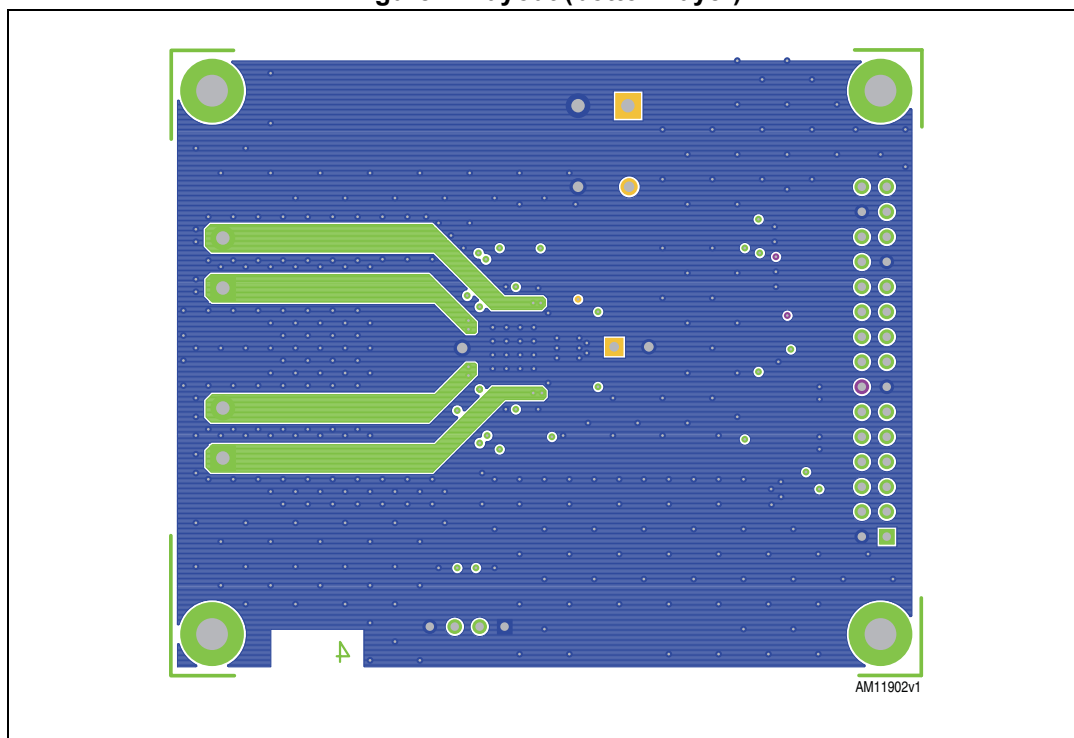
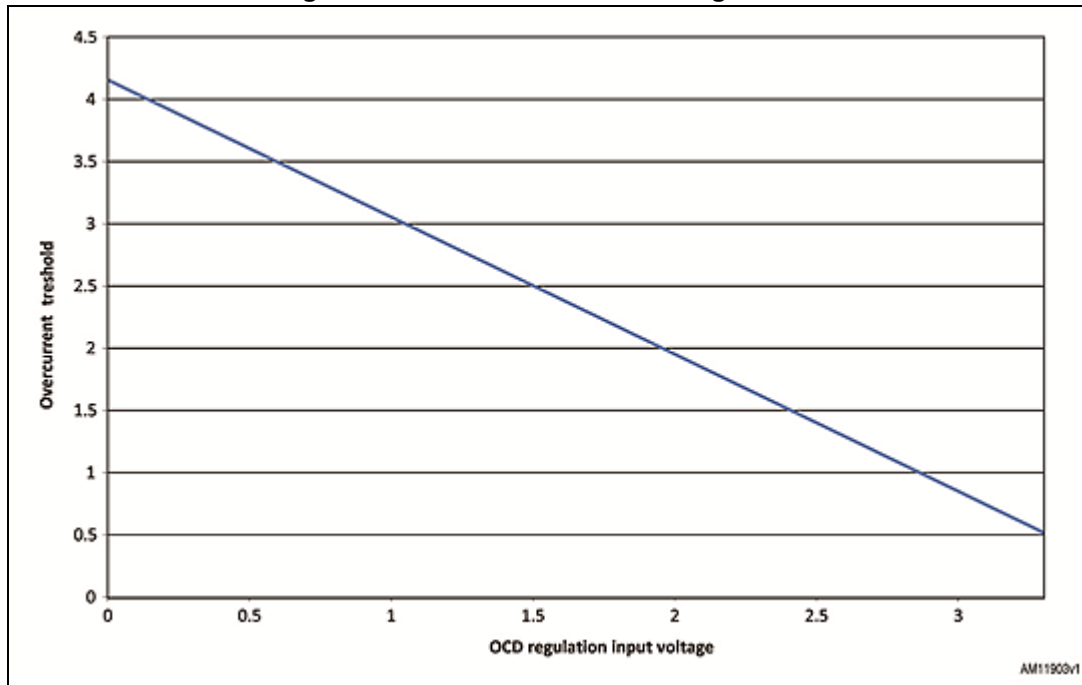


Figure 7. Layout (bottom layer)



5 Overcurrent threshold regulation

Figure 8. Overcurrent threshold regulation



6 Revision history

Table 5. Document revision history

Date	Revision	Changes
03-Apr-2012	1	Initial release.
07-Jun-2013	2	<p>Updated <i>Description on page 1</i> (replaced “communication board” by “demonstration board”).</p> <p>Added <i>Contents</i> on page 2.</p> <p>Added titles to <i>Section 2: Schematic</i> to <i>Section 5: Overcurrent threshold regulation</i>.</p> <p>Updated <i>Table 1</i> (added value and unit to “thermal resistance junction-to-ambient”, removed superfluous “EVAL6206Q” from title).</p> <p>Updated <i>Figure 2</i> (removed “EVAL6206Q” from title, completed units, minor modifications).</p> <p>Updated <i>Table 4</i> (removed “EVAL6206Q” from title, corrected unit in row 26).</p> <p>Updated <i>Figure 3</i> to <i>Figure 7</i> (removed “EVAL6206Q” from titles).</p> <p>Minor corrections throughout document.</p>

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 AUTHORIZED FOR USE IN WEAPONS. NOR ARE ST PRODUCTS 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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[EVAL6206Q](#)