Re: OSC and unity gain buffer

Source: http://sci.tech−archive.net/Archive/sci.electronics.design/2008−04/msg01804.html

- *From*: "Michael A. Terrell" <mike.terrell@xxxxxxxxxxxxx>

- *Date*: Thu, 10 Apr 2008 19:46:50 −0400

Fred Bloggs wrote:

> Michael A. Terrell wrote:
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> > Fred Bloggs wrote:
> >
> > > Oh? You're quite the ignoramus today...thanx for more ammo:−)
> >
> > If you know so damn much about video amplifiers why didn't you tell the OP that a unity gain buffer is the wrong configuration, or that you need to use double termination?
> >
> > So much for your 'ammo'. OTOH, you ARE always shooting blanks.
>
> A unity gain buffer would not be the wrong configuration for a series terminated drive into a high impedance termination of the line, such as into a scope. Can you tell me why you would want to use the x2 series termination with a video amplifier? I don't think you mentioned anything more than matching line/termination impedances which means as usual your post is misinformational and/or incomplete...Your statement:"Without the extra gain and resistor you have a sever mismatch which causes no end of problems."

Fred. double terminated video amps have been the standard for over 50 years. I can't help it if you don't understand. Look at a few of the Linear, Analog or Maxim data sheets for video amplifiers and educate

yourself.

In the early days the video amp was a cathode follower circuit.
Early solid state were emitter follower circuits. The amp needs as low
of an output impedance as practical, then has to be matched to both ends
of the 75 ohm coax. I apologize if you can't grasp this simple concept.
Look at simple video distribution designs, too.

The OP said that he is using National's LMC6484 with a 1.5 MHz
badwidth which isn't a good choice. He didn't show a sample of the
circuit, or provide a link to it. Unity gain amplifiers generally don't
like high capacitance loads. The series resistance eliminates that
problem, and provides an excellent match to the cable's characteristic
impedance. Without more information about his design, it is impossible
to give exact details. He didn't tell us if it is DC or capacitor
coupled. If it is DC coupled is there any DC offset. That was why I
asked if he had looked at it with a scope. Th last video amp design I
worked on had a 0 to −63 dB output control, in .1 dB steps. It also had
a DC to 40 MHz bandwidth. It is under a NDA, and I had to leave all the
documentation behind when the job was completed. The gain control used
an 18 bit serial interfaced D/A converter, and a four quadrant
multiplier to give a −24 to −63 dB range. For the upper range a set of
analog switches switched in a 24 dB gain stage. This method allowed the
full range, while keeping the noise figure at an acceptable level. The
−3 dB point varried from 49 to 73 MHz in the production boards. The
embedded controller measured the DC offset and zeroed it, as well as
setting the gain and switching the extra stage. This was followed by 16
seperate Sallen Key filters for the desired bandwidth. They were
selected by a pair of 16 to one analog mux chips.

The worst video amplifier I ever had to work with was an RCA design
with 17 6146 tubes. It was used in a TTU−25B TV transmitter, and
probably other TV transmitters. One tube drove the other 16 in a
distributed amplifier configuration, and all 16 had to be matched. It
modulated the 1 KW stage of the TTU−1 transmitter which was the driver
for the larger transmitter design.

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