

Table of Contents

1. Power Input	Sheet: Power Input File: PowerInput.sch
2. Controller Supply	Sheet: Controller Supply File: ControllerSupply.sch
3. Display Supply	Sheet: Display Supply File: DisplaySupply.sch
4. Microcontroller	Sheet: Microcontroller File: Microcontroller.sch
5. Lowside Decoder	Sheet: Lowside Decoder File: Decoders.sch
6. Backup Supply	Sheet: Backup Supply File: BackupSupply.sch
7. Highside Decoder	Sheet: Highside Decoder File: HighsideDecoder.sch
8. Lowside Switches	Sheet: Lowside Switches File: LowsideSwitches.sch
9. Highside Switches	Sheet: Highside Switches File: HighsideSwitches.sch
10. Colon Switch	Sheet: Colon Switch File: ColonSwitch.sch
11. Input/Output	Sheet: Input/Output File: InputOutput.sch
12. Time Set	Sheet: Time Set File: TimeSet.sch
13. External Oscillator	Sheet: External Oscillator File: ExternalOscillator.sch
14. Connectors	Sheet: Connectors File: Connectors.sch

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Sheet: /
File: Nixie Clock.sch

Title: Root Sheet

Size: A Date: 2017-03-06
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Rev: 2
Id: 1/15

Overvoltage/Undervoltage/Reverse Polarity Lockout

VIN:
MIN: 22V,
NOM: 24V,
MAX: 26V

J201
1 Vin_Unfused
3 PlugSense
2 Power Input
GND

F201
3A
1206

PWR_FLAG

Vin

Q201A
Si4946
SOIC-8

Vin_Source

Vin_Gate

Q201B
Si4946
SOIC-8

VCOM

VCOM_PGOOD

VCC_BCKUP

R202
1M
0402
5%
1/16W

R204
100
0402
5%
1/16W

LTC4365IDDB
U201

Vin
Gate
Vin_SHDN
SHDN
UV
OV
FAULT

0402
1%
1/16W
R203

0402
1%
1/16W
R205

0402
1%
1/16W
R206

GND

VSS

PWR_FLAG

C201
0.1uF

C202
10nF

C203
1nF

0402
50V
10%
GND

Vcc_Bckup

R207
1M
0402
5%
1/16W

SOD-323
PESD3V3L1BA
3.3V
D203

SMD1200PL
D201
SOD-123F

SMD1200PL
D202
SOD-123F

PLUG_R

PLUG

R208
100
0402
1/16W
5%

Input Presence Detection

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Sheet: /Power Input/ File: PowerInput.sch		
Title: Power Input		
Size: A	Date: 2017-03-06	Rev: 2
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[illegible]

Rev: 2
Id: 2/15

**Monolithic Buck Switching Regulator
with Burst Mode and PGOOD flag
+3.3 Volts, 300mA @ 2.2MHz**

The schematic shows the LT3973-DD controller (U301) configured as a buck converter. The input voltage (VIN) is 3.3V, and the output voltage (VOUT) is 3.3V. The controller is configured for burst mode operation. The PGOOD flag is active-low, and the PWR_FLAG is active-low. The circuit includes a 3.3V input, a 3.3V output, and various passive components like capacitors and resistors.

Components:

- U301: LT3973-DD
- C301: 0.47uF, 25V, 10% (0402)
- C302: 4.7uF, 35V, 20% (1206)
- C303: 22uF, 6.3V, 20% (0805)
- C304: 15pF, 50V, 10% (0402)
- R301: 1M, 5%, 1/16W (0402)
- R302: 100, 5%, 1/16W (0402)
- R303: 2.2M, 1%, 1/16W (0402)
- R304: 1M, 5%, 1/16W (0402)
- R305: 1.3M, 1%, 1/16W (0402)
- L301: 10uH, 3A (IHLP2525CZER100M01)

Pin Connections:

- VIN (4) to 3.3V
- PG (9) to PG00DR
- EN/UVLO (3) to 3.3V
- RT (10) to 3.3V
- BOOST (7) to 3.3V
- SW (6) to 3.3V
- BD OUT (8) to 3.3V
- FB (1) to 3.3V

Legend:

