

## GENERAL DESCRIPTION

The MPA-201 is an amplifier device designed for broadband performance to 500 MHz in a format suitable for stripline assembly and high reliability applications. Its wide dynamic range and flexibility commend it for a broad spectrum of instrumentation, receiver and transmitter applications.

## FEATURES

- Useable for broadband or narrowband applications
- Useable DC to 500 MHz
- Uniform gain with frequency
- Internally matched to 50 ohms
- Cascadable
- Gold Metallization

## WIDE DYNAMIC RANGE

- Low Distortion - 3rd order intercept point +40dBm typical at 230 MHz
- Low Noise Figure - 6.0 dB typical at 200 MHz

## HIGH OUTPUT POWER

1dB Compression Power	
800 mW minimum	30 MHz (+29 dBm)
800 mW typical	70 MHz (+29 dBm)
400 mW minimum	400 MHz (+29 dBm)
315 mW minimum	500 MHz (+25 dBm)

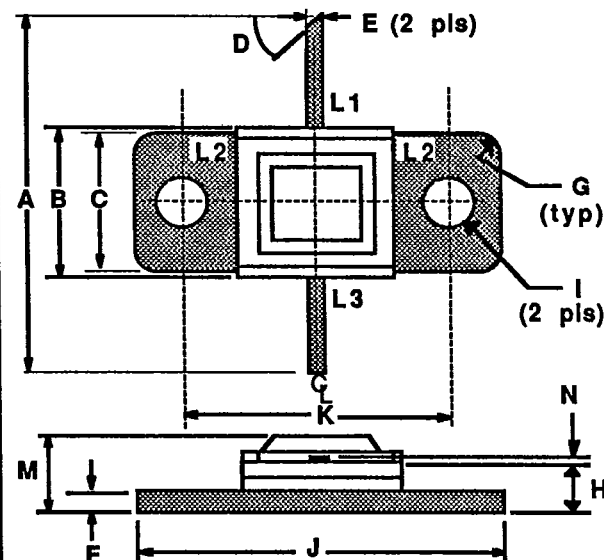
## Maximum Temperatures

Storage temperature	-55 to +200 °C
Operating Flange Temperature	-55 to +125 °C

# MPA 201

0.5 WATTS - 12.5 VOLTS  
500 MHz

## 50Ω HYBRID AMPLIFIER



DIM	Millimeter	TOL	Inches	TOL
A	20.32	.76	.800	.030
B	10.16	.13	.400	.005
C	9.78	.13	.385	.005
D	45°	5°	45°	5°
E	1.27	.13	.050	.005
F	1.52	.13		.005
G	1.52 R	.13	.060 R	.005
H	3.05	.13	.120	.005
I	3.30 DIA	.13	.130 DIA	.005
J	22.86	.13	.900	.005
K	16.51	.13	.650	.005
M	4.70	REF	.185	REF
N	0.13	.02	.005	.001

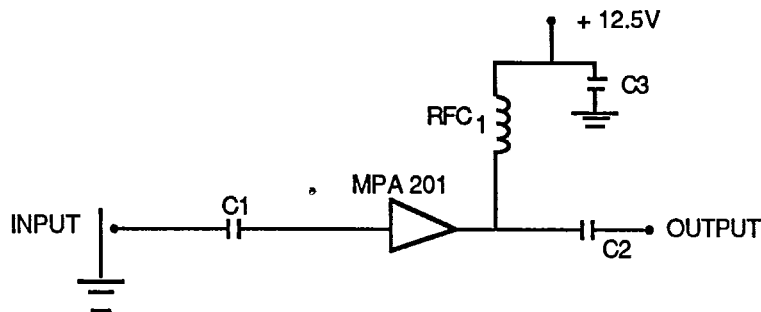
L1 : RF Output  
L2 : Ground  
L3 : RF Input

