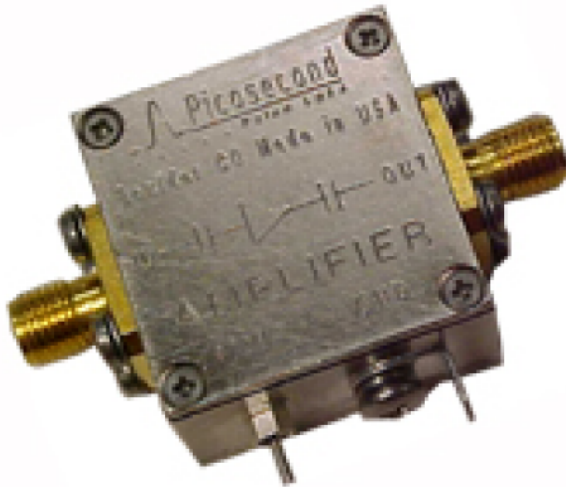


14 GHz Ultra-Broadband Amplifier

PSPL5828A Datasheet

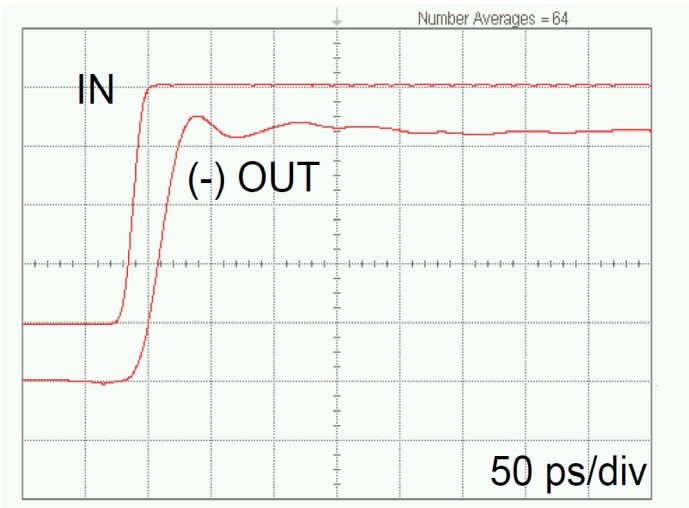
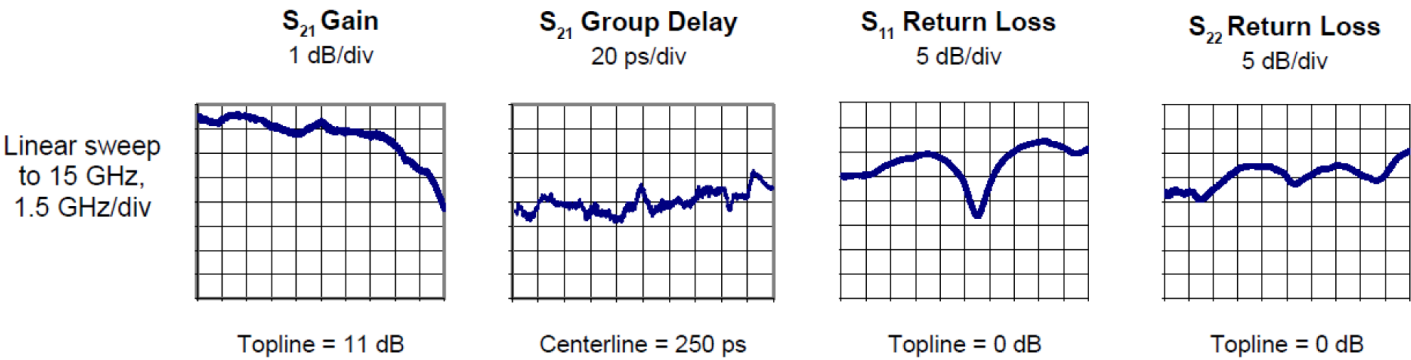


This Ultra-Broadband Amplifier is an excellent choice for either pulse or RF applications. It offers a very attractive price/performance ratio. It is AC coupled and is extremely broadband, covering 5 ½ decades from 50 kHz to 14 GHz. It has clean transient response and smooth gain vs. frequency response. This is a stable 50 Ω amplifier, and several can be connected in cascade for higher gains. The PSPL5828A is ideal for 10 Gb/s systems.

