

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)

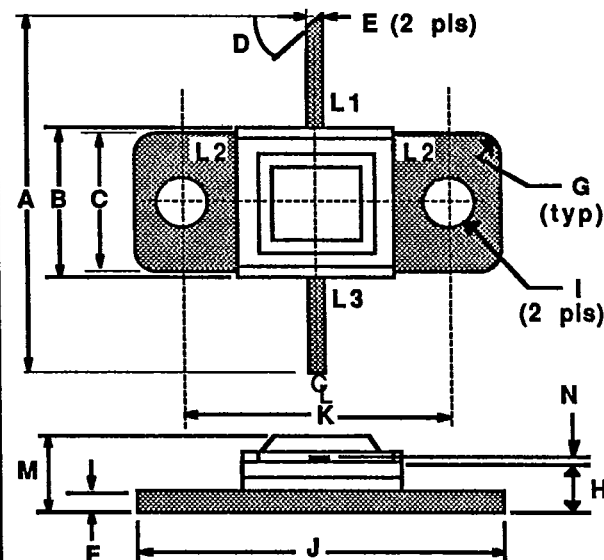
Maximum Temperatures

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

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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

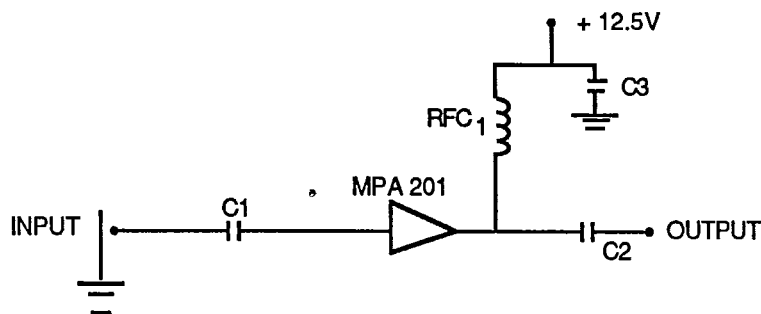
L1 : RF Output
L2 : Ground
L3 : RF Input

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ELECTRICAL CHARACTERISTICS¹

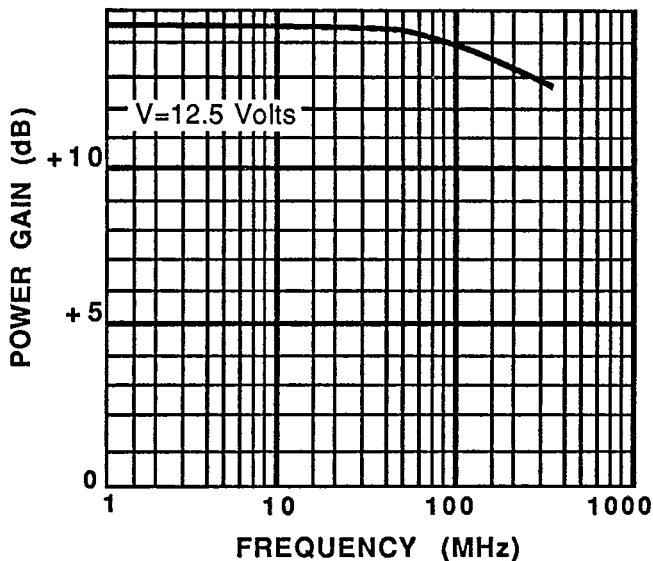
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
P _{out}	Power Output	f = 1-500 MHz V _{dc} = 12.5V		500		mW
P _{in}	Power Input				+13	dBm
VSWR	Input VSWR				1.5:1	2.0:1
G _a	Small Signal Gain		12	13		dB
ΔG _a	Gain Flatness			±0.6	±1.0	dB
P _{1dB}	Power Out @ 1dB Gain Compression		+25	+27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