**MPA 201-2**

**ELECTRICAL CHARACTERISTICS<sup>1</sup>**

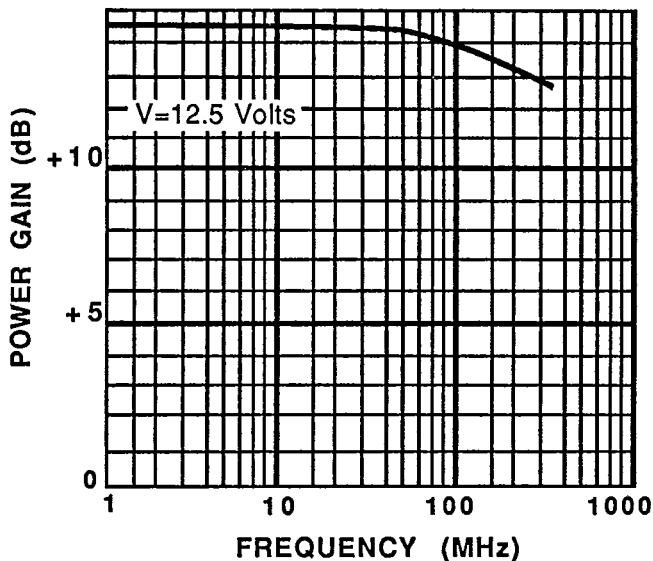
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
P <sub>out</sub>	Power Output	f = 1-500 MHz V <sub>dc</sub> = 12.5V		500		mW
P <sub>in</sub>	Power Input				+13	dBm
VSWR	Input VSWR				1.5:1	2.0:1
G <sub>a</sub>	Small Signal Gain		12	13		dB
ΔG <sub>a</sub>	Gain Flatness			±0.6	±1.0	dB
P <sub>1dB</sub>	Power Out @ 1dB Gain Compression		+25	+27		dBm
I <sub>dc</sub>	DC Current				250	mA
Δt <sub>jf</sub>	Temperature Rise Junction to Flange				+50	°C
I <sub>p</sub>	3rd Order Intercept Point		+37	+40	dBm	
N <sub>f</sub>	Noise Figure	f = 200 MHz V <sub>dc</sub> = 12.5V		6.0		dB

