

FET CIRCUIT IDEAS

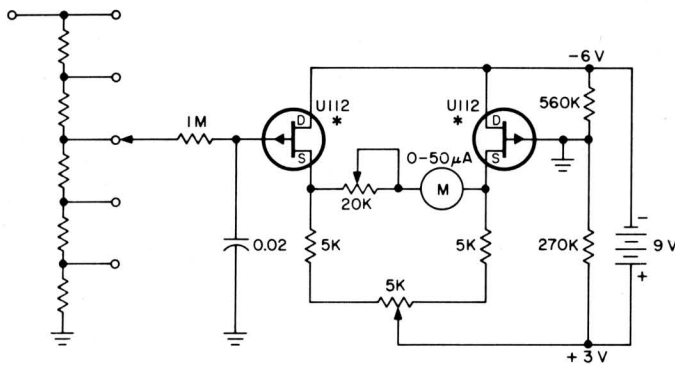
these circuits are a small sample of what you can do with FETs . . .

If you have any problems, write us!

Siliconix incorporated



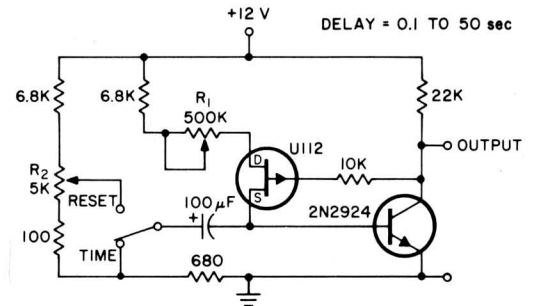
FET Voltmeter



* FETs MATCHED 10% IN V_p

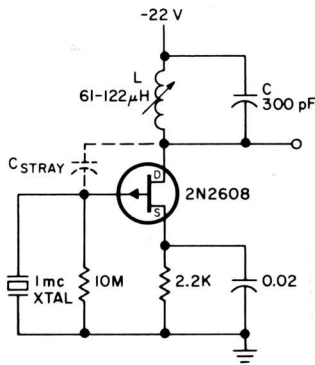
LINEARITY $\geq 1\%$ F.S.
SENSITIVITY = 0.5-1.0 V F.S.

