

100kHz-50GHz Broadband RF Amplifier



Features

- Broadband: 100 kHz to 50 GHz
- >20 dBm P_{sat} @ 40 GHz
- >27 dB Gain to 45 GHz
- Useful gain to 65 GHz
- < 6 dB Noise Figure
- AC Power Supply Included
- Small Size: 3.5" x 3.5" x 1"

Description

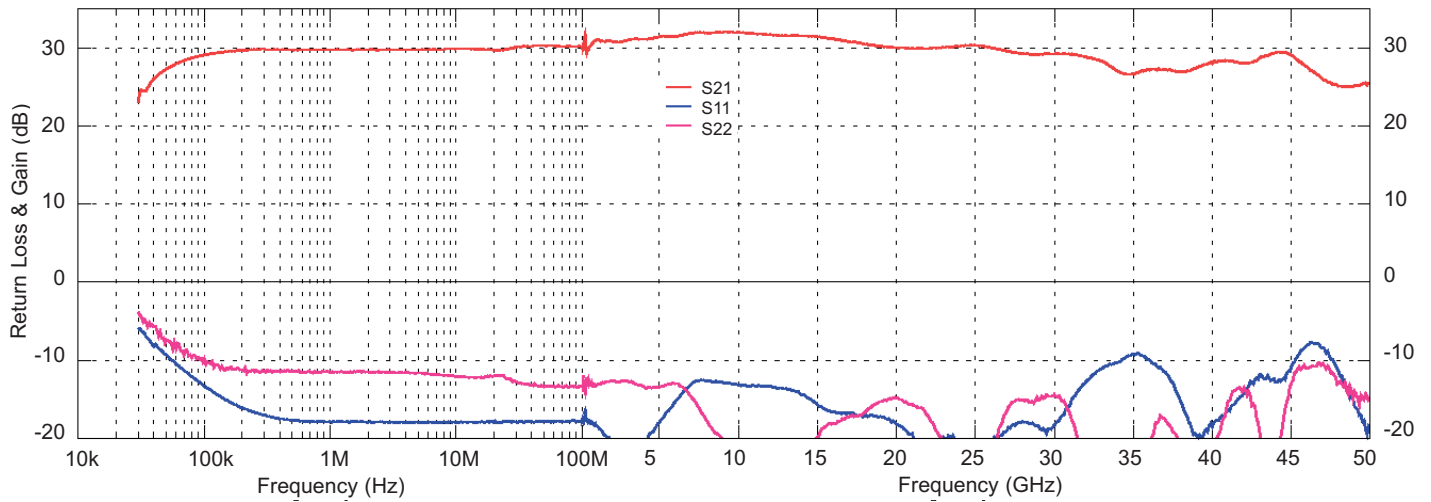
The TA0L50VA Amplifier is a high performance, broadband (over 18 octaves) amplifier featuring baseband RF (<100kHz) through millimeter wave (>50 GHz) frequency coverage. The amplifier is designed to be a multi-use laboratory RF Amplifier as a gain block for frequency domain applications or as a time domain pulse amplifier. It's small size and versatile performance make it an excellent selection as a general purpose gain block with moderate power output in a single package potentially replacing 2 or 3 narrower band amplifiers.

Application

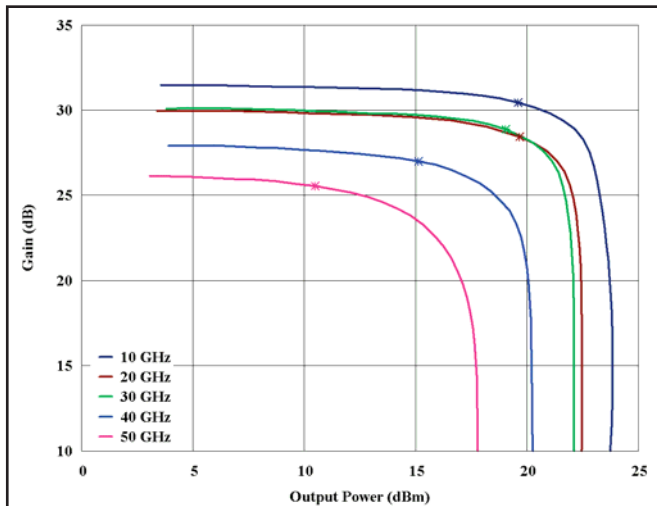
The TA0L50VA is an often needed companion to synthesized signal generators and microwave sources. The amplifier's small size allows close placement to the DUT or test fixture. High gain and greater than 20dBm output power will overcome long cable losses from the signal source and provide the additional output power needed in many development and test applications.

