NCP 370
Over Voltage Protection Controller
with reverse charge control

Demo board

ON Semiconductor

June 2009

Abstract

This document contains the technical specifications. It supply information with define internal specification for development team.
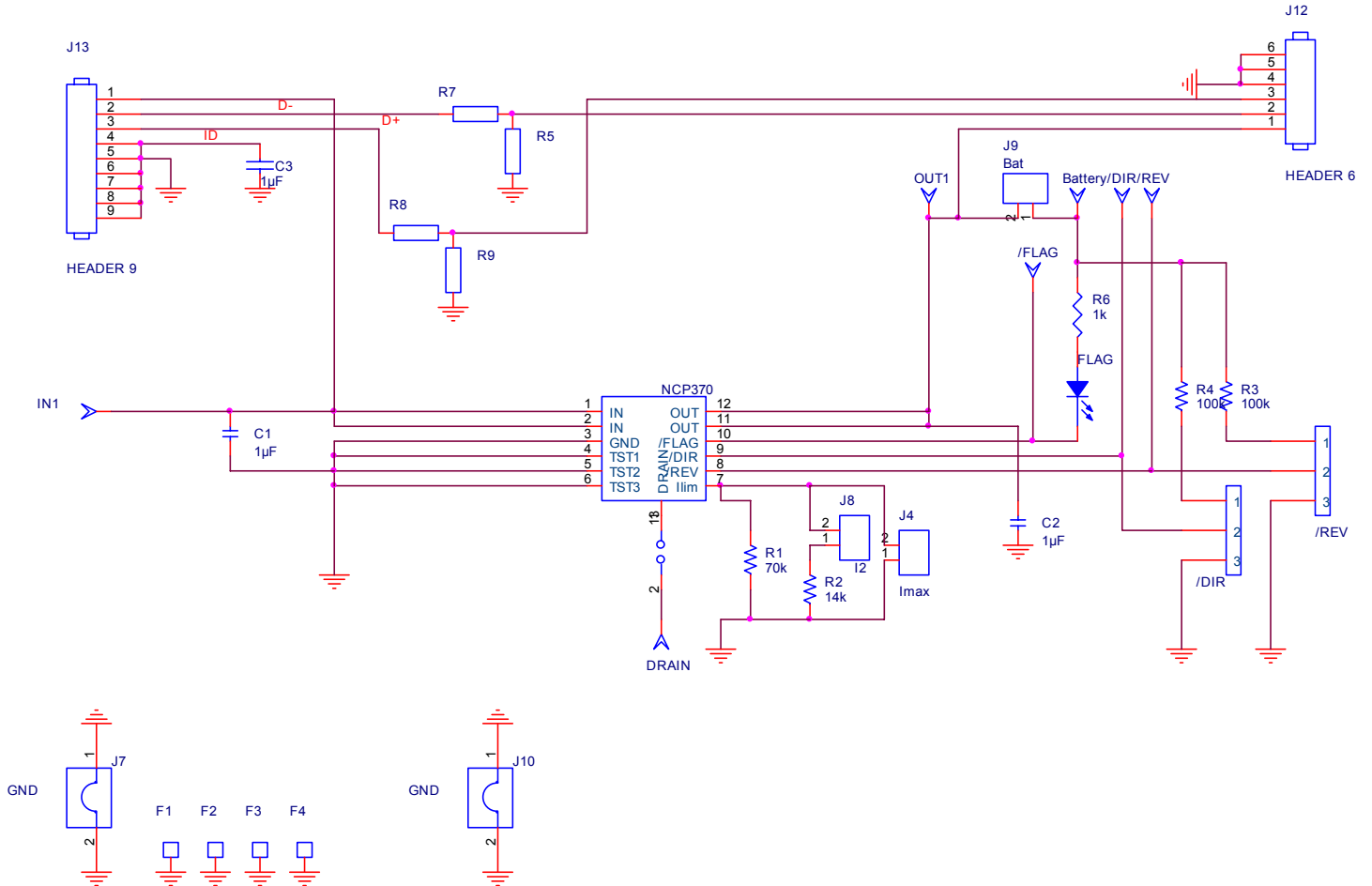
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Demo board NCP370

