Input stage of 150W non-SMPS based linear LED driver
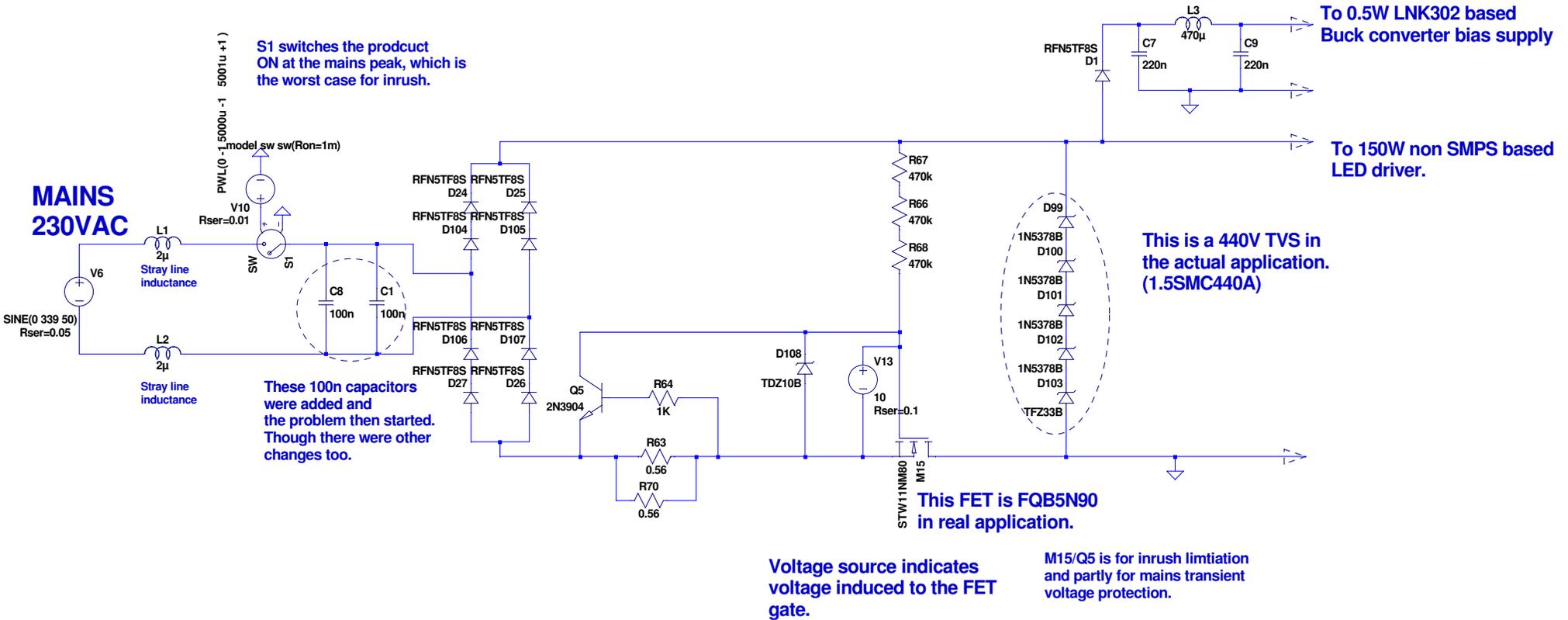

S1 switches the prodcuct
ON at the mains peak, which is
the worst case for inrush.

PWL(0 -1 5000u -1 5001u +1)
.model sw sw(Ron=1m)

V10
Rser=0.01

MAINS
230VAC

L1
2µ
Stray line
inductance

SW
S1

V6

SINE(0 339 50)
Rser=0.05

L2
2µ
Stray line
inductance

C8
100n

C1
100n

These 100n capacitors
were added and
the problem then started.
Though there were other
changes too.

RFN5TF8S
D24

RFN5TF8S
D25

RFN5TF8S
D104

RFN5TF8S
D105

RFN5TF8S
D106

RFN5TF8S
D107

RFN5TF8S
D27

RFN5TF8S
D26

Q5
2N3904

R64
1K

R63
0.56

R70
0.56

R67
470k

R66
470k

R68
470k

D108
TDZ10B

V13
10
Rser=0.1

STW11NM80
M15

This FET is FQB5N90
in real application.

Voltage source indicates
voltage induced to the FET
gate.

M15/Q5 is for inrush limtiation
and partly for mains transient
voltage protection.

L3
470µ

RFN5TF8S
D1

C7
220n

C9
220n

To 0.5W LNK302 based
Buck converter bias supply

To 150W non SMPS based
LED driver.

D99
1N5378B

D100
1N5378B

D101
1N5378B

D102
1N5378B

D103
TFZ33B

This is a 440V TVS in
the actual application.
(1.5SMC440A)

.tran 0 12m 0 startup