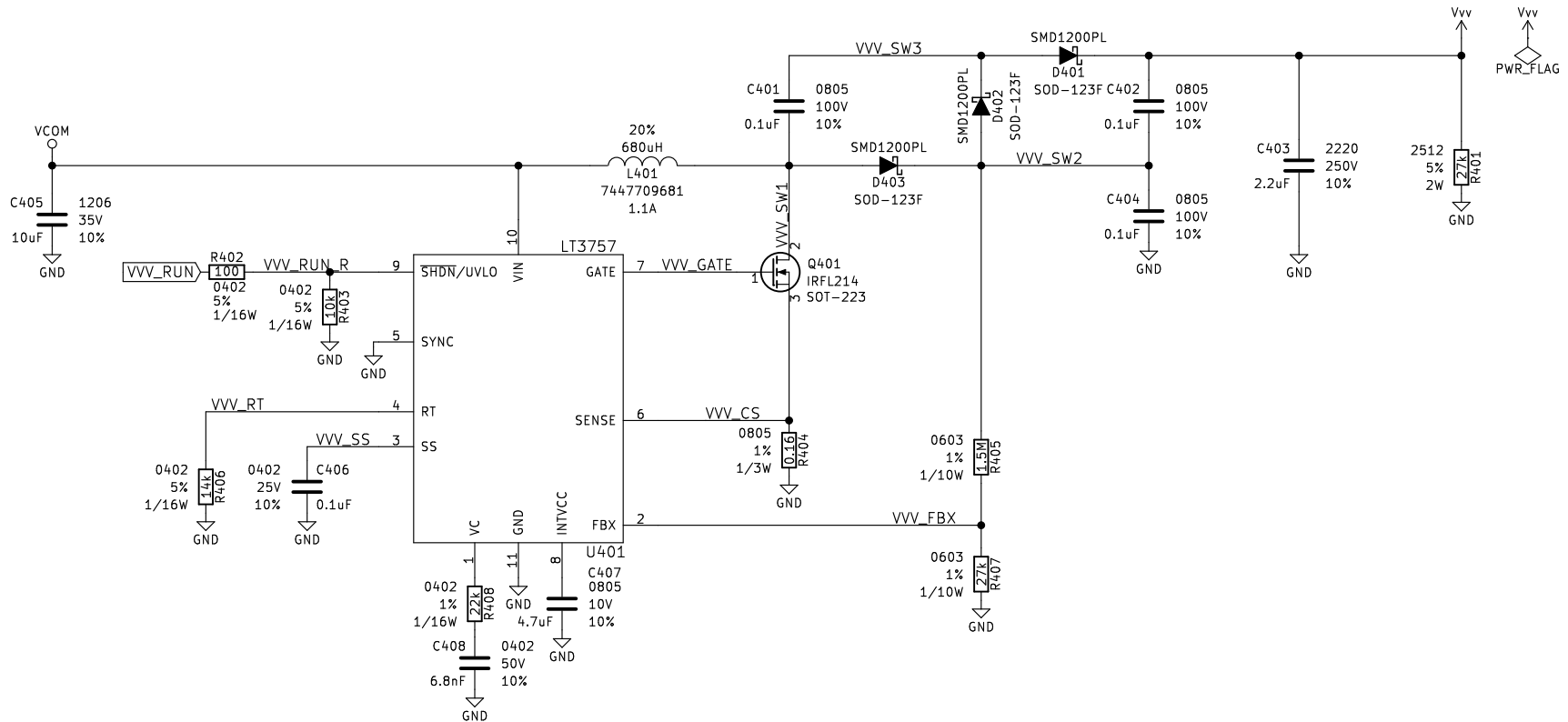
- VCC: +3.3V
- VDD: +3.3V
- PWR_FLAG: +3.3V

Metadata:

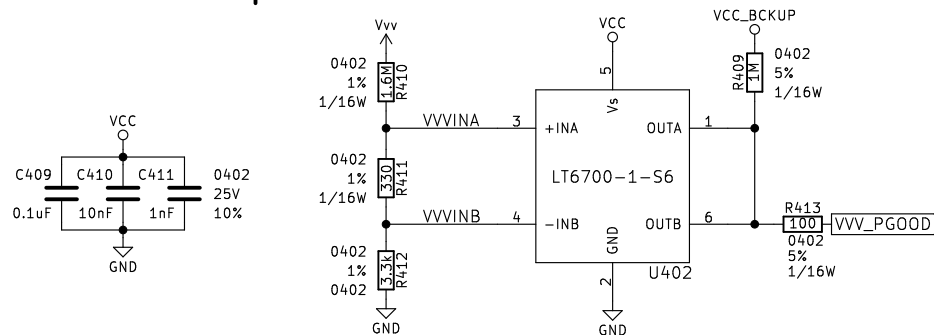
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Sheet: /Controller Supply/
File: ControllerSupply.sch
Title: Controller Supply (Vdd and Vcc)
Size: A Date: 2017-03-06
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Rev: 2
Id: 3/15

Size: 71	Date: 7/1/2018
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Valve High Voltage Supply Hybrid Boost Converter/Voltage Multiplier 180V, 30mA @ 800kHz



VVV PGOOD Window Comparator



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Sheet: /Display Supply/
File: DisplaySupply.sch