Note 1: T_c = +25°C unless otherwise specified

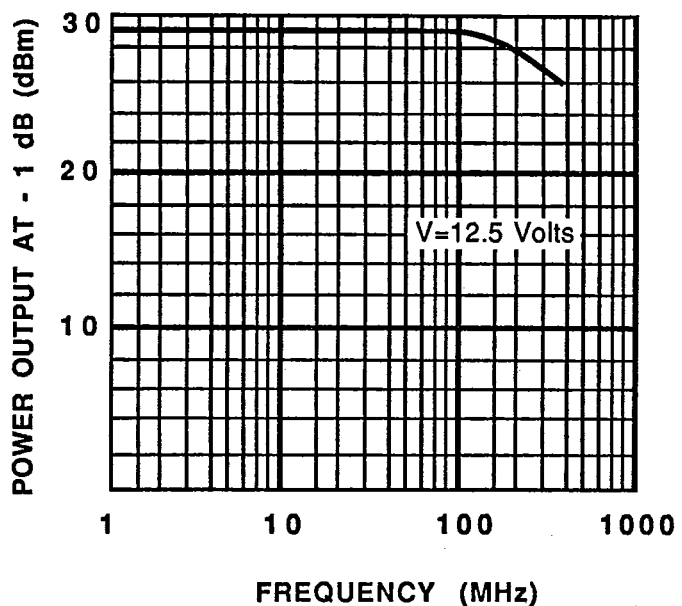


RFC₁ = 4.7 μh
C1, C2 = .01 μf chip
C3 = 0.1 μf

POWER GAIN VS FREQUENCY (TYPICAL)



1dB COMPRESSION POINT VS FREQUENCY (TYPICAL)