Note 1: T<sub>c</sub> = +25°C unless otherwise specified

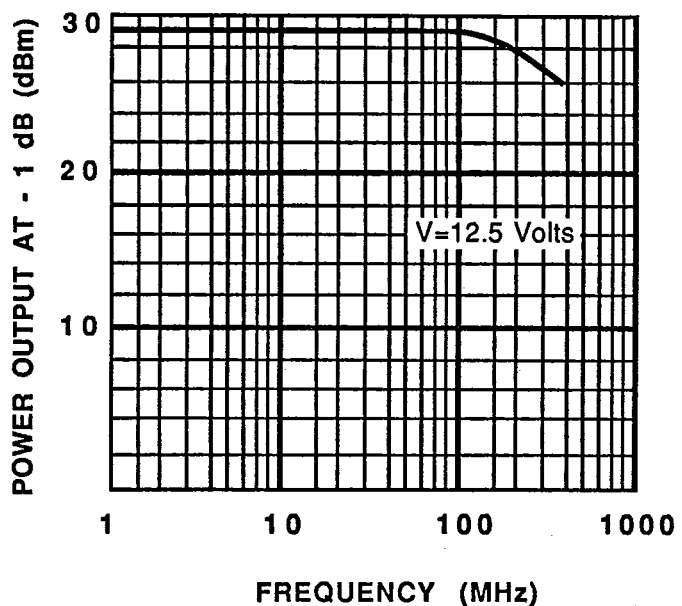


RFC<sub>1</sub> = 4.7 μh  
C1, C2 = .01 μf chip  
C3 = 0.1 μf

**POWER GAIN VS FREQUENCY (TYPICAL)**



**1dB COMPRESSION POINT VS FREQUENCY (TYPICAL)**

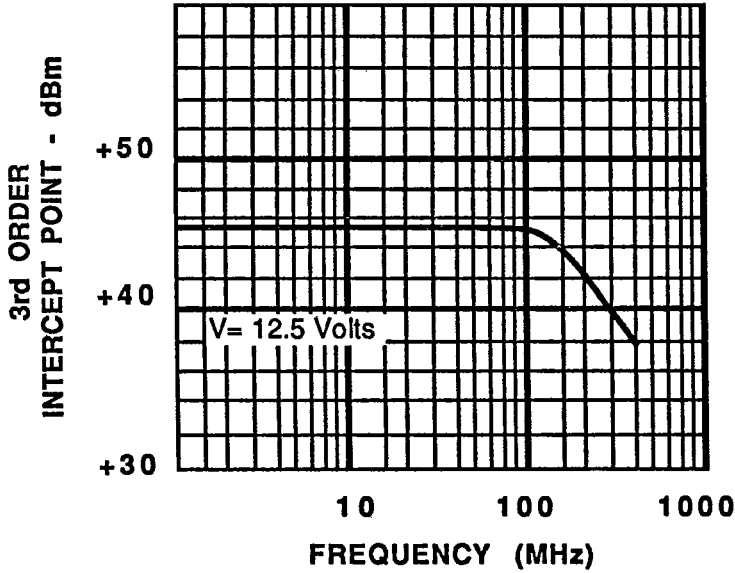


SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE

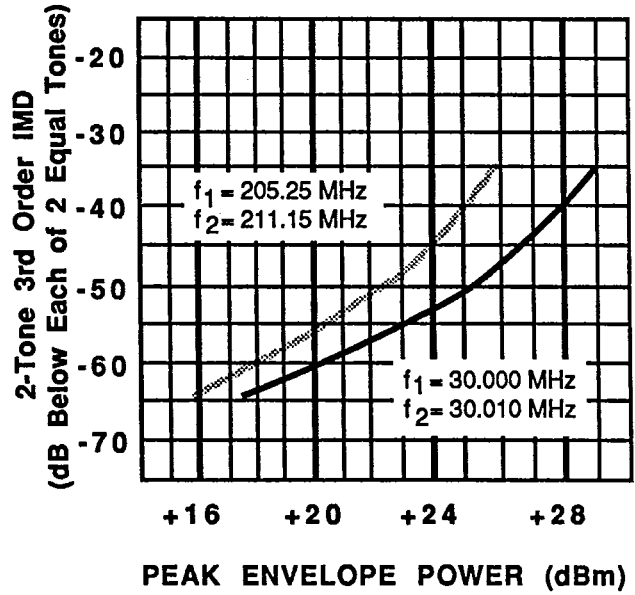
26

**MPA 201-3**

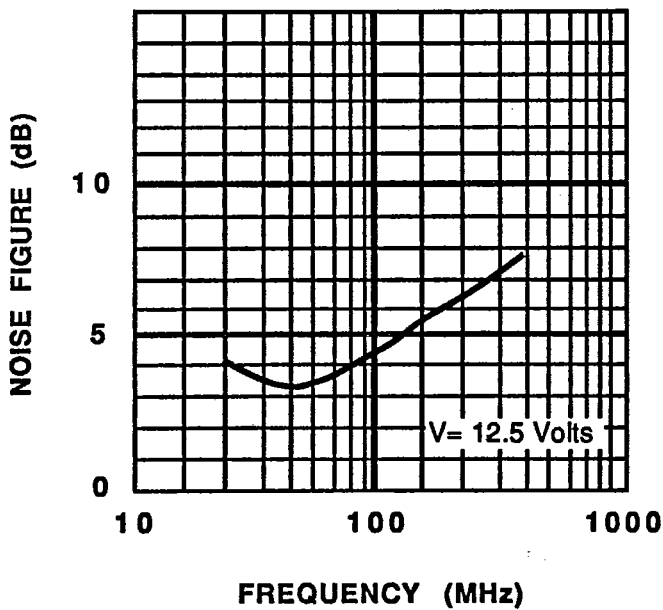
**3rd ORDER INTERCEPT POINT vs FREQUENCY (TYPICAL)**



