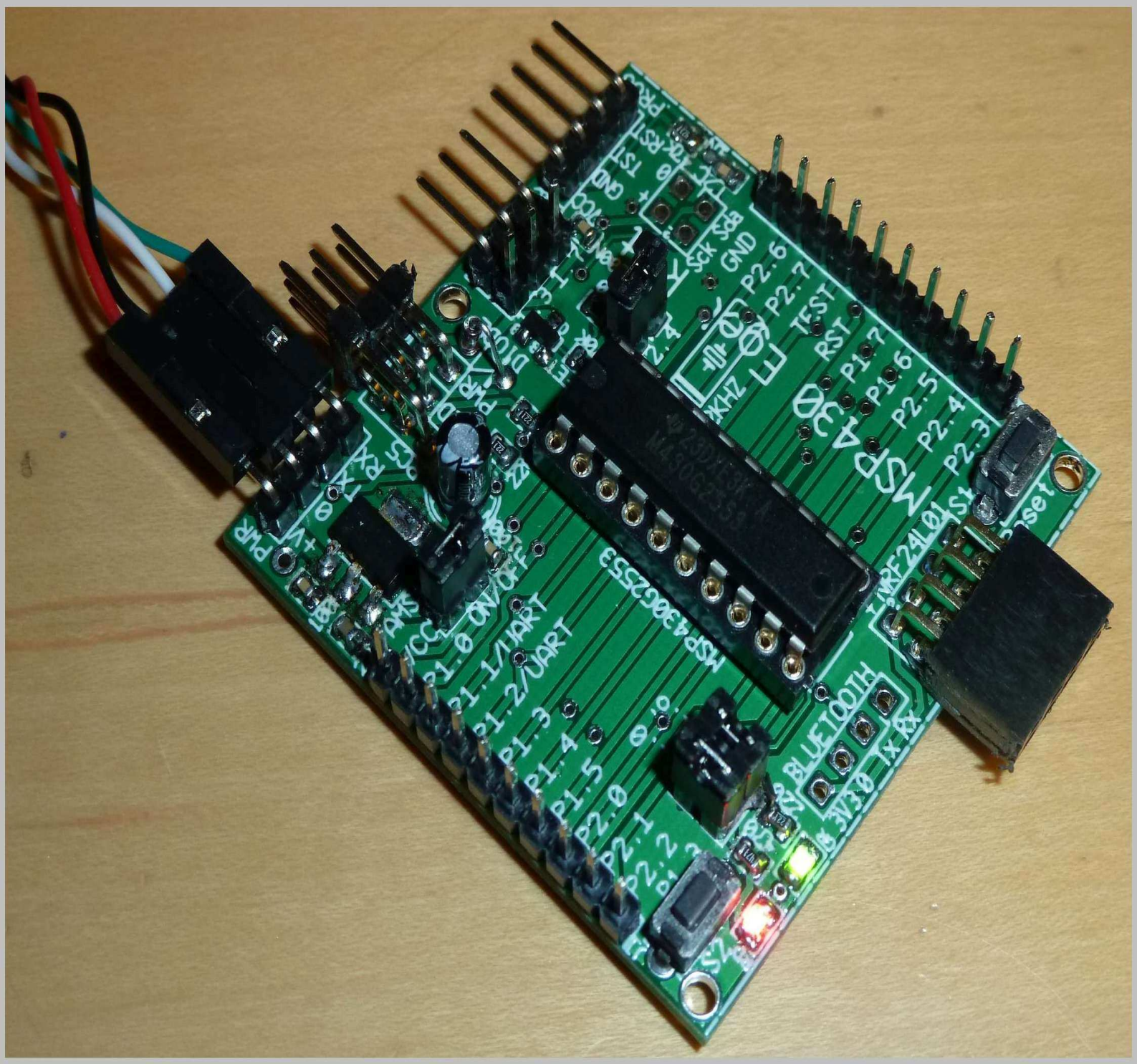
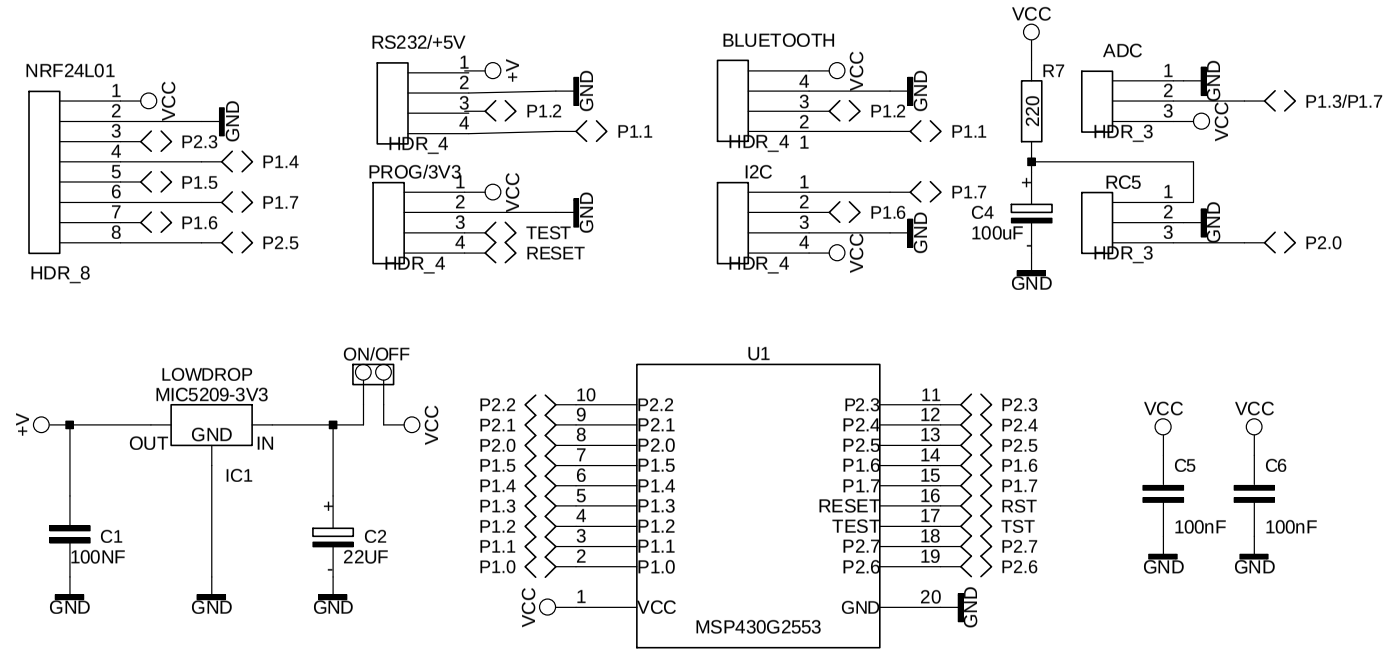
MSP430 Egel kit



MSP430 Egel kit with MSP430G2553

Bit	Function
P1.0	Led Red
P1.1	RXD
P1.2	TXD
P1.3	S2/ADC
P1.4	STE/nRF-CSN
P1.5	CLK/nRF-SCK
P1.6	SCL/nRF-MISO/Led Green
P1.7	SDA/nRF-MOSI/ADC
P2.0	RC5-input
P2.1	IR-Led
P2.2	Free
P2.3	nRF-CE
P2.4	PWM/Relais
P2.5	nRF-IRQ
P2.6	Xout
P2.7	Xin


