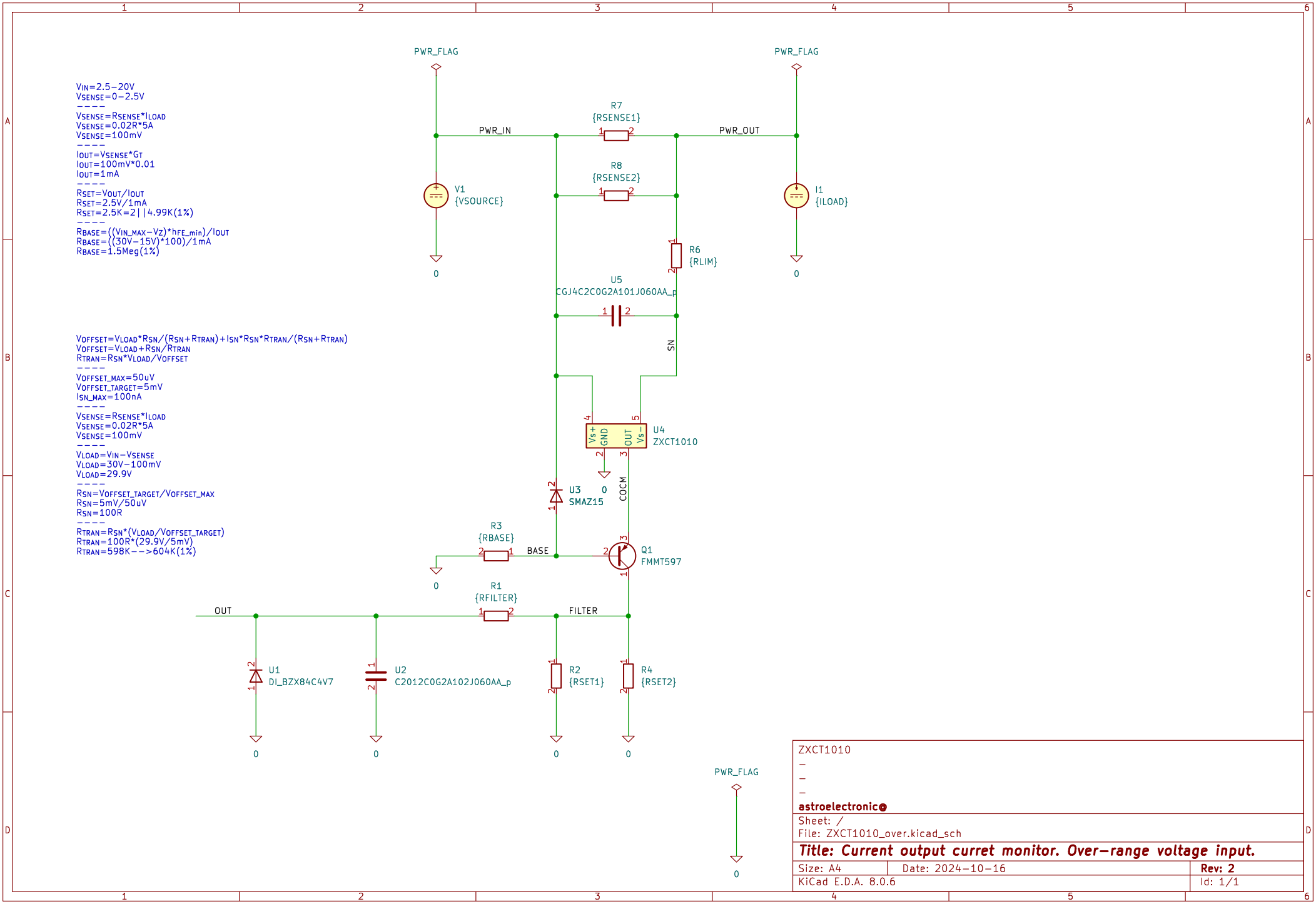
VIN=2.5-20V
VSENSE=0-2.5V

VSENSE=RSENSE*ILOAD
VSENSE=0.02R*5A
VSENSE=100mV

IOUT=VSENSE*GT
IOUT=100mV*0.01
IOUT=1mA

RSET=VOUT/IOUT
RSET=2.5V/1mA
RSET=2.5K=2||4.99K(1%)

RBASE=((VIN_MAX-VZ)*HFE_min)/IOUT
RBASE=((30V-15V)*100)/1mA
RBASE=1.5Meg(1%)
VOFFSET=VLOAD*RSN/(RSN+RTRAN)+ISN*RSN*RTRAN/(RSN+RTRAN)
VOFFSET=VLOAD+RSN/RTRAN
RTRAN=RSN*VLOAD/VOFFSET

VOFFSET_MAX=50uV
VOFFSET_TARGET=5mV
ISN_MAX=100nA

VSENSE=RSENSE*ILOAD
VSENSE=0.02R*5A
VSENSE=100mV

VLOAD=VIN-VSENSE
VLOAD=30V-100mV
VLOAD=29.9V

RSN=VOFFSET_TARGET/VOFFSET_MAX
RSN=5mV/50uV
RSN=100R

RTRAN=RSN*(VLOAD/VOFFSET_TARGET)
RTRAN=100R*(29.9V/5mV)
RTRAN=598K-->604K(1%)
PWR_FLAG
PWR_FLAG
R7
{RSENSE1}
PWR_IN
PWR_OUT
R8
{RSENSE2}
V1
{VSOURCE}
I1
{ILOAD}
R6
{RLIM}
0
0
U5
CGJ4C2C0G2A101J060AA_p
SN
U4
ZXCT1010
Vs+
GND
OUT
Vs-
U3
SMAZ15
0
COCM
R3
{RBASE}
BASE
Q1
FMMT597
0
R1
{RFILTER}
OUT
FILTER
U1
DI_BZX84C4V7
U2
C2012C0G2A102J060AA_p
R2
{RSET1}
R4
{RSET2}
0
0
0
0
PWR_FLAG
0
ZXCT1010
astroelectronic
Sheet: /
File: ZXCT1010_over.kicad_sch
Title: Current output curret monitor. Over-range voltage input.
Size: A4
Date: 2024-10-16
Rev: 2
KiCad E.D.A. 8.0.6
Id: 1/1