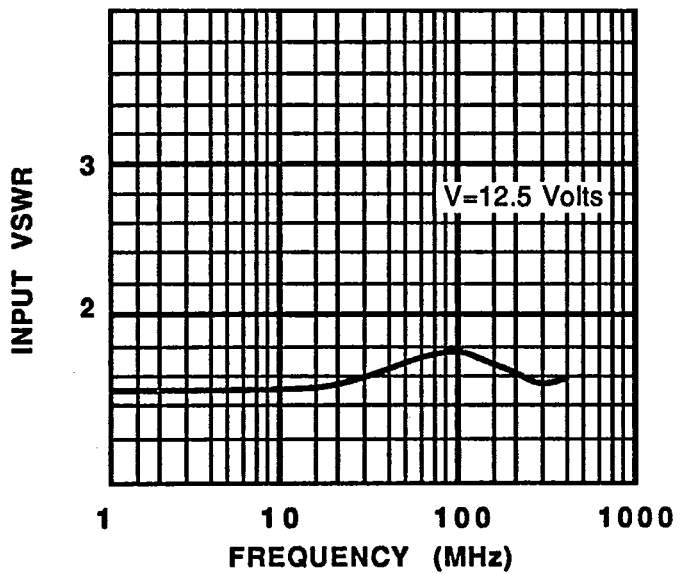
**2 TONE 3rd ORDER IMD vs PEP OUTPUT (TYPICAL)**



