MODELS 5208, 5210, 5212A, 5214, 5216
IMPULSE FORMING NETWORKS
PRODUCT SPECIFICATION

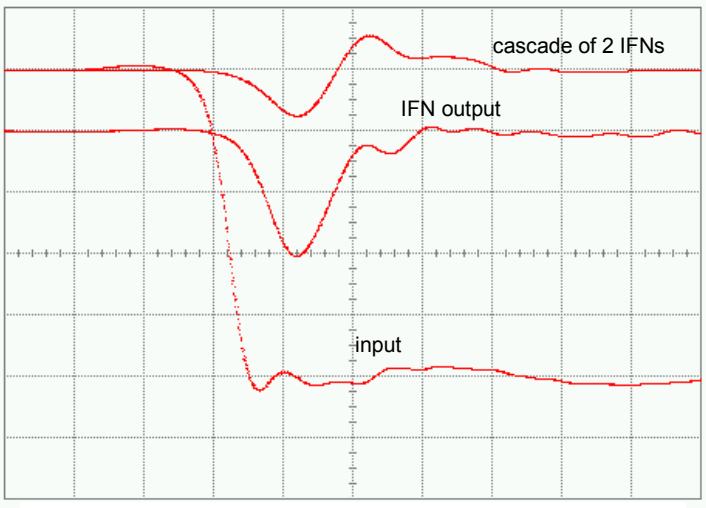
These PSPL components are proprietary, passive Impulse Forming Networks (IFNs). They have the unique property of providing an output that is approximately the derivative of the input waveform while also maintaining an excellent impedance match on all ports.

V(out) ≈ Tc * dV(in) / dt

Where Tc is the derivative time coefficient. When driven by a step, the output is an impulse. When driven by an impulse, the output is a monocycle. The various models are optimized for use with different input risetimes. A third IFN port is labeled "DC" and terminated in 50 Ω. A DC baseline offset, bias voltage, and/or a slower risetime, pedestal pulse may be connected to this DC port. See PSPL Application Note AN-9 for more details.

Model	5208	5210	5212A	5214	5216
Tc, Derivative Coefficient	8 ps	13 ps	21 ps	34 ps	88 ps
Min.Recommended Input Risetime [1]	15 ps	25 ps	40 ps	60 ps	150 ps
Impedance	50 Ω, ±2 Ω (DC), all models				
Reflection Coefficient (35 ps TDR)	-6%, t < 200 ps	-3% t < 200 ps	-10% t < 200 ps	12% ptp t < 500 ps	10% ptp t < 600 ps
Max CW Input Power	½ Watt, all models				
Connectors	2.9 mm	SMA	SMA	SMA	SMA
Warranty	One year. See Terms and Conditions of Sale for details				
Recommended PSPL Pulse Generator	4015D -5 V, 12 ps	10,050A 10 V, 45 ps	10,070A 7.5 V, 65 ps	4500E 35 V, 100 ps	10,300B 50 V, 300 ps
Resultant Output	-2 V	2.5 V	2 V	10 V	11.5 V
Impulse from IFN	20 ps	50 ps	80 ps	135 ps	350 ps

Note:
[1] Do not use with faster risetimes as the output waveform is no longer the derivative of the input but will also contain ringing.



