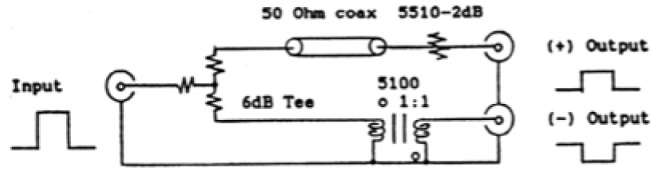
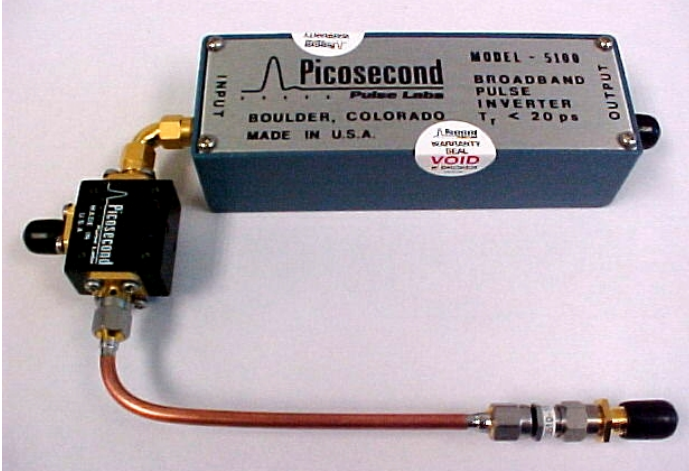


# 17 GHz Differential Pulse Splitter

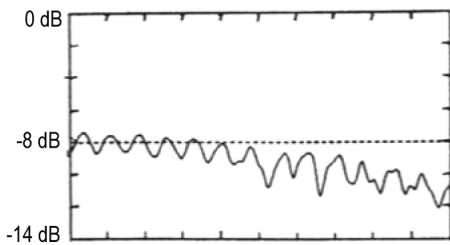
## PSPL5315 Datasheet



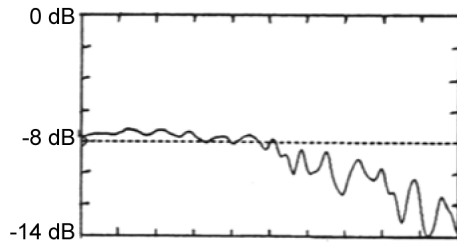
The PSPL5315 BALUN is a broadband differential pulse splitter. A signal fed into the 50  $\Omega$  input is split equally into two 50  $\Omega$  outputs. One output is the same polarity as the input, while the other output is inverted in polarity. The PSPL5315 BALUN has a very fast 21 ps rise time and a bandwidth of 17 GHz. One application of the PSPL5315 is to provide push-pull, balanced drive signals for the deflection plates of ultra-wideband, traveling-wave oscilloscopes.