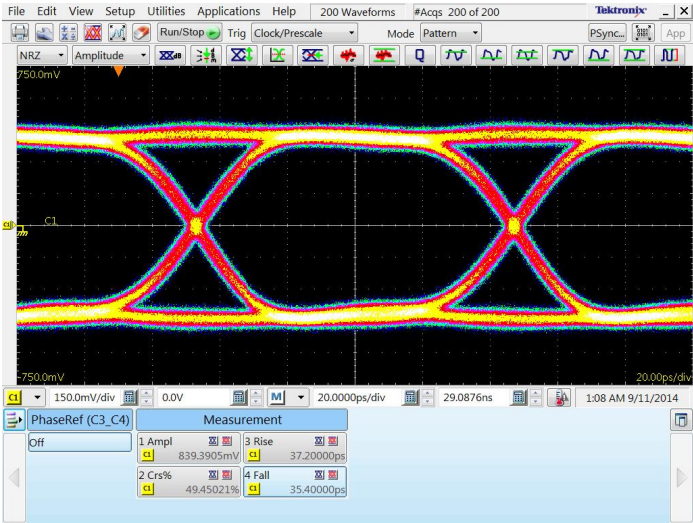
Key performance specifications

- Linear amplifier with 10 dB gain
- 50 kHz to 14 GHz bandwidth
- +12 dBm output
- Single 12 V power supply

Typical performance



Step Response, input is 15 ps rise time.



Eye diagram, 10.66 Gb/s PRBS=2²³-1, 250 mV input

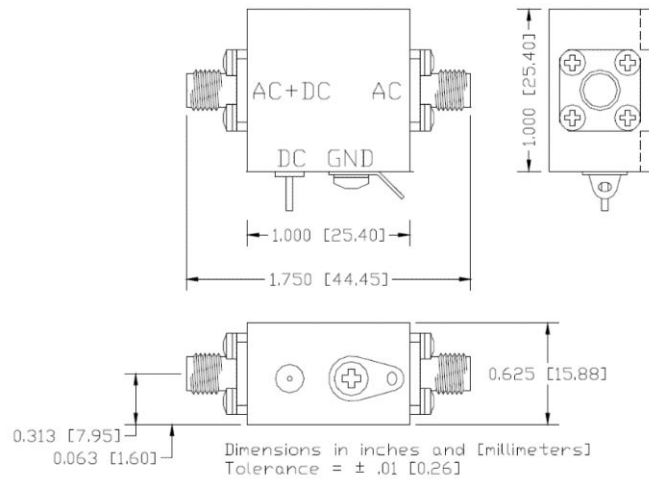
Specifications

Parameter	Symbol	Units	Minimum ¹	Typical	Maximum	Comments
Impedance	Z	Ohms		50		
Upper 3 dB freq.	f _{c,h}	GHz	12	14.4		
Lower 3 dB freq.	f _{c,l}	kHz		50		
Small signal gain	S ₂₁	dB	9	10.6		Meas. at 100 MHz
Return Loss, Input	S ₁₁	dB		15		Meas. at 100 MHz
Output	S ₂₂	dB		18		
Isolation	S ₁₂	dB		19		Meas. at 100 MHz
Rise Time	t _r	ps		23	30	10-90%, 25 ps input
Fall Time	t _f	ps		23	30	
Overshoot		%		5	8	25 ps rise time input
Gain Flatness		dB		+/- 0.5		f < 4 GHz
Eff. Input RMS Noise Voltage		µV rms		112		

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

Parameter	Symbol	Units	Minimum ¹	Typical	Maximum	Comments
Noise Figure		dB		6	8	Meas. at 100 MHz
TDR Refl. Input Output		%		+25 -10		
Max Power Out (-1 dB gain comp)		dBm		+12 dBm +14 dBm +11 dBm		100 MHz 5 GHz 10 GHz
Max RF In (cw) or peak pulse		dBm V			10 1	Damage threshold
Supply Voltage	V _{DC}	V	11.5		12.5	
Supply Current	I _{DC}	mA		53		
Temperature	T _{CASE} T _{stor}	Deg C	-25 -25		+75 +90	Operating (case) Storage
Temp Coeff - Gain		dB/Deg C		-0.002		
Temp Coeff - BW		%/Deg C		-0.16		
Polarity	Inverting					
Coupling	AC, input and output					
RF Connectors	SMA jacks (f)					
DC Connector	Solder pin					
Warranty	One Year					

Mechanical dimensions



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