**SMALL SIGNAL NOISE FIGURE VS FREQUENCY (TYPICAL)**



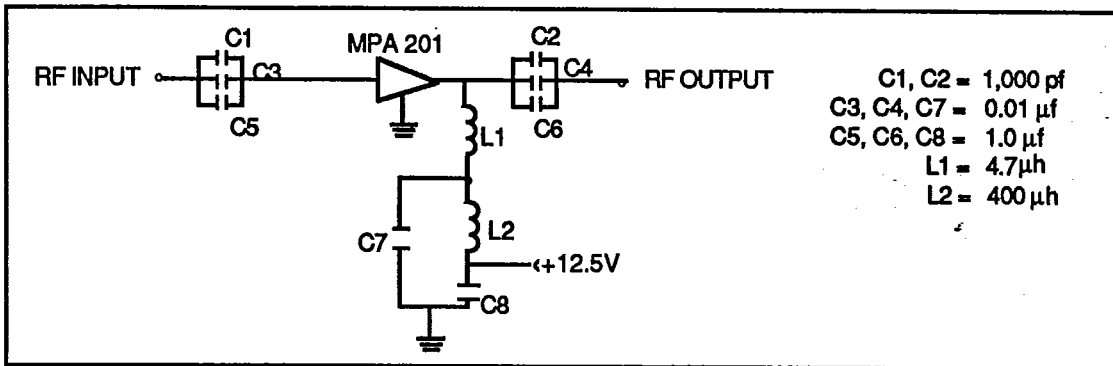
**INPUT VSWR vs FREQUENCY (TYPICAL)**



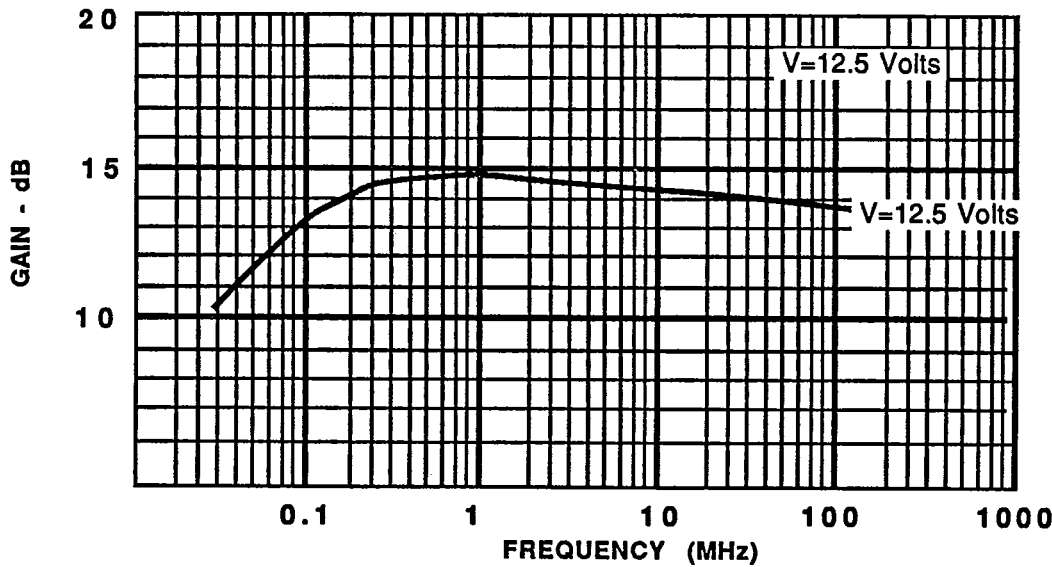
27

**MPA 201-4**

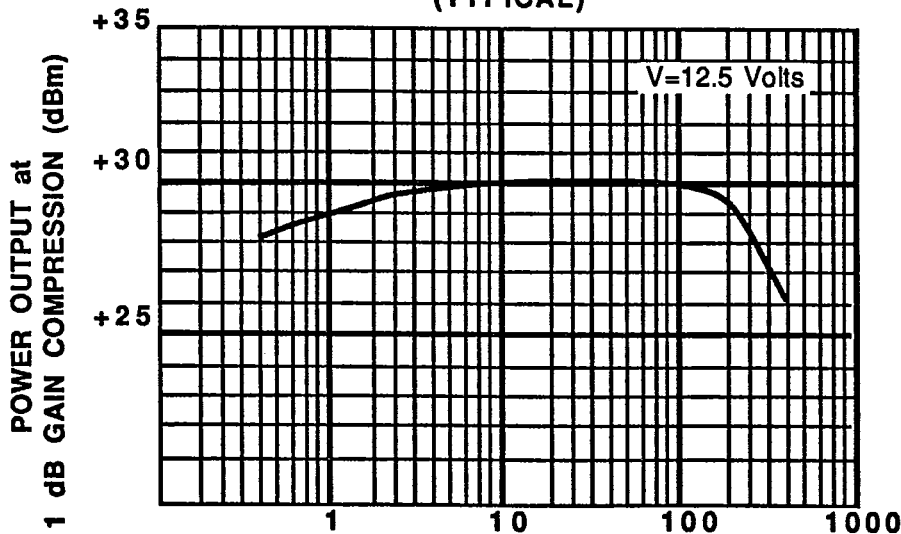
**Applications Information For A 50 KHz To 500 MHz  
Single-ended Amplifier Using The MPA-201**



