

15 GHz Low Noise Amplifier LABware Module

PSPL8003 Datasheet



The Model PSPL8003 15 GHz Low Noise Amplifier LABware Module is designed for bench-top lab use. This LABware module can simply be plugged in with a line cord (either 110 V or 220 V) and the amplifier is ready for use. The PSPL8003 is a broadband linear amplifier intended for use amplifying signals with a minimum amount of distortion. The PSPL8003 provides exceptional gain flatness and low deviation from linear phase while providing a bandwidth of 10 kHz to 15 GHz. This amplifier is ideal for use as a linear gain block.

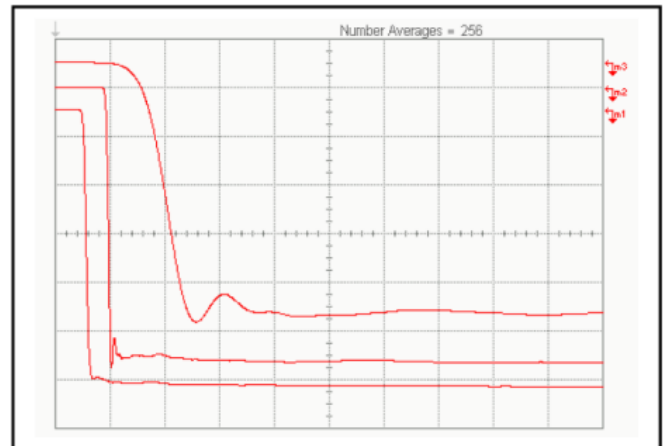
Key performance specifications

- LABware bench-top instrument
- 15 GHz bandwidth with excellent gain flatness (± 0.3 dB)
- Lower 3 dB frequency of 10 kHz
- Low deviation from linear phase (± 3 degrees)
- 1 dB compression point of 13 dBm
- Integrated power supplies

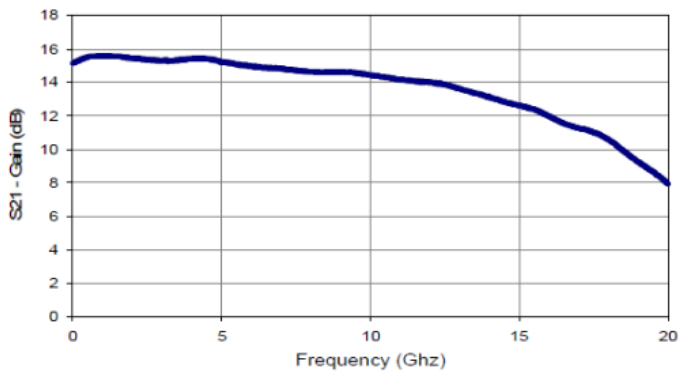
Typical performance

The following plot shows the response of the PSPL8003 to a 100 mv 20 ps rise time step. The PSPL8003 is an inverting amplifier; the output has negative polarity. From the top to the bottom, the time scales are 50 ps/div, 500 ps/div, and 2 ns/div.

