

APPLICATION NOTE 4116

Combining the Composite Sync to the Green Signal

Abstract: This application note presents a simple, low-cost way to add the sync signal onto the green channel for standard-definition video.

In some video applications, the signal sources deliver RGB signals and a composite sync signal. The RGB signals contain no video sync. At the receiver side, some low-cost video decoders do not have a stand-alone composite sync input; they only accept the sync signal with the video signal. Adding the sync signal onto the green channel for such an application requires a "sync on green" circuit.

There is a simple, low-cost way to add the composite sync onto the green channel for standard-definition video. The circuit in **Figure 1** uses the [MAX9589](#) to add the composite sync to the green channel, and generates the standard RGB signals at each output. For example, consider a 0.7V_{P-P} green signal input and a 0.3V composite SYNC signal input from the video sources that have 75Ω terminations. From Figure 1 the output signal at the green channel after the MAX9589 is 1V_{P-P}. For the 0.7V_{P-P} R and B input signals from the source, the output signals after the MAX9589 are 0.7V_{P-P}.

There is an advantage to using the MAX9589 in this application. The MAX9589 can be used as an anti-aliasing filter in front of the video decoder and, thus, improves the video performance.

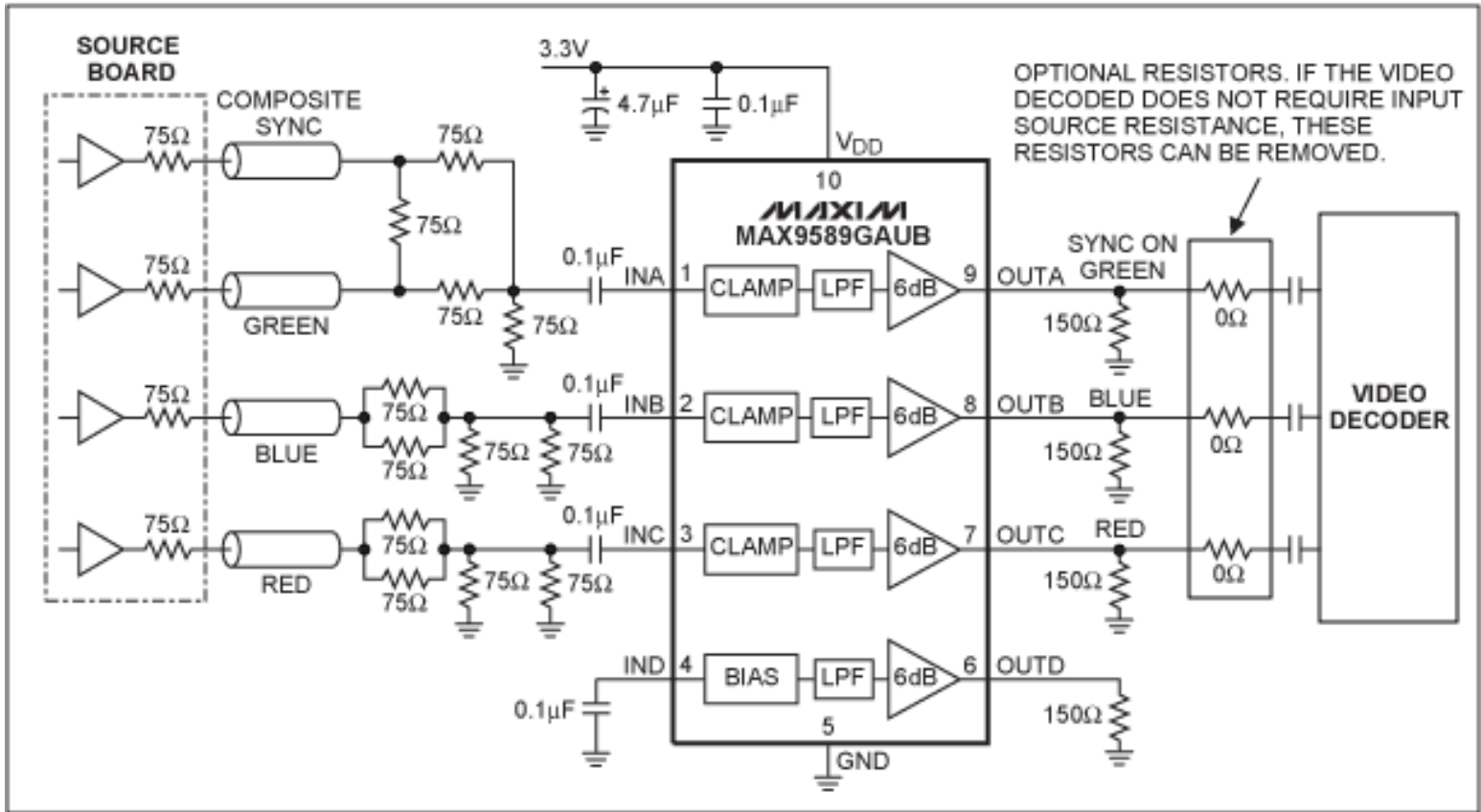


Figure 1. Schematic of a sync on green circuit.

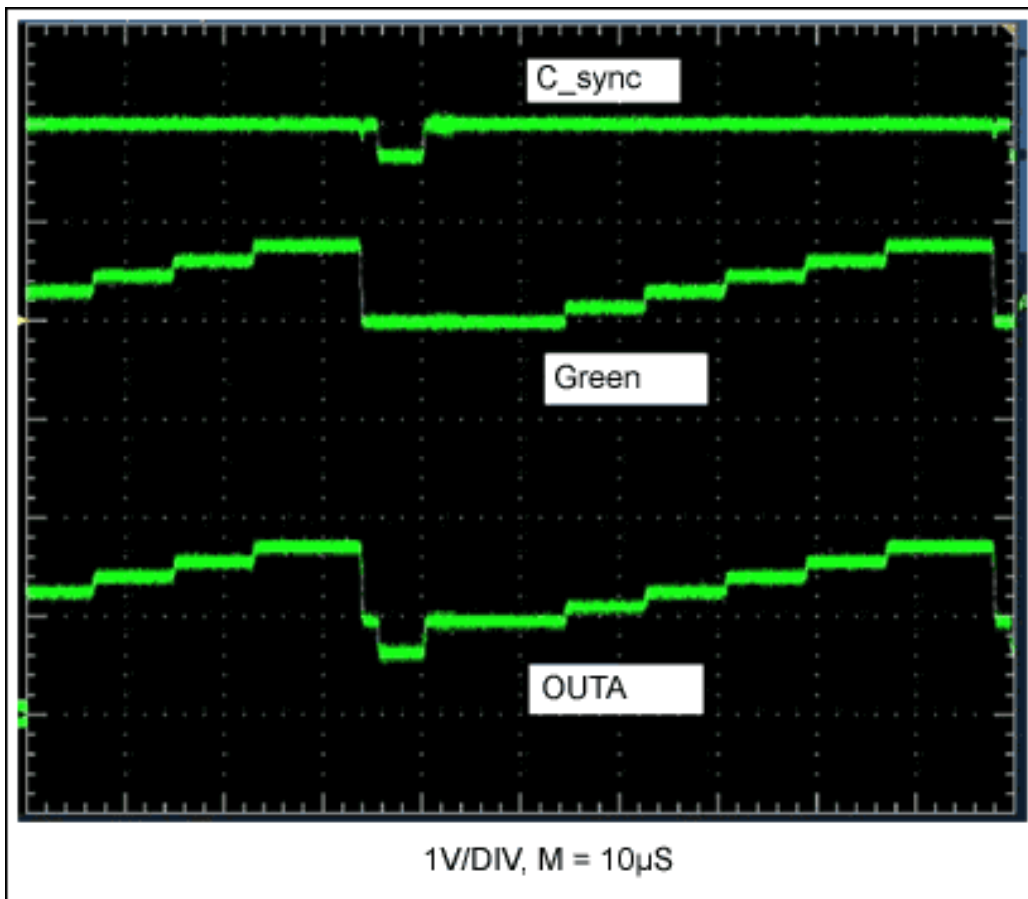


Figure 2. Input and output waveforms from the circuit in Figure 1.

Application Note 4116: <http://www.maxim-ic.com/an4116>

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Related Parts

MAX9589: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

AN4116, AN 4116, APP4116, Appnote4116, Appnote 4116

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