NRF24L01
HDR_8
RS232/+5V
HDR_4
PROG/3V3
HDR_4
BLUETOOTH
HDR_4
I2C
HDR_4
ADC
HDR_3
RC5
HDR_3
R7
220
C4
100uF
LOWDROP
MIC5209-3V3
IC1
ON/OFF
C1
100NF
C2
22UF
U1
MSP430G2553
C5
100nF
C6
100nF
MSP430 EGEL KIT
D2
GREEN
D1
RED
R2
220
R1
470
S2
R4
470
R5
470K
1N4148
D3
T1
SI2302
R6
220
LED/PWR
HDR_4
R3
47K
S1
C3
1N
X1
32KHz

De Egel kit bestaat uit de volgende onderdelen

- USB RS232/Voedings kabel
- Led print
- Twee printen
- Mini breadboard
- Flink wat connectoren
- Zakje met losse (SMD) onderdelen
- Processor MSP430G2553
- Twee druktoetsen
- Bundel draadjes

Gebruikte soldeerpasta:

http://www.reichelt.de/Flux-Solder-Paste/ULF-10/3/index.html?&ACTION=3&LA=2&ARTICLE=98664&GROUPID=4132&artnr=ULF+10
https://www.conrad.nl/nl/soldeervloeimiddel-stannol-loetfett-100-g-inhoud-100-g-f-sw-21-826102.html
https://www.conrad.nl/nl/soldeerpasta-stannol-165018-inhoud-50-g-f-sw-26-588206.html

Solderen SMD

Gebruik een schone soldeerbout van ongeveer 40 Watt.
De punt van de bout kan het beste een beetje stomp
zijn, als een heel kleine schroevendraaier.
Gebruik een goede best verlichte loupe. Een sterke
leesbril of twee zwakkere over elkaar doen ook wonderen.

Smeer de te solderen pads in met voldoende flux of pasta,
plaats het juiste onderdeel voorzichtig en centreer hem.
Doe een klein beetje soldeer op de punt.

Het is handig niet te korte nagels te hebben daarmee
kun je het onderdeel fixeren. Als het verschuift plaats
je hem opnieuw net zo lang tot het lukt.
Dan houd je de soldeerbout tegen het eerste pad en als

het goed zit vloeit de soldeer van de punt naar het pad
en onderdeel. Zie foto.

Montage

Op beide printen zitten enkele SMD onderdelen.
Kijk goed op de bouwtekeningen voor de juiste plaatsing.
Let op!! De AMS1117 is vervangen door de MIC5209 vanwege
zijn betere prestaties.

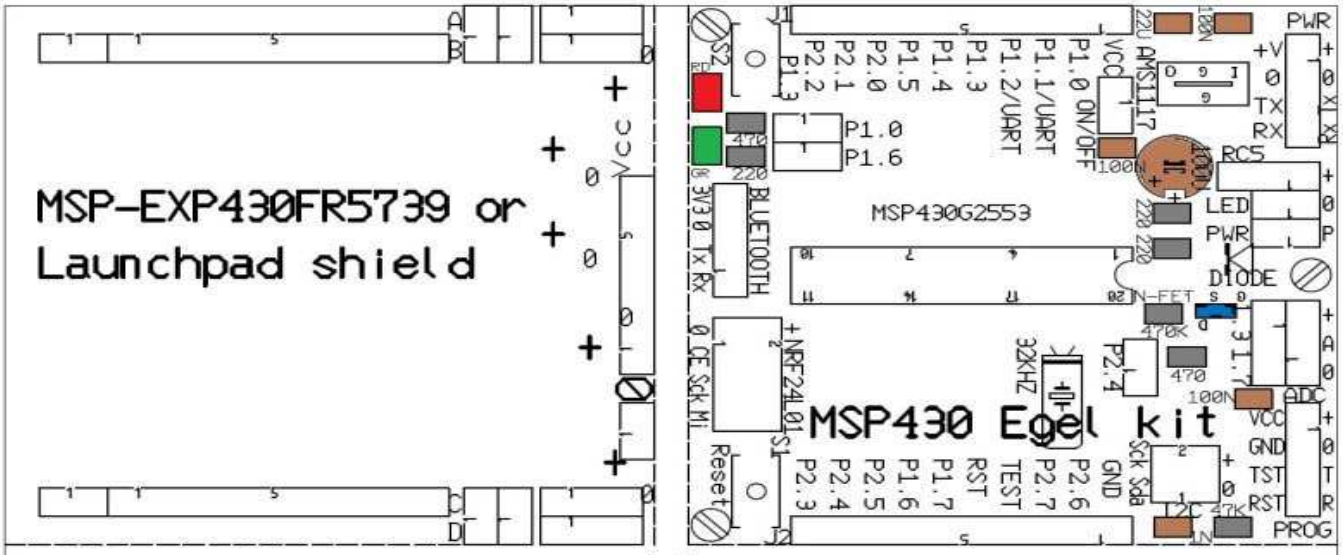
Soldeer eerst alle SMD onderdelen.
Let op pak er maar een tegelijkertijd want ze kunnen er
hetzelfde uitzien. Eerst de weerstanden en condensatoren.
Dan de voedingschip en de mosfet en de leds.
Daarna de resterende onderdelen. Het is aan te bevelen eerst
de laagste onderdelen te monteren etc.

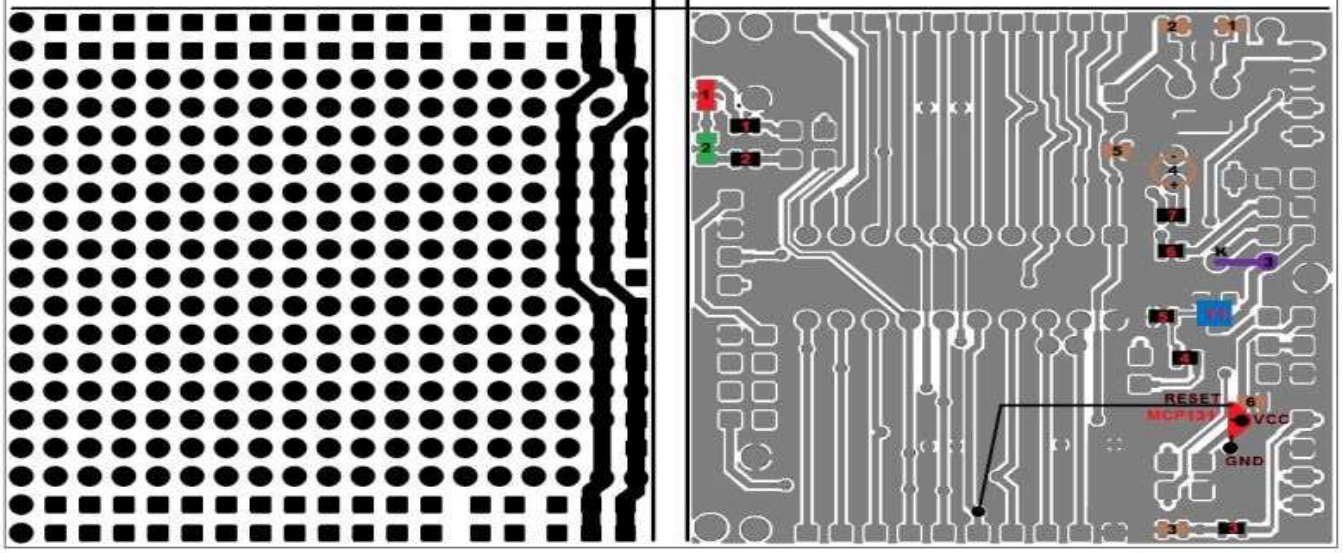
Tenslotte de processor van noForth voorzien en in de DIL-voet
plaatsen. USB kabel op de PWR-connector rechtsboven aansluiten
(let op de juiste volgorde) en dan de USB in de PC steken.

