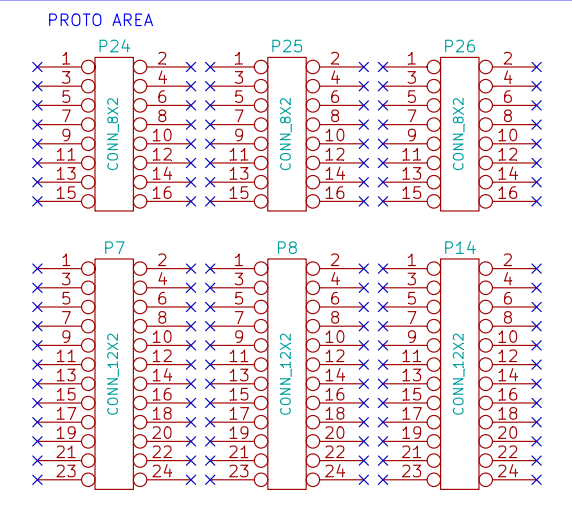


rusEfi

The JP1 jumper is needed because we cannot feed the screen via USB - we would need to disconnect it while the board is on a bench

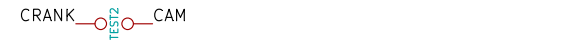


These two jumpers are here to accommodate stm32f4discovery

These four jumpers are test points

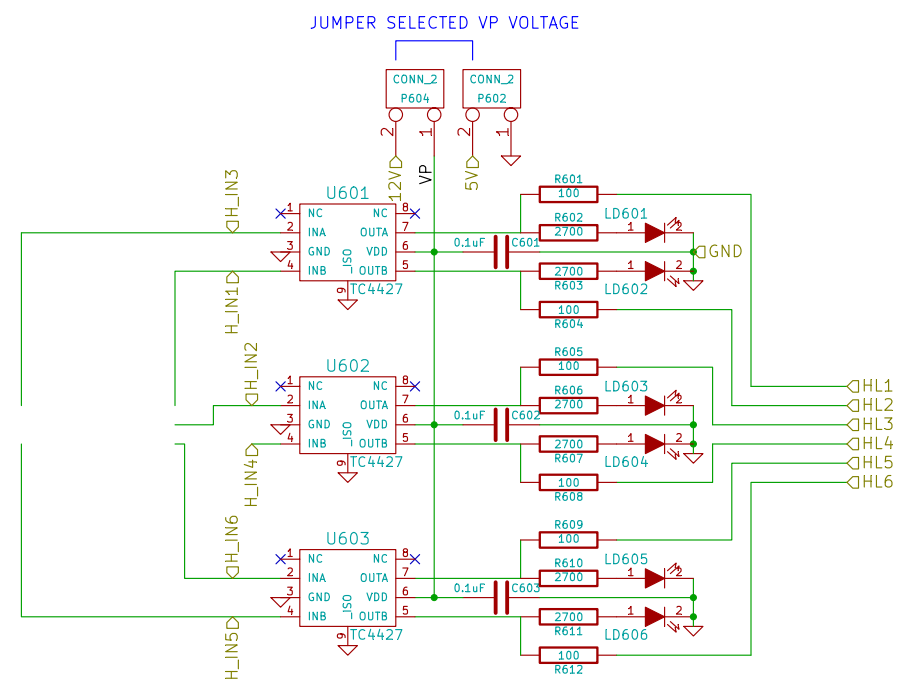
GND JP03 JP02 GND 12V-SWITCH JP07 JP06 GND 5V JP09 JP08 5V  
 GND JP03 JP02 GND GND JP07 JP06 GND 3.3V JP09 JP08 3.3V

That's alternative signal OUTPUT - these traces should be routable to PC6 and PA5 via jumpers. Alternative to W212 and W212 routing of op-amps ch 11 and ch 12

