

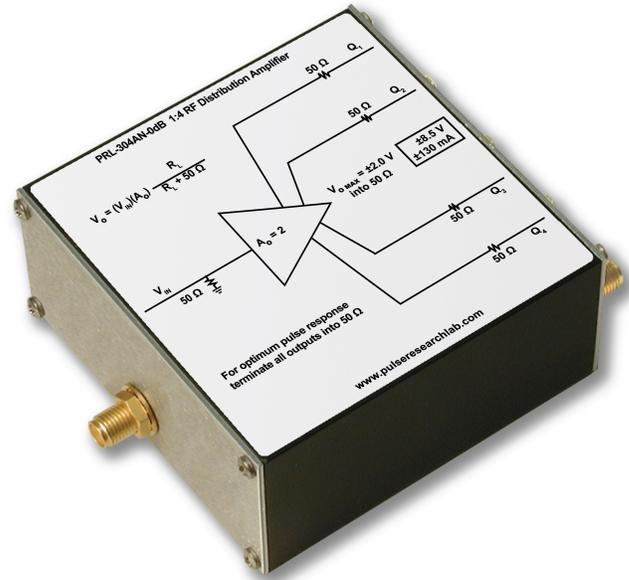
PRL-304AN-0dB, 1:4 RF Distribution Amplifier

APPLICATIONS

- 1:4 RF Signal Fanout
- Transmission Line Driver
- RF Receiver
- Pulse Amplifier
- General Purpose Wideband Amplifier

FEATURES

- Ready to Use Amplifier with Four Outputs
- 0.5 dB Gain Match Typical @ 10 MHz
- Small Signal 3 dB Bandwidth up to 412 MHz
- Clean Pulse Response
- 0 dB gain, $V_O = V_{IN}$ ($R_L = 50 \Omega$), well suited for cascading
- ± 2.0 V, 4.0 V_{PP}, Maximum Outputs, $R_L = 50 \Omega$
- DC Coupled 50 Ω I/Os
- ± 110 mA Supply Current Typical
- 1.3H x 2.9W x 2.9L-in. Module includes ± 8.5 V AC/DC Adapter



PRL-304AN-0dB, 1:4 RF Distribution Amplifier

DESCRIPTION

The PRL-304AN-0dB is a 0 dB gain, DC-coupled amplifier with four identical non-inverting outputs. The gain match between any pair of outputs is 0.5 dB typical @ 10 MHz, and the small signal bandwidth is 412 MHz typical. Maximum bipolar output is ± 2.0 V, or 4 V_{PP} into 50 Ω . For uni-polar signals, the maximum output is either +2.0 V or -2.0 V into 50 Ω . All outputs are 50 Ω back-terminated, and the input has a 50 Ω -to-ground termination. The 0 dB gain, $V_O = V_{IN}$ ($R_L = 50 \Omega$), allows multiple amplifiers to be cascaded for signal distribution applications.

The PRL-304AN is optimized both for pulse response and for CW response, so that output overshoots and ringing for a fast pulse input are much smaller compared to those from amplifiers designed mainly for CW applications. With a 50 Ω back termination at each output, the amplifier can drive long transmission lines with or without load terminations. For optimum pulse response, however, all outputs should be terminated into 50 Ω .

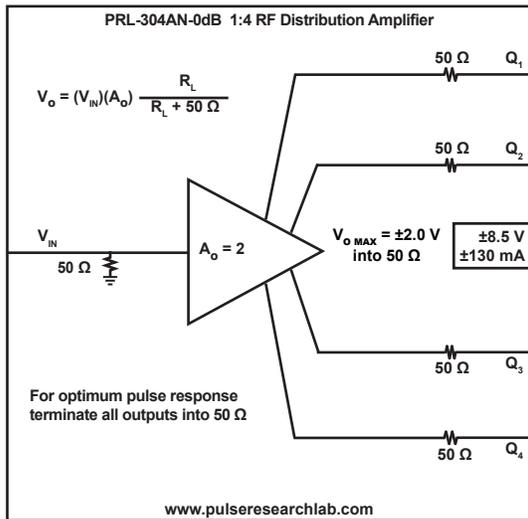
The PRL-304AN-0dB is housed in a 1.3H x 2.9W x 2.9L-in. aluminum enclosure, and four amplifier modules can share the included PRL-760C, 4-output ± 8.5 V AC/DC adapter, by adding additional power cables. Besides the I/O and power connections, no other set up or connection is required. The PRL-304AN-0dB is a part of the PRL family of Mini Modular Instruments (MMIs).

The PRL-304AN-0dB may also be ordered without the power supply as part number PRL-304AN-0dB-OEM.

SPECIFICATIONS (0° C ≤ T_A ≤ 35° C)

Unless otherwise specified, dynamic measurements are made with all outputs terminated into 50 Ω.

SYMBOL	PARAMETER	Min	Typ	Max	UNIT
R _{IN}	Input Resistance	49.5	50.0	50.5	Ω
R _{OUT}	Output Resistance	49.5	50.0	50.5	Ω
A _O	Open Circuit Voltage Gain, R _L > 1 MΩ		2		
A _L	Loaded Voltage Gain, R _L = 50 Ω		1		
A _{dB}	Voltage Gain in dB		0		dB
ΔV	Gain Match @ 10 MHz, 1 V _{pp} Sinewave Input		0.5		dB
I _{DC1}	Quiescent DC Input Current, V _{IN} = 0 V		±50	±60	mA
I _{DC2}	DC Input Current @ 100MHz, V _O = ±1.5 V into 50 Ω		±125	±135	mA
V _{DC}	DC Input Voltage	±7.5	±8.5	±12.0	V
V _{AC1}	AC/DC Adapter Input Voltage, switched to “120 V”	103	115	127	V
V _{AC2}	AC/DC Adapter Input Voltage, switched to “230 V”	206	230	254	V
t _{PLH}	Propagation Delay to output ↑		1.8		ns
t _{PHL}	Propagation Delay to output ↓		1.8		ns
t _{r1} /t _{f1}	Small Signal Rise/Fall Times (V _O = ±200 mV)		850	1000	ps
BW1	Small Signal 3 dB Bandwidth	350	412		MHz
t _{r2} /t _{f2}	Large Signal Rise/Fall Times (V _O = ±1.25 V)		1.25	1.50	ns
BW2	Large Signal 3 dB Bandwidth	233	280		MHz
t _{SKEW}	Skew between any two outputs @ 25 MHz		100	250	ps
V _{IN MAX DC}	Maximum Input, DC Coupled	-2.0	±2.0	2.0	V
V _{IN MAX AC}	Maximum Input, AC Coupled	3.8	4.0	4.0	V _{pp}
V _{O MAX}	V _O maximum, all outputs terminated into 50 Ω	3.0	4.0	4.2	V _{pp}
V _{O MAXPP}	V _O maximum, peak-peak, terminated into 50 Ω	±1.50	±2.0	±2.1	V _{pp}
	Size	1.3 x 2.9 x 2.9			in
	Weight, w/o AC adapter	5			Oz
	Shipping weight, w/AC adapter	4			lb



**Fig. 1, PRL-304AN-0dB
1:4 RF Distribution Amplifier**