

13.5 GHz Ultra-Broadband Amplifier

PSPL5840B Datasheet

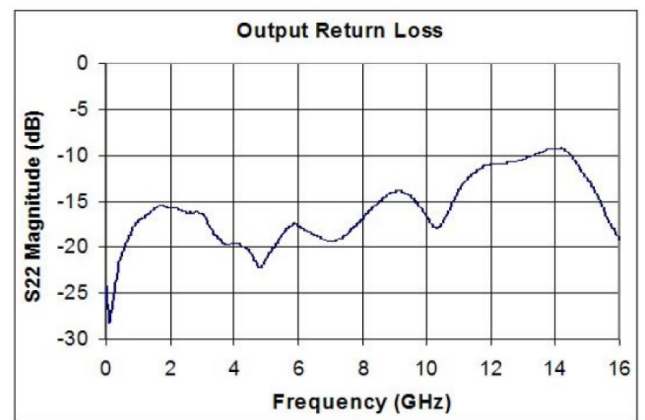
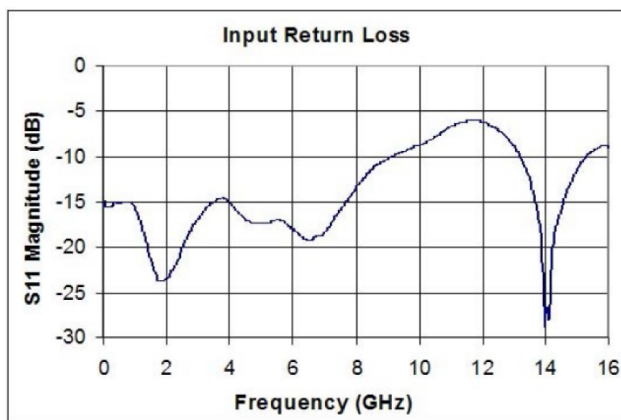
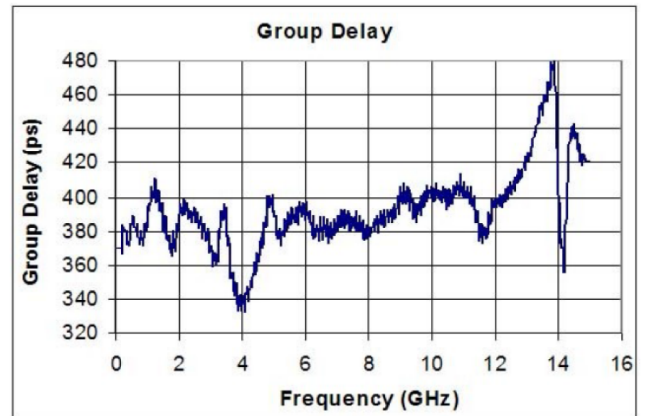
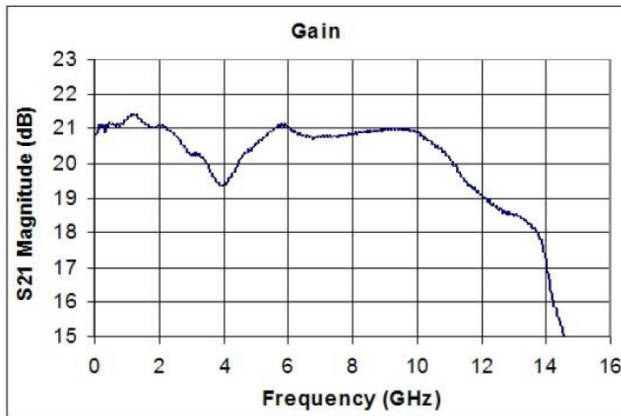


This Ultra-Broadband Amplifier is an excellent choice for either pulse or RF applications. It offers a very attractive price/performance ratio. It is AC-coupled and extremely broadband, covering 5 ½ decades from 80 kHz to 13.5 GHz. It has a clean transient response and smooth gain vs. frequency response. This is a stable 50 Ω amplifier, and several can be connected in cascade for higher gains.