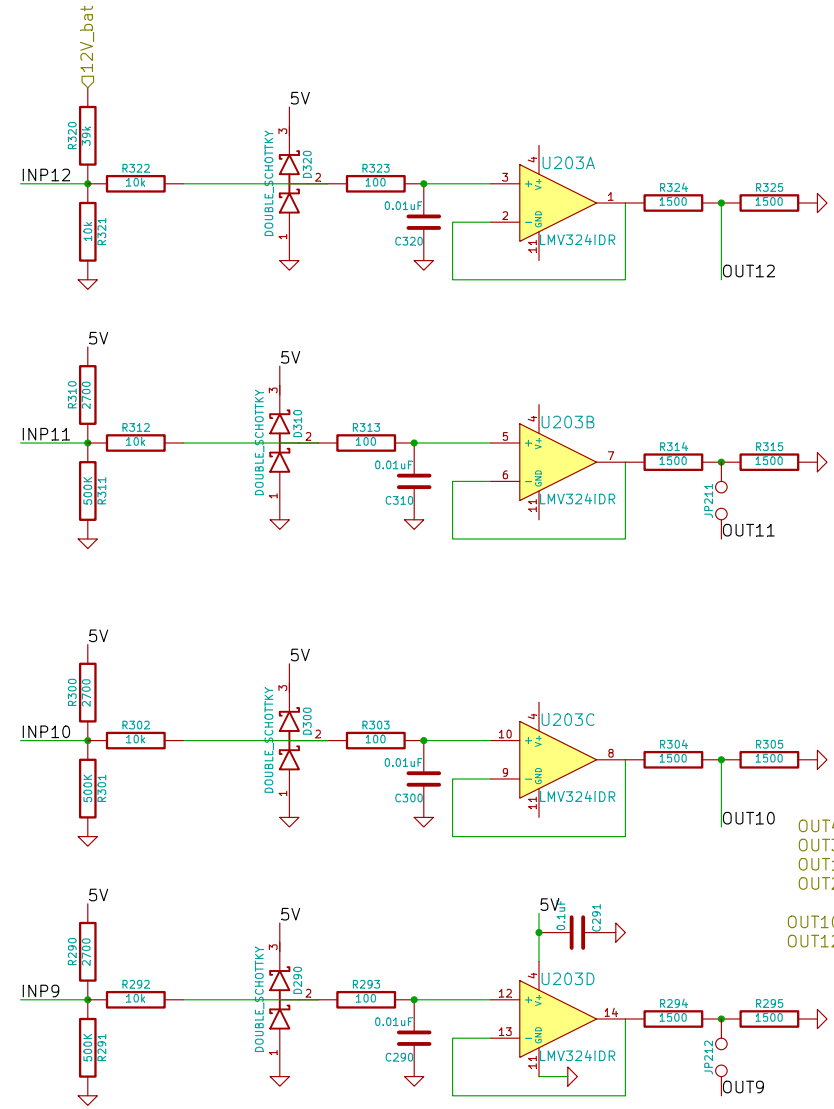
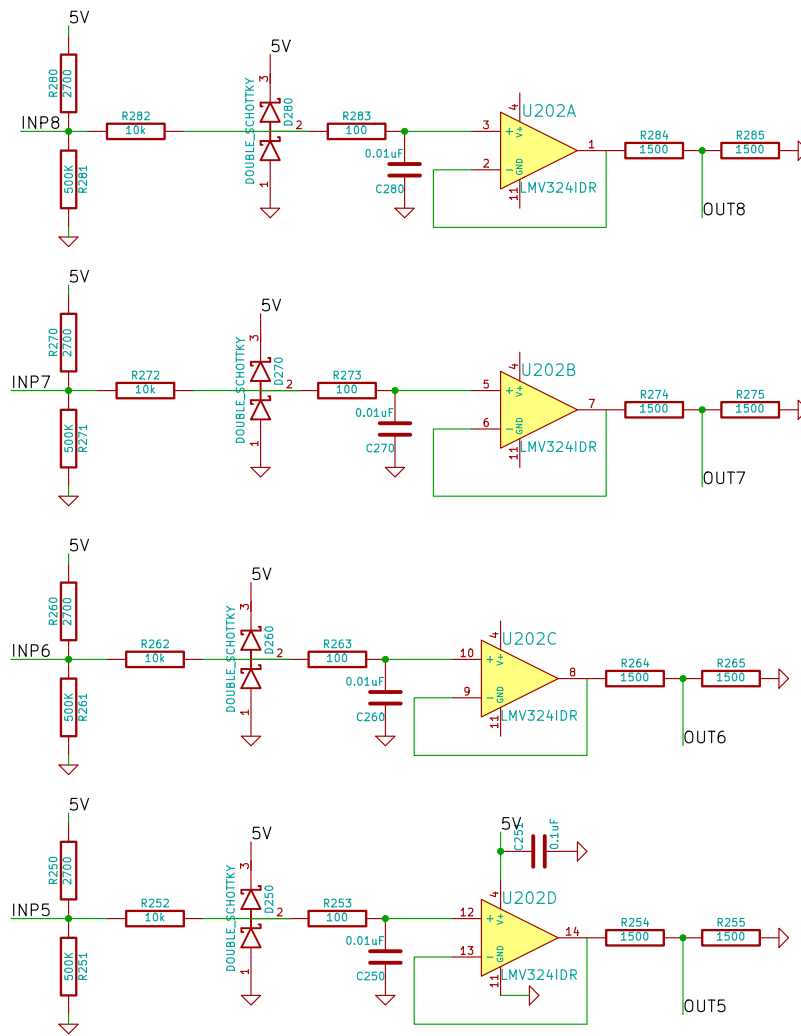
