Fisher-Price 77149 "Jake the Snake" Transmitter

Circuit Description:

The 77149 transmitter is an amplitude modulated, pulse code system operating at a carrier frequency of 27.145 MHz.

U40 is an EMC EM56001 microcontroller that is programmed to create the pulse code used to modulate the 27.145 MHz signal. The 2 input switches Forward and Reverse, are read by the microcontroller to determine what pulse code to output. The pulse code is fed to the base of the modulation transistor Q3 by R10. Modulation depth is controlled by R7.

Q1, R5, C2, X1, R8, C4, C5, and T1 form a fundamental-mode 27.145 MHz RF oscillator. RF energy from the secondary of transformer T1 is coupled to the driver stage Q2. The output driver is comprised of R6, C6, Q2, C7, R7, T2. A modulated RF carrier is coupled to the antenna by matching network C8 and L1.

The transmitter is powered up only during control commands by a 9 Volt battery. C9 is for supply filtering. Pressing either of the 2 switches also enables power to the microprocessor through Q40 and a 3.9V regulator made up of R43, C40 and D40. The processor then turns on Q41 through R40, which keeps Q40 on until all input switches are released and an "end command" pulse code has been sent.