Title: Boost Converter

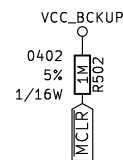
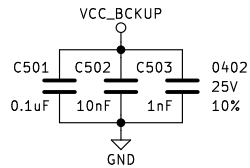
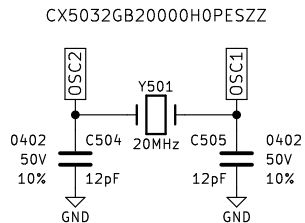
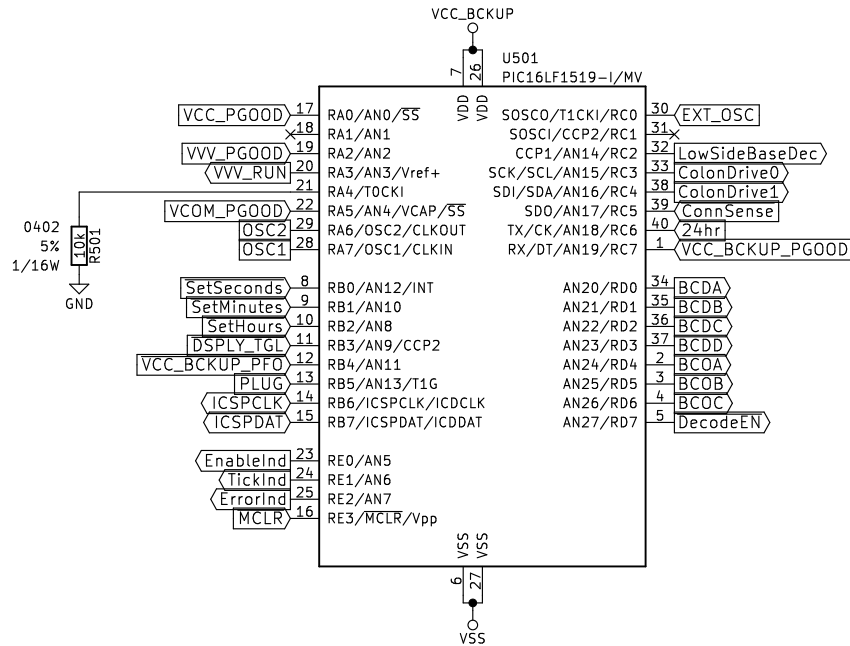
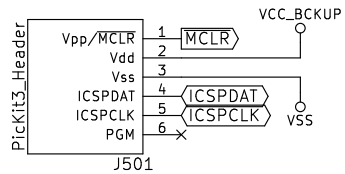
Size: A Date: 2017-03-15

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Rev: 2

Id: 4/15

8 Bit PIC Microcontroller



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Sheet: /Microcontroller/
File: Microcontroller.sch

Title: Microcontroller (PIC16F1519)

