



PPA-18632
Surface Mount Cascadable Amplifier
6 to 18 GHz

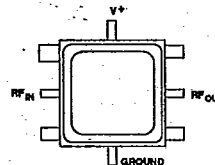
T-74-13-01

FEATURES

- Frequency Range: 6 to 18 GHz
- Surface Mount Package — Less Board Area Required
- Very High Gain Density — 14 dB (Typ) per 1/4-In. Square
- Low Power Consumption: 50mA @ 9 VDC
- Low Noise Figure: 5.5 dB (Typ)

APPLICATIONS

- RF Amplifiers
- Broadband ECM Systems
- Satellite Communications
- Size-Critical Systems



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DESCRIPTION

The PPA-18632 is a two-stage GaAs FET RF amplifier in a 1/4 in. square package. Internal blocking capacitors couple

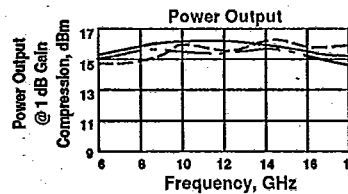
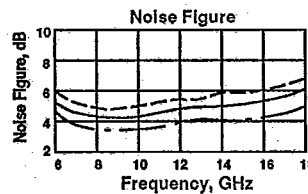
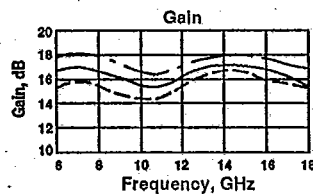
the RF signal through the amplifier. The bias voltage input is capacitor bypassed and choke decoupled for RF.

ELECTRICAL SPECIFICATIONS (Measured in a 50-ohm system @ +9 VDC nominal unless otherwise noted)

Symbol	Characteristic	Typical $T_o = 25^\circ\text{C}$	Guaranteed Specifications		Unit
			$T_o = 0^\circ \text{ to } 50^\circ\text{C}$	$T_o = -55^\circ \text{ to } +85^\circ\text{C}$	
BW	Frequency Range	6-18	6-18	6-18	GHz
GP	Small Signal Gain (Min.)	14	12	11	dB
—	Gain Flatness (Max.)	± 0.75	± 1.50	± 2.00	dB
NF	Noise Figure (Max.)	5.5	6.5	7.5	dB
$P_{1\text{dB}}$	Power Output @ +1 dB Compression (Min.)	+15	+13	+12	dBm
—	Input VSWR (Max.)	<1.8:1	2.0:1	2.2:1	—
—	Output VSWR (Max.)	<1.8:1	2.0:1	2.2:1	—
IP_3	Two Tone 3rd Order Intercept Point	+25.0	—	—	dBm
IP_2	Two Tone 2nd Order Intercept Point	+32.0	—	—	dBm
HP_2	One Tone 2nd Harmonic Intercept Point	+38.0	—	—	dBm
V_o	DC Voltage (1% Reg)	9	—	—	Volts
I_o	DC Current	50	—	—	mA

TYPICAL PERFORMANCE OVER TEMPERATURE (@ +9 VDC unless otherwise noted)

KEY: +25°C ———
+85°C - - - - -
-55°C ·····



MAXIMUM RATINGS

DC Voltage	12 Volts
Continuous RF Input Power	+15 dBm
Operating Case Temperature	-55°C to +125°C
Storage Temperature	-62°C to +150°C
"R" Series Burn-In Temperature	+125°C

THERMAL CHARACTERISTICS*

θ_{JA}	212°C/W
Active Transistor Power Dissipation	115 mW
Junction Temperature Above Case Temperature	24°C

*For further information, see High Reliability section, p. 17-2.

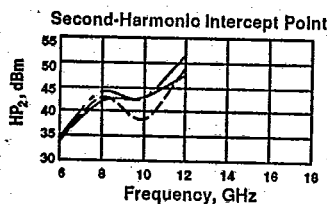
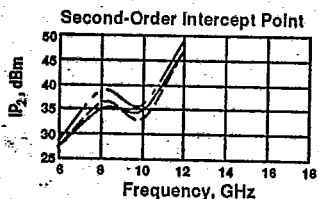
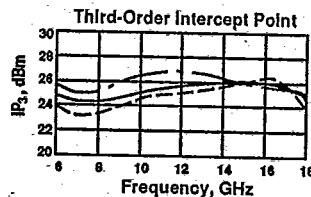
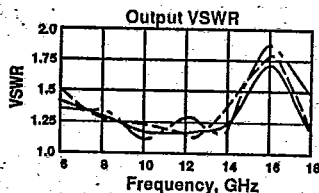
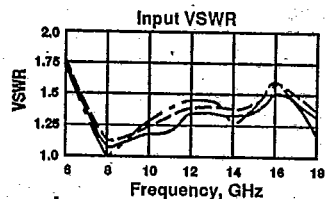
WEIGHT: (typical) 0.21 grams

Avantek, Inc. • 481 Cottonwood Drive, Milpitas, CA 95035 • Contact your local representative, distributor or field sales office for further information. Listings are in the back of this Data Book.

