

Re: How to convert differential signal to single-ended signal?

Re: How to convert differential signal to single-ended signal?

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2007-04/msg02220.html>

- *From:* LVMarc <LVMarc@xxxxxxx>
 - *Date:* Wed, 11 Apr 2007 10:45:11 -0700
-

joseph2k wrote:

Allen wrote:

We are testing some wideband (1GHz-8GHz) differential circuits, but there is only one channel on our high frequency oscilloscope. What kind of devices can we use to convert the differential signal to signal-ended signal? Can we use a balun or a power combiner? Thanks.

Best,
Allen

To correctly measure all parameters you need a two input scope (a 4 input scope would be even better, have you considered renting one?), additionally a differential probe will help. Otherwise a balun or a 180 degree combiner will work for "coarse" measurements.

Allen,

JKK is spot on. The best way is to use a two channel scope to monitor and then use the math function to "subtract" the two, thereby having the scope perform the differential to single ended conversion.

For part of the band (1-3 GHz) you can use fast op amps to perform the differential to single ended conversion. for the entire 1-8 you also can use a wideband 180 hybrid. this acts like a transformer which can be used from 1 MC to 1 GC)

best regards,

Marc

.