Size: A Date: 2017-03-06

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Rev: 2

Id: 5/15

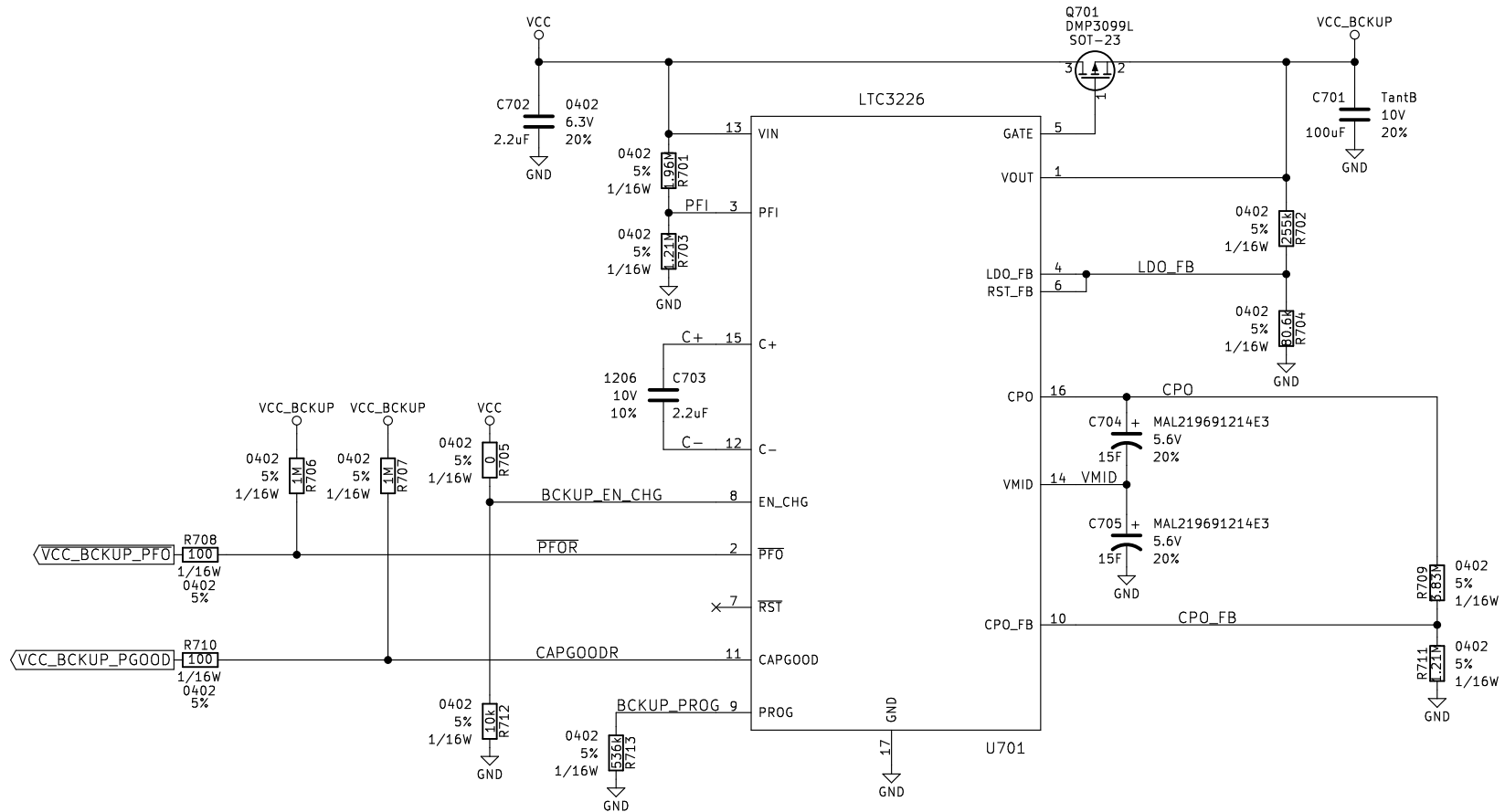
BCD to Decimal Decoder

The schematic diagram illustrates a BCD to Decimal Decoder circuit. The central component is a 74HC4514 decoder chip. The inputs are BCDA, BCDB, BCDC, and BCDD, each connected to a 100 ohm resistor (R603-R606) and a 1/16W 5% resistor (R607-R610). The enable input is connected to a 100 ohm resistor (R602) and a 1/16W 5% resistor (R601). The output pins are connected to a 10nF capacitor (C602) and a 1nF capacitor (C603). The circuit is powered by VCC and GND.

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Sheet: /Lowside Decoder/	
File: Decoders.sch	
Title: Lowside BCD Data Decoders	
Size: A	Date: 2017-03-06
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Id: 6/15	

Rev: 2
Id: 6/15

Backup VCC Supply



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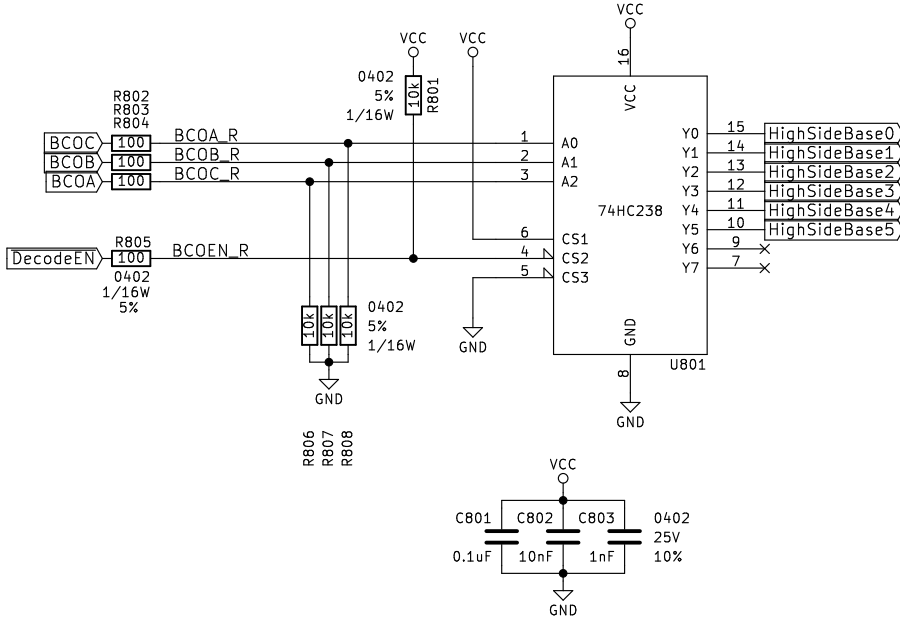
Sheet: /Backup Supply/
File: BackupSupply.sch

