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APPLICATION NOTE 1808

Adjustable LNB Power Supply Is DiSEqC Compatible

Abstract: The DiSEqC standard is briefly introduced, and a DiSEqC-compatible power supply circuit with the MAX1771 is introduced. The application circuit provides the required 22kHz pulse-position-modulated (PPM) signal, as well as the 13V or 17V output selection. The circuit also provides a comparator circuit for detecting data transmitted by the satellite antenna assembly.

The circuit of **Figure 1** provides a digitally switchable 13V or 17V for the low-noise block (LNB) typically found in satellite receivers at the antenna feedhorn. This variation of supply voltage "tells" the remotely located LNB electronics whether it should set the antenna polarization clockwise or counterclockwise, which thereby eliminates the need for an interface and cable connection to the antenna.

constant-voltage source that forces a relatively constant current of about 40mA through Q1. During encoded bursts of 22kHz from the microcontroller, the low portions turn off the LED by sinking its drive current, which forces Q1 off as well. The 40mA switched current flows through R5, providing 600mV output swings as required by the specification.

C4, L2, and R5 form a resonant circuit whose impedance at 22kHz is 15Ω, as required by the specification. The inductor's DC resistance must be 0.5Ω or lower to accommodate the 0.5A maximum load currents. The circuit also operates on 12V, and does so with greater efficiency. When operating at 12V, consult the MAX1771 data sheet for suitable values of L1 and R1.

A similar idea appeared in the April 20, 1998 issue of *Electronic Design*.

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