Timer

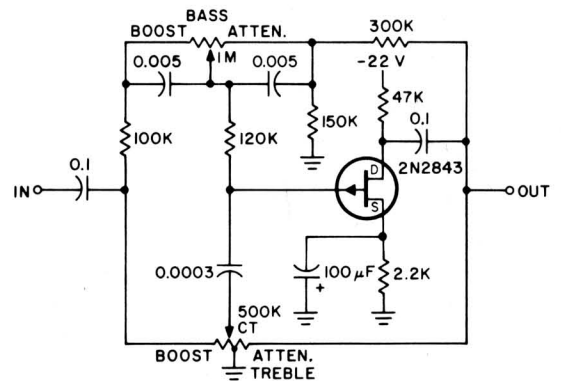


DELAY = 0.1 TO 50 sec

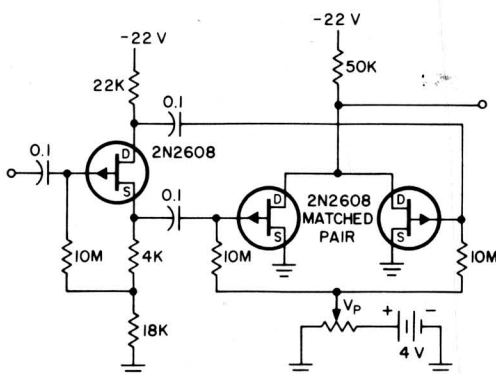
1 MHz Oscillator



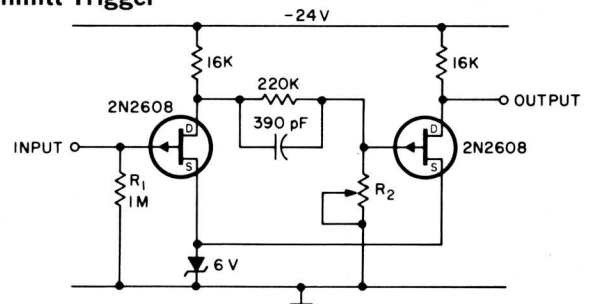
Hi-Fi Tone Control



Voltage Squarer

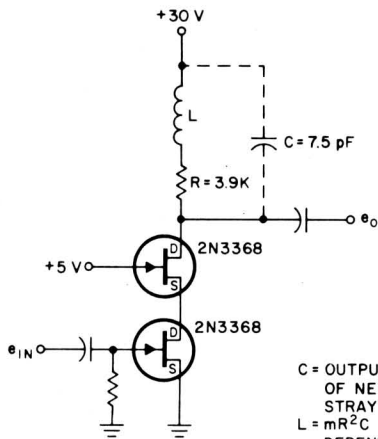


Schmitt Trigger



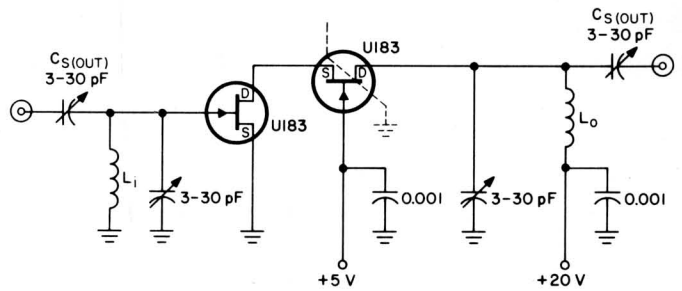
OUTPUT VOLTAGE SWING: -6 TO -24 V
TURN-ON OR TURN-OFF TIME: 200 TO 500 nsec
TRIGGER LEVEL WITH $R_2 = 82K$:
5.40 TO 5.50 V ON
5.35 TO 5.45 V OFF
(LEVEL ADJUSTABLE WITH R_2)
HYSTERESIS: 2 TO 5 mV

R-C Coupled Video Amplifier



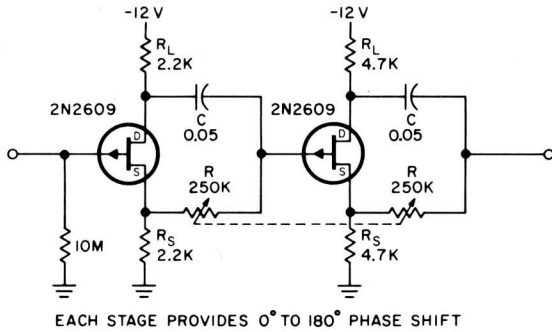
$C = \text{OUTPUT CAPACITANCE} + \text{INPUT } C \text{ OF NEXT STAGE} + \text{SHUNT AND STRAY CIRCUIT } C$
 $L = mR^2C$
 DEPENDING ON ALLOWABLE OVERSHOOT IN PULSE RESPONSE, "m" MAY VARY FROM 0.25 TO 0.6

45 MHz Cascode Amplifier



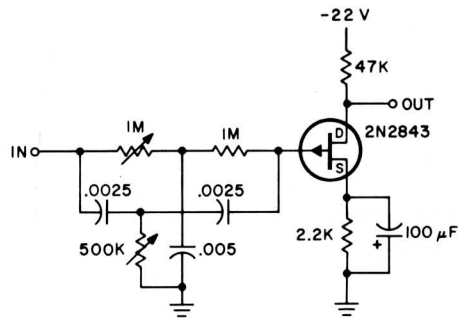
L_I - TUNE WITH 30 pF
 L_O - TUNE WITH 20 pF