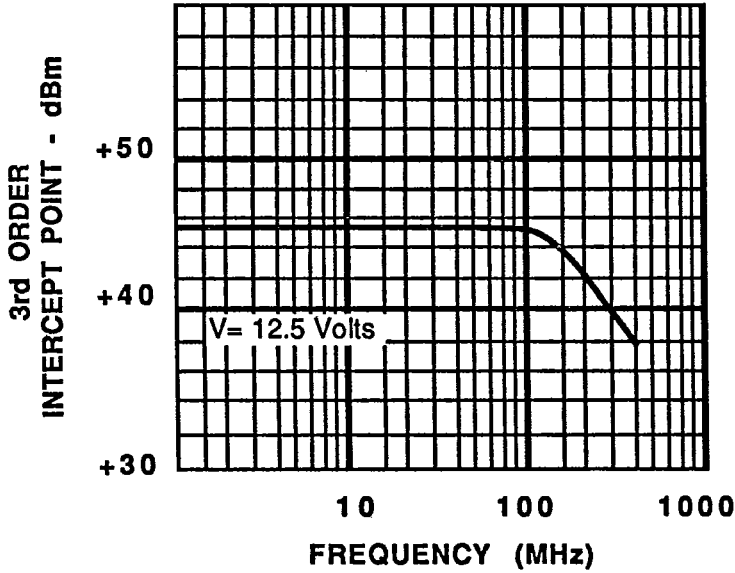


SPECIFICATIONS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE

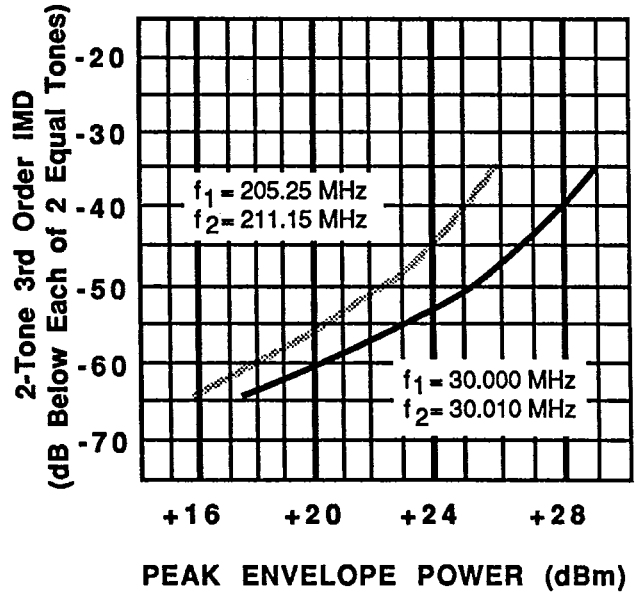
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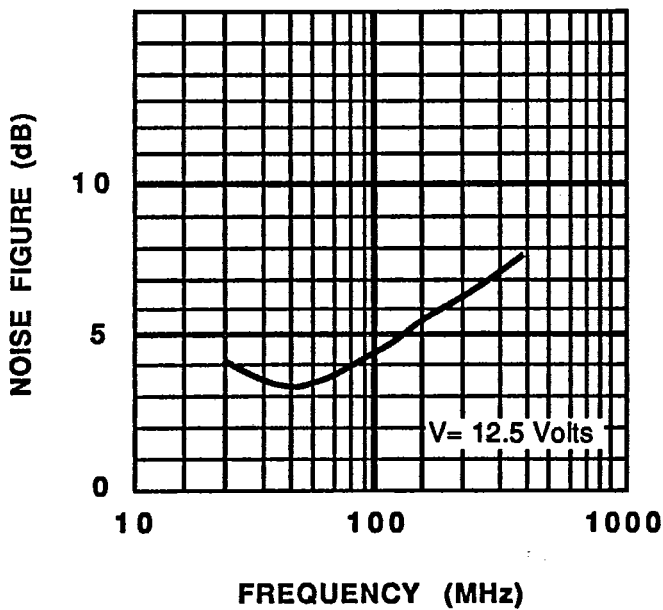
