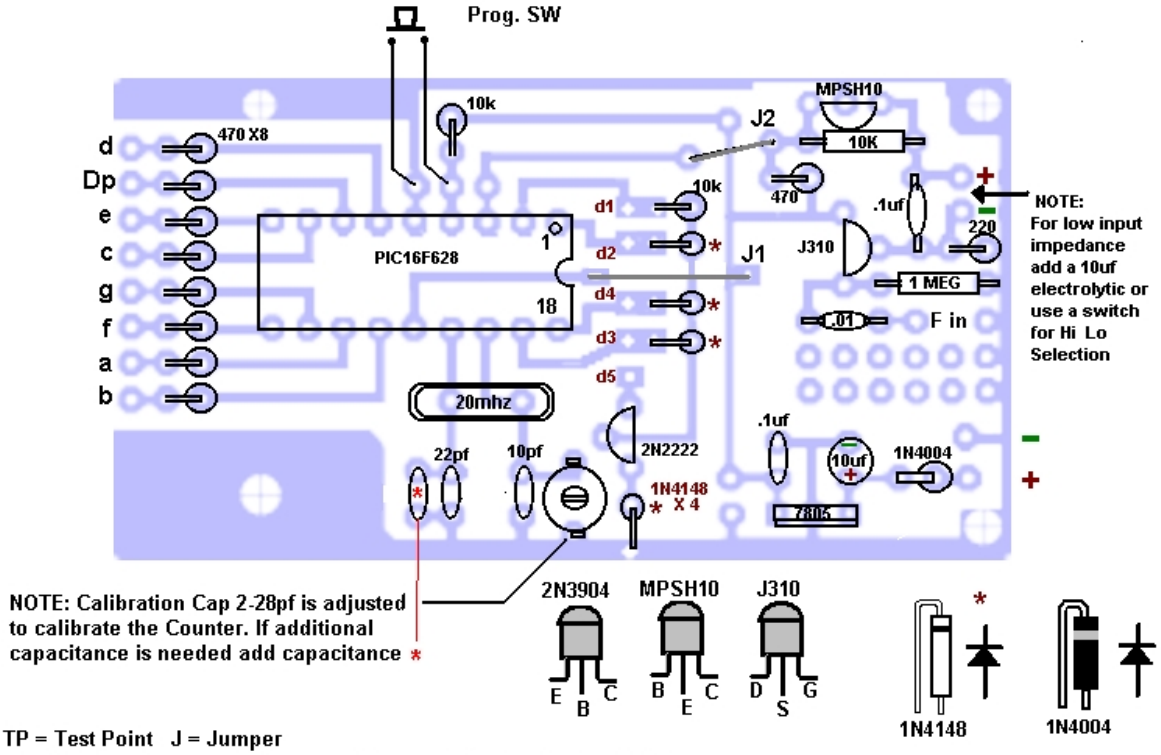

5.5000

DL4YHF Frequency Counter Parts Overlay W/ XRAY View of PCB Pattern



TP = Test Point J = Jumper

d1 d2 d3 d4 d5 connect to Common Cathode 7 Seg Digit 1 Digit 2 Etc.

PARTS LIST

Resistors

10K	3ea.
1meg	1ea.
220	1ea.
470	9ea.

Capacitors

.1uf	2ea.
22pf	1ea.
2-35pf	1ea.
10pf	1ea.
.01uf	1ea.
10uf Electrolyic	1ea.

Diodes

1N4148	4ea.
1N4004	1ea.

V-Regulator

7805	1ea.

Transistors

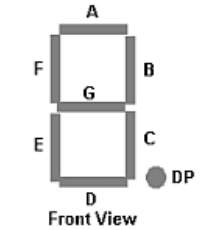
2N2222 or2N3904	1ea.
MPSH10	1ea
J310	1ea

Crystal

20.000 Mhz	1ea.

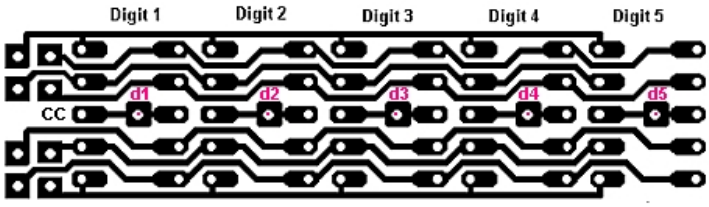
18 pin Dip Socket	1ea.
N/O Push Button Switch	1ea.
7 Segment LED Common Cathode	5ea.
PIC16F628-20P	1ea.

