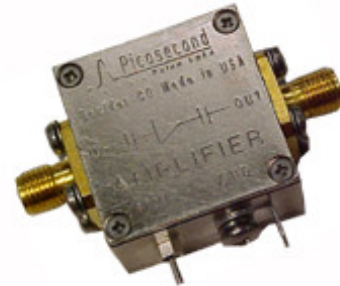


- 10 dB Gain
- 23 ps Risetime
- 14 GHz Bandwidth
- +12 dBm Output
- 6.0 dB Noise Figure

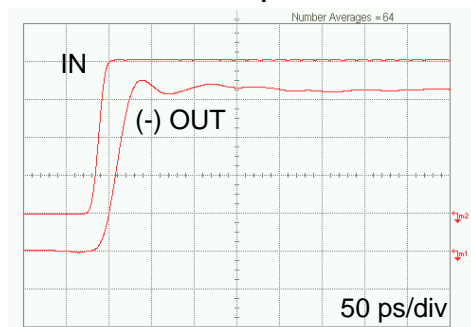


This Ultra-Broadband Amplifier is an excellent choice for either pulse or RF applications. It offers a very attractive price/performance ratio. It is AC coupled and is extremely broadband, covering 5 ½ decades from 50 kHz to 14 GHz. It has clean transient response and smooth gain vs. frequency response. This is a stable 50 Ω amplifier, and several can be connected in cascade for higher gains. The Model 5828A is ideal for 10 Gb/s systems.

#### Time Domain Pulse Response

Input is 15 ps Risetime Step

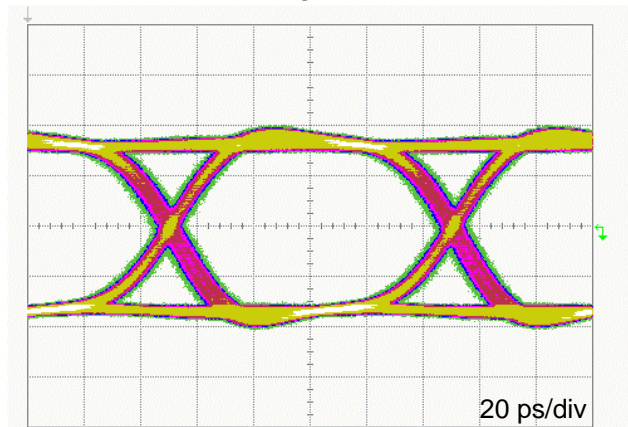
Measured with a PSPL Model 4015C, 15 ps Pulse Generator and an Agilent, 50 GHz digital sampling oscilloscope



#### Eye Diagram

10 Gb/s

Measured with an Advantest D3186 Pattern Generator and Agilent 40 GHz sampling oscilloscope  
PRBS =  $2^{23}-1$



#### Ordering Information

Model Number	Description
5828A-107	SMA jack (f) – jack (f), solder pin on DC
5828A-108	SMA jack (f) – jack (f), solder pin on DC, mounting plate option

**Specifications**

<b>Gain, <math>S_{21}</math></b> (100 MHz) min limit	10.6 dB 9 dB min.
<b>Polarity</b>	Inverting
<b>Bandwidth (-3 dB) [3]</b> min limit	14.4 GHz 12 GHz min.
<b>Gain Flatness [3]</b>	$\pm 0.5$ dB $f < 4$ GHz
<b>Low Frequency (-3 dB)</b>	50 kHz
<b>Risetime (10%-90%) [4]</b> max. limit	23 ps 30 ps max.
<b>Overshoot [4]</b> max limit	5% 8% max.
<b>Max Power Out</b> (-1 dB gain comp)	+12 dBm (100 MHz) +14 dBm (5 GHz) +11 dBm (10 GHz)
<b>Noise Figure</b> (100 MHz) max limit typical NF vs. frequency	6.0 dB 8 dB max. 6.7 dB (5 GHz) 7.5 dB (10 GHz)
<b>Effective Input RMS Noise Voltage</b>	112 $\mu$ V rms
<b>TDR Refl.</b> Input output	+25% -10%
<b>Max. RF In</b> (cw) or peak pulse	+10 dBm 1 V
<b>Return Loss</b> $S_{11}$ input (100 MHz) $S_{22}$ output	15 dB 18 dB
<b>Isolation</b> $S_{12}$ (100 MHz)	19 dB
<b>DC Current</b>	53 mA
<b>DC Voltage</b>	12 V DC, $\pm 0.5$ V
<b>Temperature</b>	-25 C to +75 C case temperature operating, -25 C to +90 C storage
<b>Temp Coeff - Gain</b>	-0.002 dB/C
<b>Temp Coeff - BW</b>	-0.16%/C
Connectors	RF in and out = SMA jacks (f), DC in = solder pin
<b>Warranty</b>	Static-sensitive devices. Limited 30-day warranty

**Notes**

[1] Parameters listed are typical values. Guaranteed at +12 V and 23 C only when max/min limits are given.