3rd ORDER INTERCEPT POINT vs FREQUENCY (TYPICAL)



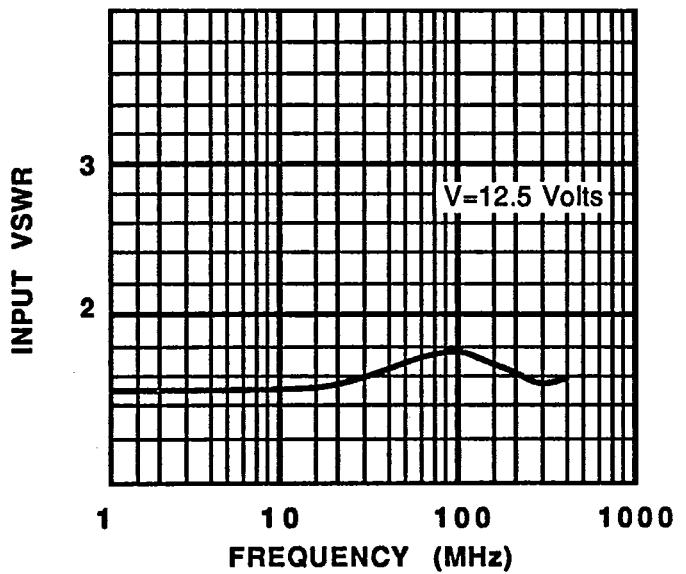
2 TONE 3rd ORDER IMD vs PEP OUTPUT (TYPICAL)



SMALL SIGNAL NOISE FIGURE VS FREQUENCY (TYPICAL)



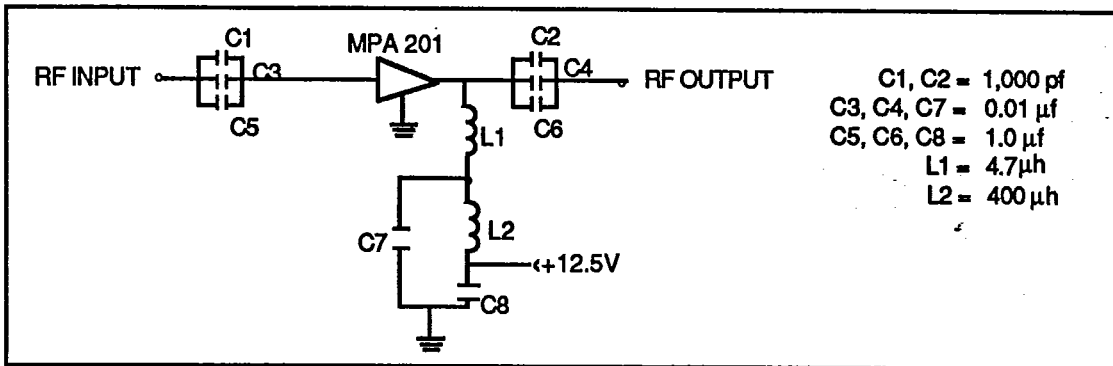
INPUT VSWR vs FREQUENCY (TYPICAL)