**POWER GAIN vs FREQUENCY  
ULTRA WIDEBAND SINGLE ENDED AMPLIFIER  
(TYPICAL)**

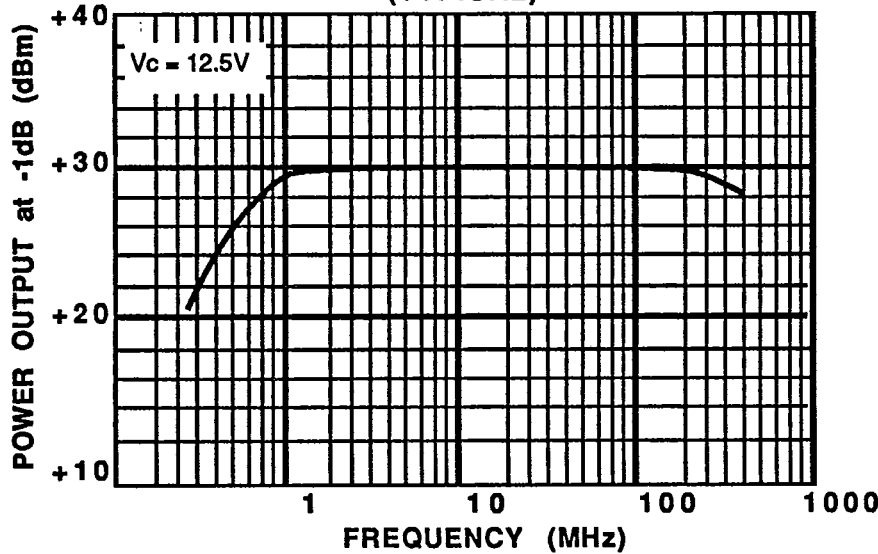


**1 dB COMPRESSION vs FREQUENCY  
ULTRA WIDEBAND SINGLE ENDED AMPLIFIER  
(TYPICAL)**

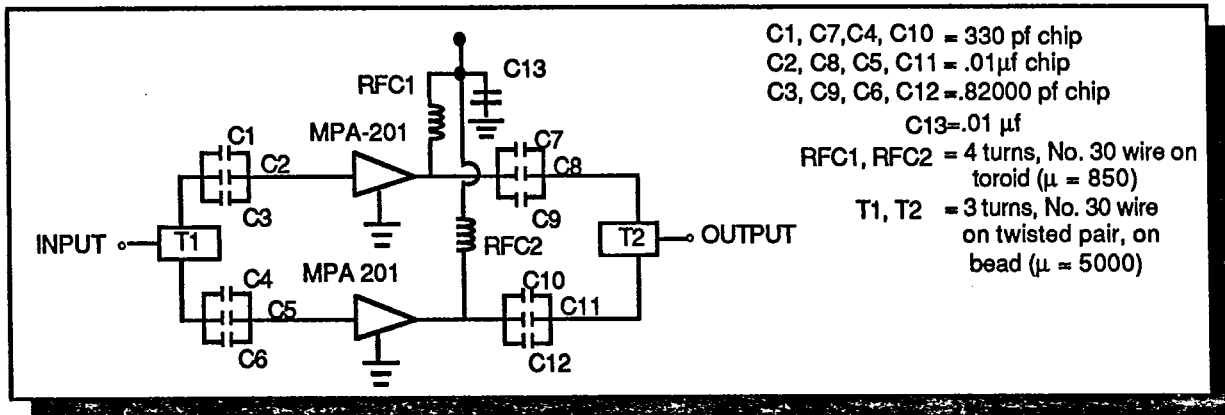


**MPA 201-5**

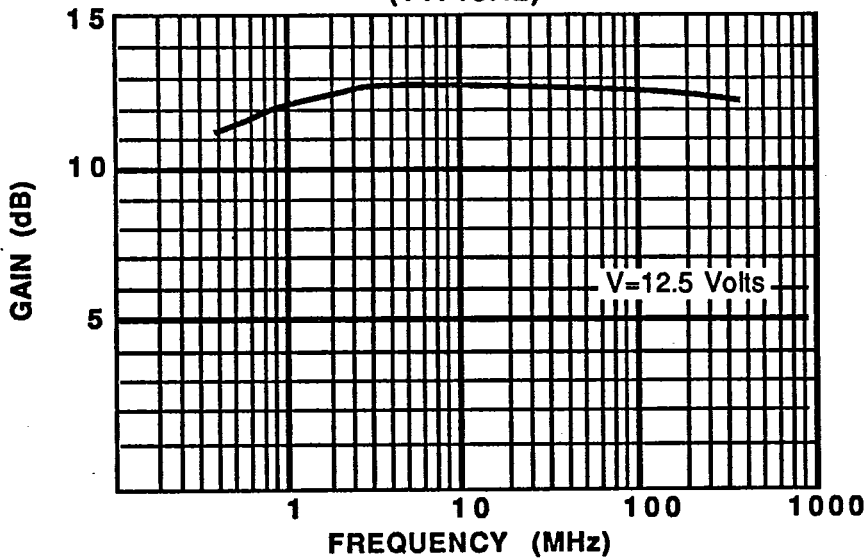
**1 dB COMPRESSION POINT vs FREQUENCY  
(TYPICAL)**