Title: Vcc Backup Supply (Vcc_BCKUP)

Size: A Date: 2017-03-06
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Rev: 2
Id: 7/15

Octal to Decimal Decoder



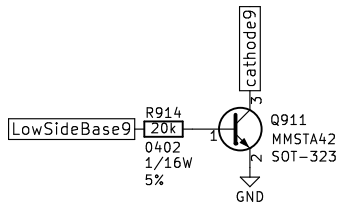
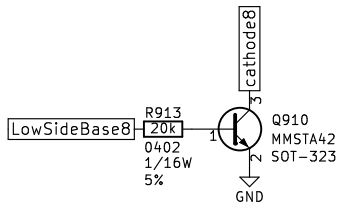
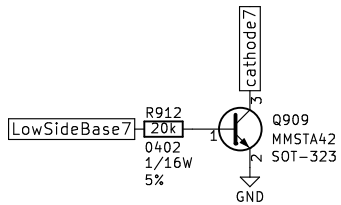
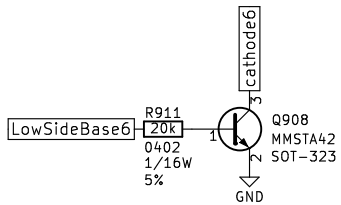
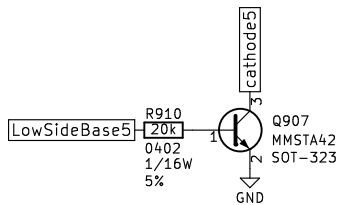
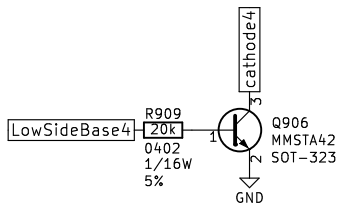
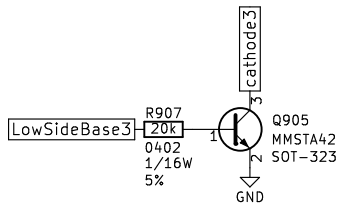
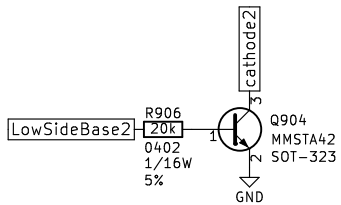
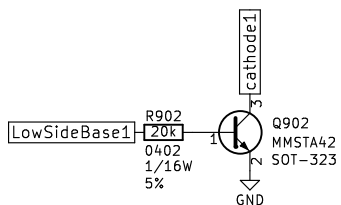
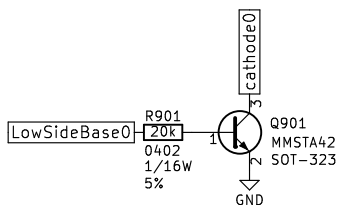
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Sheet: /Highside Decoder/
File: HighsideDecoder.sch

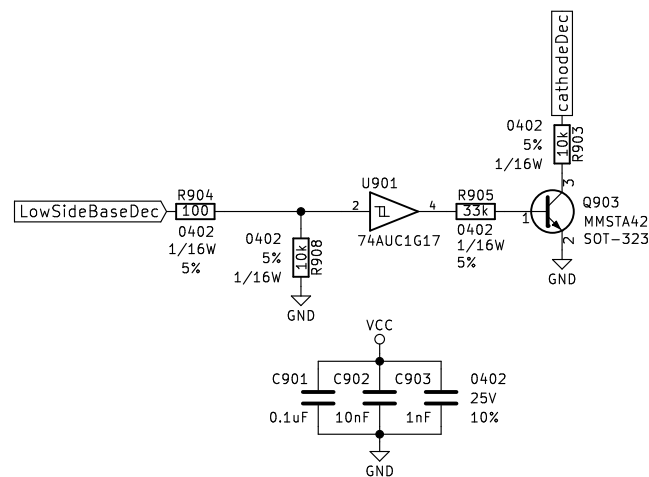
Title: High Side BCO Decoder

Size: A	Date: 2017-03-06
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Rev: 2
Id: 8/15



Lowside BJT Switches



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Sheet: /Lowside Switches/
File: LowsideSwitches.sch

