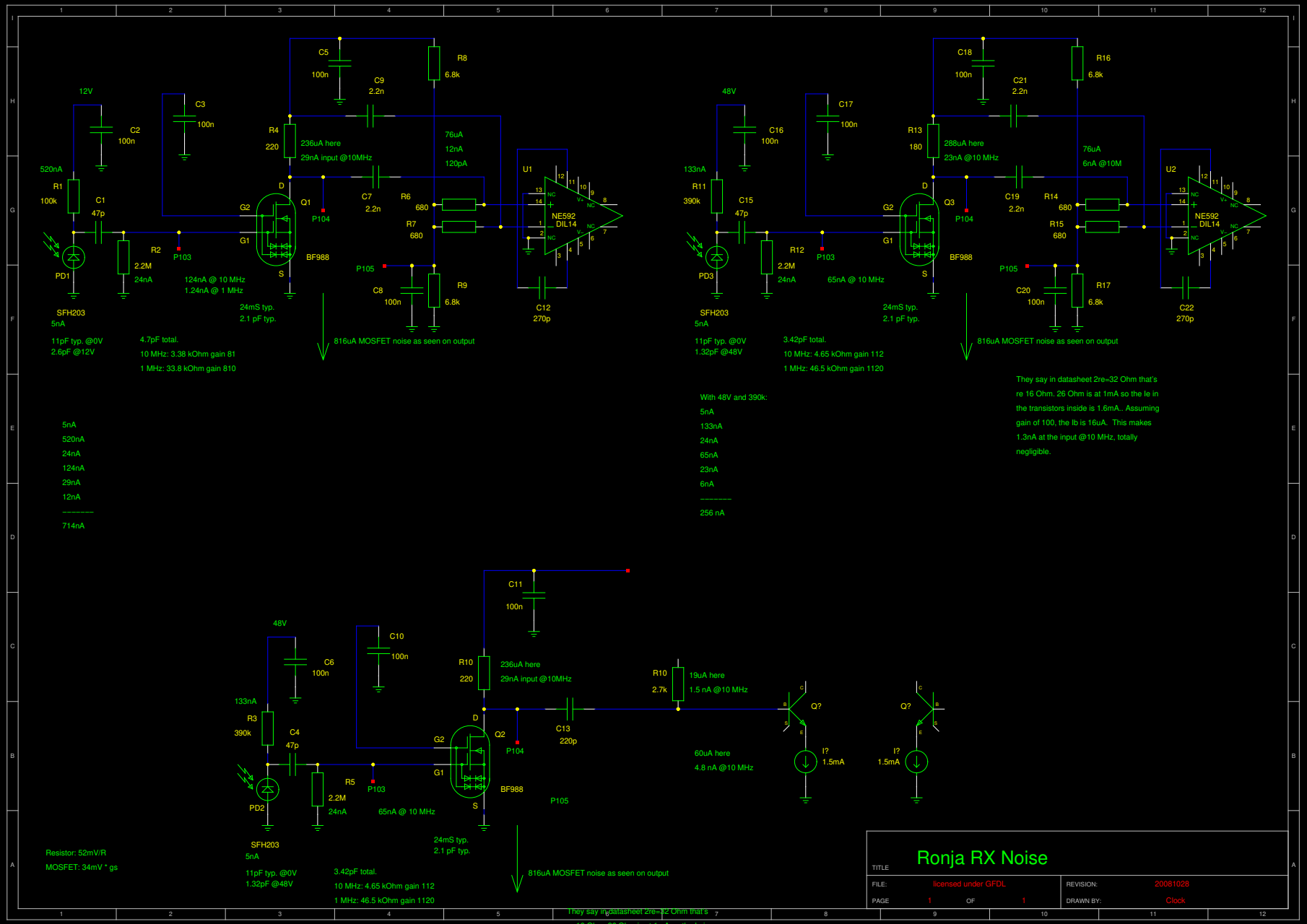
12V
C2
100n
C3
100n
C5
100n
C9
2.2n
R8
6.8k
R4
220
236uA here
29nA input @10MHz
76uA
12nA
120pA
520nA
R1
100k
C1
47p
R2
2.2M
24nA
PD1
SFH203
5nA
P103
124nA @ 10 MHz
1.24nA @ 1 MHz
G2
G1
D
S
Q1
BF988
P104
C7
2.2n
R6
680
R7
680
P105
C8
100n
R9
6.8k
U1
NE592
DIL14
C12
270p
24mS typ.
2.1 pF typ.
816uA MOSFET noise as seen on output
11pF typ. @0V
2.6pF @12V
4.7pF total.
10 MHz: 3.38 kOhm gain 81
1 MHz: 33.8 kOhm gain 810
5nA
520nA
24nA
124nA
29nA
12nA
714nA
48V
C16
100n
C17
100n
C18
100n
C21
2.2n
R16
6.8k
R13
180
288uA here
23nA @10 MHz
76uA
6nA @10M
133nA
R11
390k
C15
47p
R12
2.2M
24nA
PD3
SFH203
5nA
P103
65nA @ 10 MHz
Q3
BF988
P104
C19
2.2n
R14
680
R15
680
P105
C20
100n
R17
6.8k
U2
NE592
DIL14
C22
270p
24mS typ.
2.1 pF typ.
816uA MOSFET noise as seen on output
11pF typ. @0V
1.32pF @48V
3.42pF total.
10 MHz: 4.65 kOhm gain 112
1 MHz: 46.5 kOhm gain 1120
With 48V and 390k:
5nA
133nA
24nA
65nA
23nA
6nA
256 nA
They say in datasheet 2re=32 Ohm that's re 16 Ohm. 26 Ohm is at 1mA so the Ie in the transistors inside is 1.6mA.. Assuming gain of 100, the Ib is 16uA. This makes 1.3nA at the input @10 MHz, totally negligible.
48V
C6
100n
C10
100n
C11
100n
R10
220
236uA here
29nA input @10MHz
133nA
R3
390k
C4
47p
R5
2.2M
24nA
PD2
SFH203
5nA
P103
65nA @ 10 MHz
Q2
BF988
P104
C13
220p
P105
R10
2.7k
19uA here
1.5 nA @10 MHz
60uA here
4.8 nA @10 MHz
Q?
I?
1.5mA
24mS typ.
2.1 pF typ.
816uA MOSFET noise as seen on output
11pF typ. @0V
1.32pF @48V
3.42pF total.
10 MHz: 4.65 kOhm gain 112
1 MHz: 46.5 kOhm gain 1120
Resistor: 52mV/R
MOSFET: 34mV * gs
With 48V and 390k:
5nA
133nA
24nA
65nA
23nA
6nA
256 nA
They say in datasheet 2re=32 Ohm that's re 16 Ohm. 26 Ohm is at 1mA so the Ie in the transistors inside is 1.6mA.. Assuming gain of 100, the Ib is 16uA. This makes 1.3nA at the input @10 MHz, totally negligible.
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OF
1
DRAWN BY:
Clock