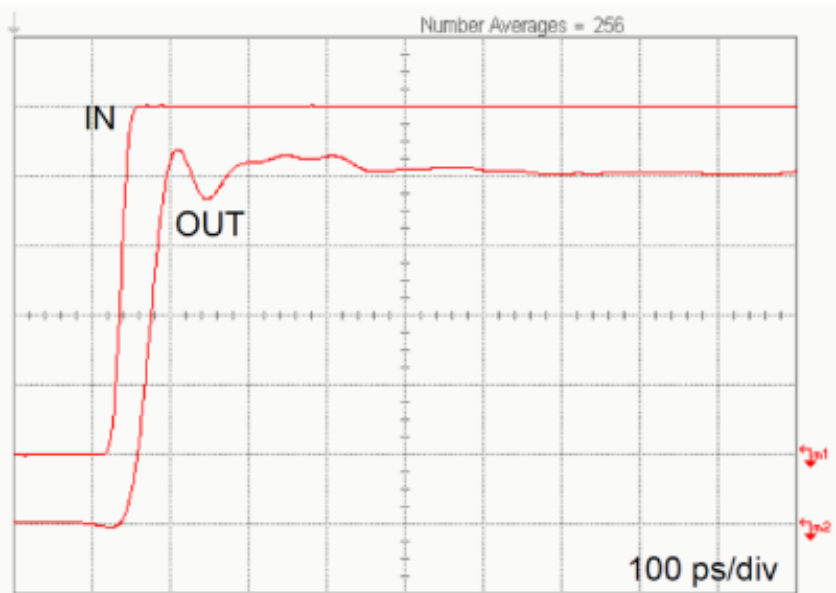
Key performance specifications

- 21 dB gain
- 80 kHz to 13.5 GHz bandwidth
- +12 dBm output
- Single 12 V power supply