WARNING! Do not install 20Mhz Crystal or Pic Microcontroller untill you check the 5vdc Supply. There should be 5vdc at Pin 4 and Pin 14 only check all other pins to verify that they are clear



Front View
7 Segment Display Code

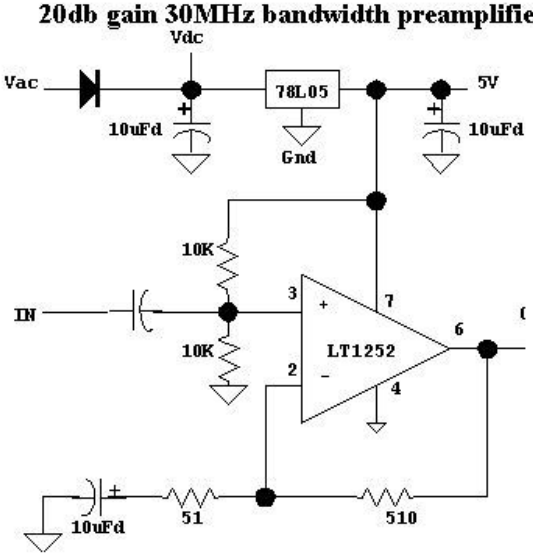
The 7 Segment Displays are Common Cathode
0.39" high characters



AZ-TEK

The Frequency Counter has to have some kind of buffered input to the PIC16F628 The low impedance input on DL4YHF's website can be used. I used a 2N2222 for that circuit it worked great for audio frequency readout. The high impedance input is used on the HF frequency input and is more stable. The 20db gain preamplifier circuit was used on a Swan 350D to tap the VFO frequency with good results.
I have not built the Prescaler shown below, I have found many circuits but most of the ICs used are obsolete, this circuit uses a currently available IC that is a surface mount device MC 12080D Jameco Electronics PN # 867780 and also a SOIC board to mount the SMD device on PN# 207360. I added the variable capacitor to allow for adusting the output frequency. The final adjustment should be made after the Counter is installed to allow for the capaitance of the shielded cable. When this counter is used on the HF bands or a communications receiver you have to reprogram the counter to add or subtract the selected VFO or IF frquency. Example for 80 and 40 meters you subtract the desired frquency for 20, 15 10 meters you add the frequency.
This has to be done with the program switch, It should take 10 seconds or less to add or subtract the frequency once you get used to the program.

20db gain 30MHz bandwidth preamplifier.

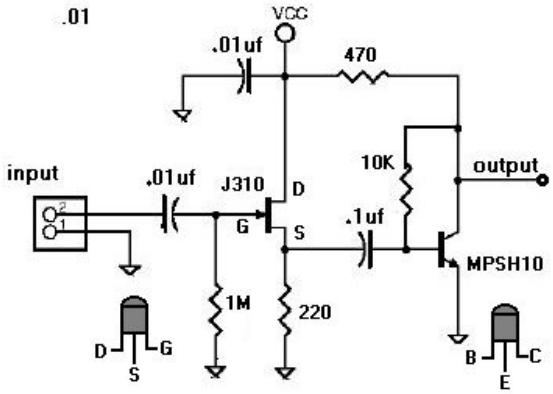


IN capacitor would typically be in the order of 5pf to 100pf.
(As small as possible while providing sufficient coupling)
01 is OK if signal is taken from a buffered signal source.

OUT capacitor would be on the order of 100pf depending on type of cable used to carry signal to counter.

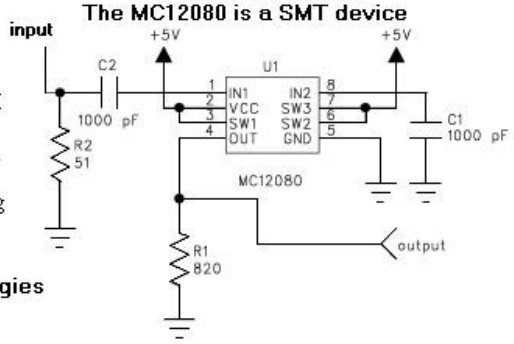
The LT1252 CN8 is available from Linear Technologies