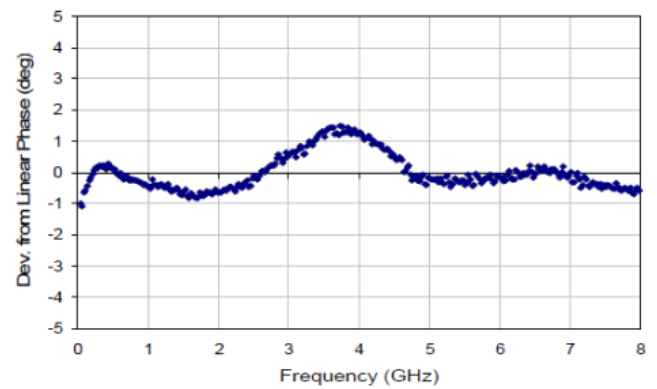
Step Response



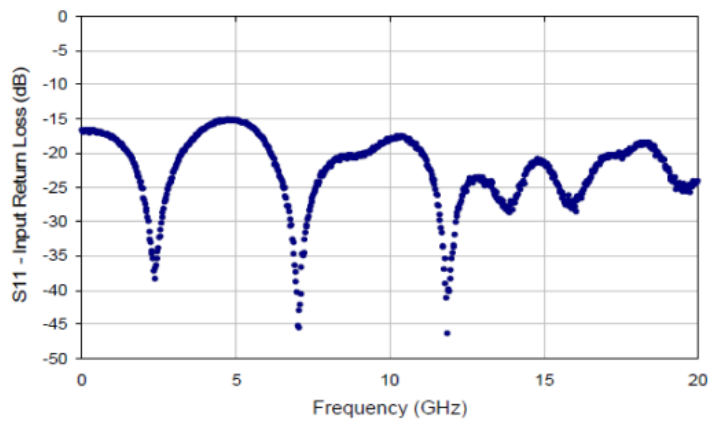
S21 – Gain



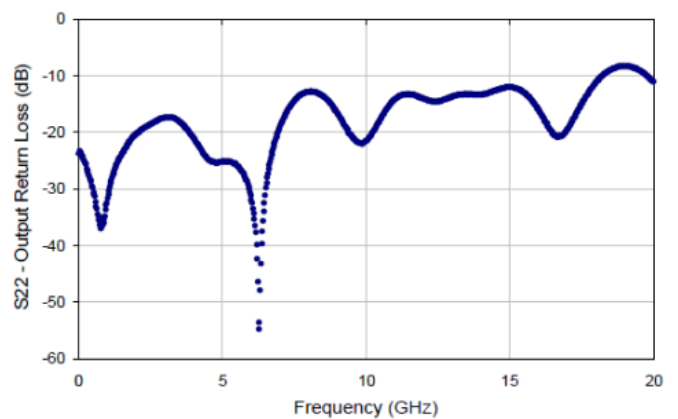
Deviation from Linear Phase



Typical S11 – Input Return Loss



Typical S22 – Output Return Loss



Specifications

Specifications

Parameter	Symbol	Units	Minimum	Typical	Maximum	Comments
Impedance	Z	ohms		50		
Upper 3 dB freq.	$f_{c,h}$	GHz	14	15		
Lower 3 dB freq.	$f_{c,l}$	kHz		10	20	
Small signal gain	S_{21}	dB	13	15	16	Average at 1 GHz and 2 GHz
Max Power Out (-1 dB gain comp)	$P_{1\text{ dB}}$	dBm	10	13		
Gain Flatness		dB		± 0.3	± 0.5	50 MHz < f < 10 GHz
Group Delay Flatness		ps		± 3	± 5	50 MHz < f < 10 GHz
Input Return Loss	S_{11}	dB			-10	50 MHz < f < 20 GHz
Output Return Loss	S_{22}	dB			-10 -9.5	50 MHz < f < 14 GHz 14 GHz \leq f < 16 GHz
Noise Figure	NF	dB		5.0	7.0	f > 50 MHz
Polarity	Inverting					
Coupling	AC, input and output					
RF Connectors	SMA jacks (f)					

Operating specifications

Parameter	Units	Minimum	Maximum	Comments
Max Allowed Input	dBm		15	Damage Threshold (± 1.78 V)
Input DC Bias Range	V_{DC}	-10	9	Input is AC coupled
Output DC Bias Range	V_{DC}	-5	13	Output is AC coupled
Environment Operating Storage	$^{\circ}\text{C}$	20 0	30 50	Indoors, 80% relative humidity
AC Power	100, 117, 200, or 230 VAC, 50/60 Hz, 15 VA (60 Hz)			
Safety Certifications	Conforms to EN-061010-1 (CE mark), UL-1244 and IEC-348. Safety class I. For lab use by qualified personnel.			
Dimensions	9.6 x 7.5 x 1.7 in. (244 x 190 x 33 mm)			
Weight	2.9 lbs. (1.3 kg)			
Accessories	USA power cord			
Warranty	One Year			

Ordering information

Models

PSPL8003

LINEAR AMPLIFIER, 15 GHz, LABware

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*
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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

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