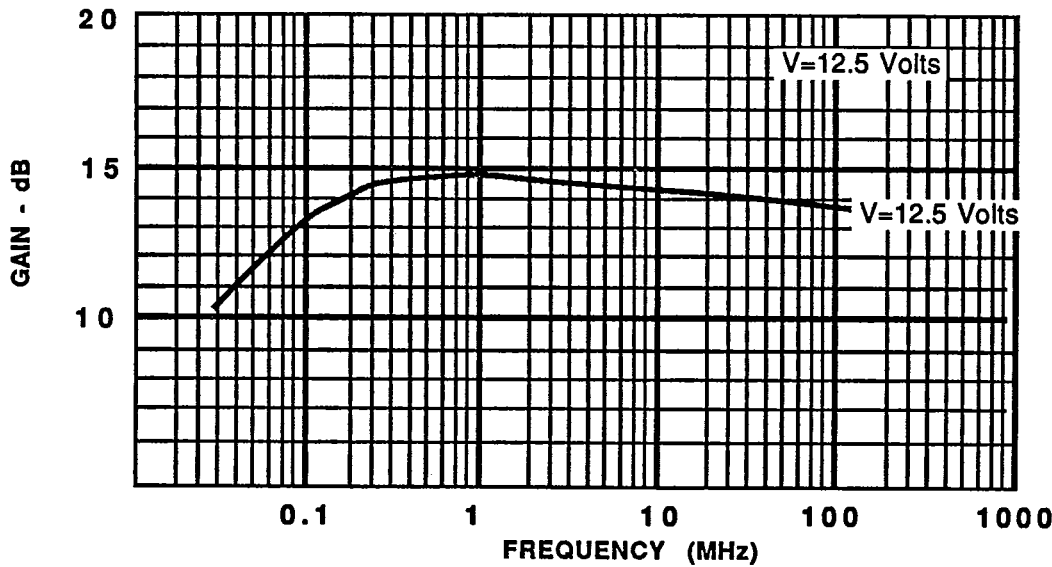
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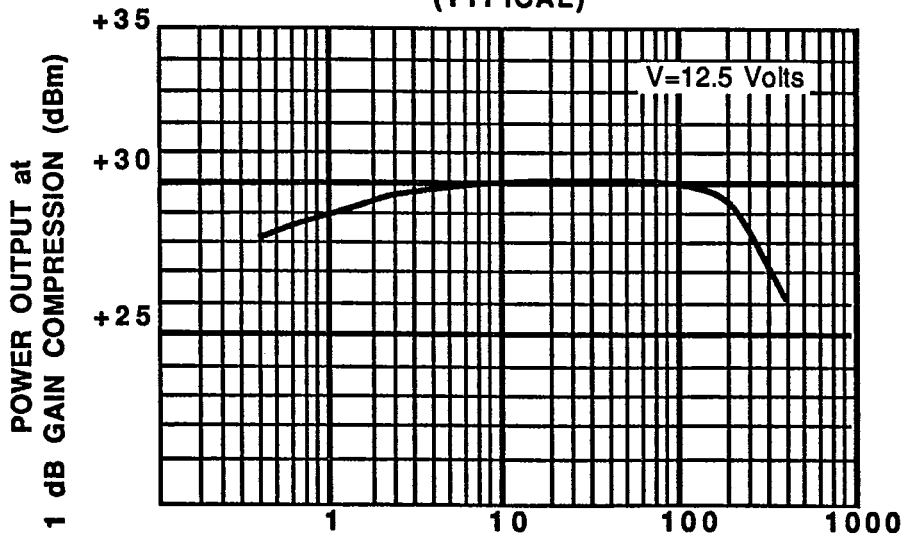
**Applications Information For A 50 KHz To 500 MHz
Single-ended Amplifier Using The MPA-201**



