

## Composite & S-Video in Single Connector for CH7003/7004/7005/7006/7007/7008 Using DACs Switching Method

#### Introduction

In some application, there is only one video output connection available and simultaneously display of S-Video and Composite is not a concern. In order to provide S-video & Composite signals under this situation, a method which switches luminance signal (Y) of S-video and Composite signals by software has been described in AN-27. An alternative method using DACs switching is described here. The designers may choose either method to best fit to their design.

### **Circuit Diagram**



**Note:** All the VDD are connected to DAC power supply & GND are conneted to DAC ground. Please refer to the data sheet for both VDD & GND pins' number. For PCB layout requirement, please refer to AN-24 (CH7003/7004/7005/7006) or AN-28 (CH7007/7008).

### **Software Register Setting**

TV Output	Register Setting PM Register 0Eh
Composite Output	PD[2:0] = 010
S-Video Output	PD[2:0] = 000

#### **Detection of TV Connection**

The detection sequence of TV connection is described as follows:

- 1. Set the PMR register (0Eh) to enable the DACs of C and Y (PD[2:0] = 0000).
- 2. Ensure that the XCLK and XCLK\* input pins are receiving clock signals (alternatively, XCLK\* can be connected to the VREF pin.
- 3.Set the SENSE bit in CDR register (10H) to 1. This forces a constant current output onto the Y and C outputs. Note that during SENSE = 1, the analog outputs are at steady state and no TV synchronization pulses are asserted.
- 4. Reset the SENSE bit to 0. This triggers a comparison between the voltage sensed on these analog outputs and the reference value expected (V-threshold = 1.235 V). If the measured voltage is below this threshold value, it is considered connected. If it is above this voltage, it is considered unconnected. During this step, each of the DAC status this corresponding to individual analog outputs will be set if they are NOT connected.
- 5. Check YT and CT connection status bits in CDR register (10h).

If CTand YT = 0, S-video is connected;

else if YT = 0, Composite is connected;

else, nothing is connected.

## **Cable Connection**



# **Recommandation:** Please refer to Digi-Key or JAMECO for the standard socket & connector. Customer should be aware and consult the cable manufacturer regarding the EMI issue, when the small form factor custom made connectors & cables are required.