Specifications @ 25°C

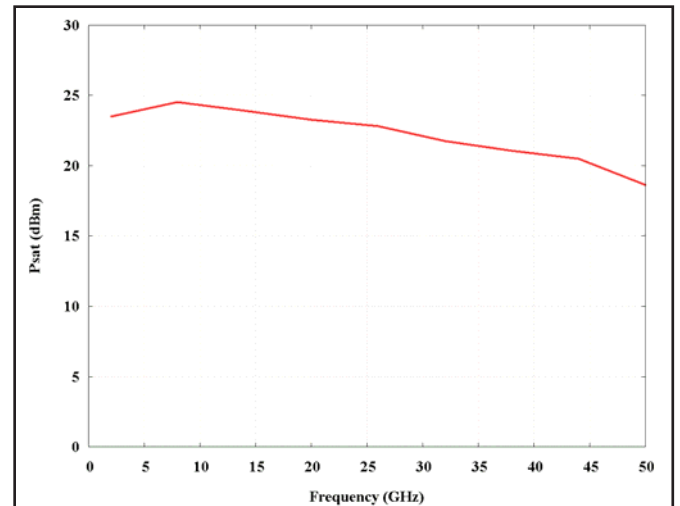
Parameter	Description	Minimum	Typical	Maximum
S21 (dB)	Small Signal Gain			
	1 - 26 GHz	27	30	-
	26 - 45 GHz	24	27	-
S11/S22 (dB)	Input/Output Return Loss			
	1 - 26 GHz	-	-10	-
	26 - 45 GHz	-	-8	-
Psat (dBm)	Saturated Output Power			
	100 kHz - 26 GHz	+20	+22	-
	40 GHz	-	+20	-
	50 GHz	-	+17	-
NF (dB)	Noise Figure			
	2 - 30 GHz	-	5	-
	30 - 40 GHz	-	6	-
H ₂ (dBc)	2nd Harmonic			
	2 - 25 GHz	-	-30	-



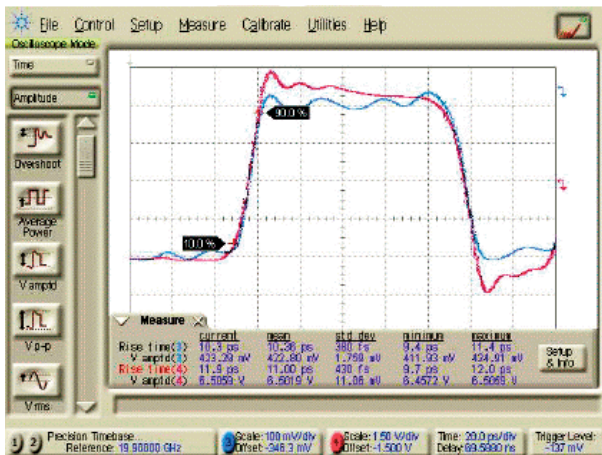
Small Signal Parameters vs. Frequency



Gain vs. Output Power (P1dB indicated with *)



Saturated Output Power



Input Pulse = Ch3, 420m Vppk, 10.4pS Rise Time

Output Pulse = Ch4, 6.5 Vppk, 11.0pS Rise Time

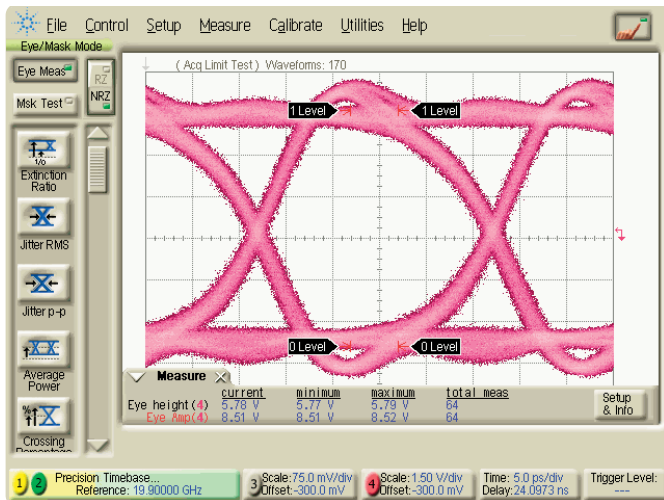
Supplemental Data

Operating Temperature	0°C - 55°C
Pin Max	20dBm
DC Power Dissipation	9W; 500mA
Input/Output Connectors	2.4mm, Female