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

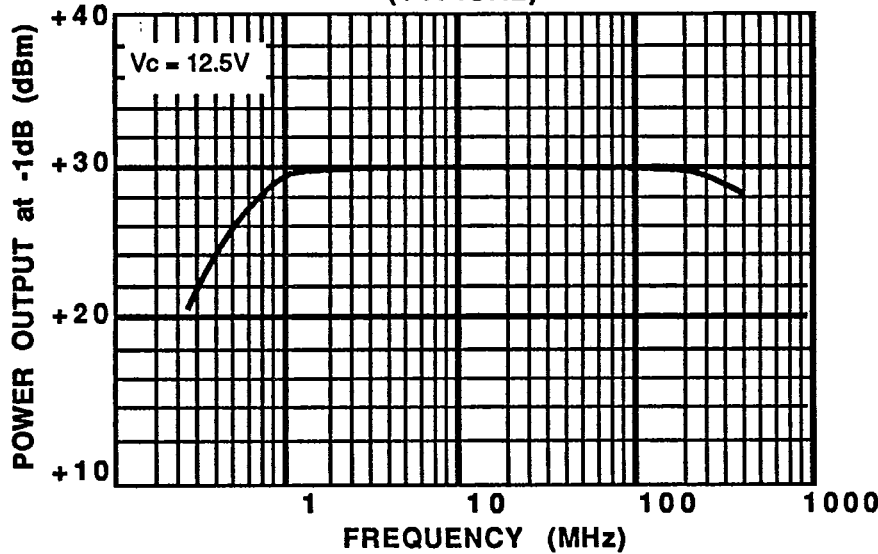


**1 dB COMPRESSION vs FREQUENCY
ULTRA WIDEBAND SINGLE ENDED AMPLIFIER
(TYPICAL)**

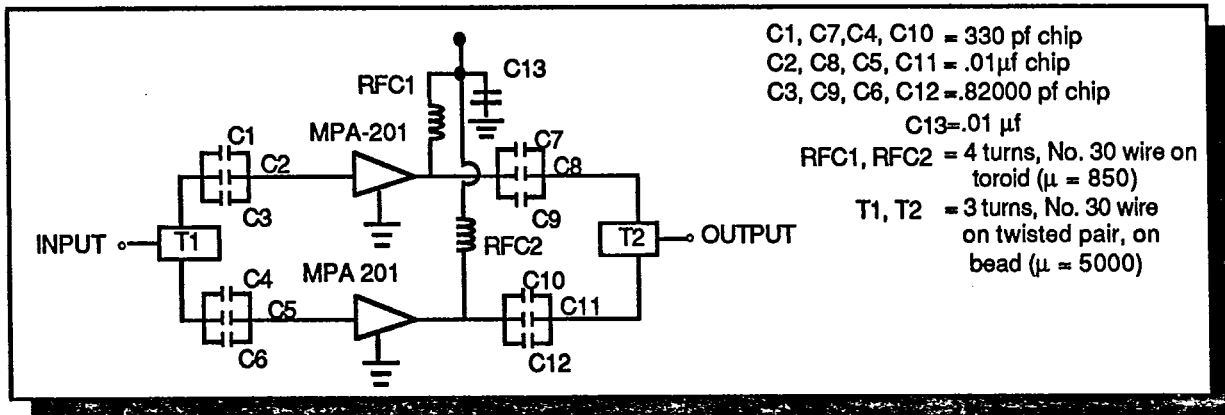


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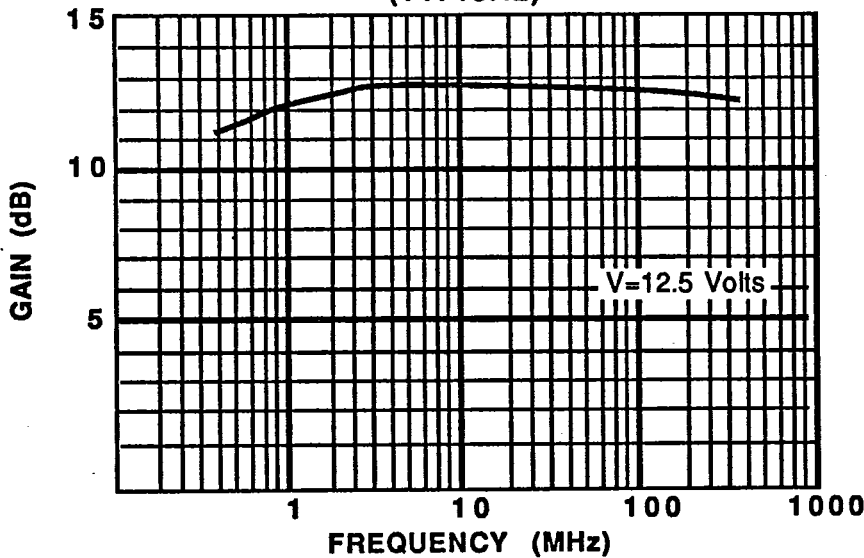
**1 dB COMPRESSION POINT vs FREQUENCY
(TYPICAL)**



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



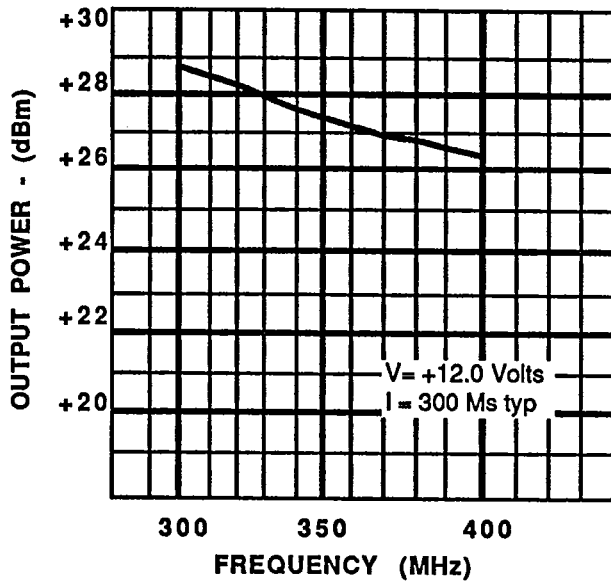
**GAIN vs FREQUENCY PUSH-PULL AMPLIFIER
(TYPICAL)**



