

This PSPL component is a proprietary, passive Impulse Forming Network (IFN). It has the unique property of providing an output that is approximately the derivative of the input waveform while maintaining an excellent impedance match on both ports.

$$V_{OUT} \approx T_C \cdot \frac{dV_{IN}}{dt} \quad T_C \text{ is the derivative time coefficient.}$$



When the input is a step, the output is an impulse. When the input is an impulse, the output is a monocycle. The Model 5206 is optimized for use with the 4015C, 4015D, and 4016 ultra high-speed pulse generators developed and produced by Picosecond Pulse Labs. It is available with 2.92 mm, 40 GHz, or 2.4 mm, 50 GHz connectors.

### Model 5206 Specifications

PSPL GENERATOR MODEL	4015C	4015D	4016
Derivative Coefficient, $T_c$	5.0 ps	3.0 ps	2.0 ps
Typical Input Step	9.0 V 15 ps (10-90%)	5.0 V 12 ps (10-90%)	5.0 V 5 ps (10-90%)
Impedance	$50 \pm 2 \Omega$		
Reflection Coefficient (35 ps TDR)	$\pm 3\%$		
Maximum CW Input Power	0.2 W		
Connectors	2.92 mm or 2.4 mm <sup>1</sup>		
Operating Temperature Range	0 - 50 °C		
Warranty	One Year. See Terms and Conditions of Sale		
Dimensions	2.92mm 2.4mm	35.1 x 15.9 x 7.9 mm 36.7 x 15.9 x 7.9 mm	
Typical Output Impulse	2.3 V 20 ps (FWHM)	1.3 V 17 ps (FWHM)	1.5 V 15.5 ps (FWHM)

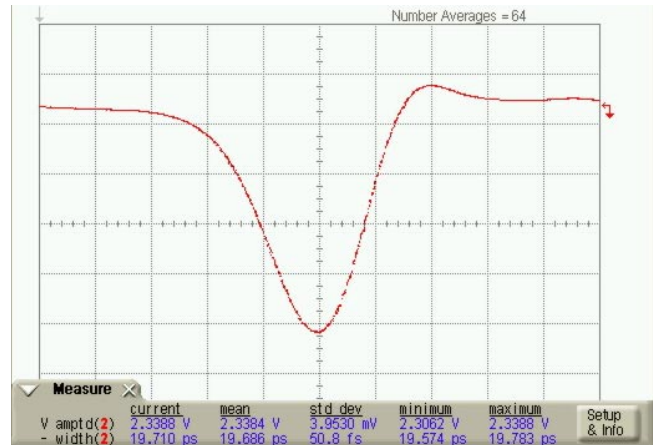
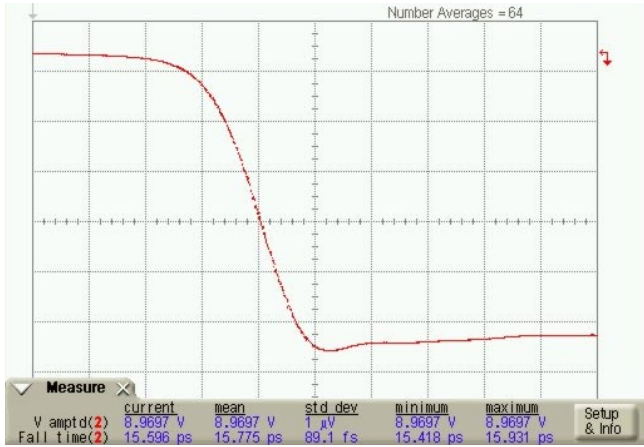
### Ordering Information

Model Number	Connector Configuration <sup>2</sup>
5206-222	2.92 mm jack (f) – plug (m)
5206-205	2.4 mm jack (f) – plug (m)