De PC laadt dan de juiste driver (PL2303 Prolific driver).
Op de Egel kit zullen de beide leds oplichten.

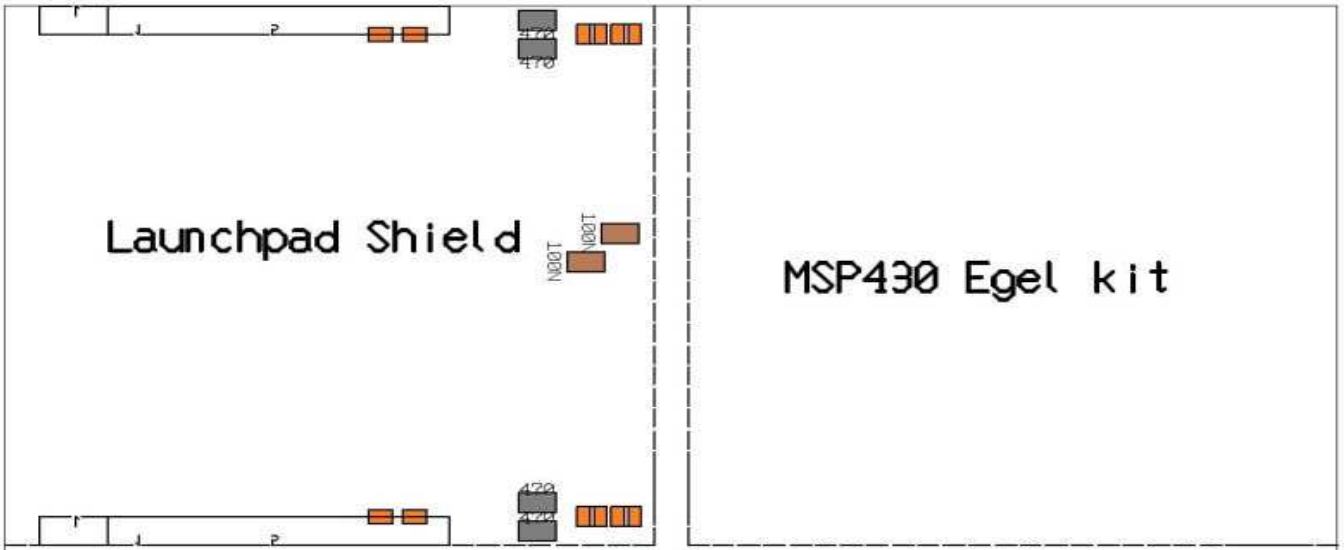
Start dan een terminal programma als Teraterm of Coolterm.
Selecteer de correcte RS232 verbinding en type enter.
Als alles werkt antwoord noForth met OK. Type nu COLD en
de opstartmelding zou moeten verschijnen.

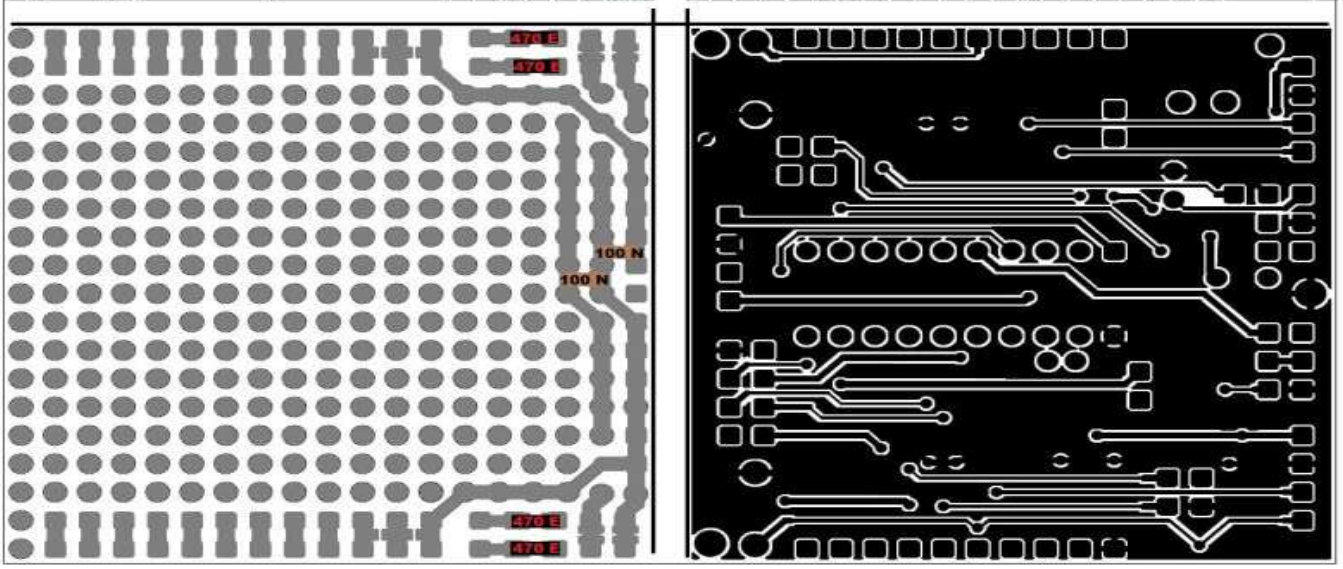
Succes.

