10.08.98  Digital sync-tip clamping: a new approach to video-signal conditionin

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The circuit generates an internal back-porch interval with an overall duration equal to SYNC. This interval is used to select a given point within this interval, compare the number of counts with an adequate threshold level, and set the counter for countdown. When the counter reaches zero in the remaining cycle, the circuit generates a BP_CLMP gating signal.

The BP_CLMP gating signal points to the position of a color burst. You use this interval during the sync-tip amplitude. When the circuit obtains the SYNC signal, this signal enables the timer and generates the BP_CLMP signal. After the timer returns to its initial state, the circuit enables the register for writing. When the value of a new entry exceeds the threshold level, the circuit generates the SYNC signal from digitized video. Nominally, the threshold level is 3N/4 or more. However, because these variations are cyclic, a narrowband AGC's performance using minimum/maximum detection matches the system's performance estimation.

The AGC operates by estimating the difference between the obtained and specified sync-tip amplitude. When the circuit obtains the SYNC signal, this signal enables the timer and generates the BP_CLMP signal. After the timer returns to its initial state, the circuit enables the register for writing. When the value of a new entry exceeds the threshold level, the circuit generates the SYNC signal from digitized video. Nominally, the threshold level is 3N/4 or more. However, because these variations are cyclic, a narrowband AGC's performance using minimum/maximum detection matches the system's performance estimation.

The AGC loop adjusts the ADC's full-scale range. For video applications, this adjustment is less than 2.3V dc. Therefore, the ADC's full-scale input range is limited to 1.6V p-p. The expected AGC range should match the ADC's specification. For the ADS7850 ADC, this range is 0.7V p-p to 1.5V p-p.

The CADC is a negative-feedback system. Unlike known dc-restoration methods, digital sync-tip clamping doesn't require dc-restored reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage. A unity-gain buffer feeds the output code to the system's reference voltage.
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