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EVAL6206Q

Dual full bridge with programmable overcurrent

Data brief



AM11895v1

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.

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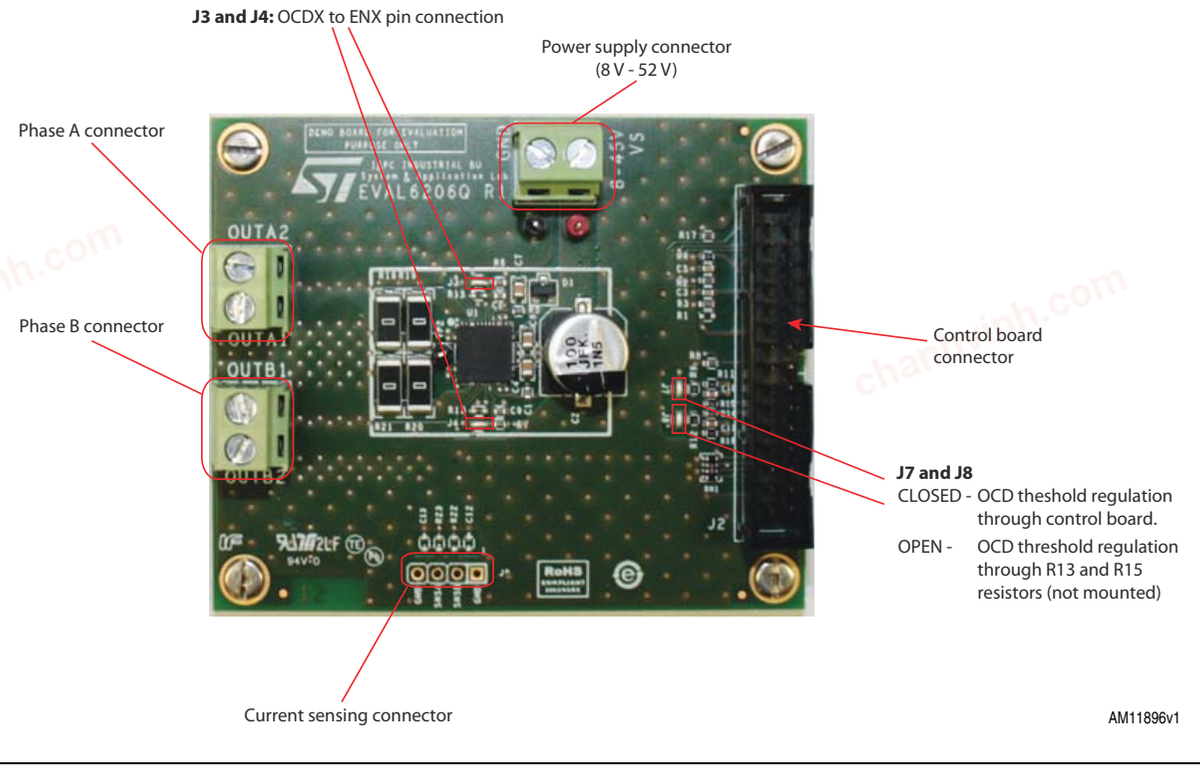
1 Board description

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



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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)