May, 2009

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Table Of Contents:

1 – Schematic:

2 - BOM:

Quantity	Designation	Manufacturer	Digi key	Specifications
1	NCP370 LLGA3x3	ON Semiconductor		Over voltage protection
2	C1 (Cin), C2 (Cout)	Murata – GRM188R61E105KA12D	490-3897-1-ND	1µF 25V X5R CMS0805
1	C3 (ID): not mounted			
13	Test points:IN1, OUT1,BATTERY,FLAG, DRAIN, REV, DIR		5001K-ND	Hole diameter: 1.3mm
1	J13 (USB IN)	Molex	WM17116CT-ND	5 pins USB miniB
1	J12. (USB OUT)	Molex	WM17118-ND	4 pins USB A
1	FLAG	rohm	511-1287-ND	Green LED 0805
1	R6	susumu	Rr08p(value)dct-nd	1kΩ. CMS0603 0.5%
2	R3, R4	susumu	Rr08p(value)dct-nd	100 kΩ. CMS0603 0.5%
Not mounted	R5,R7,R8,R9 (USB data)			
1	R1	susumu	Rr08p(value)bct-nd	69.8k Ω. CMS0603 0.5%
1	R2	susumu	Rr08p(value)bct-nd	16.9k Ω. CMS0603 0.5%
4	GND jumper:J7,J10		WM8083-ND	Jumper Ground 1mm pitch 10.16 mm
1x3	REV		WM8083-ND	SMB R 114 665 PCB Plated Gold
1x3	DIR		WM8083-ND	SMB R 114 665 PCB Plated Gold
1x2	Imax		WM8083-ND	SMB R 114 665 PCB Plated Gold
1x2	I2		WM8083-ND	SMB R 114 665 PCB Plated Gold
1x2	Battery		WM8083-ND	SMB R 114 665 PCB Plated Gold