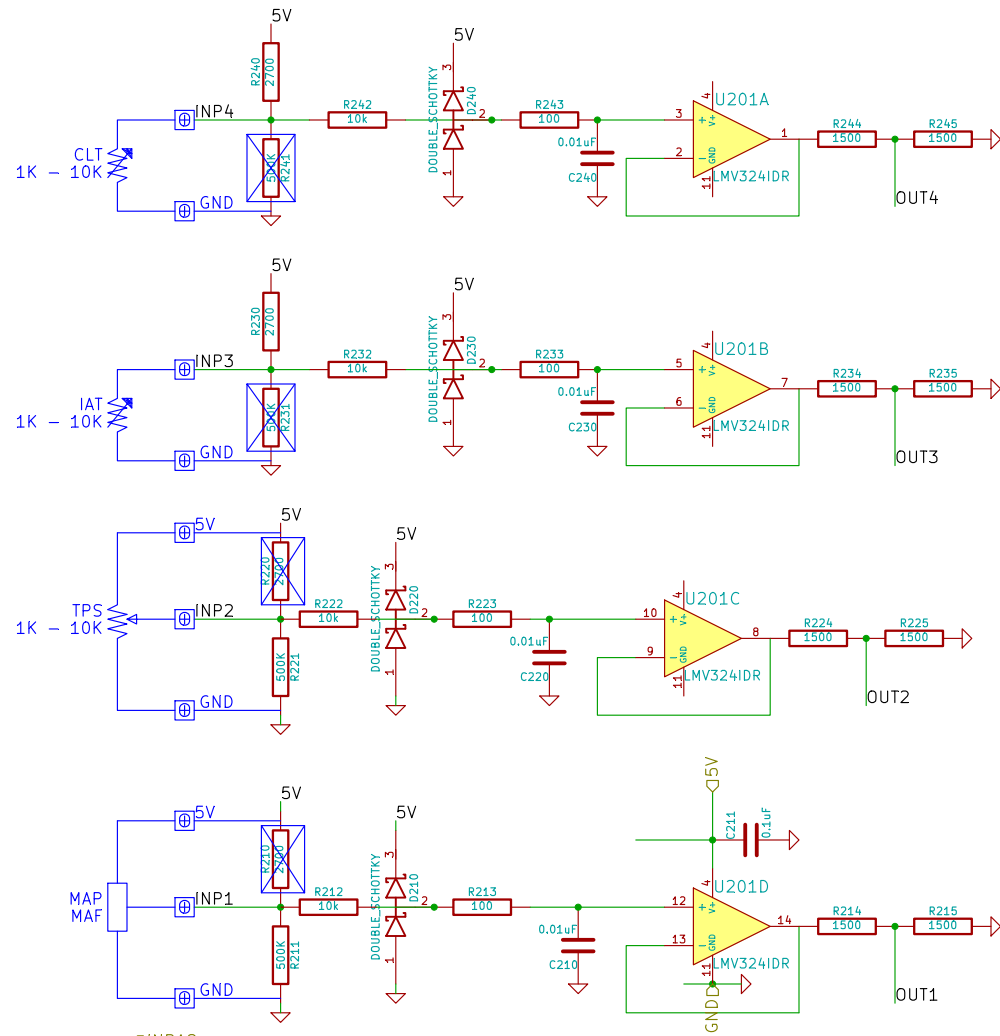


