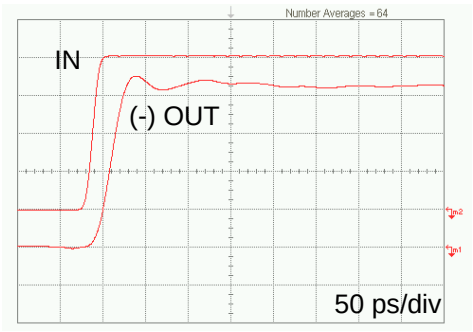
MODEL 5828A
ULTRA-BROADBAND AMPLIFIER
PRODUCT SPECIFICATION



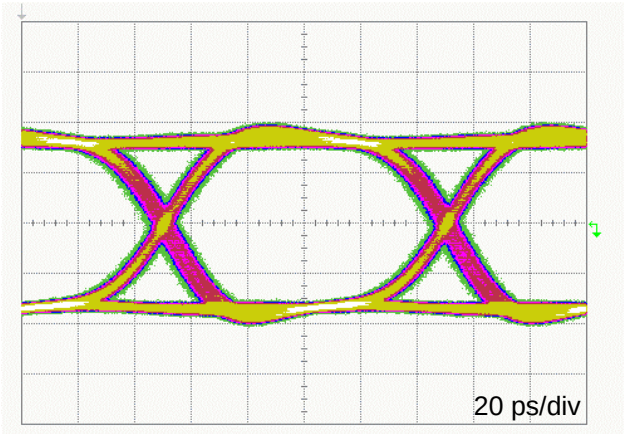
- **10 dB Gain**
- **23 ps Risetime**
- **14 GHz Bandwidth**
- **+12 dBm Output**
- **6.0 dB Noise Figure**

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

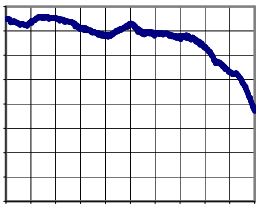
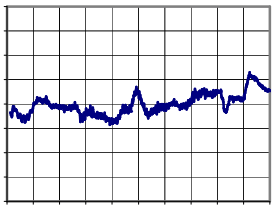
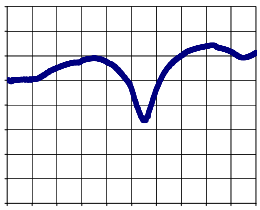
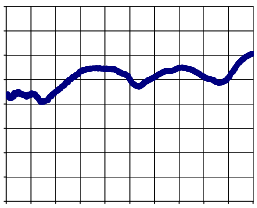
Model Number	Description
5828A-107	SMA jack (f) – jack (f), solder pin on DC
5828A-108	SMA jack (f) – jack (f), solder pin on DC, mounting plate option

Specifications

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

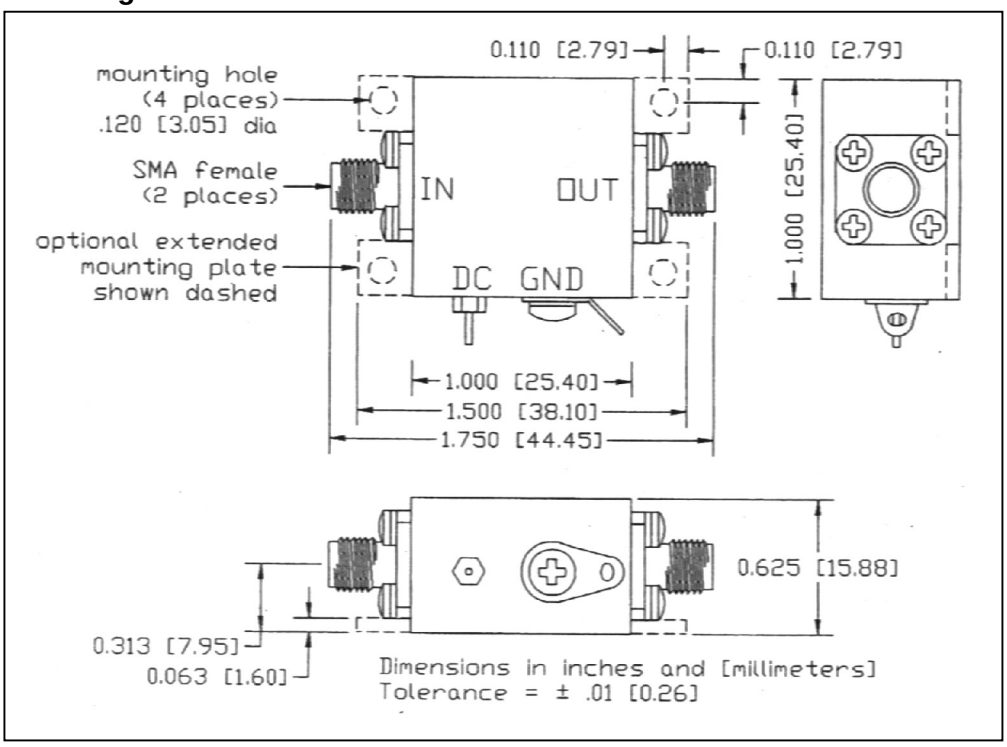
Notes

[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, S21 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.

	S_{21} Gain 1 dB/div	S_{21} Group Delay 20 ps/div	S_{11} Return Loss 5 dB/div	S_{22} Return Loss 5 dB/div
Linear sweep to 15 GHz, 1.5 GHz/div				
	Topline = 11 dB	Centerline = 250 ps	Topline = 0 dB	Topline = 0 dB

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.