3 - PCB:
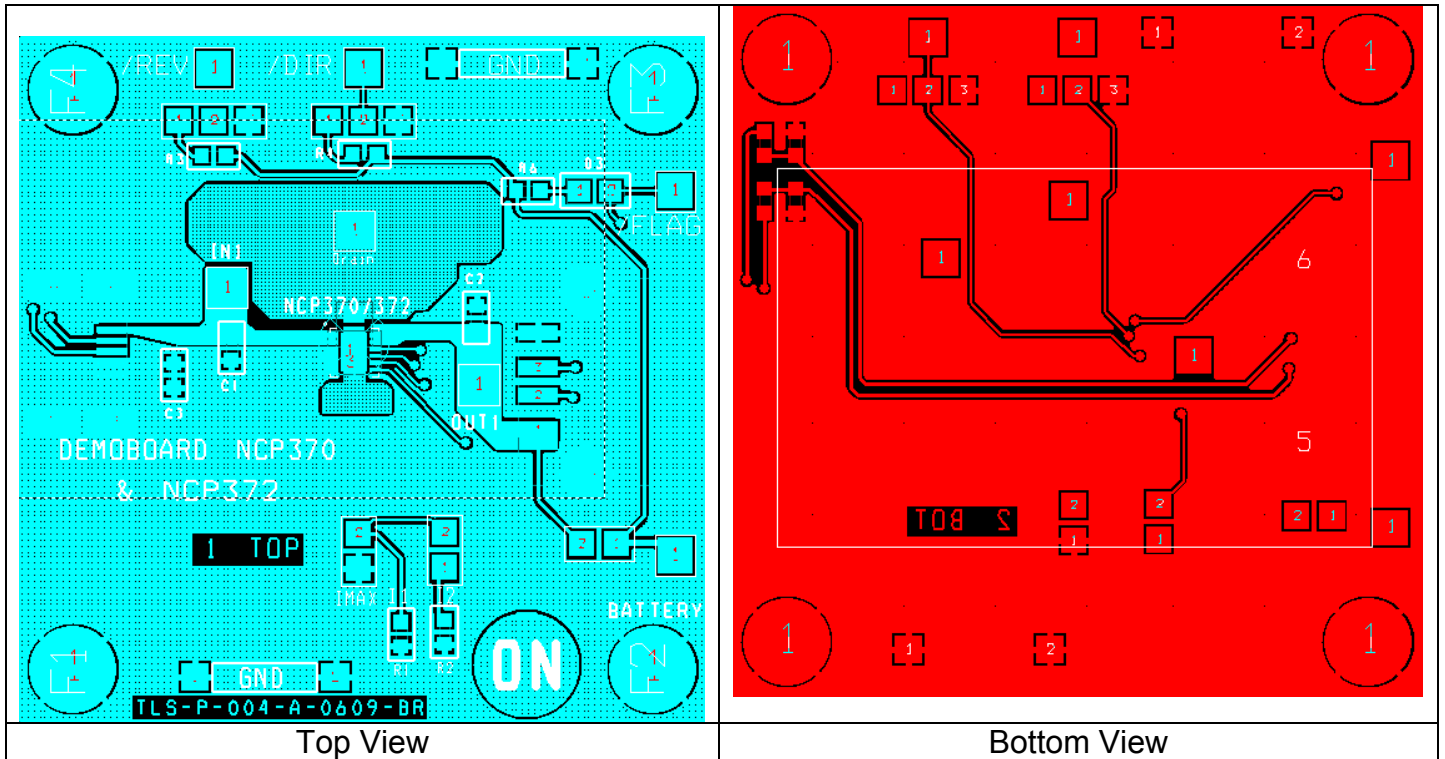
| Top View	Bottom View

4 – Connecting Process

1. Place /REV strap and /DIR strap on left side ("1" logic) (connected to Vbat, through pull up resistor)
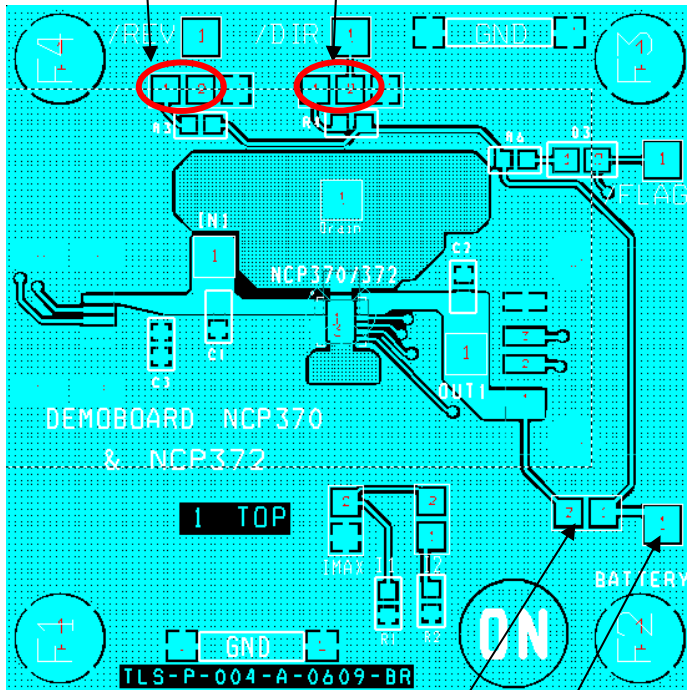
2. Let Battery strap opened.