rusEFI.com			
File: frankenso.sch			
Sheet: /			
Title: Frankenso			
Size: B	Date: 3 nov 2014	Rev: .02	
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 1/14	

# 6 channel high / low side driver

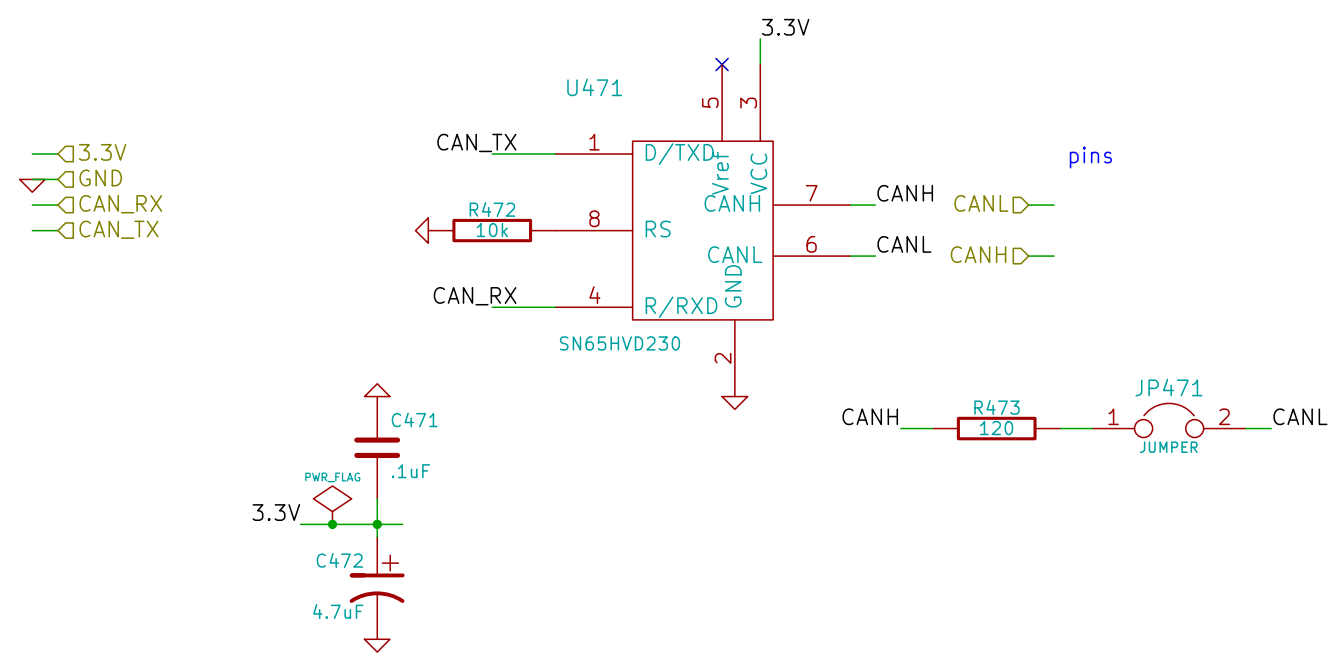


SUGGESTED ENGINE WIRING IN BLUE



- INP12
- INP11
- INP10
- INP9
- INP8
- INP7
- INP6
- INP5
- INP4
- INP3
- INP2
- INP1

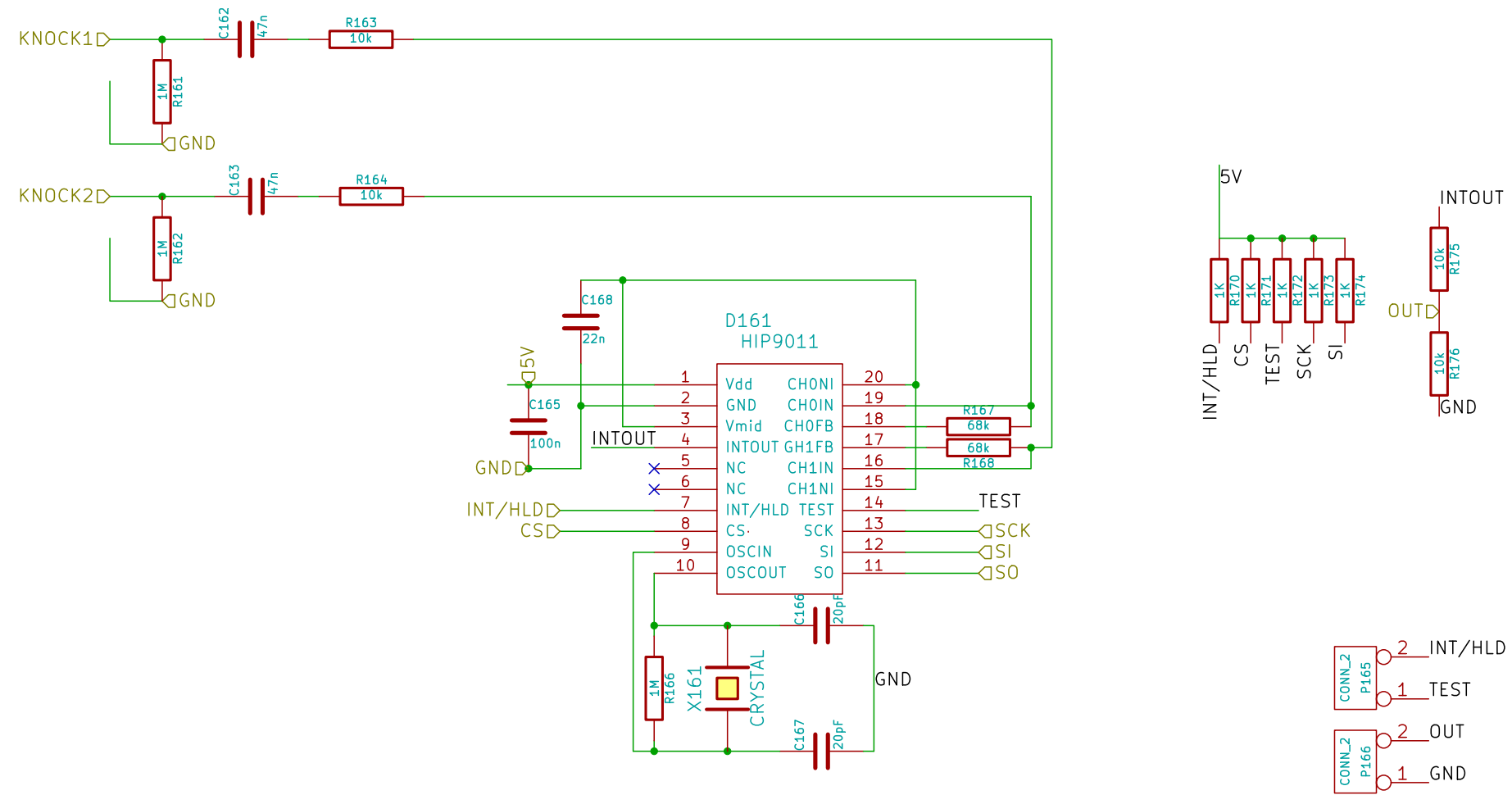
- OUT4
- OUT3
- OUT1
- OUT2
- OUT10
- OUT12
- OUT6
- OUT5
- OUT8
- OUT7
- OUT9
- OUT11