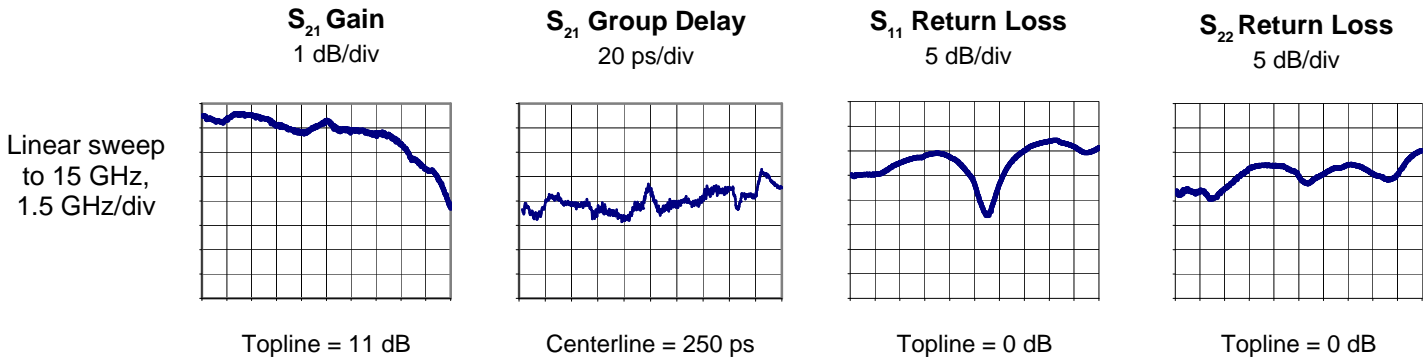
[2] Gain, return loss, isolation, noise figure and max. power output all measured at 100 MHz.

[3] Frequency response measured using a Wiltron 5447A, 10 MHz - 20 GHz network analyzer.

[4] Time domain step responses measured with an Agilent 20 GHz oscilloscope and 25 ps risetime test pulse.

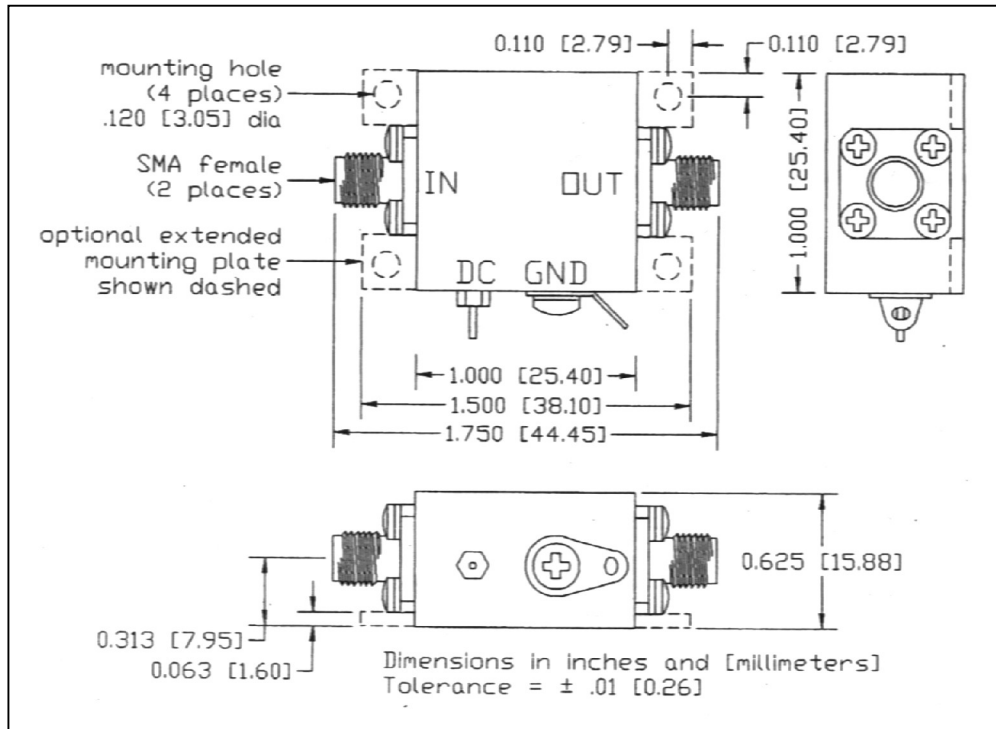
[5] PSPL does 100% QA testing on amplifiers. All amps are stored at -25 C and +90 C and then receive a minimum of 24 hours burn-in. QA tests include gain and noise figure at 100 MHz,  $S_{21}$  frequency response including -3 dB bandwidth, time domain pulse response risetime, overshoot, pulse fidelity and low frequency square wave response. All parameters measured with +12 V DC power at +23 C ambient temperature.

[6] Static sensitive! Avoid static discharges. Do not exceed max. input limits.



Measured by a Wiltron 37369A vector network analyzer

### Mounting Instructions



This amplifier is not normally supplied with a mounting plate. If you desire to mount the amplifier permanently to some other object, it is necessary for you to purchase the amplifier including the mounting plate, shown here as the dashed lines. This mounting plate must be ordered at the same time the amplifier is ordered. Order it as 5828A-108.