3. Connect a Battery or power supply (4.2V) on Battery test point. (min 2A capability)

4. Connect strap on Ilim.

ILIM PIN (7)

SW2 (I2)

SW1 (IMAX)

R1=70k   R2=14k

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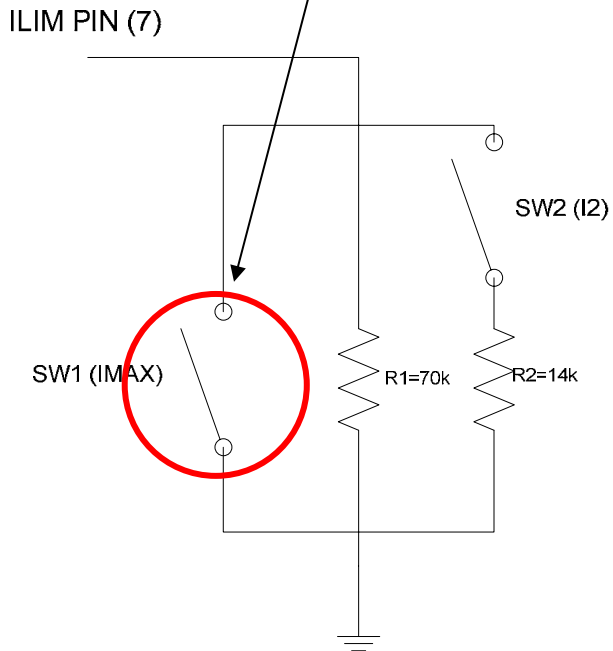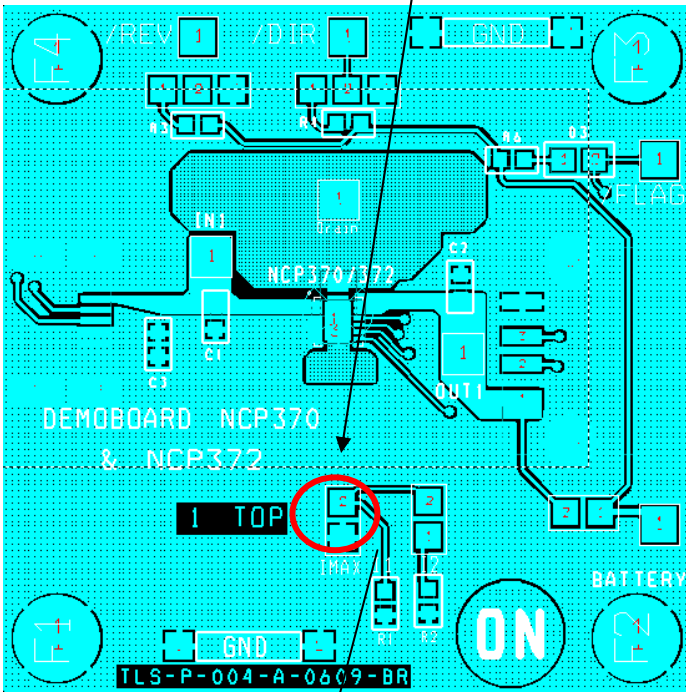
5. Select I limit threshold with pull down resistors connected on pin 7:

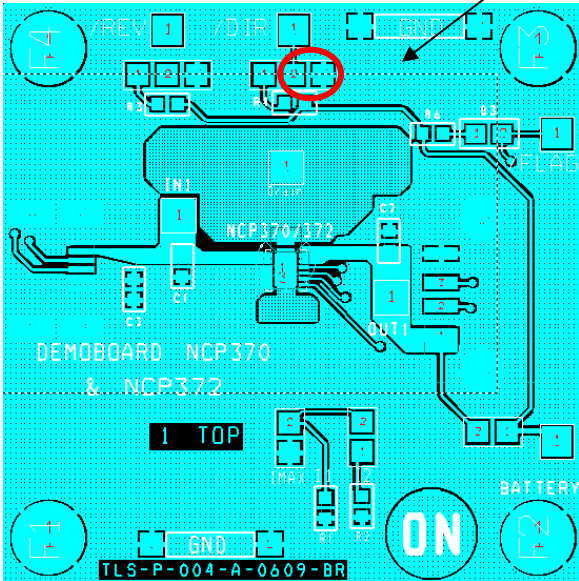| SW1	SW2	I OCP
0	0	500mA
0	1	1A
1	0	1.5A
1	1	1.5A

