

# Phase-Matched Balun

## PSPL5310R Datasheet

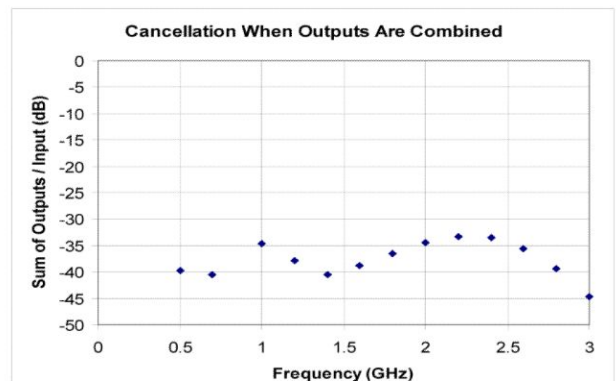
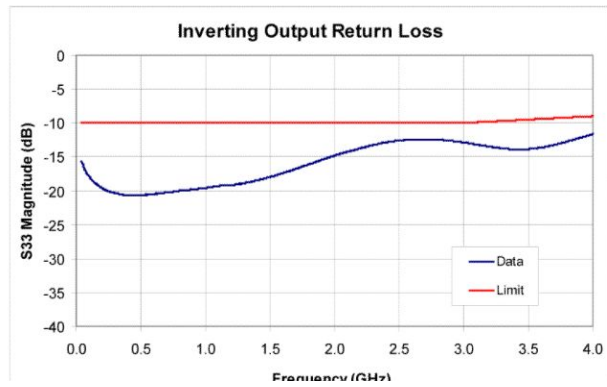
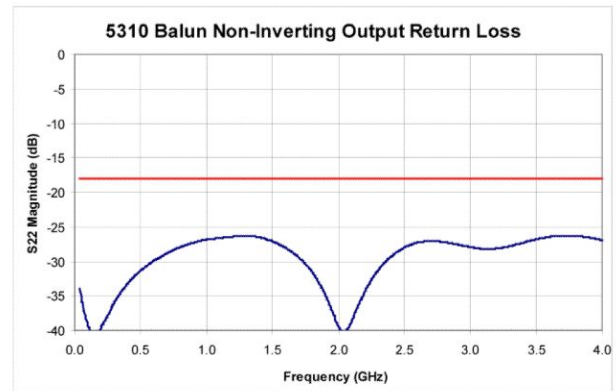
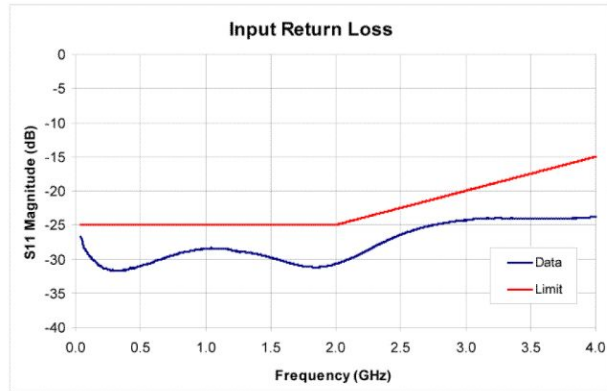
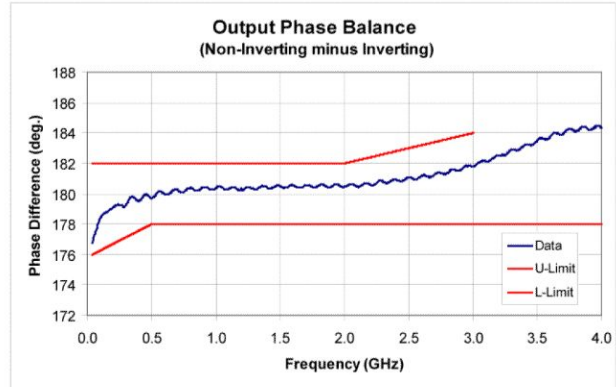
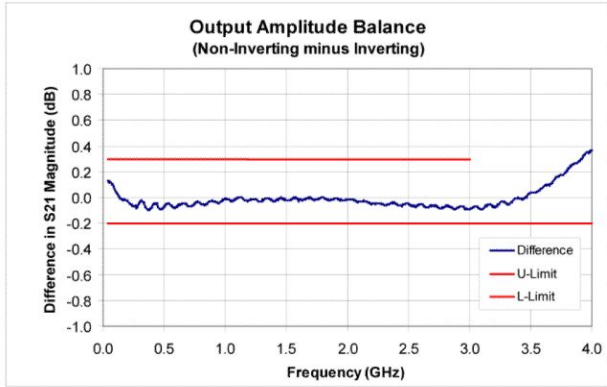


The PSPL5310R Phase-Matched Balun is a broadband differential pulse splitter. A signal fed into the 50  $\Omega$  input is split equally into two 50  $\Omega$  outputs. One output is the same polarity as the input while the other is inverted in polarity. The PSPL5310R uses proprietary technology that provides exceptional phase and amplitude matching. Popular uses for the PSPL5310R are in Analog-Digital-Converter (ADC) and differential Test & Measurement applications.

