Transmitter Duty Cycle Calculations
and Time Domain Information
Rolling Code Data Format

Worst case duty cycle is computed because binary-coded pulse width type A1D modulation is used. Data rate is assumed to be 200 uSec (=1) and 400 uSec (=0) pulses in any 600 uSec data pulse time window.

Modulation rate is fixed at 1670 bits per second.

During transmission, the transmitter sequentially emits a group of 12 preamble pulses plus 66 data pulses in the form of a pulse keyed carrier. The data stream consists of preamble, header, encoded data string, fixed data string and interword pause.

The preamble and header are fixed by the manufacture of the IC. The preamble consists of a serial string of 12 bits of 50% duty cycle pulses. The on and off times are each 200 uSec. The 12 bit header is followed by one long pause of 2.0 mSec in duration.

The data string utilizes a 66 bit encoded data stream that sequentially generates a 32 bit pseudo-random rotating code with an additonal 34 bits of fixed code.

The rotating code structure has a capability of over 4000 million possible code sequences. This code structure is specifically selected such that the 32 bit pseudo-random code can never be equal to all ones or all zeroes and that on average a 50/50 mix of 1s and 0s are generated.

The fixed code is programmed by the manufacturer to represent device serialization. It consists of a serial number code, button pressed information and battery status code (optional).

REAL TIME ANALYSIS:

Each of the 34 information data pulses occupy a maximum 400 uSec duration position within a 600 uSec wide bit frame. The fixed code elapsed time equals 20.4 mSec.