### Typical performance

**Insertion Loss: Input to (+) Output**  
1 dB/div and 2 GHz/div

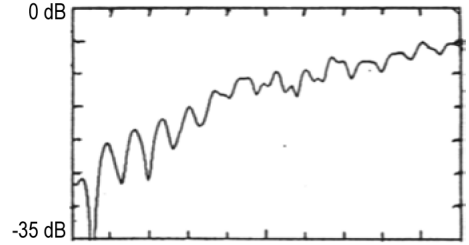


**Insertion Loss: Input to (-) Output**  
1 dB/div and 2 GHz/div

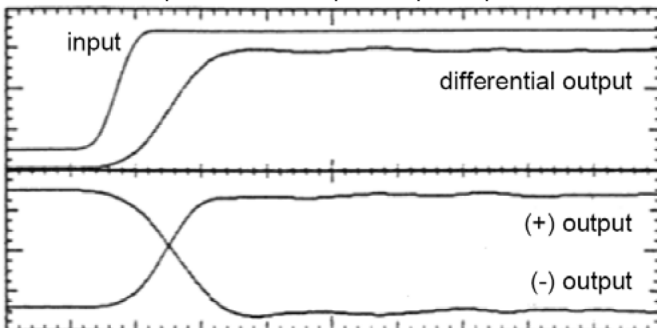


**Return Loss**

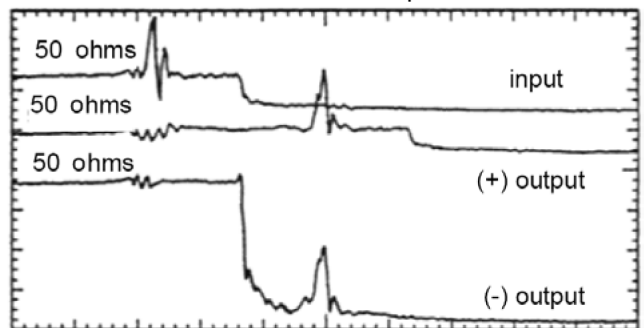
5 dB/div and 2 GHz/div



**Transmission Response**  
to 10 ps rise time input step, 20 ps/div



**35 ps TDR**  
5% rho/div and 500 ps/div

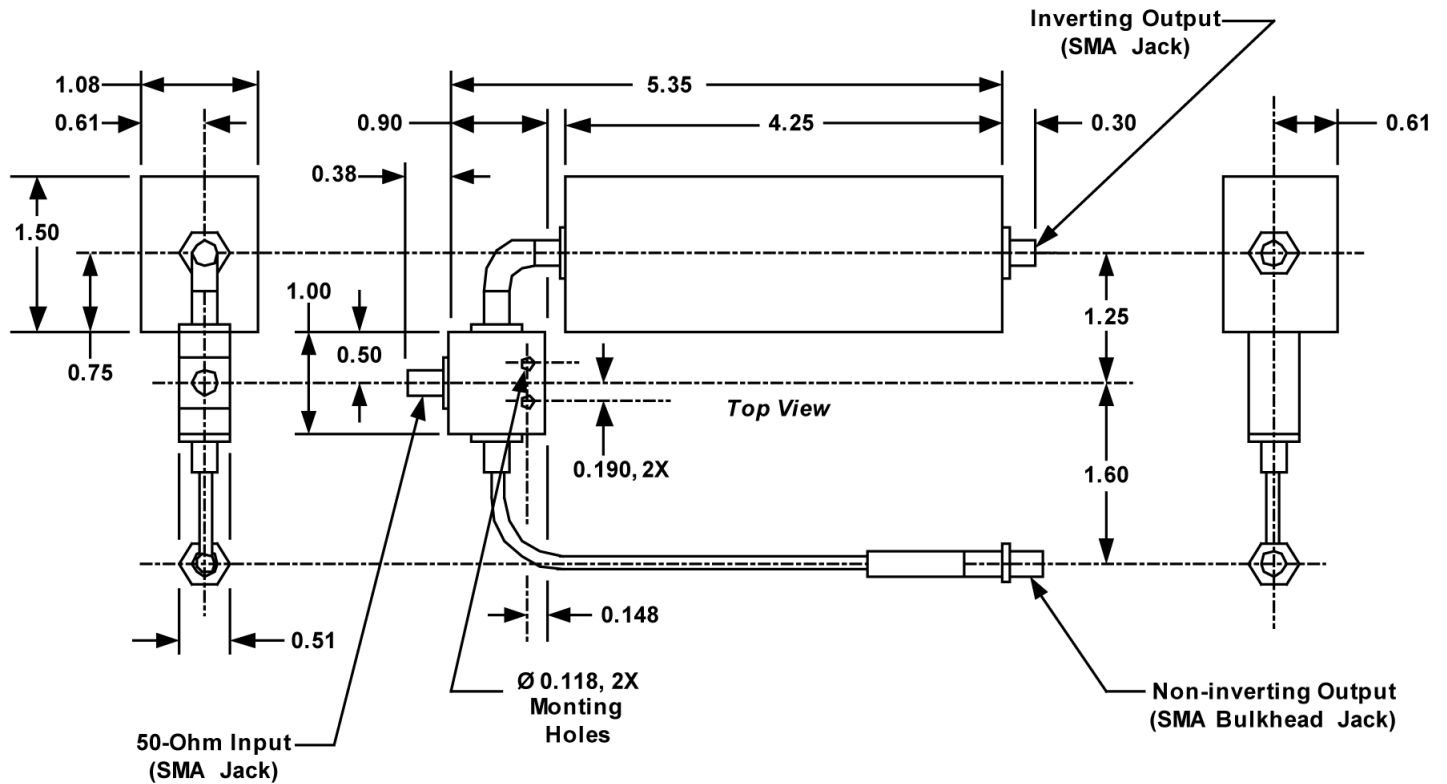


## Specifications

Parameter <sup>1</sup>	Value
Rise time (10%-90%)	21 ps typical, 25 ps max.
Bandwidth (-3 dB)	17 GHz typical
Low Frequency Cutoff	200 kHz (-3 dB)
Insertion Loss	8 dB, nominal
Impedance	50 Ω
Refl. Coeff. (35 ps TDR) Input (+) output (-) input	<15% ptp, t < 150 ps -4%, t > 1 ns -4%, t > 3 ns -15%, t > 2 ns
Return Loss	0.1 < f < 2 GHz, RL > 20 dB -2.5 dB/GHz*f (GHz) 2 < f < 10 GHz, RL > 15 dB -1.25 dB/GHz*f (GHz)
Sag Time Constant	800 ns (1/e)
Delay	0.9 ns
Diff. Delay Balance (step response)	±2 ps max.
Diff. Balance (step response)	< 0.5 dB, t < 500 ps; 1 dB, t > 1 ns
Max. Input	0.75 Watts
Connectors	SMA jacks (f)
Weight	0.5 lbs. (0.2 kg)
Dimensions	6 in x 3.7 in x 1.1 in (15 cm x 9.4 cm x 2.8 cm)
Warranty	One year

<sup>1</sup> All parameters listed are typical unless max/min guaranteed limits are provided. Due to internal reflections, the PSPL5315 is NOT recommended for use with gigabit logic signals nor in a differential network analyzer.

**Mechanical dimensions**



Notes:  
 All dimensions in inches  
 Not drawn to scale  
 The end of the non-inverting output may not lie in precisely the same plane as the end of the inverting output. The non-inverting line length is adjusted so that the output phases differ by 180°.

**Ordering information**

**Models**

PSPL5315

Diff pulse splitter-Balun, SMA J-J-J

**ASEAN / Australasia** (65) 6356 3900  
**Belgium** 00800 2255 4835\*  
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**Switzerland** 00800 2255 4835\*  
**USA** 1 800 833 9200

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

**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).

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