### Key performance specifications

- Excellent Phase and Amplitude Balance from 100 MHz to 4 GHz
- Operating range 4 MHz to 6.5 GHz
- Designed for use with ADCs
- Maximum input power > +20 dBm

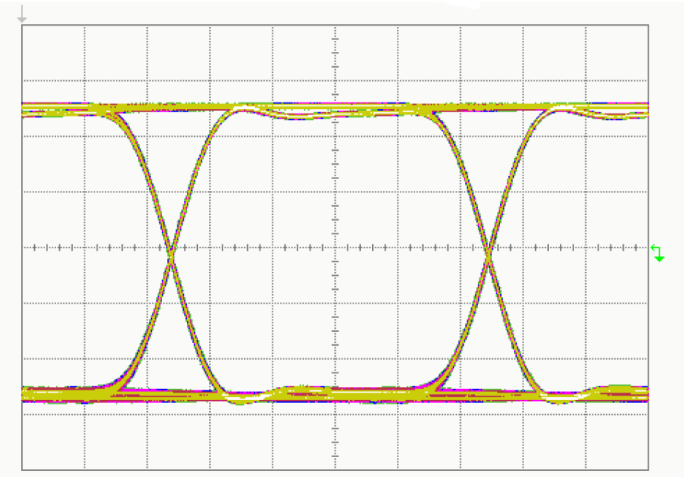
## Typical performance



**Response to 2 Gb/s NRZ signal with  
2<sup>7</sup>-1 PRBS pattern**

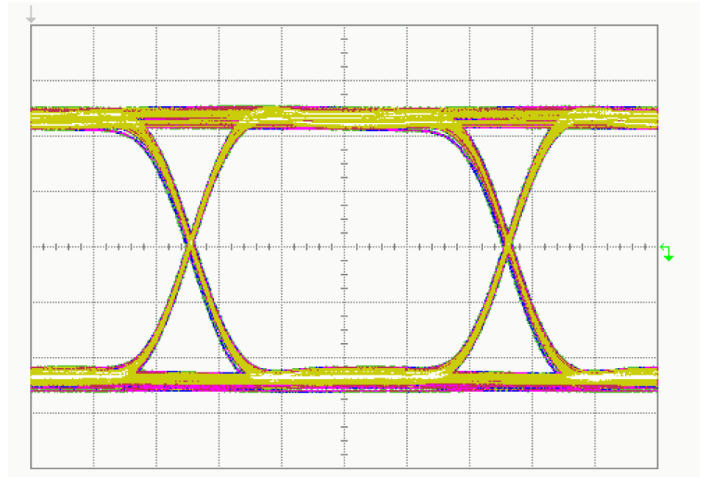
**Input**

Amplitude scale = 100 mv/div,  
Time Scale = 100 ps/div



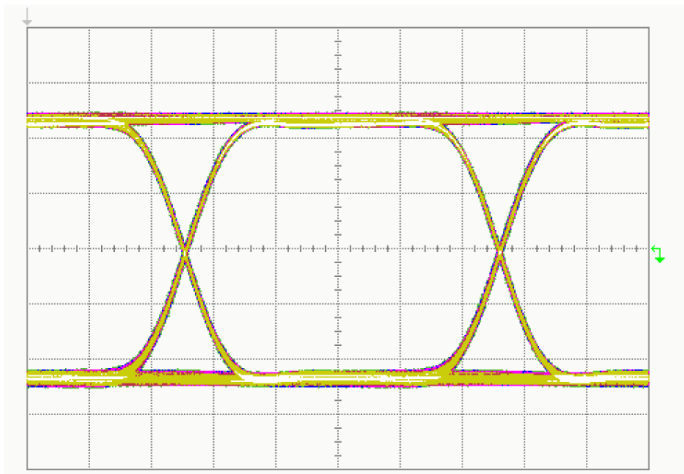
**Inverting Output**

Amplitude scale = 50 mv/div,  
Time Scale = 100 ps/div



**Non-Inverting Output**

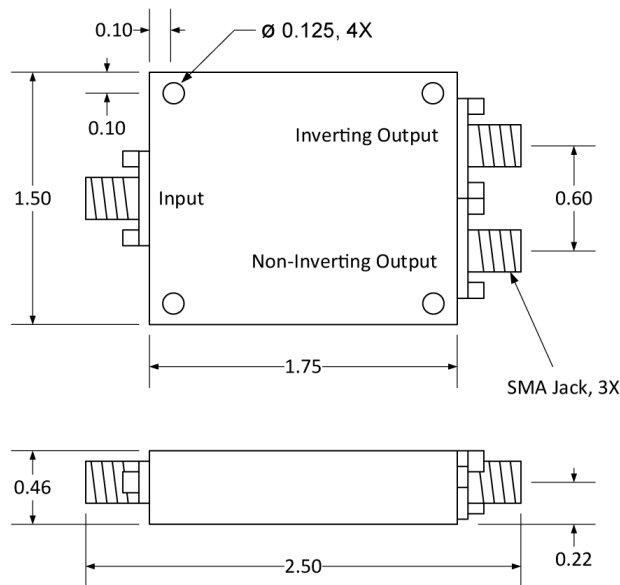
Amplitude scale = 50 mv/div,  
Time Scale = 100 ps/div



# Specifications

Parameter	Test Condition	Minimum	Typical	Maximum
Risetime	10% to 90%		54 ps	
Bandwidth	-3 dB		6.5 GHz	
Low Frequency Cutoff	-3 dB		4 MHz	
Insertion Loss	100 MHz 1 GHz 2 GHz 3 GHz		6.9 dB 6.9 dB 7.1 dB 7.6 dB	7.1 dB 7.3 dB 7.7 dB 8.1 dB
Impedance			50 Ohms	
Return Loss	100 MHz – 2 GHz		-30 dB	-25 dB
Input			-30 dB	-18 dB
Non-Inverting Output			-15 dB	-10 dB
Inverting Output				
Delay			320 ps	
Differential Amplitude Balance	100 MHz – 3.0 GHz		±0.1 dB	+0.3 dB -0.2 dB
Differential Phase Balance	500 MHz – 2.0 GHz		±0.5 degree	±2 degrees
Maximum Input	100 MHz	+20 dBm		
Connectors	SMA jacks (f)			
Weight	1.4 oz. (40 grams)			
Temperature Range	0 to +70 °C operating, -40 to +125 °C storage			
Warranty	One Year			

## Mechanical dimensions



Not drawn to scale  
Dimensions in inches

## Ordering information

### Models

PSPL5310R

Phase-Matched Balun