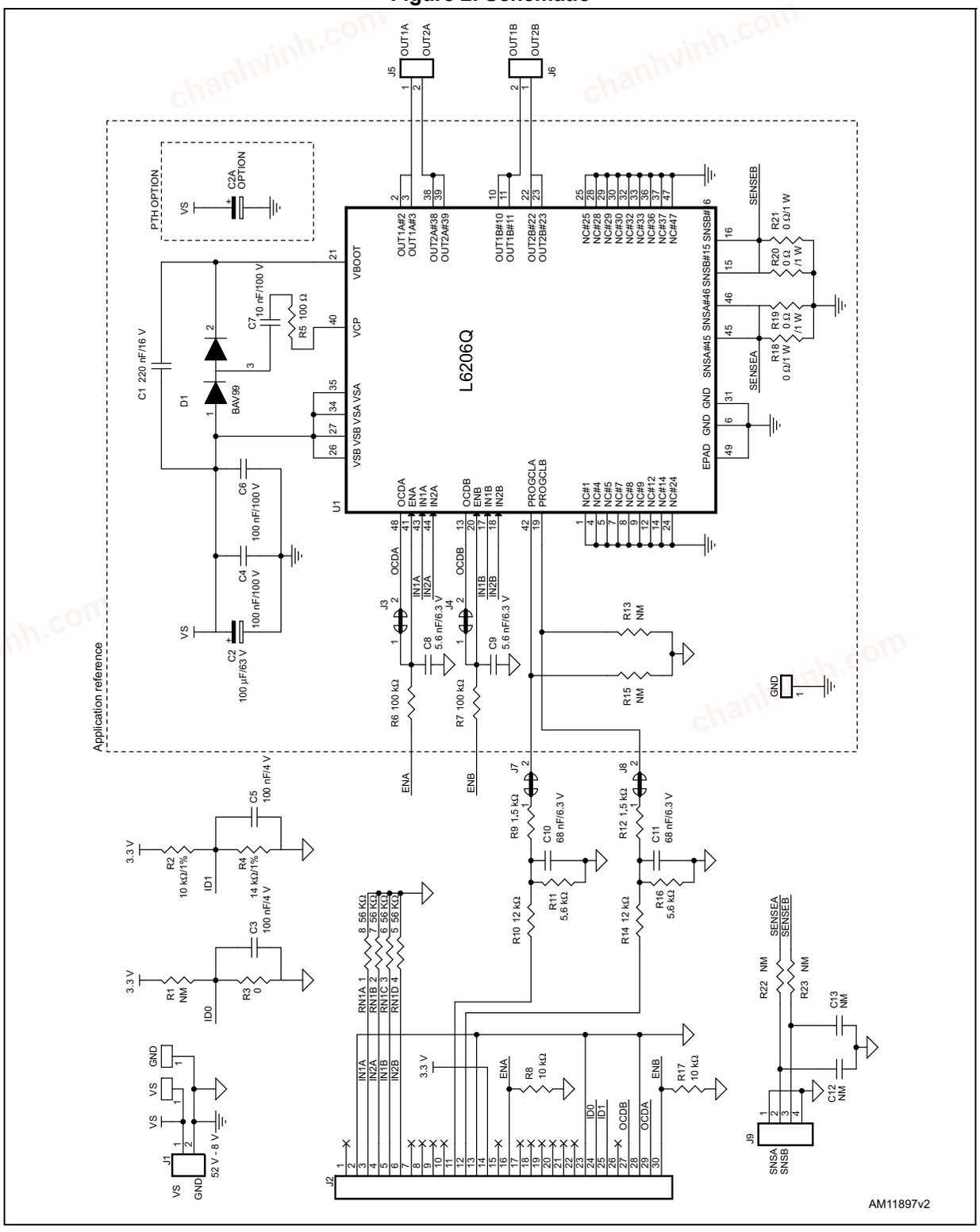
Pin	Type	Function
1	Ground	Ground
2	Analog output	SENSEA pin of L6206Q(1)
3	Analog output	SENSEB pin of L6206Q(1)
4	Ground	Ground

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.