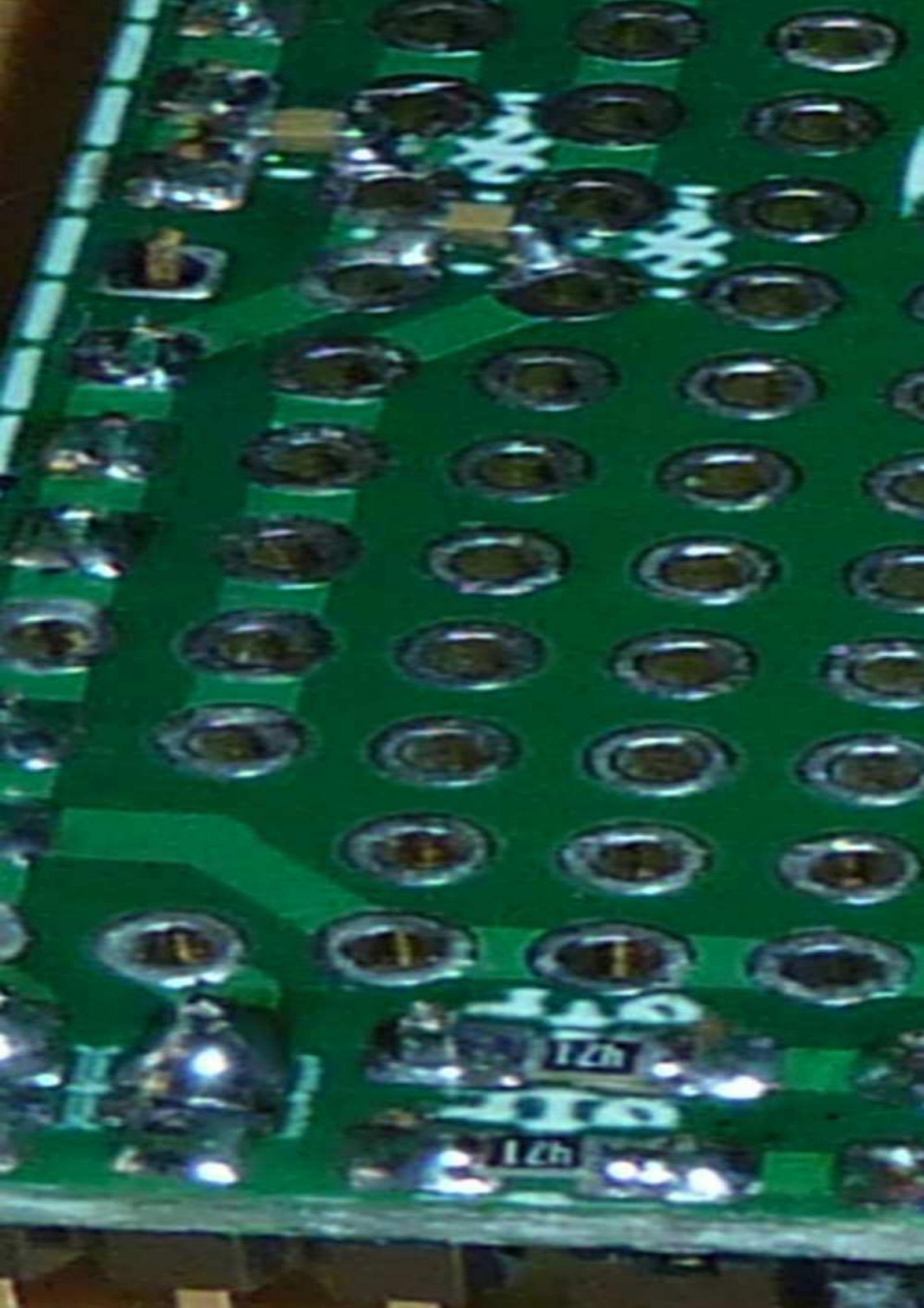




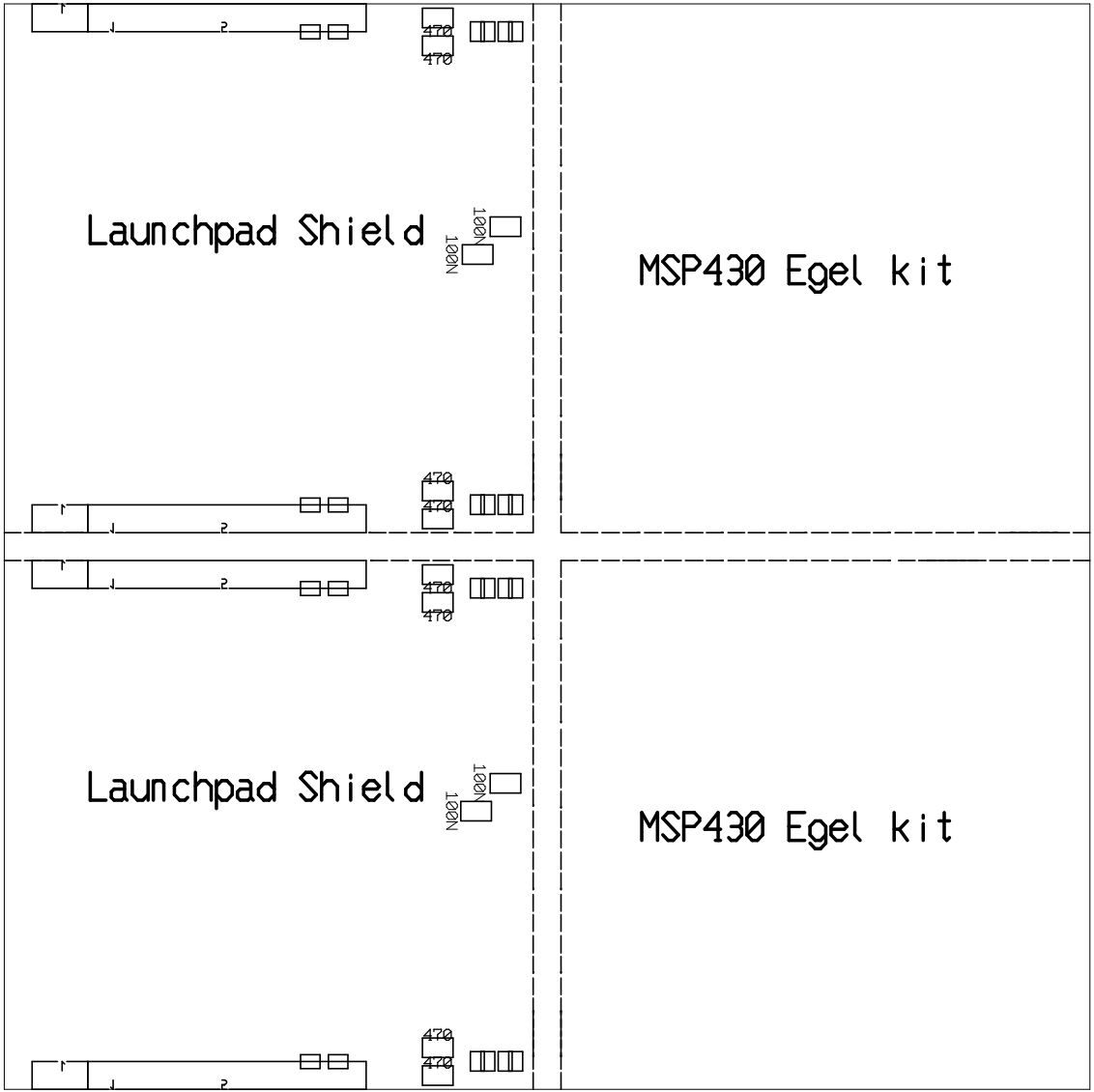
Stuck lijst SND componenten eerst soldeeren !		
R1	470 E	
R2	220 E	
R3	47 K	
R4	470 E	
R5	470 K	
R6	220 E	
R7	220 E	
C1	100 NF	
C2	22 UF	
C3	1 NF	
C4	100 UF	
C5	100 NF	
C6	100 NF	
D1	LED Rood	
D2	LED Groen	
D3	1N4148	
T1	SI 2302	







MSP-EXP430FR5739 or
Launchpad shield
MSP430 Egel kit
MSP430G2553
BLUETOOTH
NRF24L01
AMS1117
32KHZ
N-FET
DIODE
LED
PWR
RC5
ADC
PROG
P1.0
P1.6
Reset


Launchpad Shield
MSP430 Egel kit
Launchpad Shield
MSP430 Egel kit

MIC5209

500mA Low-Noise LDO Regulator

General Description

The MIC5209 is an efficient linear voltage regulator with very low dropout voltage, typically 10mV at light loads and less than 500mV at full load, with better than 1% output voltage accuracy.