**APPLICATIONS INFORMATION FOR A WIDEBAND PUSH-PULL AMPLIFIER  
USING TWO MPA-201**



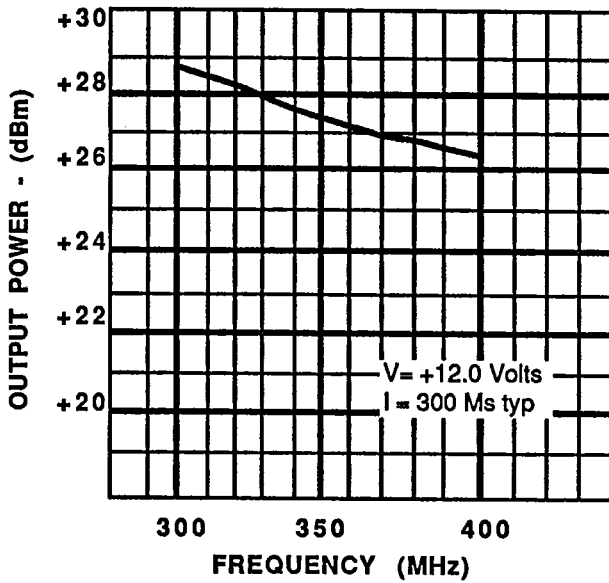
**GAIN vs FREQUENCY PUSH-PULL AMPLIFIER  
(TYPICAL)**



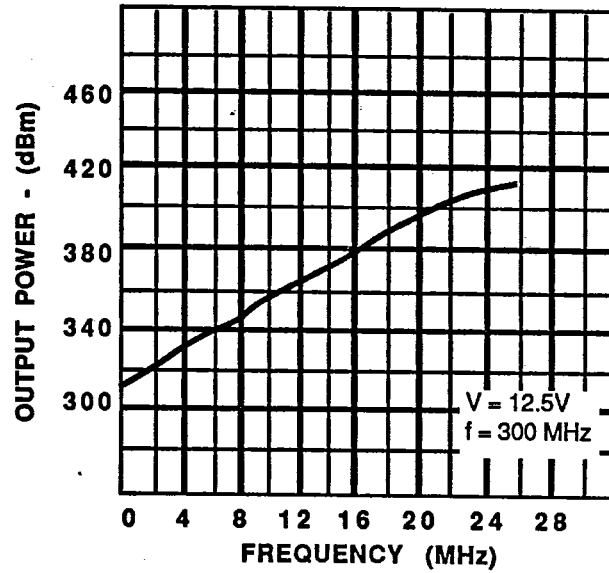
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**MPA 201-6**

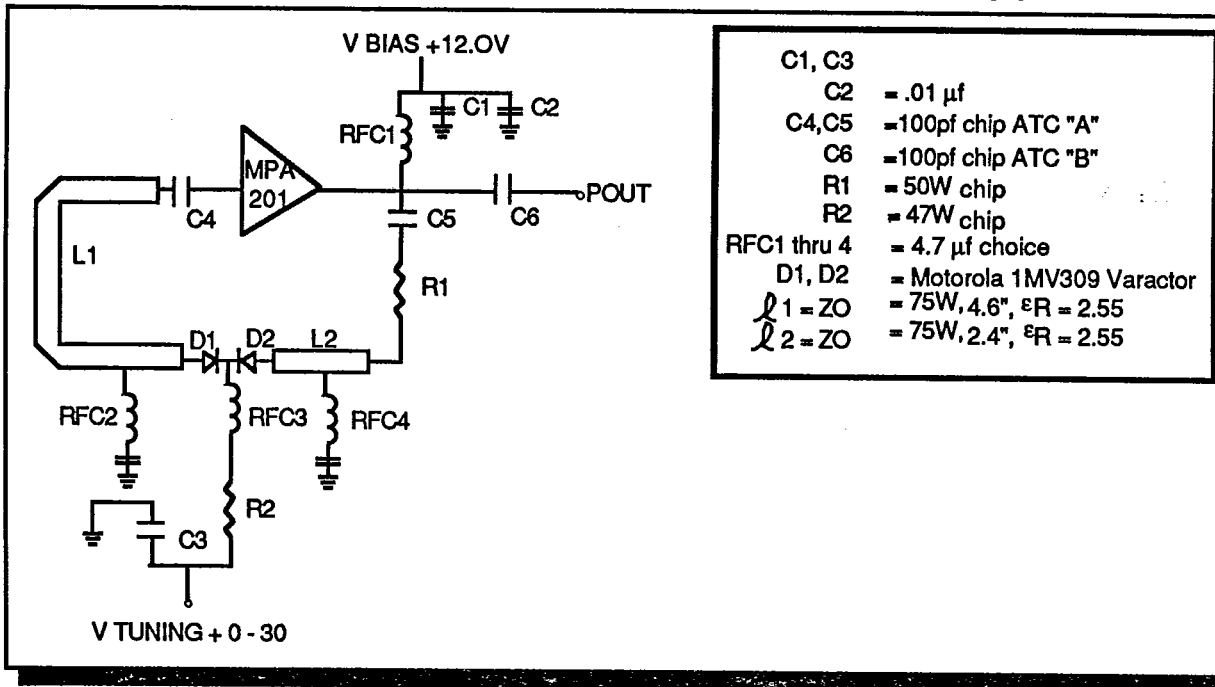
**OSCILLATOR OUTPUT POWER vs FREQUENCY (TYPICAL)**



