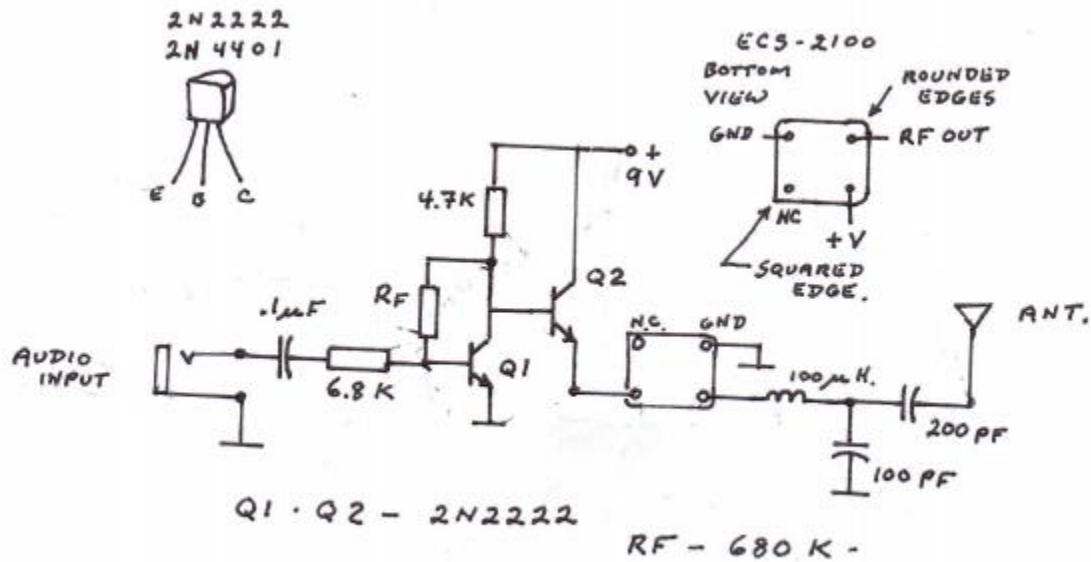


Designed by Reed Fisher, this is a great improvement over our original design using an audio transformer. The heart of the broadcast transmitter is an ECS 2100 TTL clock chip running at 1 Mhz. It is series modulated by a 2N2222 transistor as shown in the schematic below.



Audio may be from a CD player, an I-pad or microphone. Transistor Q1 provides voltage gain and transistor Q2 is the modulator.

The layout is not critical and may be constructed on a small perf board. Power is from a 9 volt battery.

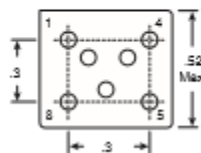
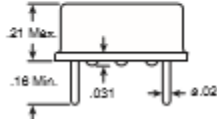
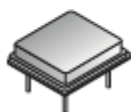
Components:


Resistors R1 = 6.8K, Rf = 680K*, R3 = 4.7K Capacitors C1 = .1 uF, C2 = 100 pF, C3 = 200 pF

Inductor = 100 uH IC = ECS2100 Note: * adjust Rf for 4.5 volts on the IC with no modulation.

ECS-2100X (TTL/HCMOS) CLOCK OSCILLATORS

- Specifications:**
- Frequency stability: ±100ppm Max.
 - Supply voltage: ±5.0±0.25
 - Operating temp.: 0°C to +70°C
 - Storage temp.: -55°C to +125°C
 - Output load: TTL: 10TTL Max.; HCMOS: 50pF



| Specifications | Documents (1) | My Notes |
|--|---|----------|
| Manufacturer: | ECS | |
| Product Category: | Standard Clock Oscillators | |
| RoHS: |  Details | |
| Product: | XO | |
| Package / Case: | Half Size | |
| Frequency: | 1 MHz | |
| Frequency Stability: | 100 PPM | |
| Load Capacitance: | 50 pF | |
| Termination Style: | Radial | |
| Minimum Operating Temperature: | 0 C | |
| Maximum Operating Temperature: | + 70 C | |
| Height: | 5.4 mm | |
| Series: | ECS2100 | |
| Brand: | ECS | |
| Current Rating: | 25 mA | |
| Length: | 13.2 mm | |
| Operating Supply Voltage: | 5 V | |
| Factory Pack Quantity: | 40 | |
| Type: | XO - Crystal Clock Oscillators | |
| Width: | 13.2 mm | |

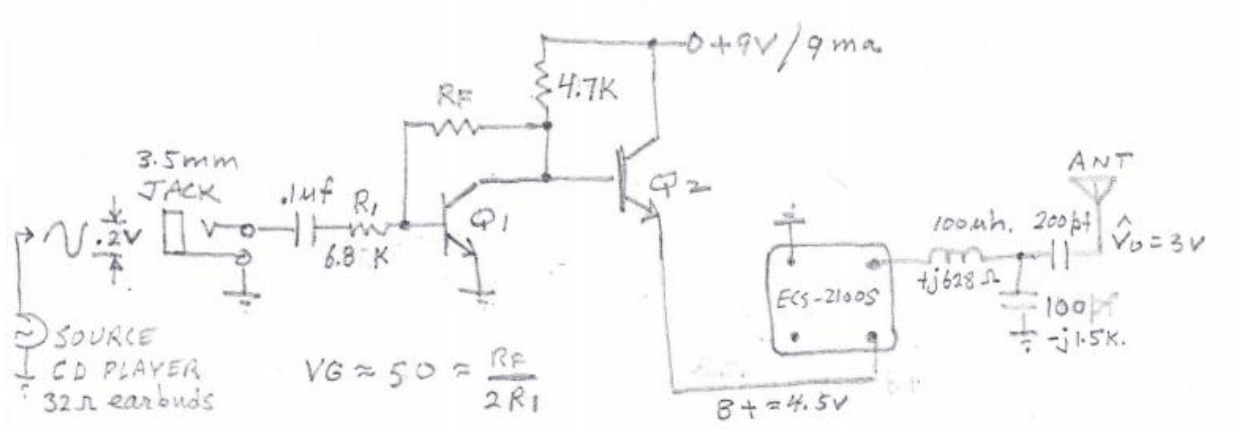


Mouser Part #: [520-TCH100-X](#)
Manufacturer Part #: ECS-2100AX-1.0MHZ
Manufacturer: ECS
Description: Standard Clock Oscillators DIP-8 5V 1MHZ

 Available in MultiSIM BLUE

 [Page 1,197](#), Mouser Online Catalog

 [Page 1,197](#), PDF Catalog Page



$R_F \approx 680K$ Adjust for $B+ = 4.5V$

$Q_1 = Q_2 \rightarrow 2N-2222, etc. \beta \geq 100$ $2N-4401$
 E B C

KDII 1MHz TRANSMITTER 7/6/16 W2CQH

| B+ | \hat{V}_0 | I |
|-----|-------------|--------|
| 1V. | 0.7V | 0.6 ma |
| 2V | 1.5V | 2.2 |
| 4V. | 3.0V. | 8.5 |
| 8V | 6.0V. | 27 |

AUDIO IN
 +9V
 4.7K
 680K
 680K