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TYPICAL PERFORMANCE OVER TEMPERATURE (continued)

T-74-13-01



AUTOMATIC NETWORK ANALYZER MEASUREMENTS (Typical production unit at +25°C ambient)

S-PARAMETERS

BIAS = 9.00 VOLTS

FREQ GHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂		GPDEL	PHASE
	Mag	Ang	dB	Ang	dB	Ang	Mag	Ang	ns	DEG
4.0	0.382	121.11	8.60	-174.15	-59.35	101.50	0.238	115.42	.34	0.00
4.5	0.313	32.46	11.61	122.54	-56.35	87.57	0.192	22.23	.34	0.0
5.0	0.291	-37.29	11.11	77.86	-52.60	-122.66	0.180	-39.03	.15	0.00
5.5	0.287	-91.71	13.25	54.67	-50.33	-105.70	0.189	-82.54	.16	0.00
6.0	0.259	-131.40	15.54	12.65	-42.00	-149.51	0.153	-118.69	.23	25.93
6.5	0.259	173.84	15.76	-27.67	-43.67	-163.55	0.135	-155.73	.20	8.21
7.0	0.191	110.39	15.54	-56.34	-41.77	156.03	0.073	177.76	.07	2.13
7.5	0.075	25.00	15.57	-84.63	-42.56	143.38	0.080	-156.68	.15	-3.56
8.0	0.077	-110.64	15.55	-111.66	-45.45	114.46	0.119	174.52	.14	-7.98
8.5	0.107	179.88	15.21	-139.00	-43.81	104.17	0.112	139.37	.12	-12.73
9.0	0.136	150.66	14.87	-159.95	-53.76	43.68	0.107	120.50	.12	-11.08
9.5	0.127	126.88	14.79	-178.36	-51.83	65.18	0.099	89.83	.13	-10.17
10.0	0.148	110.54	14.51	158.78	-46.64	100.30	0.071	61.90	.10	-9.15
10.5	0.183	82.72	14.44	136.65	-47.41	119.02	0.066	35.50	.10	-6.68
11.0	0.199	44.62	14.54	117.05	-58.84	39.53	0.022	31.77	.12	-3.68
11.5	0.179	-119.47	14.67	98.19	-46.51	-95.20	0.015	83.02	.11	.05
12.0	0.123	-42.60	15.00	78.69	-43.88	110.16	0.031	99.17	.11	3.16
12.5	0.085	-103.40	15.42	56.93	-47.00	-41.11	0.056	82.30	.12	3.99
13.0	0.082	166.66	15.67	33.80	-42.63	-53.36	0.076	73.55	.14	3.47
13.5	0.131	89.27	15.95	12.48	-39.68	-62.71	0.118	53.88	.11	4.74
14.0	0.199	38.50	15.97	-8.57	-39.26	-71.61	0.157	22.94	.14	6.29
14.5	0.228	-9.86	15.78	-32.41	-38.11	-90.23	0.201	-13.66	.12	5.05
15.0	0.248	-60.76	15.64	-53.72	-41.31	-121.61	0.222	-54.53	.07	6.33
15.5	0.223	-111.23	16.05	-78.06	-40.11	-156.09	0.238	-95.58	.12	4.59
16.0	0.187	-146.49	15.65	-108.05	-41.24	-176.21	0.228	-137.91	.17	-2.60
16.5	0.139	-167.87	14.41	-131.26	-38.56	122.13	0.211	-174.27	.15	-3.41
17.0	0.140	176.43	14.50	-147.51	-37.20	108.21	0.223	140.88	.08	2.94
17.5	0.152	154.26	14.89	-175.37	-35.86	93.81	0.201	87.30	.17	-2.33
18.0	0.162	124.28	14.59	161.04	-32.25	73.43	0.138	31.78	.09	-3.31

GAIN FLATNESS = ±.82