Designed especially for hand-held, battery-powered devices, the MIC5209 features low ground current to help prolong battery life. An enable/shutdown pin on SO-8 and TO-263-5 versions can further improve battery life with near-zero shutdown current.

Key features include reversed-battery protection, current limiting, overtemperature shutdown, ultra-low-noise capability (SO-8 and TO-263-5 versions), and availability in thermally efficient packaging. The MIC5209 is available in adjustable or fixed output voltages.

For space-critical applications where peak currents do not exceed 500mA, see the MIC5219.

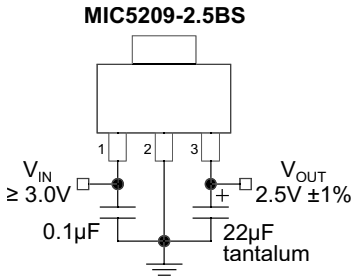
Features

- Meets Intel® Slot 1 and Slot 2 requirements
- Guaranteed 500mA output over the full operating temperature range
- Low 500mV maximum dropout voltage at full load
- Extremely tight load and line regulation
- Thermally-efficient surface-mount package
- Low temperature coefficient
- Current and thermal limiting
- Reversed-battery protection
- No-load stability
- 1% output accuracy
- Ultra-low-noise capability in SO-8 and TO-263-5
- Ultra-small 3mm x 3mm MLF™ package

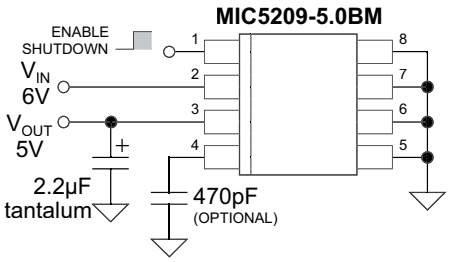
Applications

- Pentium II Slot 1 and Slot 2 support circuits
- Laptop, notebook, and palmtop computers
- Cellular telephones
- Consumer and personal electronics
- SMPS post-regulator/dc-to-dc modules
- High-efficiency linear power supplies

Typical Applications



3.3V Nominal-Input Slot-1 Power Supply



Ultra-Low-Noise 5V Regulator

TSM2302

20V N-Channel Enhancement Mode MOSFET

SOT-23

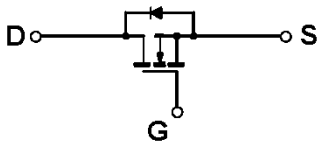
Pin assignment:
1. Gate
2. Source
3. Drain

V_{DS} = 20V
$R_{DS\ (on)}$, Vgs @ 4.5V, Ids @ 3.6A = 65mΩ
$R_{DS\ (on)}$, Vgs @ 2.5V, Ids @ 3.1A = 95mΩ

Features

- ✧ Advanced trench process technology
- ✧ High density cell design for ultra low on-resistance
- ✧ Excellent thermal and electrical capabilities
- ✧ Compact and low profile SOT-23 package

Block Diagram



Ordering Information

Part No.	Packing	Package
TSM2302CX	Tape & Reel	SOT-23

Absolute Maximum Rating (Ta = 25℃ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20V	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current		I_D	2.4	A
Pulsed Drain Current		I_{DM}	10	A
Maximum Power Dissipation	Ta = 25°C	P_D	1.25	W
	Ta = 75°C		0.8	
Operating Junction Temperature		T_J	+150	°C
Operating Junction and Storage Temperature Range		T_J, T_{STG}	- 55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Lead Temperature (1/8" from case)	T_L	5	S
Junction to Ambient Thermal Resistance (PCB mounted)	Rθja	100	°C/W

Note: Surface mounted on FR4 board t<=5sec.