R1= 70K
R2= 14K

<u>Disable Mode:</u>

6. Connect 10 V capability Vin Supply on IN1 test point.
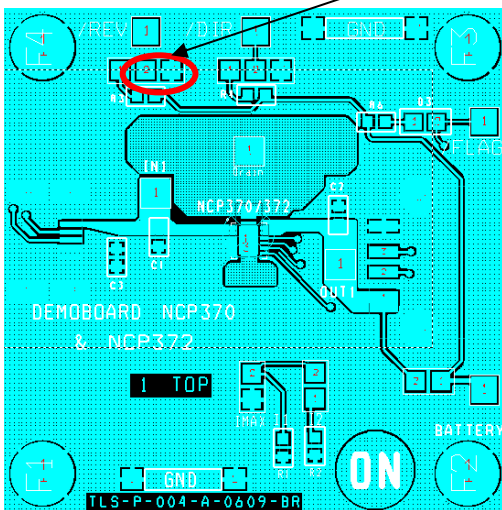   a. Set power supply to 5V ⇨ Check Vout = 0V and LED = off
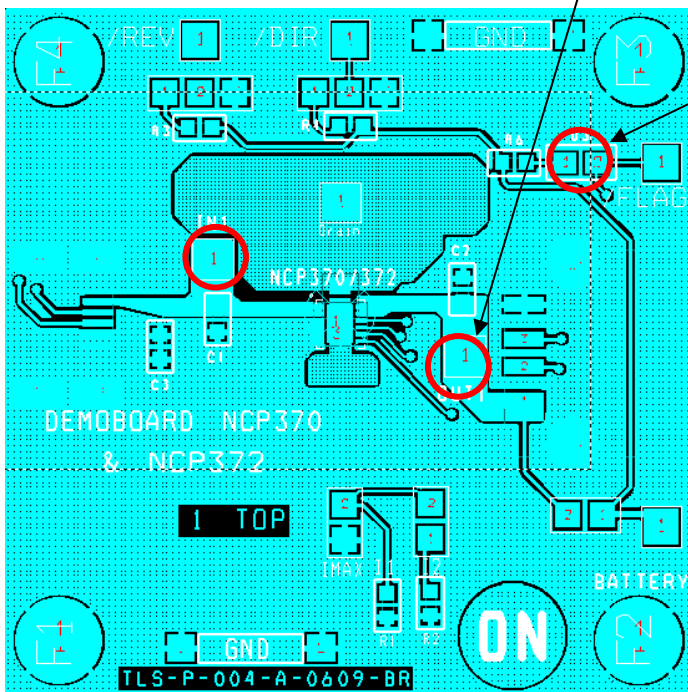
Direct Mode:

7. Switch /DIR from left to right, 1 logic level to 0 logic level

8. Check Vout=5V and Flag LED is still off
9. Set Vin=7V
10. Check Flag LED = on, and Vout is 0V.
11. Switch /REV from left to right, 1 logic level to 0 logic level

12. Check Flag LED = off, and Vout = Vin = 7V.

Disconnect Vin supply

Reverse Mode:

13. Connect Set /DIR=1, /REV=1
Disconnect Vin Power Supply from IN test points.
Connect accessory on IN1 or IN2 test points.

← Put strap to connect Battery to Vout

14. Set /DIR=1, /REV=0: Vout= Vin

If I accessory < I limit then Vin = Vout – Rdson x I

If I accessory > I limit then Vin = 0 (Current regulation)

Power off.

15. Set /DIR=1, /REV=1
16. Disconnect accessory
17. Disconnect Battery

Please contact Application Engineer for further information.
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