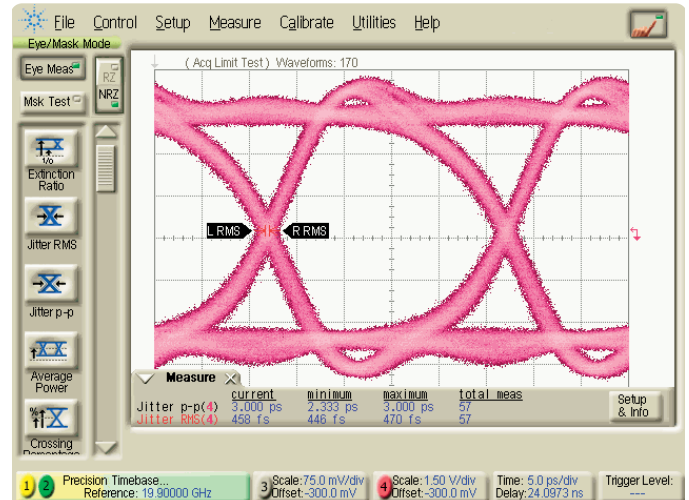
TA0L50VA Options

OPT003	Optical Application Tuning
OPT101	European Power Cord
OPT102	UK Power Cord
OPT103	Domestic Power Cord
OPT300	1 Year Warranty Extended to 3 Years
OPT301	1 Year Warranty Extended to 5 Years

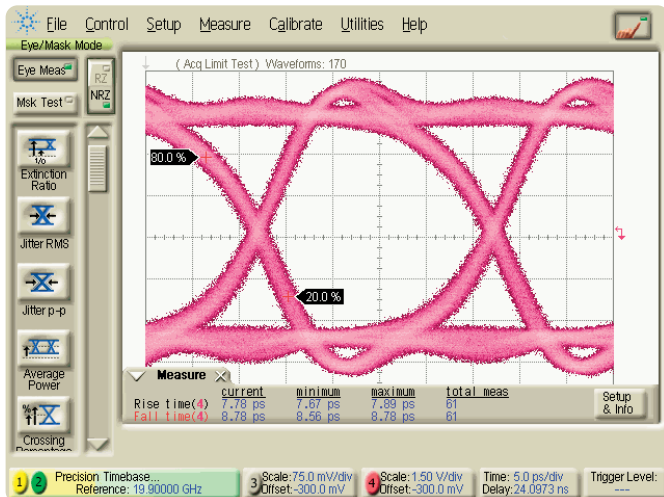
TA0L50VA OPT003 - Optical Application Tuning



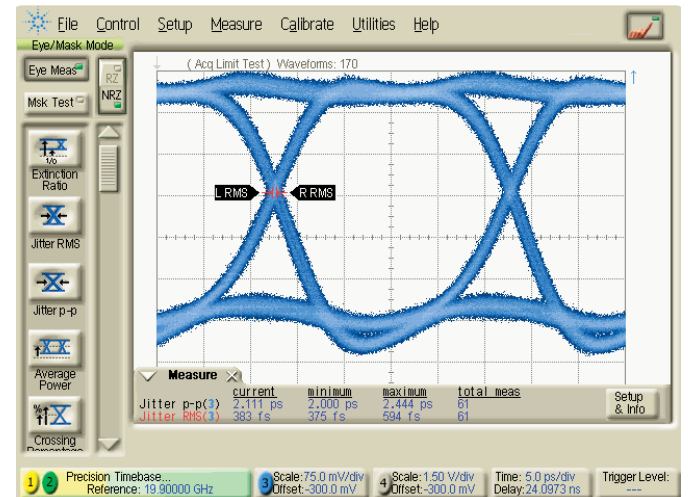
OPT003 (2³¹ - 1) EYE: >7V output (1.5V/div)



OPT003 (2³¹ - 1) EYE: <500 fs added rms jitter (5 ps/div)



OPT003 (2³¹ - 1) EYE: <10 ps Tf/Tf (5 ps/div)



OPT003 (2³¹ - 1) EYE: Input signal from PRBS Generator

Additional specifications for -OPT003 TA0L50VA are as follows:

Parameter	Description	Minimum	Typical	Maximum
S21 (V)	Output Eye Amplitude	7	7.5	—
S21 (ps)	Input Eye Amplitude	—	0.5	—
S21 (ps)	Jitter Additive (rms)	—	< 0.5	< 1
Tr/Tf (ps)	Rise/Fall Time	—	< 8	< 10