Product Description

Specification of TACT switch Series

Temperature :-25°~+-85°C

Rated Load :DC12V 0.1A

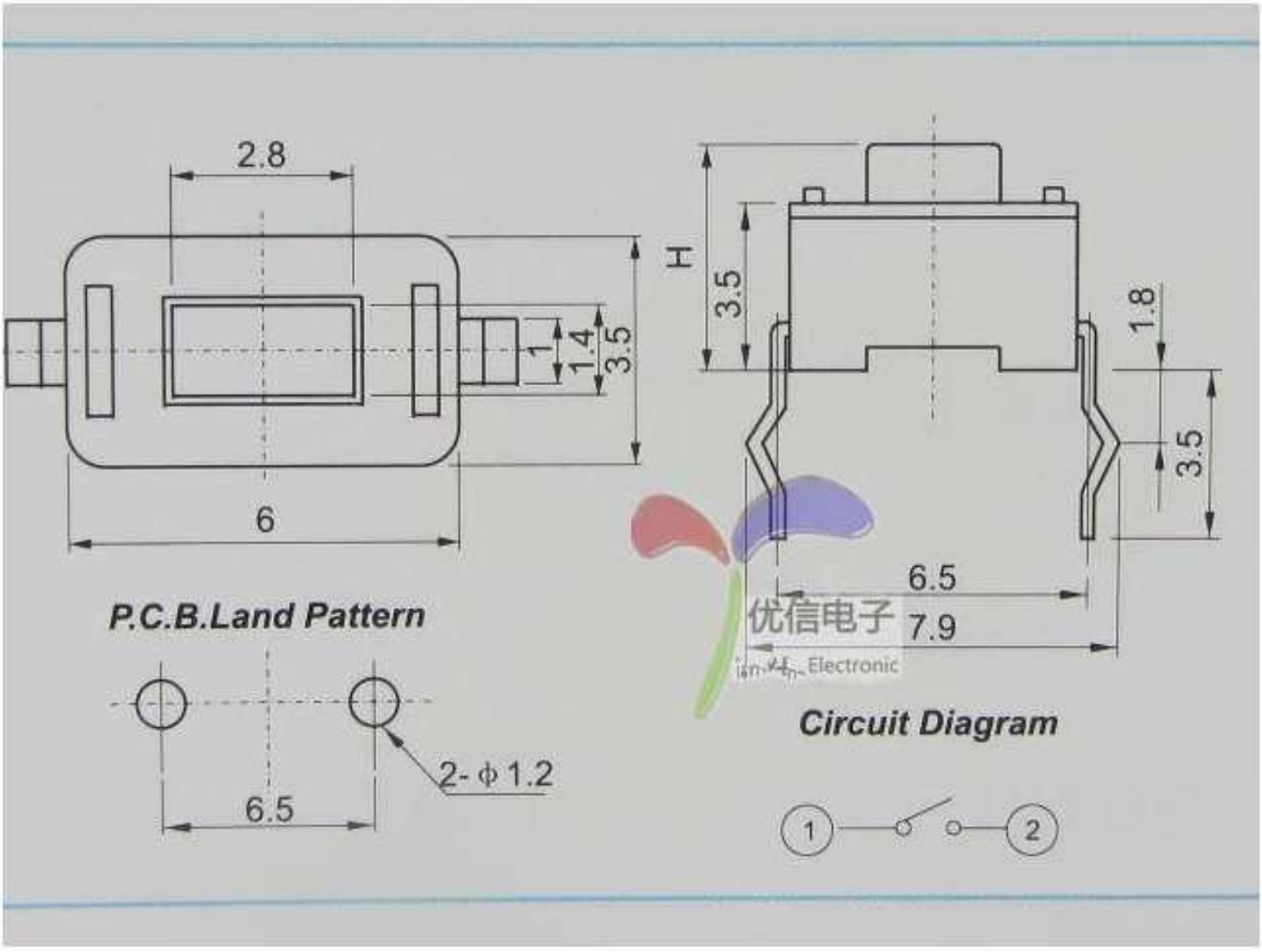
Contact Resistance :<=0.03Ω

Withstand Voltage :AC250 V (50Hz) /MIN

Actuation Force :1.3+-0.5N

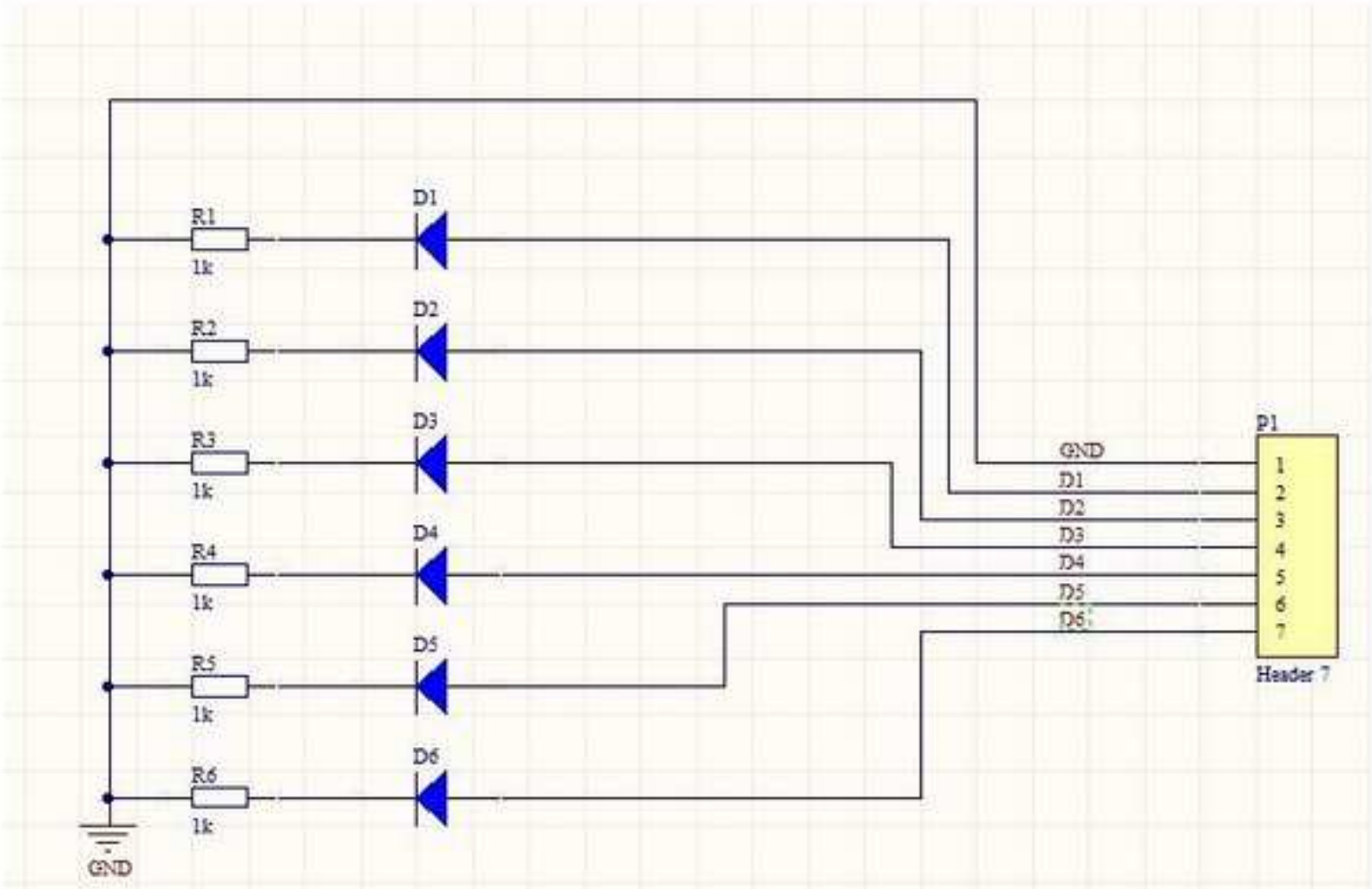
Lnsulation Resistance :>=100MΩ

Life :100000 times



PCB:

Circuit schematics :



Features:

- Brand new and high quality
- Supports baud rate from 75 to 128000
- Support Linux, Mac OS, WinCE and Windows (XP, Vista Win 7 inc 64 Bit Edition)
- PL2303HX USB to Serial Controller adopted
- 4 connecting wires, 2.54mm pitch type
- Red Wire == VCC, (+5V)
- Black Wire ==GND
- Green Wire == TXD
- White Wire == RXD
- Length: Approx 1M

Connection method: Brush requires only three lines, generally used only three signal lines RX TX GND, VCC.

Note: After setting 3.3V and 5.0V output (this is to the microcontroller power supply, no need to upgrade the machine) please put the small plate unplug from the computer, set the jumper to take, do not charged to avoid damage to the device.

Package Includes:
1 X PL2303HX USB TO TTL Serial Cable

MCP102/103/121/131

Micropower Voltage Supervisors

Features

- Ultra low supply current: 1.75 µA (steady-state max.)
- Precision monitoring options of:
  - 1.90V, 2.32V, 2.63V, 2.93V, 3.08V, 4.38V and 4.63V
- Resets microcontroller in a power-loss event
- $\overline{RST}$ pin (Active-low):
  - **MCP121:** Active-low, open-drain
  - **MCP131:** Active-low, open-drain with internal pull-up resistor
  - **MCP102** and **MCP103:** Active-low, push-pull
- Reset Delay Timer (120 ms delay, typ.)
- Available in SOT23-3, TO-92 and SC-70 packages
- Temperature Range:
  - Extended: -40°C to +125°C (**except MCP1XX-195**)
  - Industrial: -40°C to +85°C (**MCP1XX-195 only**)
- Pb-free devices

