



[Maxim](#) > [Design Support](#) > [Technical Documents](#) > [Application Notes](#) > [Video Circuits](#) > APP 4116

Keywords: sync on green, sync adder

APPLICATION NOTE 4116

# Combining the Composite Sync to the Green Signal

By: Marvin Li  
Sep 21, 2007

*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  $75\Omega$  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.

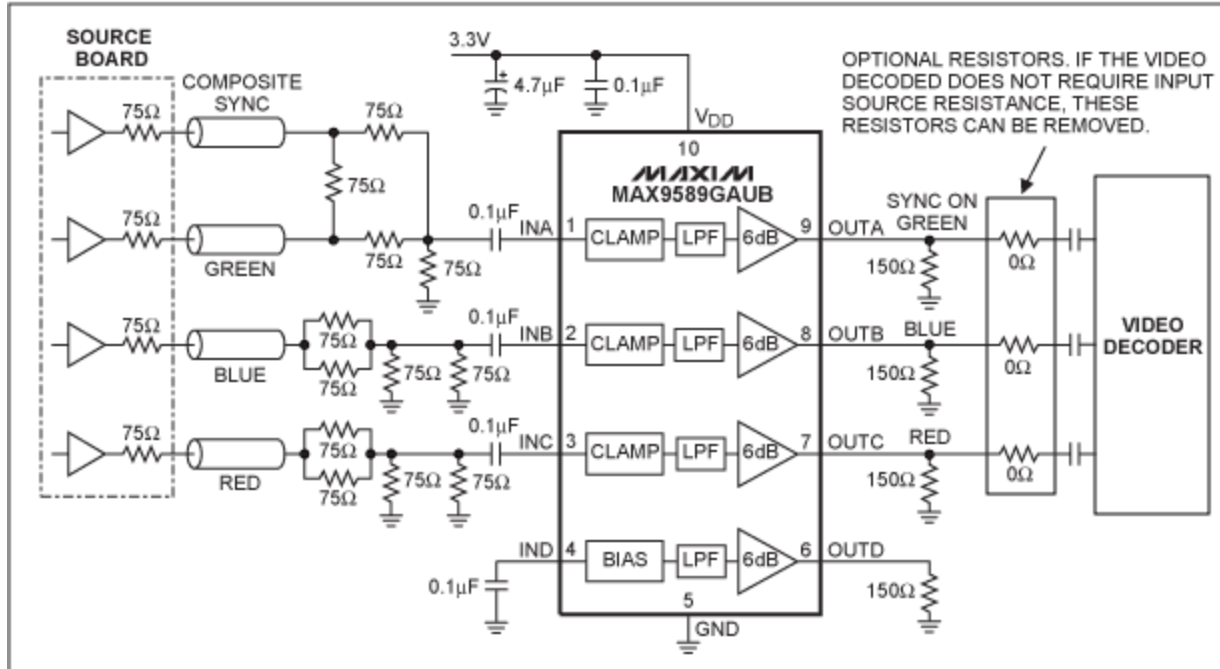


Figure 1. Schematic of a sync on green circuit.

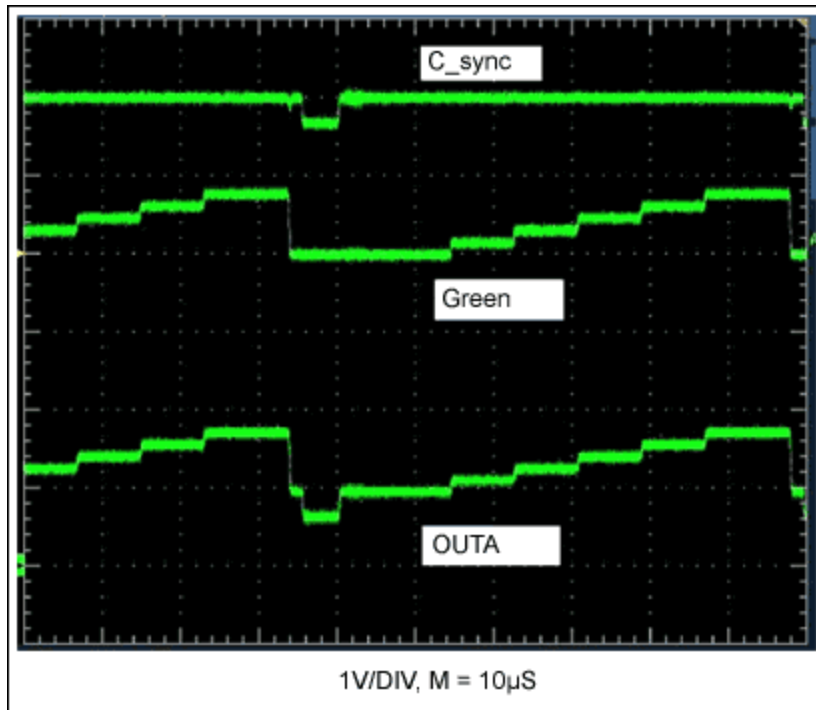


Figure 2. Input and output waveforms from the circuit in Figure 1.

#### Related Parts

MAX9589

Single, Dual, Triple, and Quad Standard-Definition Video

[Free Samples](#)

---

**More Information**

For Technical Support: <http://www.maximintegrated.com/support>

For Samples: <http://www.maximintegrated.com/samples>

Other Questions and Comments: <http://www.maximintegrated.com/contact>

---

Application Note 4116: <http://www.maximintegrated.com/an4116>

APPLICATION NOTE 4116, AN4116, AN 4116, APP4116, Appnote4116, Appnote 4116

Copyright © by Maxim Integrated Products

Additional Legal Notices: <http://www.maximintegrated.com/legal>