Typical performance



100 ps/div; Input is 20 ps Risetime



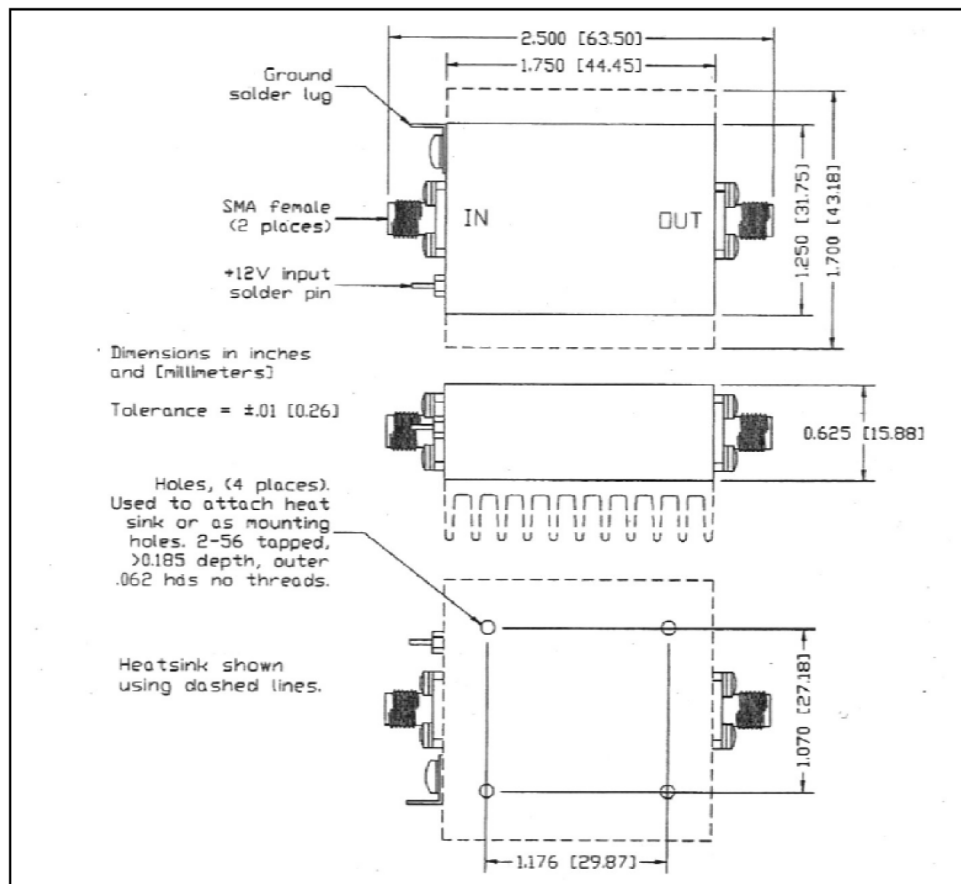
Specifications

Parameter	Symbol	Units	Minimum ¹	Typical	Maximum	Comments
Impedance	Z	Ohms		50		
Upper 3 dB freq.	$f_{c,h}$	GHz	11.5	13.5		
Lower 3 dB freq.	$f_{c,l}$	kHz		80		
Small signal gain	S_{21}	dB	20	21		Meas. at 100 MHz
Return Loss, Input Output	S_{11} S_{22}	dB		>16 28		Meas. at 100 MHz
Isolation	S_{12}	dB		38		Meas. at 100 MHz
Rise Time Fall Time	t_r t_f	ps		32 32	34 34	10-90%, 20 ps input
Overshoot		%		7	8.5	20 ps rise time input
Gain Flatness		dB		+/- 0.5		f < 2 GHz
Eff. Input RMS Noise Voltage		μ V rms		101		
Noise Figure		dB		5.8	8	Meas. at 100 MHz
TDR Refl. Input Output		%		+/- 1 -9		
Max Power Out (-1 dB gain comp)		dBm		+12 +14 +11		100 MHz 5 GHz 10 GHz
Max RF In (cw) or peak pulse		dBm mV		0 315		Damage Threshold
Supply Voltage	V_{DC}	V	11.5		12.5	
Supply Current	I_{DC}	mA		106		
Temperature	T_{CASE} T_{stor}	Deg C	-25 -25		+75 +90	Operating (case) Storage
Temp Coeff - Gain		dB/Deg C		-0.007		
Temp Coeff - BW		%/Deg C		-0.1		
Polarity	Non-Inverting					
Coupling	AC, input and output					
RF Connectors	SMA jacks (f)					
DC Connector	Solder pin					
Warranty	One Year					

¹ Guaranteed at +12 V and 23 C when max/min limits are given.

Mechanical dimensions

Heatsink and Mounting Instructions



This amplifier is supplied attached to a heatsink. With the heatsink attached, the amplifier can be used in an ambient temperature up to approximately 50 C in still air. This amplifier can be mounted by removing the heatsink. The heatsink attachment holes can then be used as mounting holes for the amplifier. If the amplifier's heatsink is removed, it must be mounted to another surface that provides a low enough thermal impedance that the amplifier case will never exceed +75 C while in operation.

Ordering information

Models

PSPL5840B	AMPLIFIER, 13.5 GHz, 21 dB GAIN
-----------	---------------------------------

ASEAN / Australasia (65) 6356 3900	Austria 00800 2255 4835*	Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Belgium 00800 2255 4835*	Brazil +55 (11) 3759 7627	Canada 1 800 833 9200
Central East Europe and the Baltics +41 52 675 3777	Central Europe & Greece +41 52 675 3777	Denmark +45 80 88 1401
Finland +41 52 675 3777	France 00800 2255 4835*	Germany 00800 2255 4835*
Hong Kong 400 820 5835	India 000 800 650 1835	Italy 00800 2255 4835*
Japan 81 (3) 6714 3010	Luxembourg +41 52 675 3777	Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Middle East, Asia, and North Africa +41 52 675 3777	The Netherlands 00800 2255 4835*	Norway 800 16098
People's Republic of China 400 820 5835	Poland +41 52 675 3777	Portugal 80 08 12370
Republic of Korea 001 800 8255 2835	Russia & CIS +7 (495) 6647564	South Africa +41 52 675 3777
Spain 00800 2255 4835*	Sweden 00800 2255 4835*	Switzerland 00800 2255 4835*
Taiwan 886 (2) 2722 9622	United Kingdom & Ireland 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.

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.

28 Jul 2014

1PW-30536-0