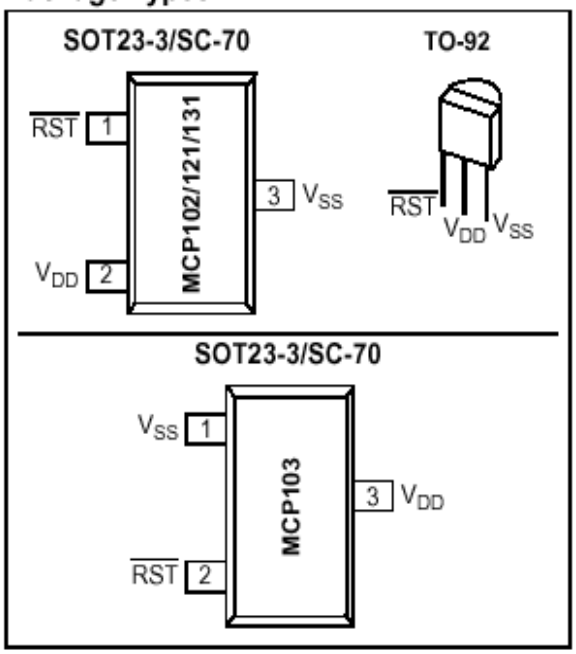
Applications

- Critical Microcontroller and Microprocessor Power-monitoring Applications
- Computers
- Intelligent Instruments
- Portable Battery-powered Equipment

General Description

The MCP102/103/121/131 are voltage supervisor devices designed to keep a microcontroller in reset until the system voltage has reached and stabilized at the proper level for reliable system operation. Table 1 shows the available features for these devices.

Package Types



Block Diagram

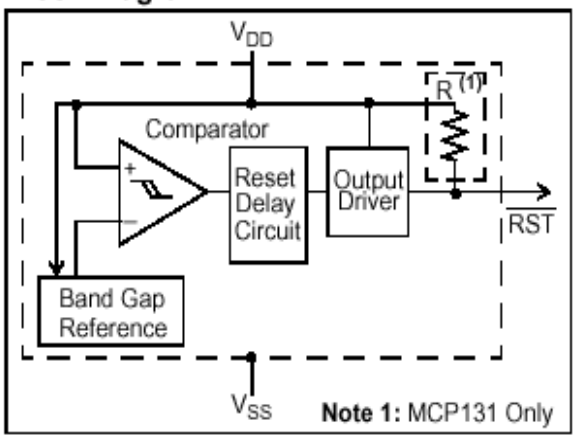
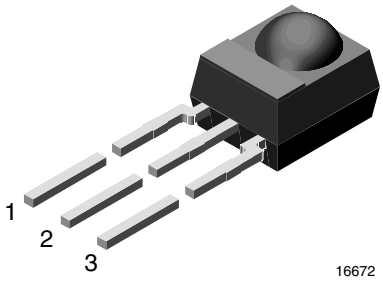


TABLE 1: DEVICE FEATURES

Device	Output		Reset Delay (typ)	Package Pinout (Pin # 1, 2, 3)	Comment
	Type	Pull-up Resistor			
MCP102	Push-pull	No	120 ms	$\overline{RST}$, V_{DD}, V_{SS}	
MCP103	Push-pull	No	120 ms	Vss, $\overline{RST}$, V_{DD}	
MCP121	Open-drain	External	120 ms	$\overline{RST}$, V_{DD}, V_{SS}	
MCP131	Open-drain	Internal (~95 kΩ)	120 ms	$\overline{RST}$, V_{DD}, V_{SS}	
MCP111	Open-drain	External	No	V_{OUT}, V_{SS}, V_{DD}	See **MCP111/112** Data Sheet (DS21889)
MCP112	Push-Pull	No	No	V_{OUT}, V_{SS}, V_{DD}	See **MCP111/112** Data Sheet (DS21889)

IR Receiver Modules for Remote Control Systems



FEATURES

- Very low supply current
- Photo detector and preamplifier in one package
- Internal filter for PCM frequency
- Improved shielding against EMI
- Supply voltage: 2.5 V to 5.5 V
- Improved immunity against ambient light
- Insensitive to supply voltage ripple and noise
- Material categorization:
  for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

MECHANICAL DATA

Pinning for TSOP341.., TSOP343.., TSOP345..:

1 = OUT, 2 = GND, 3 = V_S

Pinning for TSOP321.., TSOP323.., TSOP325..:

1 = OUT, 2 = V_S, 3 = GND

DESCRIPTION

These products are miniaturized receivers for infrared remote control systems. A PIN diode and a preamplifier are assembled on a lead frame, the epoxy package acts as an IR filter.

The demodulated output signal can be directly connected to a microprocessor for decoding. The TSOP321.., TSOP341.. are legacy products compatible with all common IR remote control data formats. The TSOP323.., TSOP343 are optimized to better suppress spurious pulses from energy saving fluorescent lamps. The TSOP325.., TSOP345.. have an excellent noise suppression. They are immune to dimmed LCD backlighting and any fluorescent lamps. AGC3 and AGC5 may also suppress some data signals in case of continuous transmission. Between these three receiver types, the TSOP323.., TSOP343.. are preferred. Customers should initially try the TSOP323.., TSOP343.. in their design.

This component has not been qualified according to automotive specifications.