## CAN level shifter

<b>rusEFI.com</b>		
File: can_brd_1.sch		
Sheet: /can_brd_1/		
<b>Title: Frankenso</b>		
Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 4/14

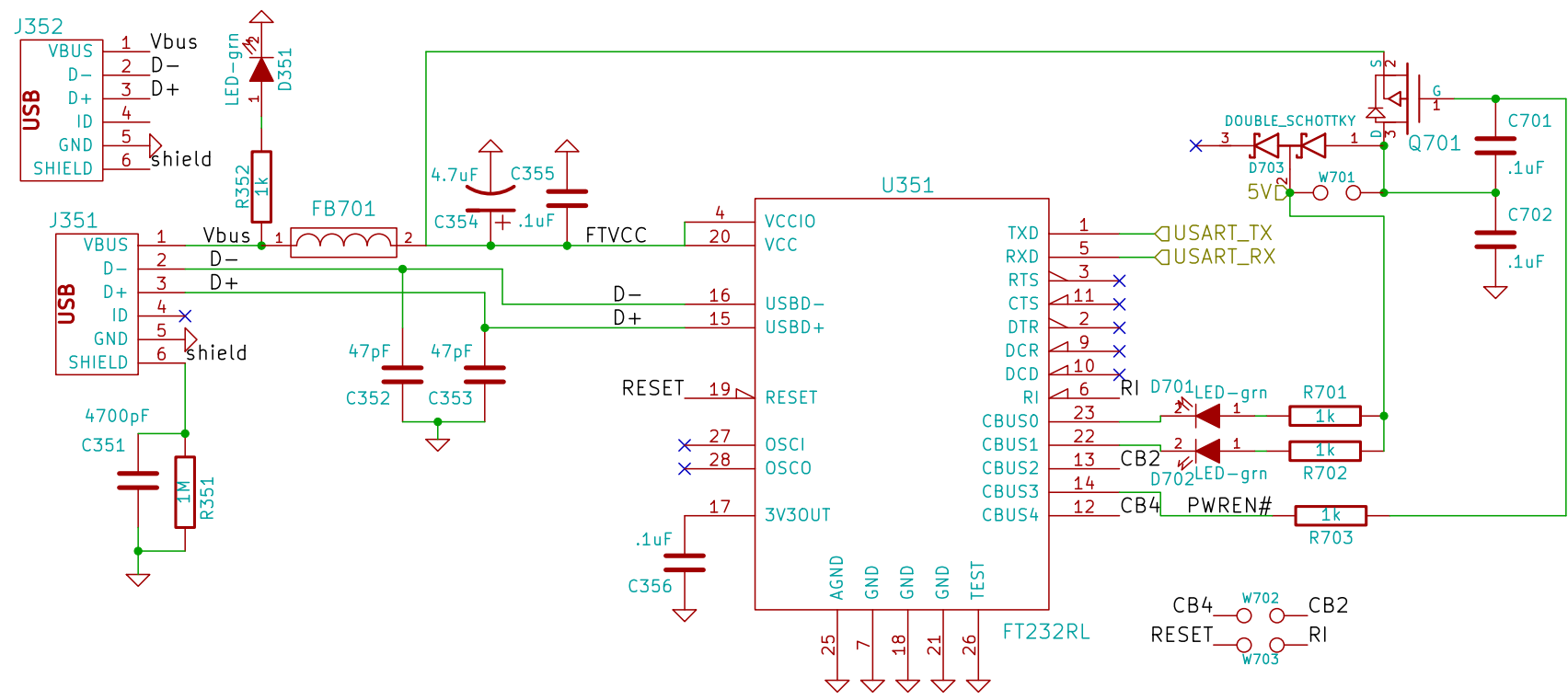
DD\_HIP9011 ver.2  
RusEfi.com



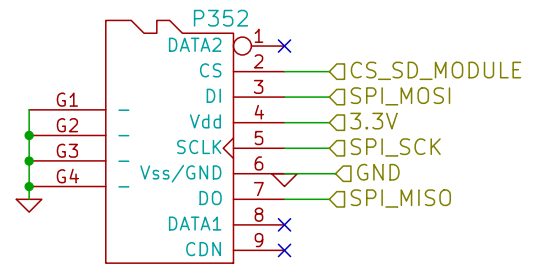
<b>rusEFI.com</b>		
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Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 5/14