Phase Shifter

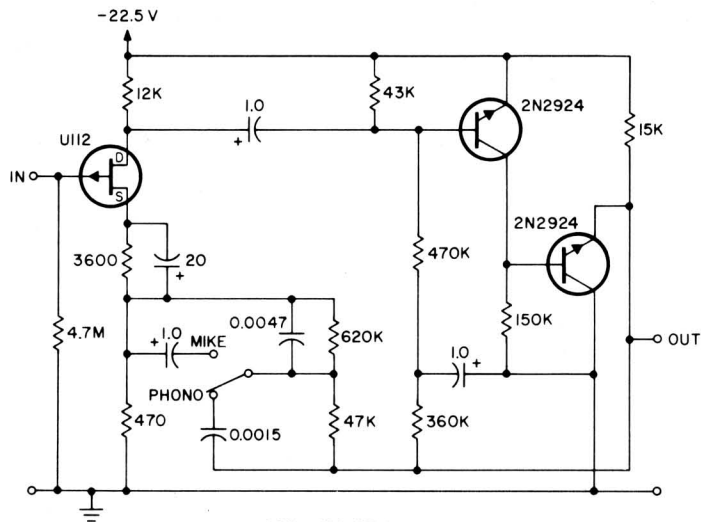


EACH STAGE PROVIDES 0° TO 180° PHASE SHIFT

60 Hz Bandstop Amplifier

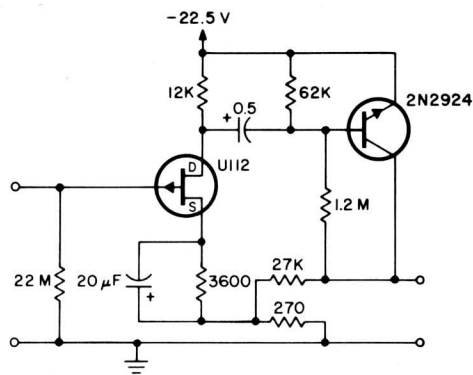


Mike and Mag Phono Preampifier



GAIN ≈ 100 AT 1KHz
 $e_{O(MAX)} = 6V$ rms
 RIAA RESPONSE ± 1 db
 20 Hz TO 20 KHz
 $R_{IN} = 4.7 M$
 $R_{OUT} \leq 1K$

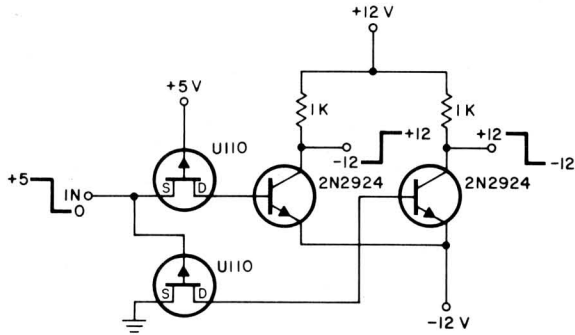
Xtal Transducer Preampifier



GAIN ≈ 100
 $e_{O(MAX)} = 6V$ rms
 10 Hz - 50 KHz ± 1 db
 $R_{IN} = 22 M$
 $R_O \approx 3 K$

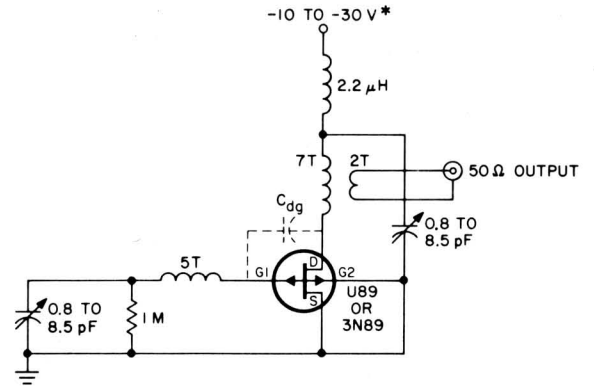
Z_{IN} MAY BE INCREASED TO 1000 meg BY BOOTSTRAPPING GATE TO SOURCE.

Level Translator



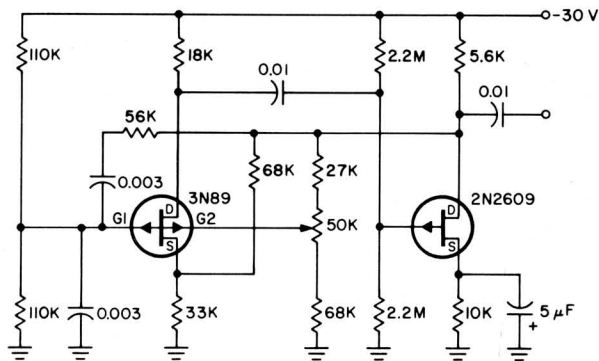
OUTPUT WAVEFORMS ARE SHOWN FOR A TYPICAL INPUT SIGNAL

VHF Oscillator



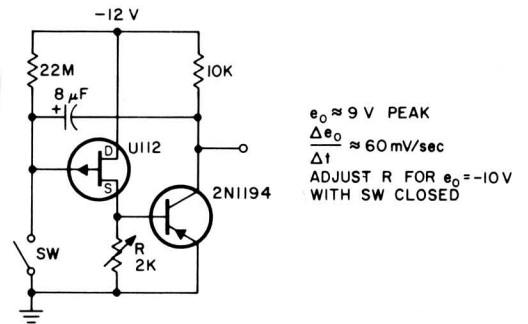
TRIMMERS JFDVC20G
ALL COILS 1/2" I.D., #18 BARE TINNED COPPER, 1:1 SPACING
*USE U89 WITH SUPPLY VOLTAGE TO 20V, 3N89 TO 30V