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2 Schematic

Figure 2. Schematic



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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 µF / 63 V	CAPES-R10HXX
3	1	C2A	100 µF / 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 kΩ	RESN-CAY16
16	5	R1, R13, R15, R22, R23	NM	RESC-0603
17	1	R2	10 kΩ / 1%	RESC-0603
18	1	R3	0 Ω	RESC-0603
19	1	R4	14 kΩ / 1%	RESC-0603
20	1	R5	100 Ω	RESC-0603
21	2	R6, R7	100 kΩ	RESC-0603
22	2	R8, R17	10 kΩ	RESC-0603
23	2	R9, R12	1.5 kΩ	RESC-0603
24	2	R10, R14	12 kΩ	RESC-0603
25	2	R11, R16	5.6 kΩ	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)

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4 Layout

Figure 3. Layout (silk screen)

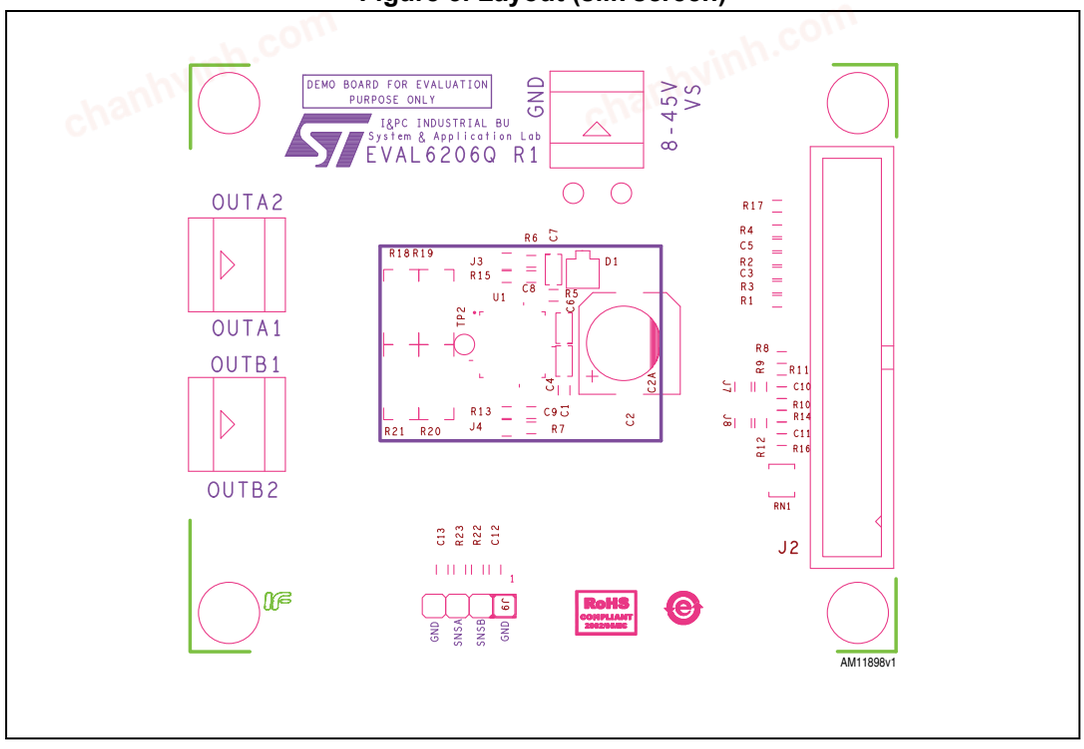
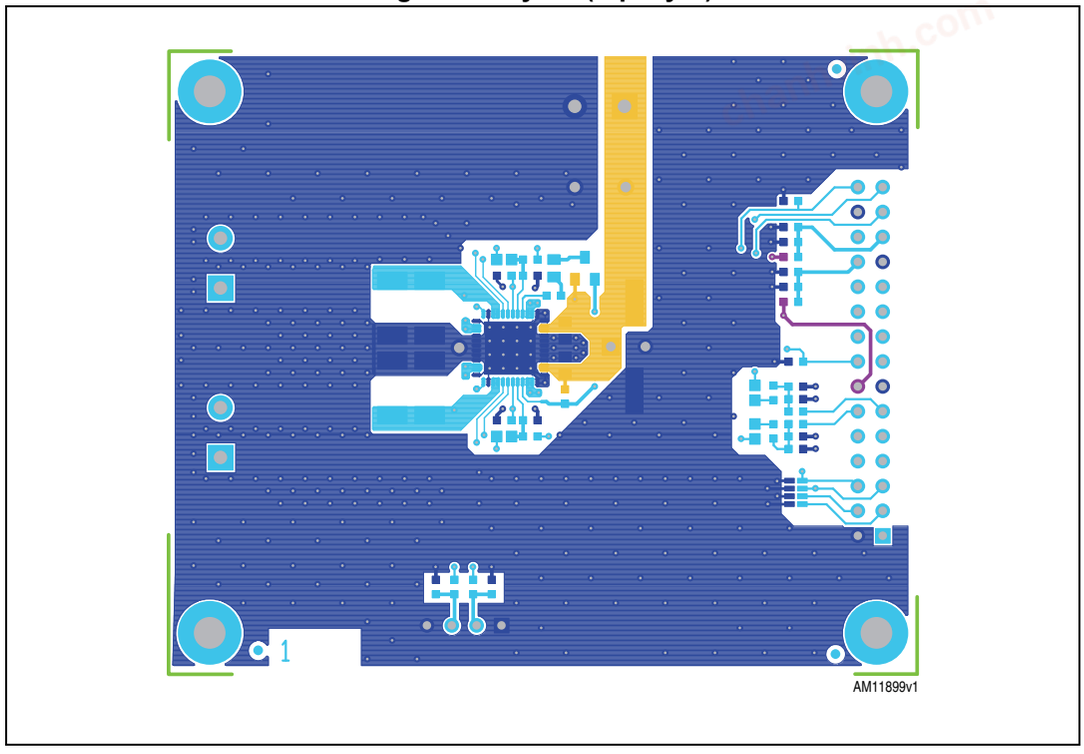


