Requirements:
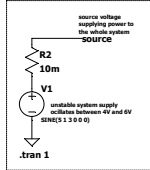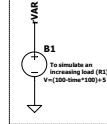* Disconnect power when source voltage > 5V
* Reconnect power when source voltage settles
* Limit current to 500mA

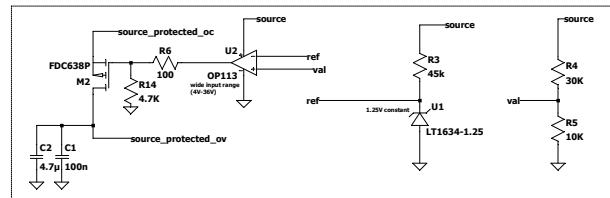**OV Protection Circuit**
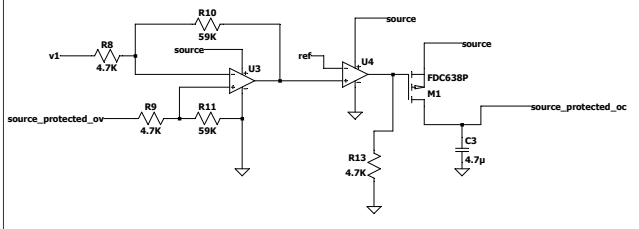
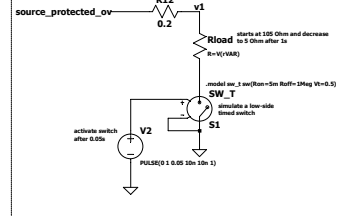source_protected_oc

source

FDC638P

M2

R6
100

R14
4.7K

U2
OP113
wide input range
(4V-36V)

ref

val

source

R3
45k

ref

1.25V constant

U1
LT1634-1.25

source

R4
30K

val

R5
10K

C2
4.7µ

C1
100n

source_protected_ov

Voltage source

R2
10m

source
source voltage
supplying power to
the whole system

V1
unstable system supply
oscillates between 4V and 6V
SINE(5 1 3 0 0 0)

.tran 1

Variables

B1
To simulate an
increasing load (R1)
V=(100-time*100)+5

VAR

OC Protection Circuit

R10
59K

v1

R8
4.7K

source

U3

ref

U4

source

FDC638P

M1

source_protected_oc

C3
4.7µ

source_protected_ov

R9
4.7K

R11
59K

R13
4.7K

Actual behavior

source_protected_ov

R12
0.2

v1

Rload
starts at 105 Ohm and decrease
to 5 Ohm after 1s
R=V(:VAR)

.model sw_t sw(Ron=5m Roff=1Meg Vt=0.5)

SW_T
simulate a low-side
timed switch

S1

activate switch
after 0.05s

V2
PULSE(0 1 0.05 10n 10n 1)

Theoretical behavior

source

R7
R=V(:VAR)
starts at 105 Ohm and decrease
to 5 Ohm after 1s

.model sw_t sw(Ron=5m Roff=1Meg Vt=0.5)

SW_T
simulate a low-side
timed switch

S2

B2
V=if(V(val)-V(ref)>0.001, 0, 1)