Wien-Bridge Oscillator



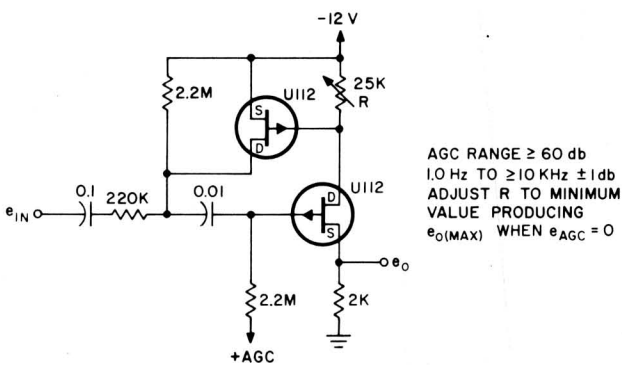
FEEDBACK TO GATE-2 OF 3N89 ELIMINATES NEED FOR NON-LINEAR RESISTANCE FEEDBACK.

Long Linear Sweep Saw-Tooth Generator



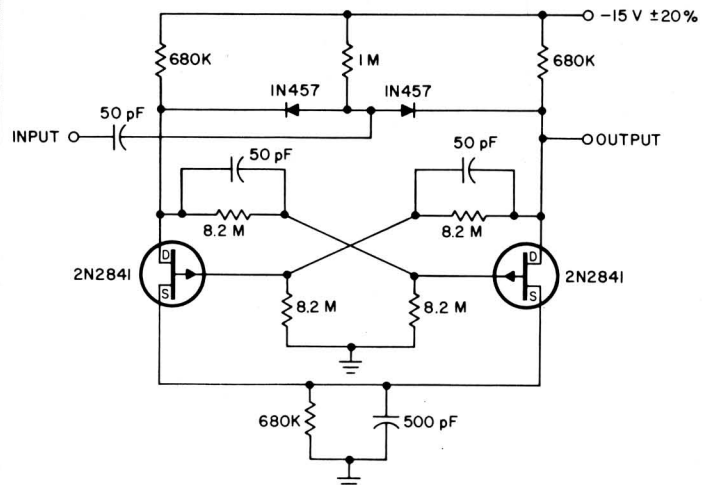
$e_o \approx 9$ V PEAK
 $\Delta e_o \approx 60$ mV/sec
 Δt
ADJUST R FOR $e_o = -10$ V
WITH SW CLOSED

60 db AGC Circuit



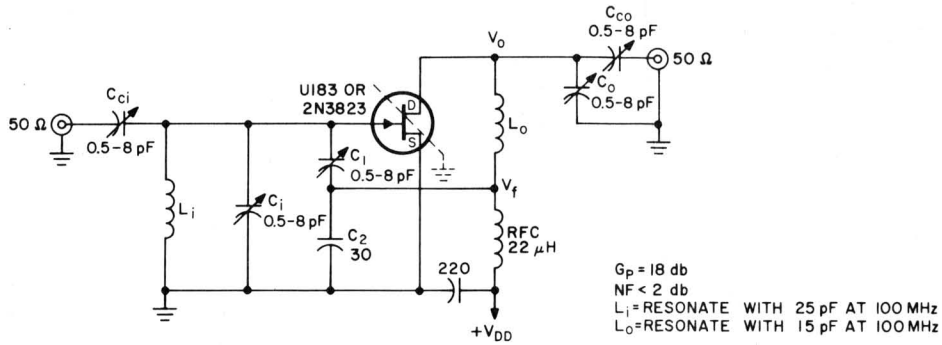
AGC RANGE ≥ 60 db
1.0 Hz TO ≥ 10 KHz ± 1 db
ADJUST R TO MINIMUM
VALUE PRODUCING
 $e_o(\text{MAX})$ WHEN $e_{\text{AGC}} = 0$

Micropower Flip-Flop

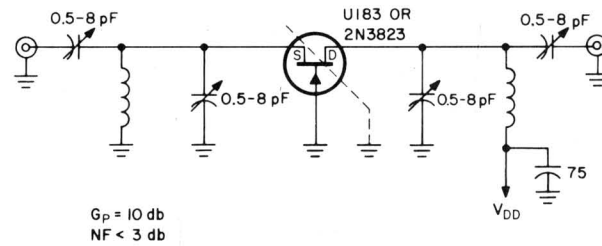


TYPICAL CHARACTERISTICS AT 25° C:
POWER DISSIPATION: 180 μ W NOMINAL
TRIGGER VOLTAGE REQUIRED: 0 TO 7.5 V
OUTPUT VOLTAGE SWING: 7.5 V INTO A HIGH IMPEDANCE
MAX CLOCK RATE: 1 KHz

100 MHz Neutralized Amplifier



200 MHz Grounded-Gate Amplifier



Micropower Amplifier