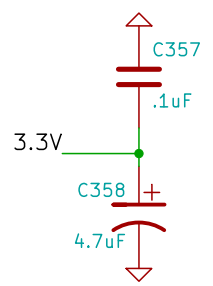
WJ01 IS A BACKUP PLAN. THE VOLTAGE DROP ACROSS D703 MAY BE NOT TOLERABLE, SO WE HAVE A BACK UP PLAN IF WE NEED TO BYPASS THE DIODE WITH A LOWER VOLTAGE DROP



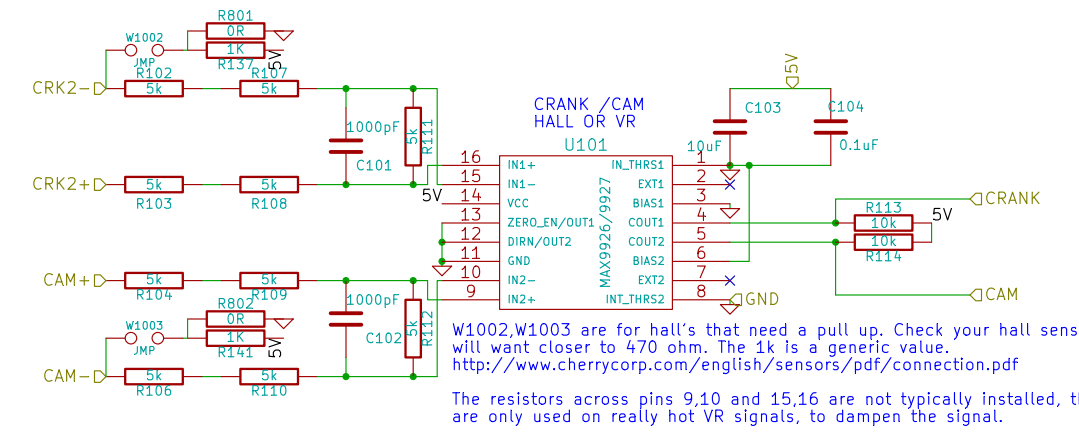
For right conn



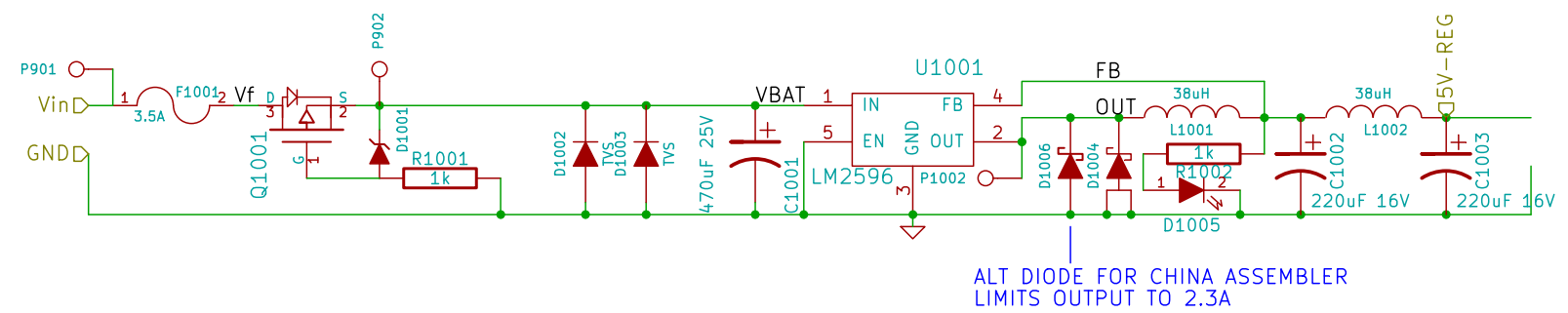
SD card slot  
USB TTL module



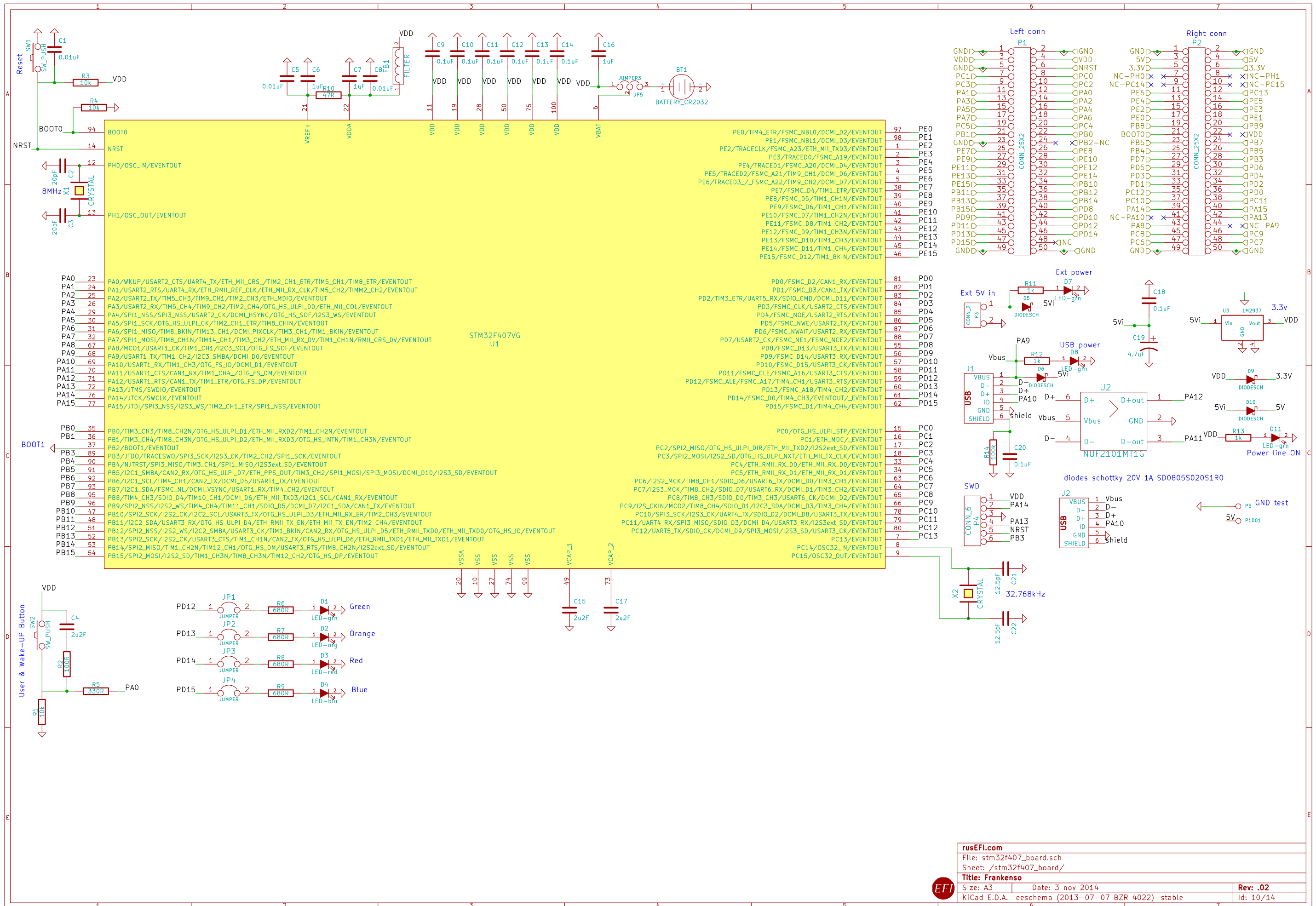
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<b>Title: Frankenso</b>		
Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 7/14

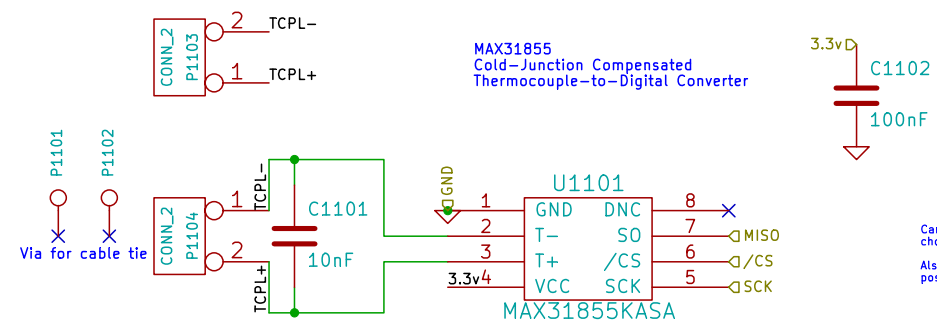






<b>rusEFI.com</b>		
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<b>Title: Frankenso</b>		
Size: A	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 9/14

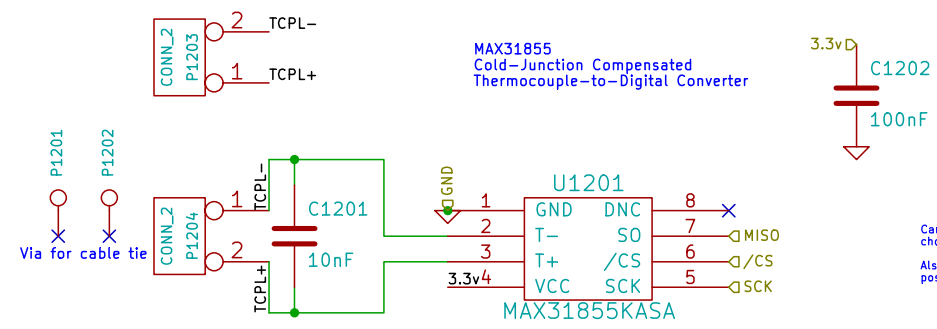




We want a big mass of copper in the TCPL joints, to dampen the cold junction temperature and to make it more measurable with this IC