Title: Lowside Cathode Switches

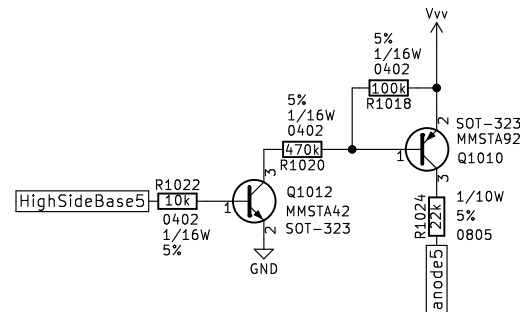
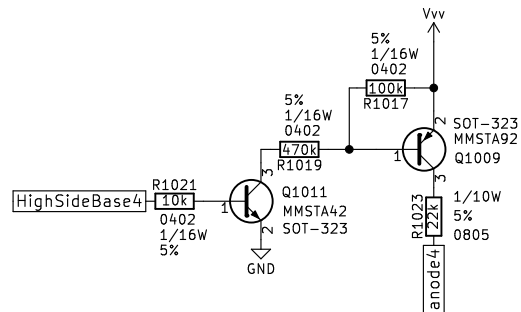
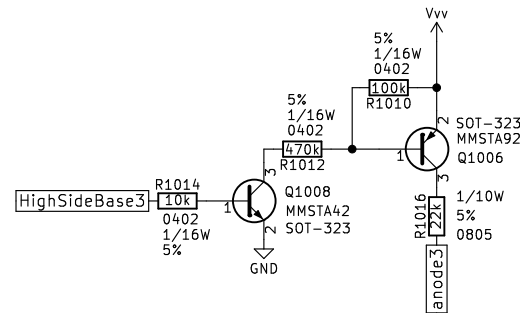
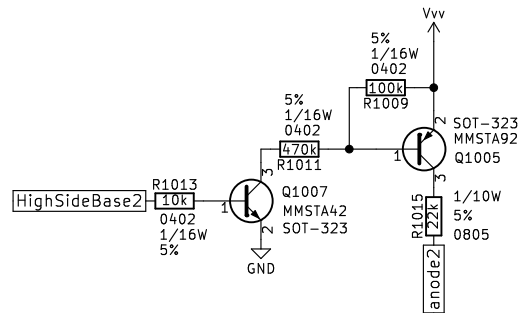
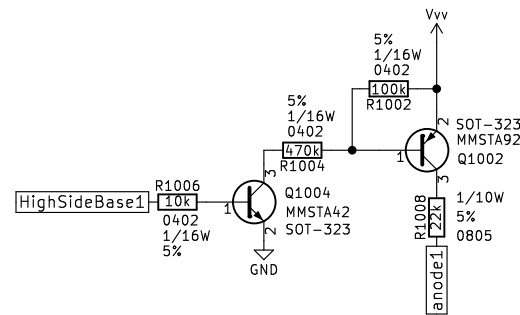
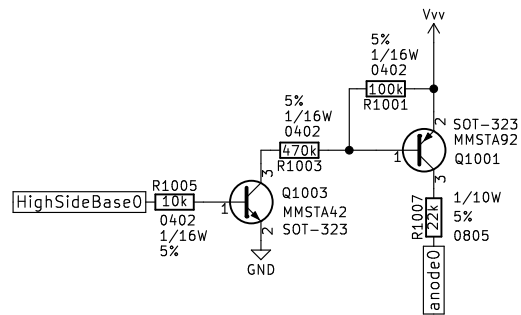
Size: A Date: 2017-03-06

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Rev: 2

Id: 9/15

High Side BJT Switches



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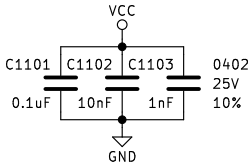
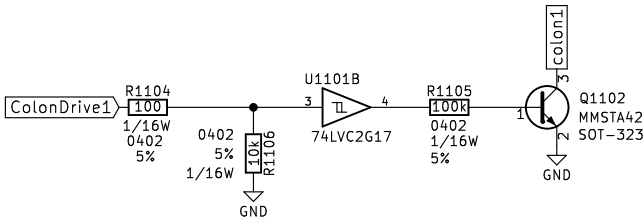
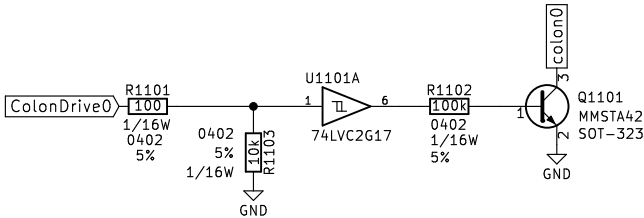
Sheet: /Highside Switches/
File: HighsideSwitches.sch

