

1420 ULWA
1420 MHz PHEMT Preamplifier

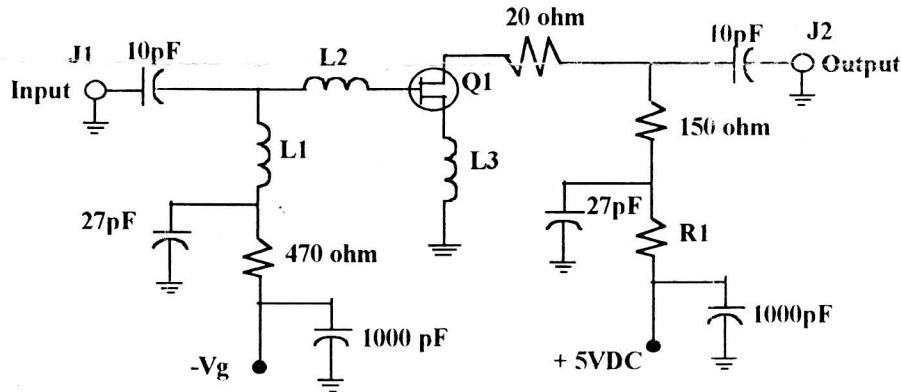
SPECIFICATIONS

Noise Figure:	< .4 dB
Gain:	> 16 dB
Center Frequency:	1420 MHz
Input Voltage:	8 - 18 VDC

DESCRIPTION

The 1420 ULWA is a low noise PHEMT amplifier intended to be used for Radio Astronomy applications. It is housed in a weatherproof die cast enclosure and is intended to be mounted at the antenna feed point to utilize its maximum performance. Any cable losses that must be introduced, should be done between the LNA and the receiver. DC power is supplied through a feed - thru capacitor unless ordered with coax bias option. The preamplifier is supplied with type "N" RF connectors only.

SCHEMATIC DIAGRAM



NOTE:

- L1** 6 turns, #28 enamel, 0.100" ID
- L2** 5 turns, #28 enamel, 0.500" ID, Stretch or compress for optimum NF.
- L3** 0.020" of source lead of Q1.
- R1** Nominal 75 Ω , could vary from 27 - 100 Ω depending on drain supply.

10pF and 27pF are ceramic chip capacitors.

20 Ω is a 1206 chip.

150 Ω is a carbon composition.

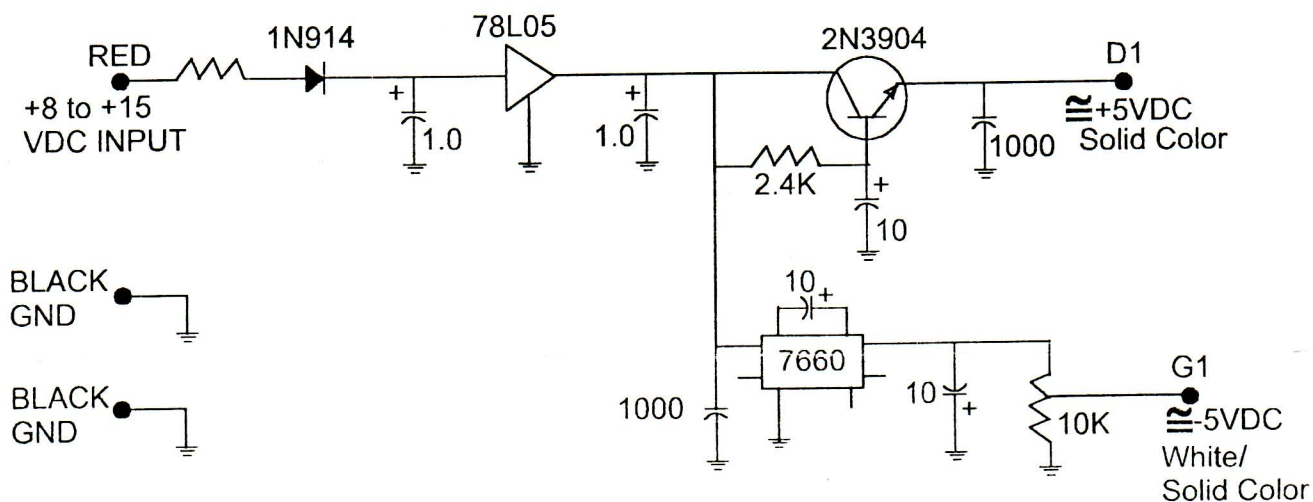
Recommended power supply: DEM PPS-1. Preset gate supply for -1.0V before applying DC power to preamplifier. $-V_g$ adjusted for ≈ 15 mA drain current while maintaining 2V on drain lead. R1 may be adjusted to compensate for voltage drop. Recheck for 15mA drain current if R1's value is adjusted.

PPS-1 Single Stage Bias Power Supply

The PPS-1 is a single stage bias power supply designed for GaAs-FET preamplifiers. It requires a +DC input voltage of 8 to 15 volts. It will generate an adjustable negative voltage between 0 and -4.5. The positive voltage output remains constant at 4.5 volts. The positive voltage output is the solid color wire. The negative voltage output is a white wire with the solid color wire stripe on it. The DC input wire is the Red (positive) and the Blacks (ground and negative). An additional black wire is provided for a preamplifier ground.

OPERATION

1. Pre-set the adjustable pot so that the negative voltage is approximately -1.0 volts referenced to ground before attaching wires to a preamplifier.
2. Connect the wires to the preamplifier. G to the gate and D to the drain.
3. Apply DC input voltage and adjust the 10K pot for desired current drain.



GAASFET PRE-AMPLIFIER
POWER SUPPLY
1 STAGE