**ASEAN / Australasia** (65) 6356 3900  
**Belgium** 00800 2255 4835\*  
**Central East Europe and the Baltics** +41 52 675 3777  
**Finland** +41 52 675 3777  
**Hong Kong** 400 820 5835  
**Japan** 81 (3) 6714 3010  
**Middle East, Asia, and North Africa** +41 52 675 3777  
**People's Republic of China** 400 820 5835  
**Republic of Korea** 001 800 8255 2835  
**Spain** 00800 2255 4835\*  
**Taiwan** 886 (2) 2722 9622

**Austria** 00800 2255 4835\*  
**Brazil** +55 (11) 3759 7627  
**Central Europe & Greece** +41 52 675 3777  
**France** 00800 2255 4835\*  
**India** 000 800 650 1835  
**Luxembourg** +41 52 675 3777  
**The Netherlands** 00800 2255 4835\*  
**Poland** +41 52 675 3777  
**Russia & CIS** +7 (495) 6647564  
**Sweden** 00800 2255 4835\*  
**United Kingdom & Ireland** 00800 2255 4835\*

**Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777  
**Canada** 1 800 833 9200  
**Denmark** +45 80 88 1401  
**Germany** 00800 2255 4835\*  
**Italy** 00800 2255 4835\*  
**Mexico, Central/South America & Caribbean** 52 (55) 56 04 50 90  
**Norway** 800 16098  
**Portugal** 80 08 12370  
**South Africa** +41 52 675 3777  
**Switzerland** 00800 2255 4835\*  
**USA** 1 800 833 9200

\* European toll-free number. If not accessible, call: +41 52 675 3777

Updated 10 April 2013

**For Further Information.** Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit [www.tektronix.com](http://www.tektronix.com).

Copyright © Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks, or registered trademarks of their respective companies.



12 Aug 2014

1PW-30548-0

[www.tektronix.com](http://www.tektronix.com)