Title: High Side Anode Switches

Size: A Date: 2017-03-06
KiCad E.D.A. kicad 4.0.5

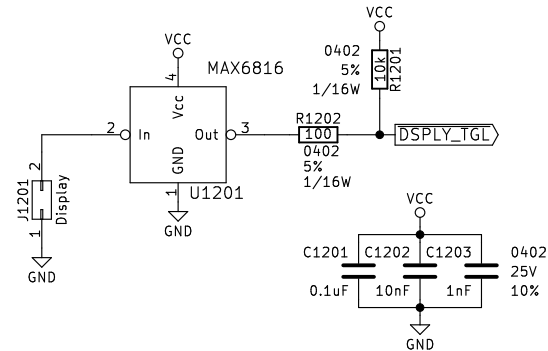
Rev: 2
Id: 10/15

Colon Drivers/BJT Switches

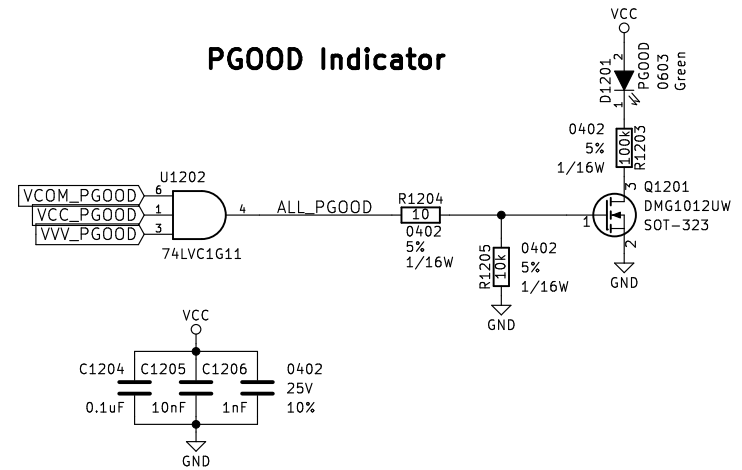


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Sheet: /Colon Switch/		
File: ColonSwitch.sch		
Title: Lowside Colon Switches		
Size: A	Date: 2017-03-06	Rev: 2
KiCad E.D.A. kicad 4.0.5		Id: 11/15

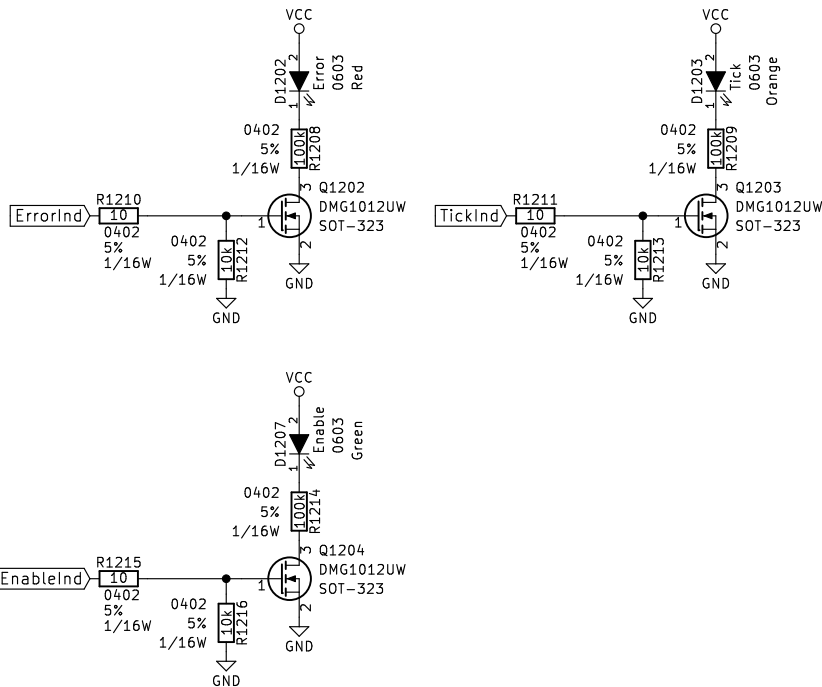
Display Toggle Pushbutton



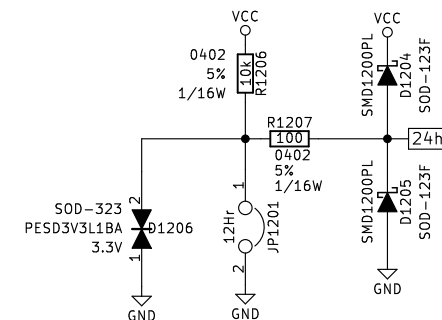
PGOOD Indicator



Status Indicators



24hr Set Jumper



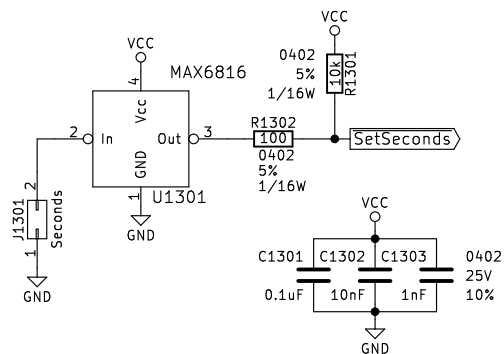
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Sheet: /Input/Output/
File: InputOutput.sch

