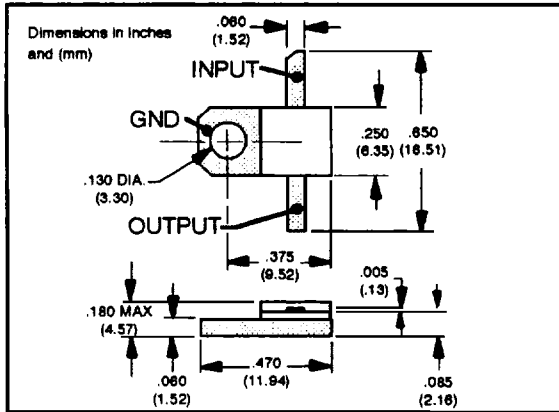




PRELIMINARY
MPS-202708-85
 500 TO 2000 MHz
 SELF-BIASED
 GaAs FET AMPLIFIER

MICROWAVE TECHNOLOGY

4268 Solar Way Fremont, CA 94538 510-651-6700 FAX 510-651-2208



FEATURES

- +39 dBm TYPICAL IP3
- +27.0 dBm TYPICAL P1dB
- 10.5 dB TYPICAL GAIN
- +12 VOLT OPERATION
- HIGH POWER ADDED EFFICIENCY
- SELF BIASED, CLASS A OPERATION
- INPUT MATCH -13 dB TYPICAL

DESCRIPTION

The MPS-202708-85 is a broadband, self-biased GaAs FET amplifier. It is ideal for digital communications applications where excellent linearity is required. The device may be directly connected to a 50 Ω microstrip circuit without additional matching elements.

RF SPECIFICATIONS AT Ta=25°C *, 500 TO 2000 MHz, Zin = Zout = 50 Ω, VDD = 12.0 V, IDD = 170 mA (*Except ΔGOT)

SYMBOL	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
SSG	Small Signal Gain	dB	10.0	10.5	
P1dB	Output Power at 1 dB Compression Point	dBm	+26.0	+27.0	
IP3	Two-tone, Third-order Intercept (Pin ≤ 0 dBm)	dBm		+39.0	
NF	Noise Figure	dB		5.0	
VSWR IN	Input VSWR in 50Ω Circuit	----		1.6:1	2.5:1
ΔGOF	Gain Variation Over Frequency	dB		±0.7	±1.0
ΔGOT	Gain Variation Over Temperature	dB/°C			-0.16
IDD	DC Bias Current at Vdd = 12.0 V	mA		170	300
PAE	Power Added Efficiency	%		25	

MAXIMUM RATINGS AT Ta = 25°C* (*Except Tch & Tst)

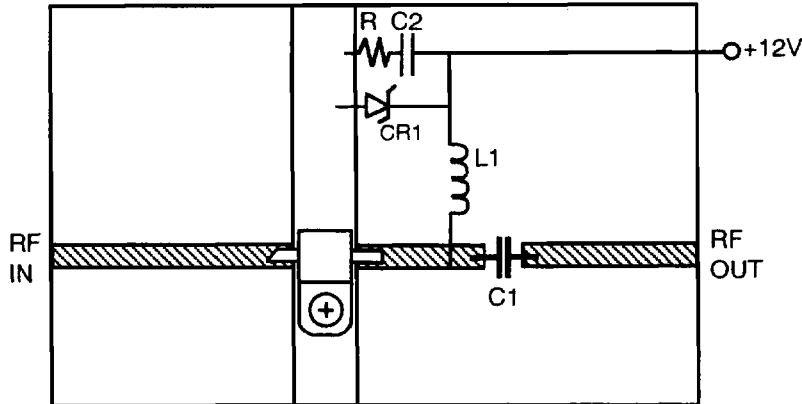
SYMBOL	PARAMETER	UNITS	CONT MAX	ABSOLUTE MAX
VDD	Bias Voltage	V	+13.0	+15.0
TcASE	Operating Temperature	°C	+95	+110
Tst	Storage Temperature	°C	-65 to +150	+175
Pin	RF Input Power	mW	+200	+400

NOTES: 1. Exceeding any one of these limits in continuous operation may reduce the mean-time-to-failure below the design goals.

2. Exceeding any one of these limits may cause permanent damage.



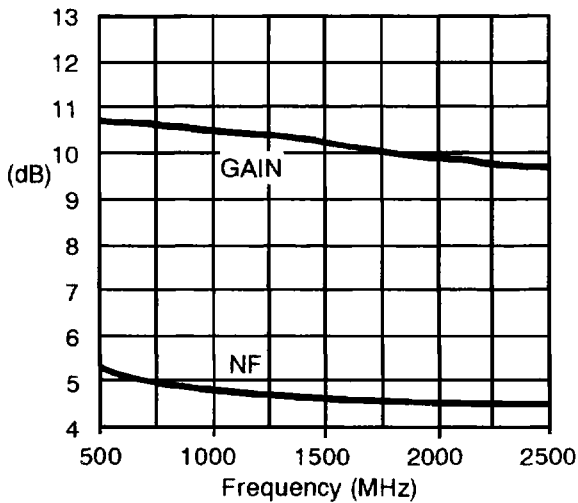
TEST CIRCUIT



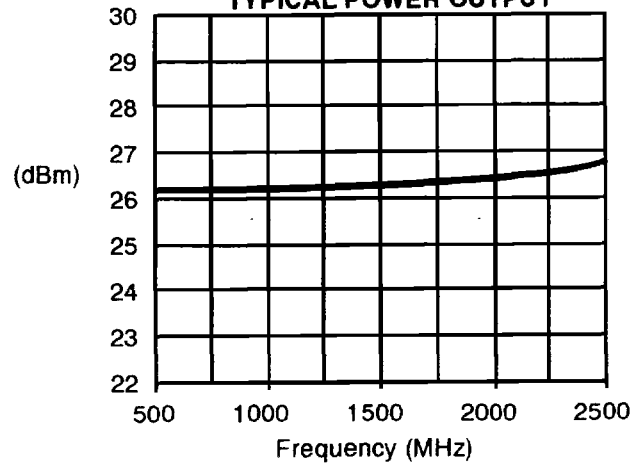
- C1 100 pF Chip Capacitor
- C2 .22 μ F Capacitor
- R 50 Ω Resistor
- L1 160 nH Printed or wound coil
- CR1 15.5V Zener Diode (Optional)

50 Ω Microstrip Line, .074" wide
 Substrate: .030" TH Duroid RO-3003 or equivalent

TYPICAL GAIN & NOISE FIGURE VS. FREQUENCY



TYPICAL POWER OUTPUT



TYPICAL SCATTERING PARAMETERS

VDC = 12.0 V, IDC = 170 mA

FREQUENCY (MHz)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	.27	-44.9	3.80	129.7	.10	-45.7	.37	-69.7
1000	.31	-82.2	3.74	62.5	.14	-102.6	.42	-175.8
1500	.35	-116.5	3.60	1.5	.08	-158.7	.45	79.2
2000	.39	-151.0	3.50	-58.6	.07	147.4	.54	-16.3
2500	.44	176.5	3.33	-118.9	.24	-162.3	.58	-118.6