

## super-regenerative receiver principle

Figure 1 shows the typical block diagram of a super-regenerative receiver, which consists of a matching network, an isolation amplifier, an amplifier with time varying loop gain and a bandpass feedback network forming a regenerative oscillator.

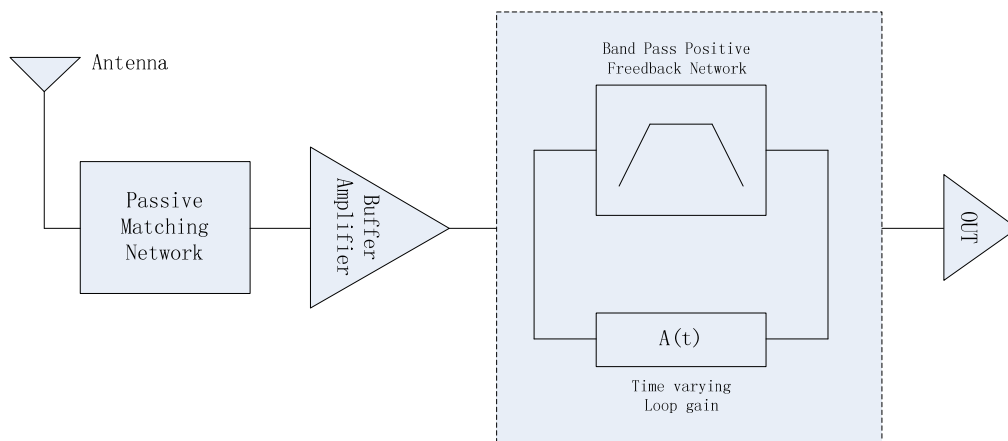


Figure 1.

The buffer amplifier between the antenna and the SRO (super-regenerative oscillator) performs the following functions: It reduces the RF leakage of the oscillation signal to the antenna, it provides an input match to the antenna via the passive matching network, and it injects the RF input signal current into the oscillator tank without adding significant loading to the SRO. The time varying nature of the loop gain is designed such that the SRO transconductance periodically exceeds the critical values of the transistor transconductance  $g_m$  necessary to induce instability. Consequently, the SRO periodically starts up and shuts off. The periodic shutdown of the SRO is called “quenching”.