Figure 4. Layout (top layer)



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Figure 5. Layout (inner layer 2)

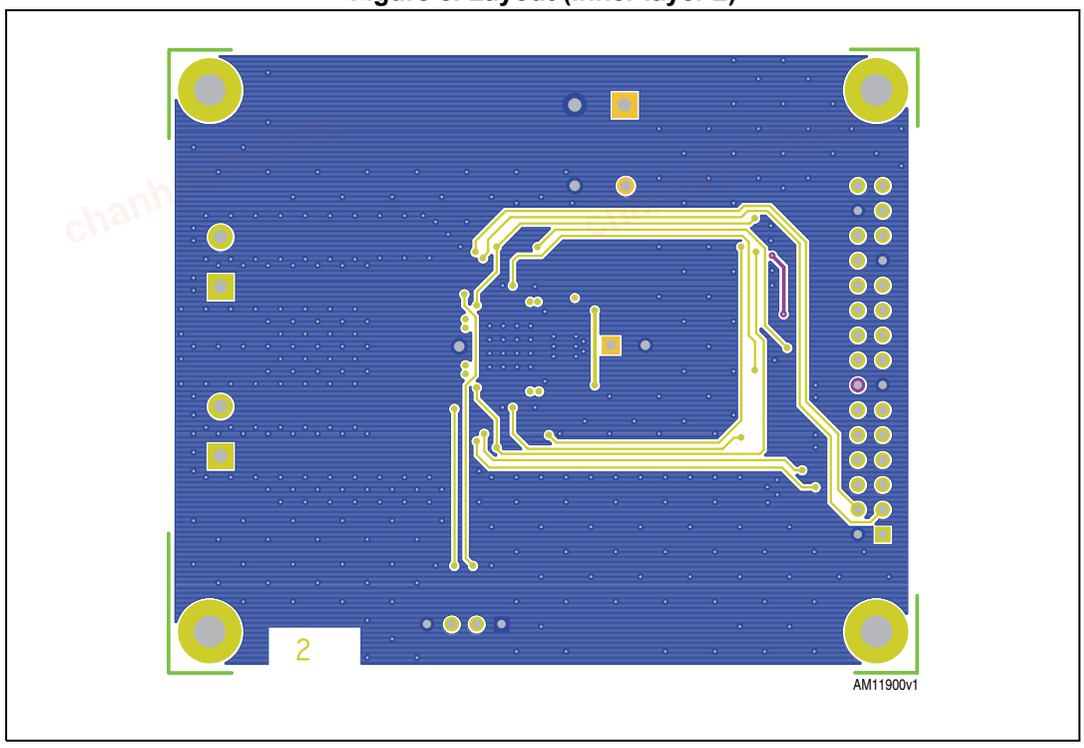
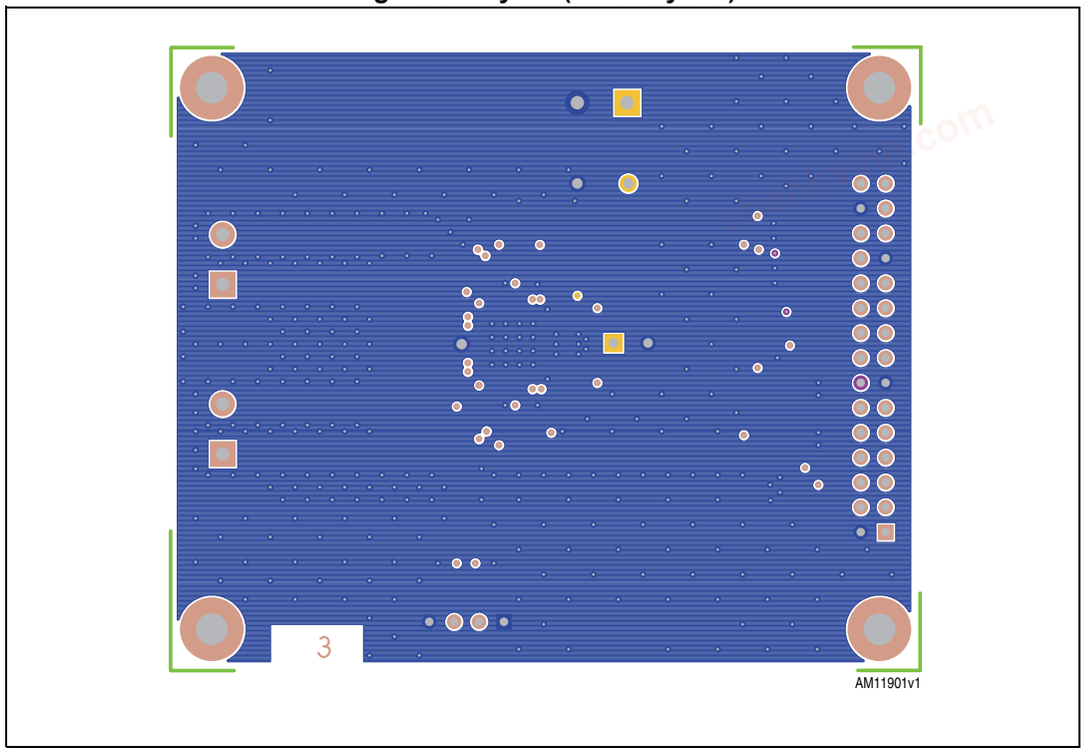
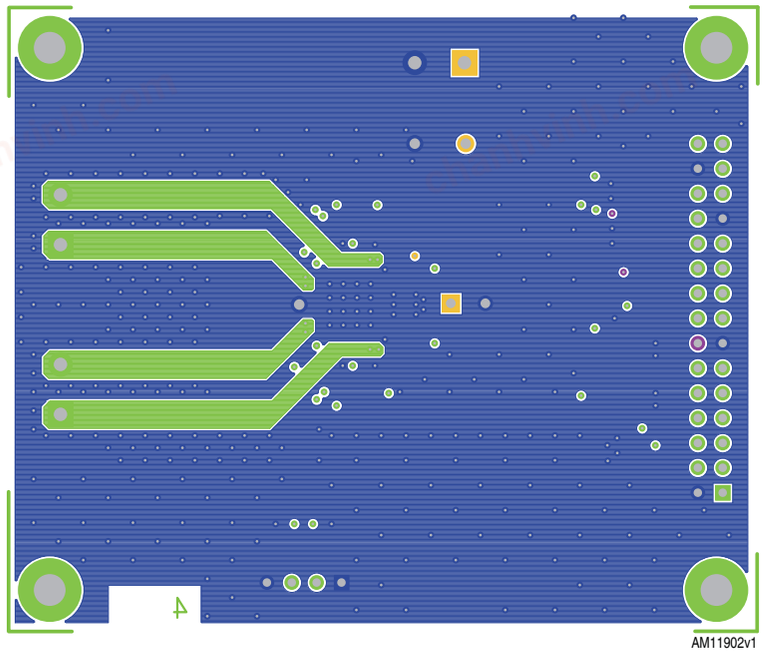