**TUNING VOLTAGE vs FREQUENCY (TYPICAL)**

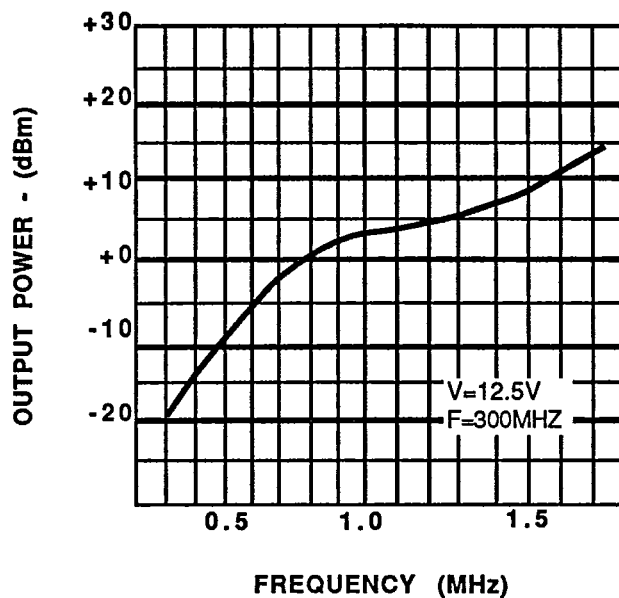


**APPLICATIONS INFORMATION FOR USING THE MPA-201 AS A 1/2 WATT VOLTAGE CONTROLLED POWER OSCILLATOR**

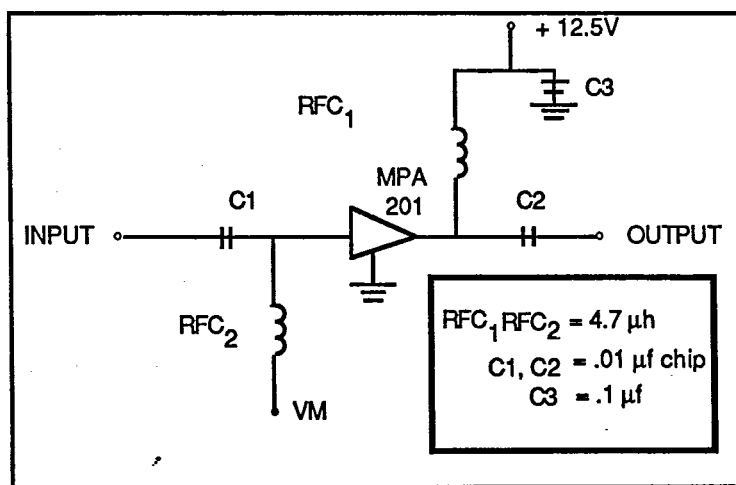


**MPA 201-7**

**GAIN vs MODULATION VOLTAGE  
(TYPICAL)**



**APPLICATIONS INFORMATION FOR USING  
THE MPA-201 AS A MODULATOR**



31