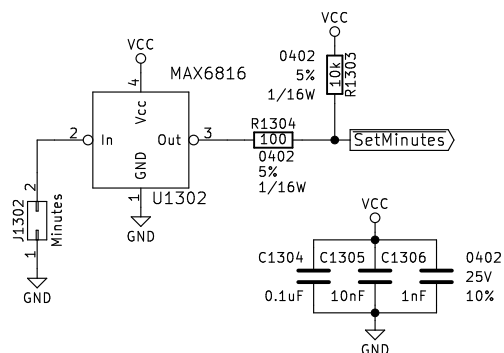
Title: Input/Output Facilities

Size: A Date: 2017-03-06
KiCad E.D.A. kicad 4.0.5

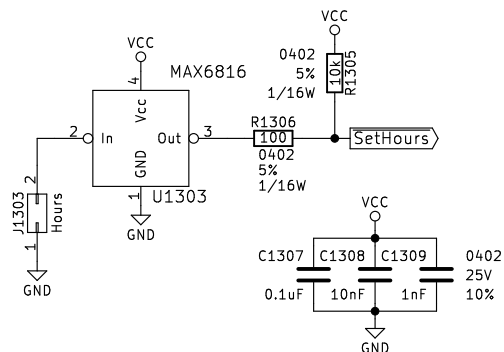
Rev: 2
Id: 12/15



Seconds Set Pushbutton



Minutes Set Pushbutton



Hours Set Pushbutton

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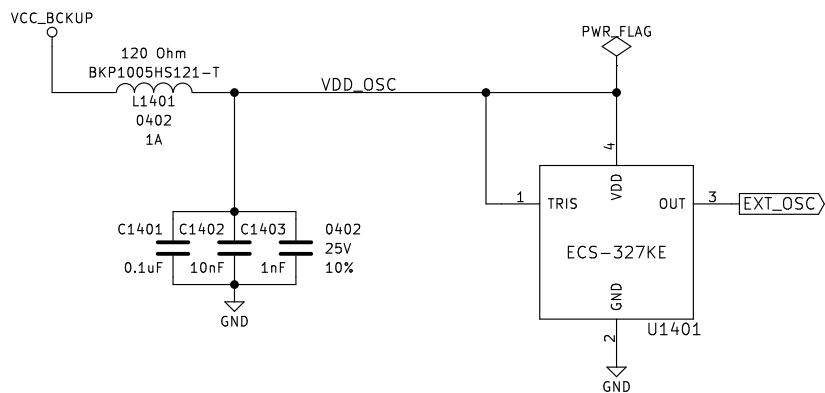
Sheet: /Time Set/
File: TimeSet.sch

Title: Time Set Pushbuttons

Size: A Date: 2017-03-06
KiCad E.D.A. kicad 4.0.5

Rev: 2
Id: 13/15

Timekeeping Oscillator



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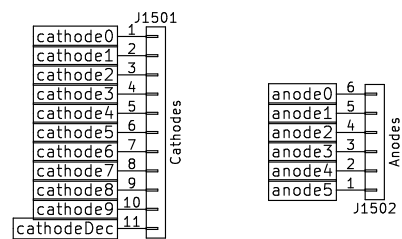
Sheet: /External Oscillator/
File: ExternalOscillator.sch

Title: External 32.768kHz CMOS Oscillator

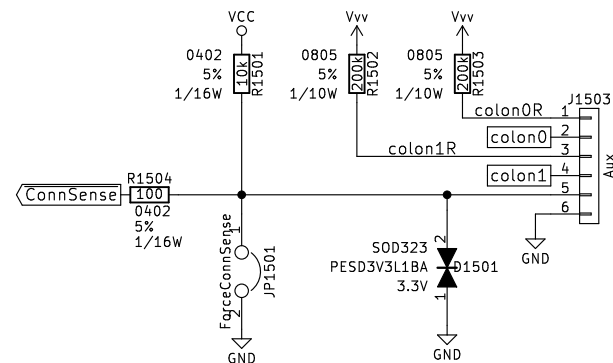
Size: A Date: 2017-03-06
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Rev: 2
Id: 14/15

Anode/Cathode Connectors



Aux Connector



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Sheet: /Connectors/
File: Connectors.sch

Title: Display Connectors

Size: A Date: 2017-03-06

KiCad E.D.A. kicad 4.0.5

Rev: 2

Id: 15/15