

```

.ac oct 10 10 15meg
.options method=geat
.options plotwinsize=0
.options nomdgt=7
.param numcycles=25
.param delaycycles=3
.param FFT=2**16
.param stop=numcycles/freq+delay
.tran 0 (stop) (delay) (step)
.param delay=delaycycles/freq
.param stop=1/freq/100
.four (freq) 9-1 V(Vout)

```

param load = 8

param freq=20k

param freq = 4.3meg

param Vin=1.4

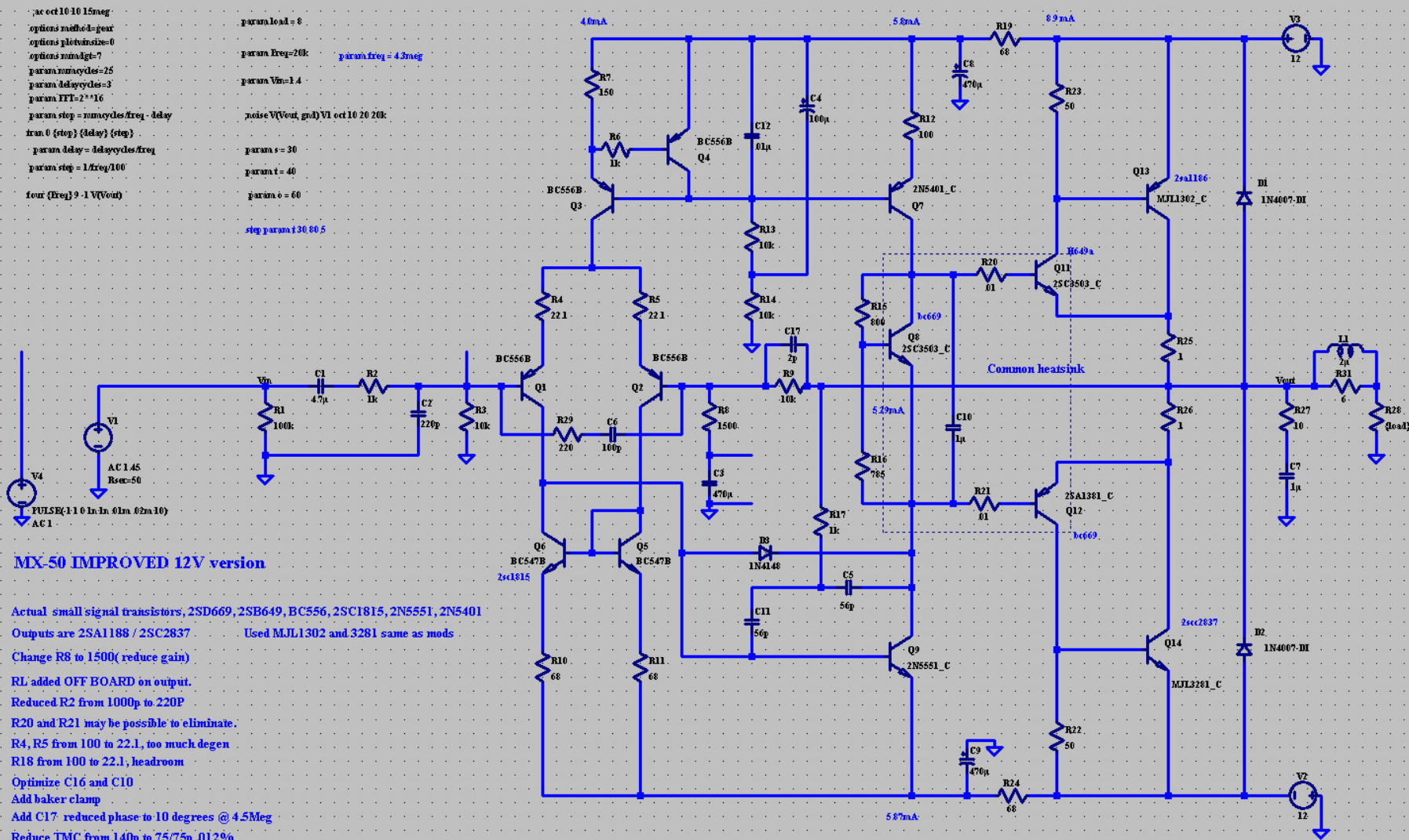
noise V(Vout, gnd) V1 oct 10 20 20k

param s = 30

param t = 40

param o = 60

stop param 130 60 5



## MX-50 IMPROVED 12V version

Actual small signal transistors, 2SD669, 2SB649, BC556, 2SC1815, 2N5551, 2N5401

Outputs are 2SA1188 / 2SC2837

Used MJL1302 and 3281 same as mods

Change R8 to 1500 (reduce gain)

RL added OFF BOARD on output.

Reduced R2 from 1000p to 220P

R20 and R21 may be possible to eliminate.

R4, R5 from 100 to 22.1, too much degen

R18 from 100 to 22.1, headroom

Optimize C16 and C10

Add Baker clamp

Add C17 reduced phase to 10 degrees @ 4.5Meg

Reduce TMC from 140p to 75/75p .012%

Reconfigure to input bootstrap .0069%

Up current in ops pair to 11 mA for 8, .0062 R22, R 23 from 68 to 50 Ohms

Drop bias to 17mA, .0050%

3A transformer, gives 4 Ohm full power. 6W into 8 Ohms with 12V rails. 12 into 4!

Bypass R18 (lower noise, slightly more swing, increase rail decoupling from 100 to 470uF

Reduce C17 to 2P, Stable clipping into 3 Ohms. Forget 2. .004962%