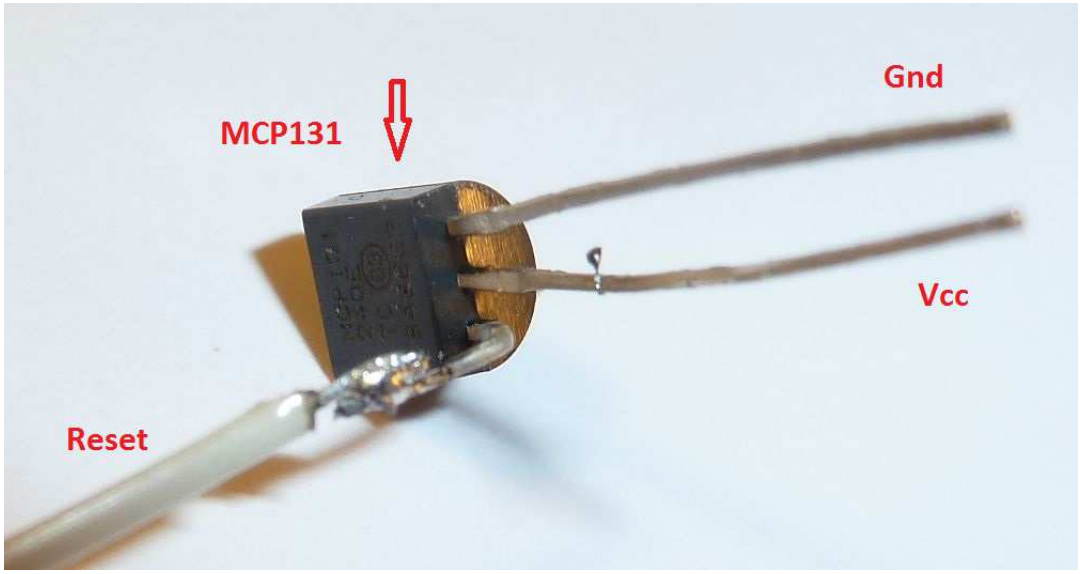
PARTS TABLE

AGC		LEGACY, FOR SHORT BURST REMOTE CONTROLS (AGC1)		NOISY ENVIRONMENTS AND SHORT BURSTS (AGC3)		VERY NOISY ENVIRONMENTS AND SHORT BURSTS (AGC5)	
Carrier frequency	30 kHz	TSOP34130	TSOP32130	TSOP34330	TSOP32330	TSOP34530	TSOP32530
	33 kHz	TSOP34133	TSOP32133	TSOP34333	TSOP32333	TSOP34533	TSOP32533
	36 kHz	TSOP34136	TSOP32136	TSOP34336	TSOP32336 (1)(2)	TSOP34536	TSOP32536 (1)(2)
	38 kHz	TSOP34138	TSOP32138	TSOP34338	TSOP32338 (3)(4)(5)(6)	TSOP34538	TSOP32538 (3)(4)(5)
	40 kHz	TSOP34140	TSOP32140	TSOP34340	TSOP32340	TSOP34540	TSOP32540
	56 kHz	TSOP34156	TSOP32156	TSOP34356	TSOP32356	TSOP34556	TSOP32556
Package		Mold					
Pinning		1 = OUT, 2 = GND, 3 = V_S	1 = OUT, 2 = V_S, 3 = GND	1 = OUT, 2 = GND, 3 = V_S	1 = OUT, 2 = V_S, 3 = GND	1 = OUT, 2 = GND, 3 = V_S	1 = OUT, 2 = V_S, 3 = GND
Dimensions (mm)		6.0 W x 6.95 H x 5.6 D					
Mounting		Leaded					
Application		Remote control					
Best remote control code		(1) MCIR (2) RCMM (3) Mitsubishi (4) RECS-80 Code (5) r-map (6) XMP-1, XMP-2					

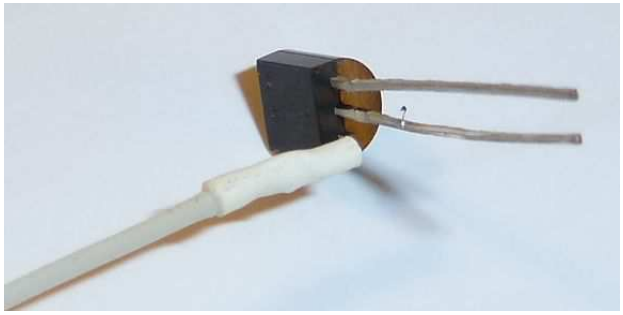
Patch voor de MCP131-24 op Egel kit

Om de inhoud van het Flash geheugen van de MSP430G2553 te beschermen is een SVS (Supply Voltage Supervisor) nodig. In plaatjes getoond hoe die op de Egel kit geplaatst wordt.

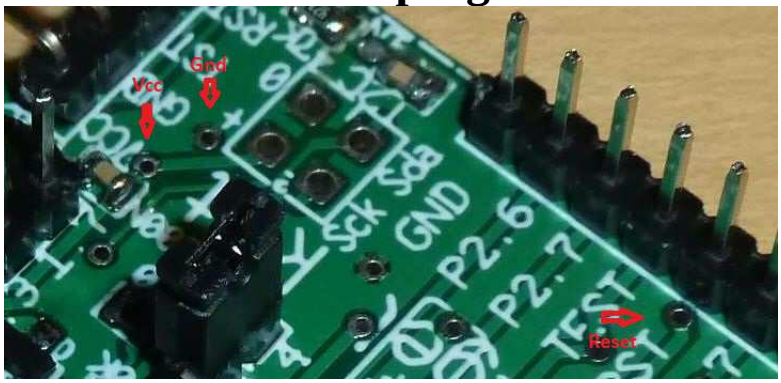
1) Voorbehandelen MCP131



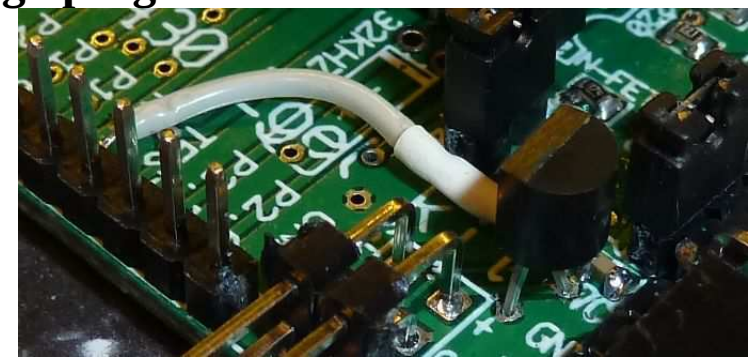
2) Krimpkous voor isolatie



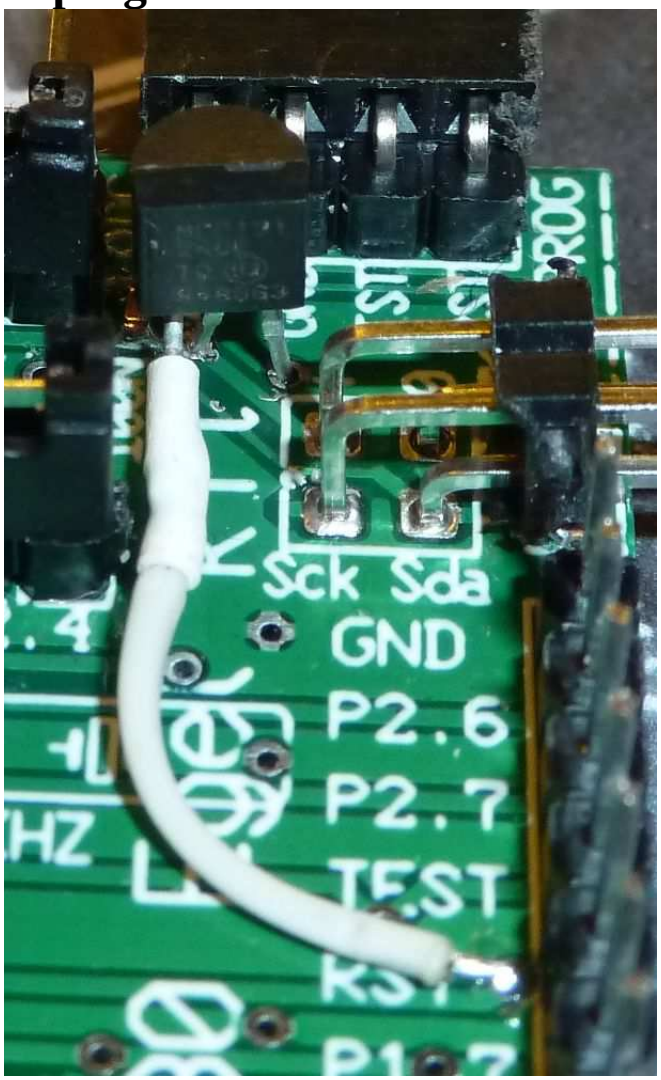
4) Patchpunten voor MCP131 op Egel kit



3) Plaatsing op Egel kit



4) Gesoldeerd op Egel kit



Na deze behandeling is noForth en je eigen programma's veilig aan boord van de Egel kit!

MSP430 Eval kit

MSP-EXP430FR5739 or
Launchpad shield