Datasheet: <http://datasheets.maxim-ic.com/en/ds/MAX31855.pdf>

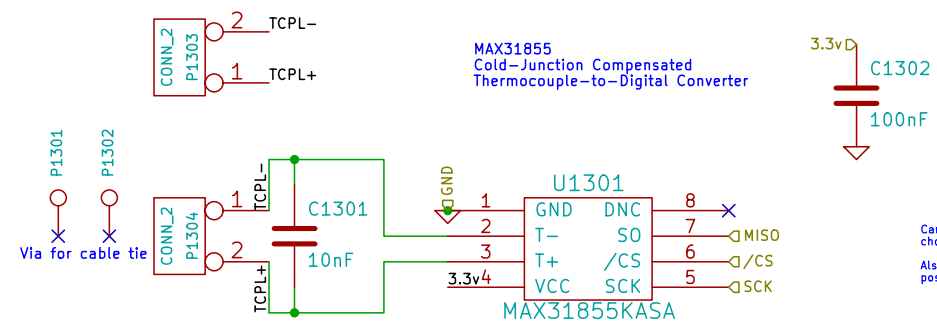
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Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 11/14



We want a big mass of copper in the TCPL joints, to dampen the cold junction temperature and to make it more measurable with this IC

Datasheet: <http://datasheets.maxim-ic.com/en/ds/MAX31855.pdf>

<b>Mrk Industries</b>		
File: thermocouple_module.sch		
Sheet: /thermocouple2/		
<b>Title: Electronic Industrial Temperature Interface (EITI)</b>		
Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 12/14



MAX31855  
Cold-Junction Compensated  
Thermocouple-to-Digital Converter

U1301

MAX31855KASA

3.3v4  
C1302  
100nF

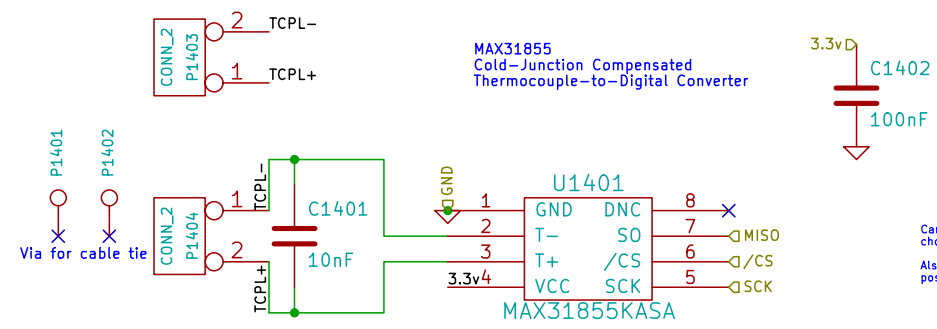
Via for cable tie  
P1301  
P1302

Care must be taken with the conector  
chosen for the TCPL to avoid inaccuracies.  
Also, the connector must be as close as  
possible to the cold-junction compensation.

We want a big mass of copper in the  
TCPL joints, to dampen the cold junction  
temperature and to make it more measurable  
with this IC

Datasheet:  
<http://datasheets.maxim-ic.com/en/ds/MAX31855.pdf>

<b>Mrk Industries</b>		
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<b>Title: Electronic Industrial Temperature Interface (EITI)</b>		
Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 13/14



MAX31855  
Cold-Junction Compensated  
Thermocouple-to-Digital Converter

U1401

MAX31855KASA

3.3v4  
C1402  
100nF

P1401  
P1402  
Via for cable tie

CONN\_2  
P1403  
1 TCPL+  
2 TCPL-

CONN\_2  
P1404  
1 TCPL-  
2 TCPL+

C1401  
10nF

1 GND  
2 T-  
3 T+  
4 VCC  
5 SCK  
6 /CS  
7 MISO  
8 DNC

Care must be taken with the conector  
chosen for the TCPL to avoid inaccuracies.  
Also, the connector must be as close as  
possible to the cold-junction compensation.

We want a big mass of copper in the  
TCPL joints, to dampen the cold junction  
temperature and to make it more measurable  
with this IC

Datasheet:  
<http://datasheets.maxim-ic.com/en/ds/MAX31855.pdf>

<b>Mrk Industries</b>		
File: thermocouple_module.sch		
Sheet: /thermocouple4/		
<b>Title: Electronic Industrial Temperature Interface (EITI)</b>		
Size: A4	Date: 3 nov 2014	<b>Rev: .02</b>
KiCad E.D.A. eeschema (2013-07-07 BZR 4022)-stable		Id: 14/14