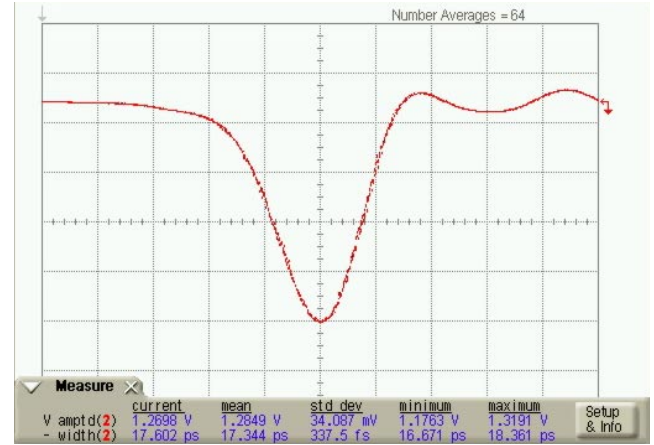
<sup>1</sup> Given specifications were measured using the 5506-205 version (2.4 mm)

<sup>2</sup> Other connector combinations are available upon request

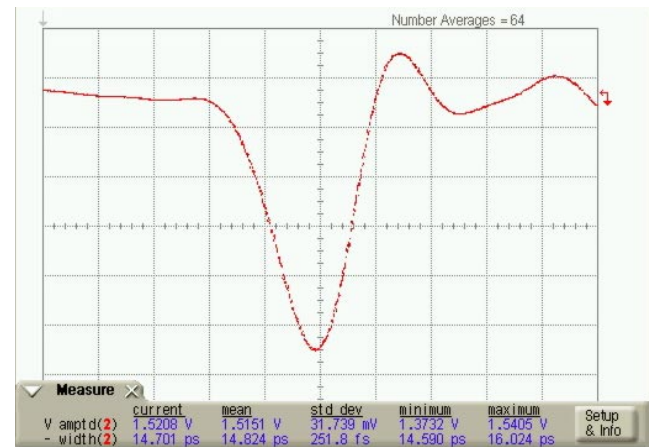
### 5206 Typical Waveforms<sup>3</sup>



PSPL 4015C Pulse Generator Step Output and Resulting Impulse Using the 5206 Impulse Forming Network

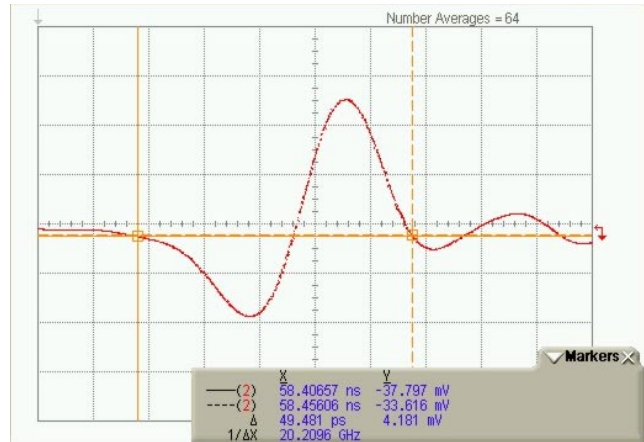
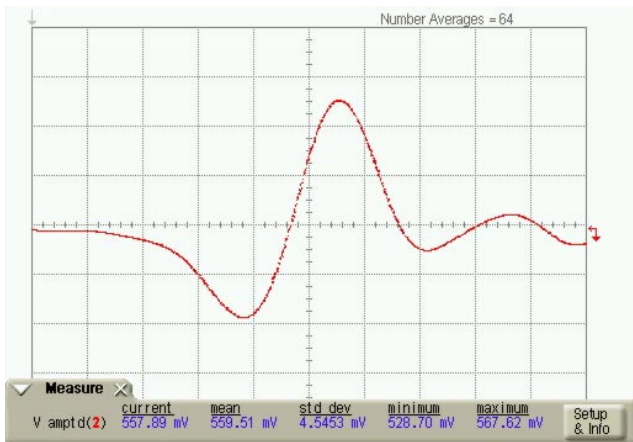


PSPL 4015D Pulse Generator Step Output and Resulting Impulse Using the 5206 Impulse Forming Network



PSPL 4016 Pulse Generator Step Output and Resulting Impulse Using the 5206 Impulse Forming Network

<sup>3</sup> Measurements performed using an Agilent 50 GHz Sampling System



20 GHz Monocycle Output Formed by Cascading Two 5206 Impulse Forming Networks with a PSPL 4016 Pulse Generator

### 5206 Mechanical Drawing

