

Theory of transmitter for QP-750-U1

The QP-750-U1 transmitter is divided into four major blocks as shown in Figure 1.

- AF and Signaling
- RF Power Amplifier
- Antenna Switch and Harmonic Filter
- APC

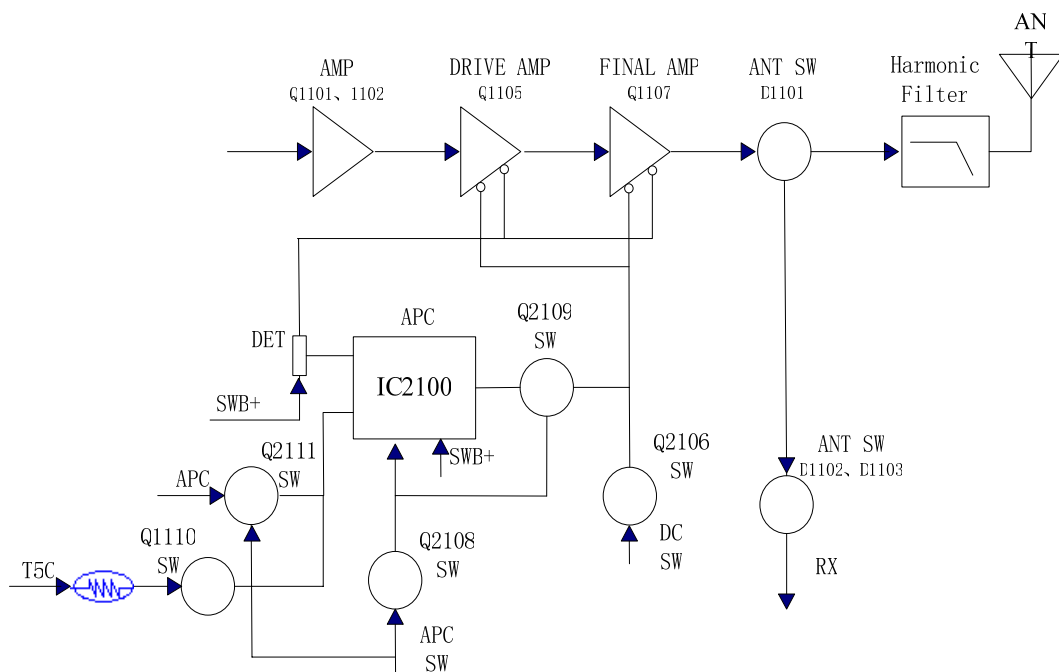


Figure 1. Transmitter Block Diagram

1 AF and Signaling

AF signal from the microphone is amplified and low-pass-filtered in IC1402 before it enters base band processing chip IC1408, which also enters CTC /CDC /DTMF /2Tone etc signaling generated by CPU. The IC1408 processed mixing signal enters VCO for direct FM modulation (see fig.4-4).

2 RF Power Amplifier

The transmit signal from VCO buffer amplifier (Q1310) is amplified by Q1101 and Q1102. The amplified signal is then amplified by the power amplifier Q1105 and Q1107 (including a two-stage FET amplifier) to create 5.0W RF power (see Fig. 4-2).

3 Antenna Switch and Harmonic Filter

Output signal from RF amplifier passes through a harmonic filter network and a transmit/receive switch circuit comprised of D1101, D1102 and D1103 before it reaches the antenna terminal. D1102 and D1103 is turned on (conductive) in transmit mode and off (isolated) in receive mode.

4 APC

The automatic power control (APC) circuit stabilizes the transmit output power by detecting the drain current of final stage amplifier FET. IC2100 (2/2) compares the preset reference voltage with the voltage obtained from final current. APC voltage is proportional to the difference between auto detect voltage and reference voltage output from IC2100 (1/2). The output voltage controls FET power.