power

File: power.kicad_sch

microcontroller_logic

File: microcontroller_logic.kicad_sch

Sheet: /
File: lightlink.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. kicad 7.0.8

Rev:
Id: 1/3

POWER_LOSS_INT

PIC Programming Header
J1
1
2
GND
3
4
5
6

R1
10k
+3.3V

D4
RED LED
R11
600
GND

VPP
DIAG_LED
ICSPDAT19
ICSPCLK18
RF_INT
RA0/ICSPDAT
RA1/ICSPCLK
RA2
RA3/MCLR/VPP
RA4
RA5

SPI_CLK 13
SPI_MOSI 12
SPI_MISO 11
SPI_CS 10
RB7
RB6
RB5
RB4

U1
PIC16F18126
VDD 1
+3.3V
C14
0.1uF
GND

VSS 20
GND

RC0 16 CHAN_SEL0
RC1 15 CHAN_SEL1
RC2 14 CHAN_SEL2
RC3 7 CHAN_SEL3
RC4 6
RC5 5
RC6 8
RC7 9

RF_RESET
SPI_CLK
SPI_MOSI
SPI_MISO
SPI_CS

RF_RESET
SPI_CLK
SPI_MOSI
SPI_MISO
SPI_CS

GND
GND
GND
1
8
10

RESET
NSS
MISO
MOSI
SCK
3.3V 13

6
5
2
3
4

U2
RFM69HCW

ANT 9

DIO5
DIO4
DIO3
DIO2
DIO1
DIO0

7
12
11
16
15
14

RF_INT

+3.3V
C15
0.1uF
GND

RF_ANT 1
2
GND
J2
Wire Antenna

BUTTON_IN

GND
C16
0.1uF
R12
10k
+3.3V

2
1
SW2
SW_MEC_5G_2LED
4
3

GND

LOAD_SW0

CHAN_SEL0
CHAN_SEL1
CHAN_SEL2
CHAN_SEL3

R3 10k
R4 10k
R5 10k
R6 10k
+3.3V

4 3 2 1
SW1
SW_DIP_x04
5 6 7 8
GND

GND
3
1
Q1
Q_NMOS_DGS
2

R17
0
A2
D6
ES1J-LTP
A1
+12V

LIVE_IN_FUSED
13
14
K1
Relay_SPST-NO
LIVE_OUT

Mains Input

J4
J5

(Earth GND is wired
directly to output socket)

LIVE_IN

F1
Fuse

NEUTRAL_IN

LIVE_IN_FUSED

RV1
Varistor
U1

R9
30

Non-Isolated 12V Regulator

live_fbr_in

D_Bridge_-+A-A

LNK_IN

C1
4.7uF

U3
LNK304G

D
S
BP
FB

12V_FB

GND

C2
100nF

D2
ES1J-LTP

R8
2.05k

R7
13k

12V_SW

C3
10uF

L1
1mH

D3
ES1J-LTP

12V_FB_DIODE

C4
100uF

C9
100uF

R10
3.3k

GND

+12V

POWER_LOSS_INT transitions to HIGH when
the 12V rail drops below 10.8V

3.3V Regulator

+12V

C5
10uF

C6
0.1uF

Float to
enable

GND

U4
TPS56339DDC

EN
VIN
GND

SW
BOOT
FB

R13
30

C7
0.1uF

3v3_SW

3v3_FB

L2
4.7uH

R14
10k

R2
31.6k

C8
22uF

C10
22uF

+3.3V

Main Output Socket

NEUTRAL_IN
LIVE_OUT

AC-N
AC-P

J3
Conn_WallSocket

D5
MM3Z2V7B
2.7V

R16
1k

+12V

C11
0.1uF

PLL_VREF

R18
102k

+12V

R19
34k

PLL_SENSE

C12
0.1uF

U5
TLV3201

GND

+3.3V

GND

C17
0.1uF

C13
0.1uF

POWER_LOSS_INT