Figure 6. Layout (inner layer 3)



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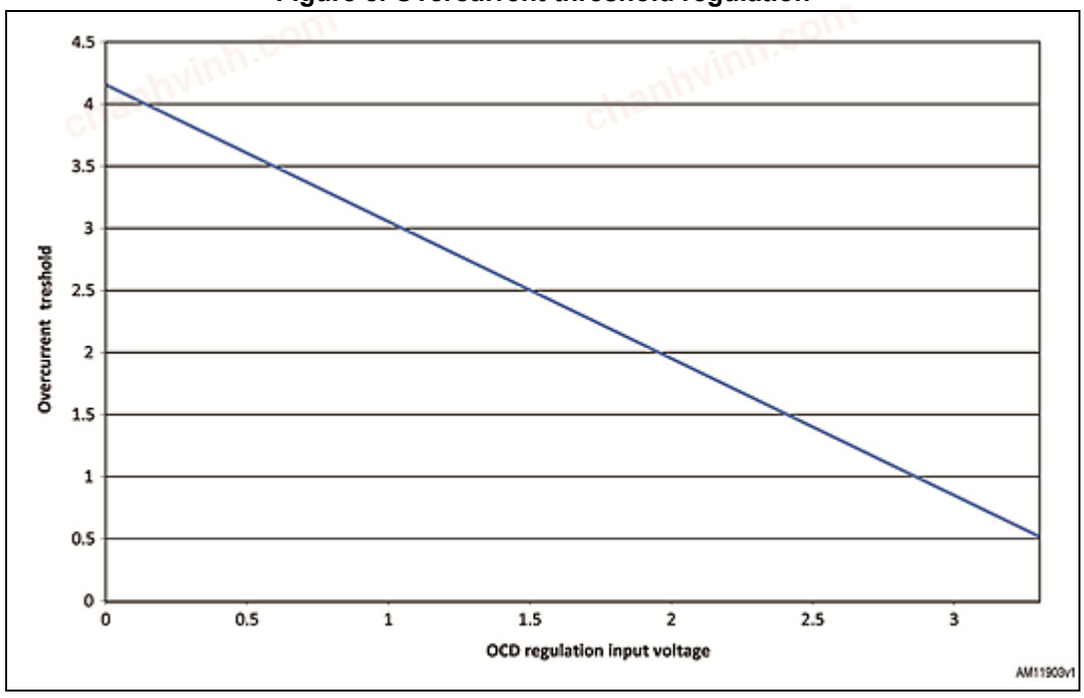
Figure 7. Layout (bottom layer)



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5 Overcurrent threshold regulation

Figure 8. Overcurrent threshold regulation



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6 Revision history

Table 5. Document revision history

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

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