High Impedence Input Circuit

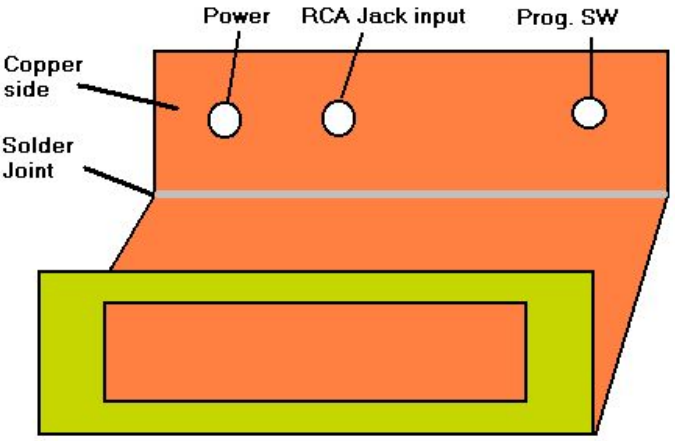


Prescaller Circuit

The MC12080 is a SMT device

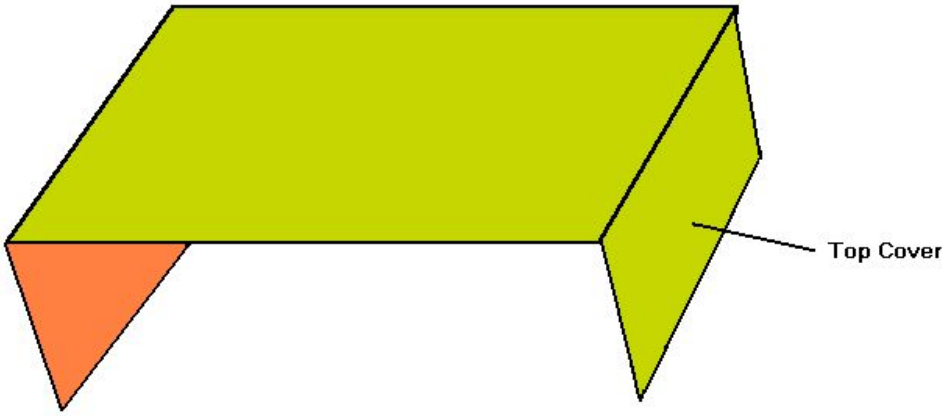


Construction of a PCB project box for the Freq. Counter

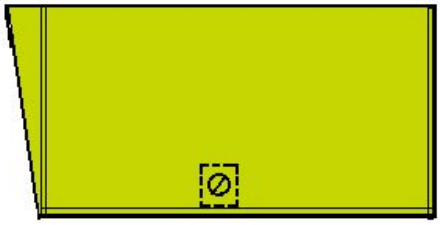


This box was constructed using single sided PCB. You will need a fixture to keep the the material @ 90^0 while soldering. The cut out was made for the led display using a Dremel type tool with a cut off disk and finished with a file to fit. Mount the display flush with the front and use hot glue to secure. You can glue a plastic panel to the front.. The power, input, and switch can be mounted on the rear panel.

A Bronze acrylic plastic or a Smoke acrylic plastic lens can be used for various color leds.



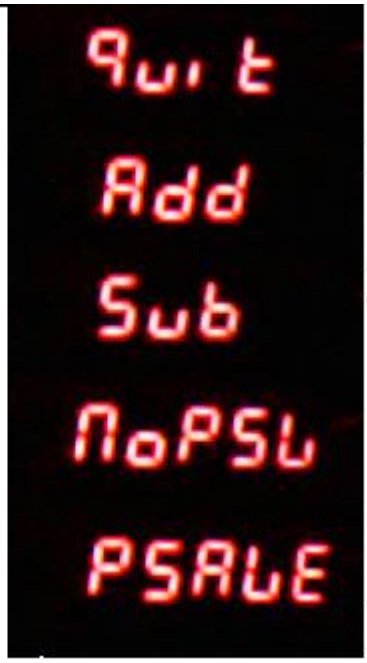
Side View front is tapered,to secure the cover you can solder tabs to the bottom inside and use screws.



There are many variations you can use to suit your needs. For larger boxes I would use some gussets made from double sided PCB.
You will need to sand the outside in order to apply a primer before painting. the outside edges can be smoothed with some type of filler like Bondo.The PCB shold be cleaned with steel wool before soldering. I used a Weller soldering gun 100/140 watts for joining the boards.

Select to read direct freq. input

Select and hold TABLE will flash on and off, release switch press once to select freq. in table. when the freq. is displayed press switch and hold release and goto Add or Sub and hold to save that freq.



Quit without saving anything

To Add TABLE Freq.

To Subtract TABLE Freq.

No Power Saver feature

Power Saver feature

The Program switch is a momentary N/O switch