5208 IFN, 20 ps/div
5.10 V, 11.3 ps Step Input, 2 V, 20 ps Impulse and
1.3 V ptp, 13 GHz Monocycle Outputs

PICOSECOND PULSE LABS, P.O. BOX 44, BOULDER, CO 80306, USA, TEL: 1.303.443.1249, FAX: 1.303.447.2236
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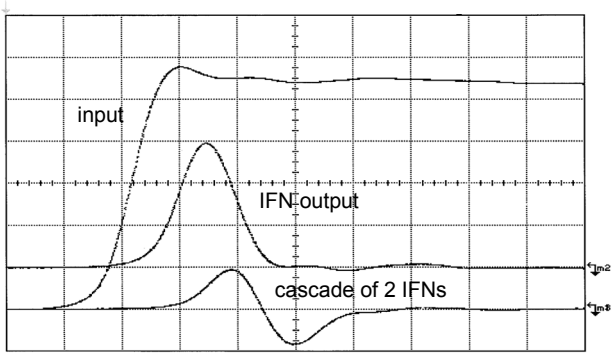
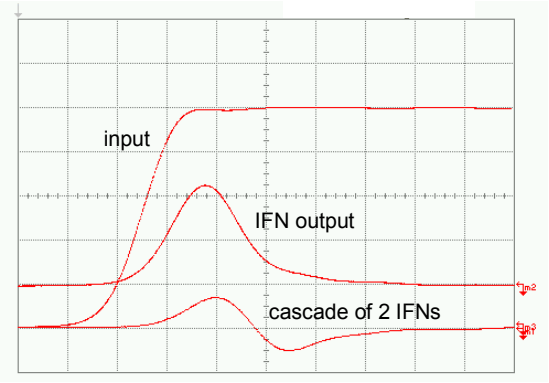
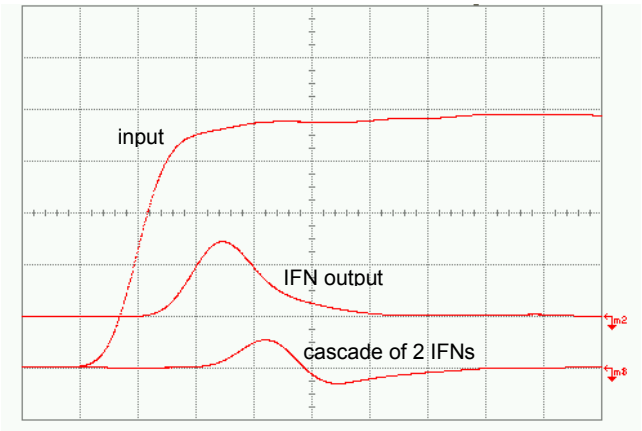


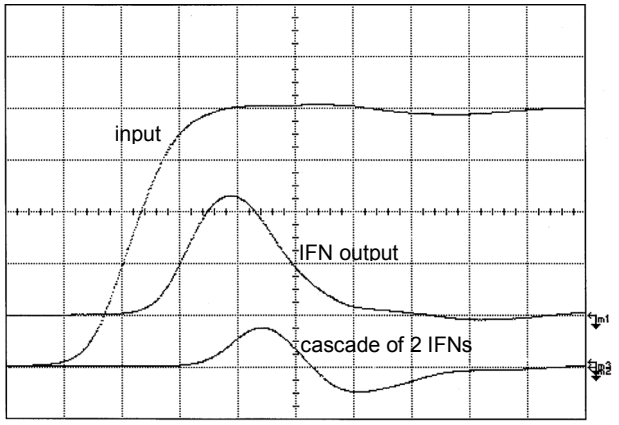
5210 IFN, 50 ps/div
10 V, 45 ps Step Input from PSPL 10,050A Pulse Gen.
2.7 V, 50 ps Impulse and
1.7 V ptp, 6.5 GHz Monocycle Outputs



5212A IFN, 50 ps/div
10 V, 65 ps Step Input from PSPL 10,070A Pulse Gen.
2.9 V, 80 ps Impulse and
1.6 V ptp, 4 GHz Monocycle Outputs



5214 IFN, 100 ps/div
34 V, 129 ps Step Input from PSPL 4500E Pulse Gen.
10 V, 130 ps Impulse and
5.9 V ptp 2 GHz Monocycle Outputs



5216 IFN, 200 ps/div
50 V, 300 ps Step Input from PSPL 10,300B Pulse Gen.
11.5 V, 350 ps Impulse and
6.2 V ptp 700 MHz Monocycle Outputs

Ordering Information

Model Number	Connector Configuration
5208-218	2.92 mm jacks (f) on In, Out, and DC
5210-104	SMA jacks (f) on In, Out, and DC
5212A-104	SMA jacks (f) on In, Out, and DC
5214-104	SMA jacks (f) on In, Out, and DC
5216-104	SMA jacks (f) on In, Out, and DC