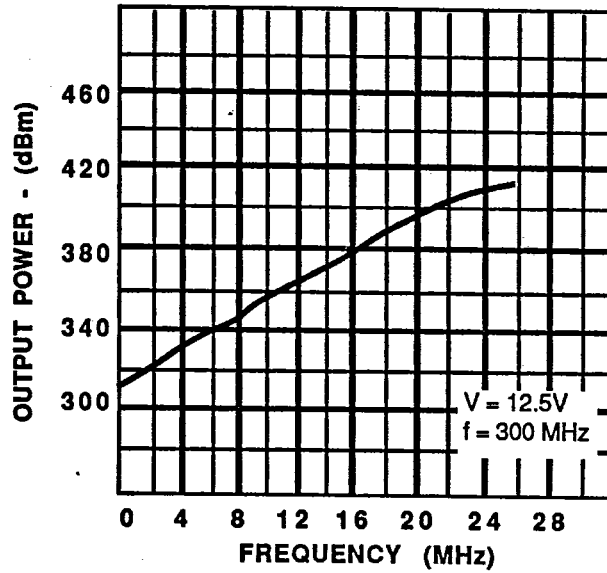
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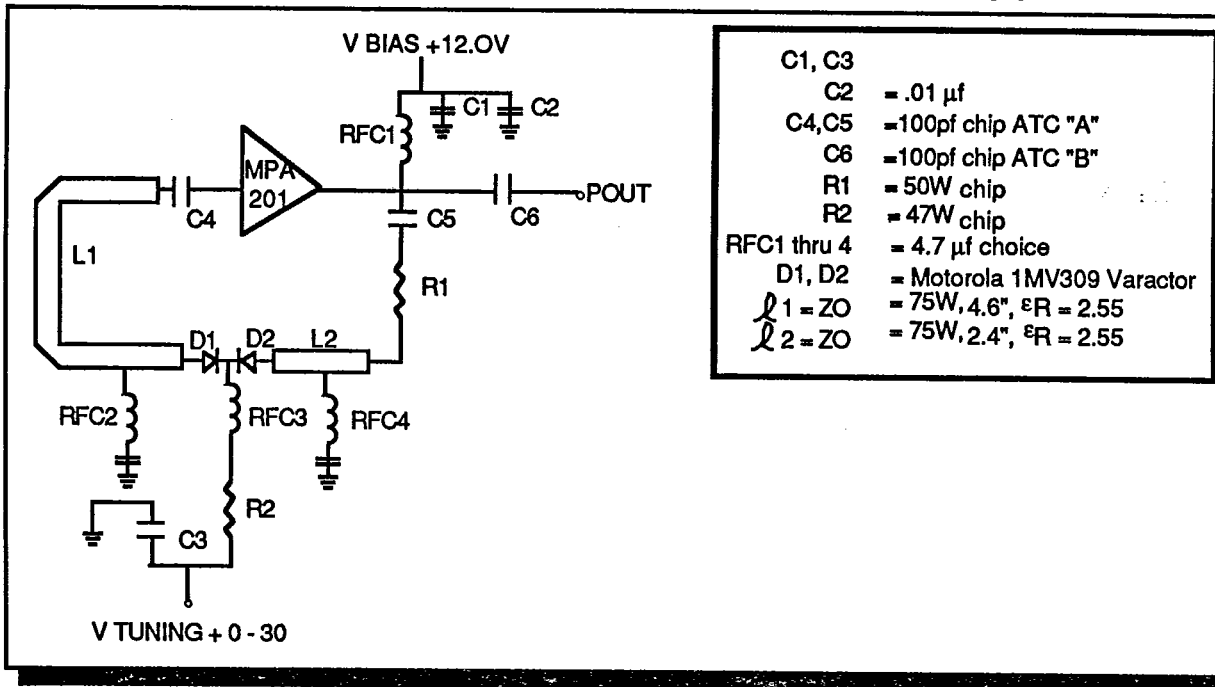
OSCILLATOR OUTPUT POWER vs FREQUENCY (TYPICAL)



TUNING VOLTAGE vs FREQUENCY (TYPICAL)

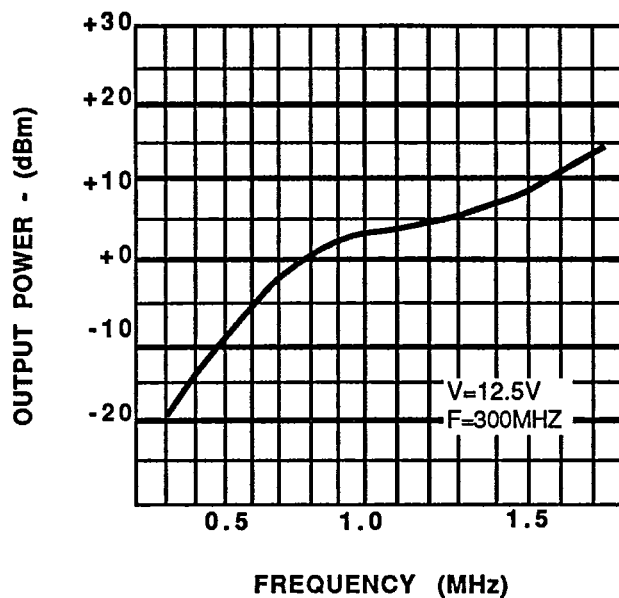


APPLICATIONS INFORMATION FOR USING THE MPA-201 AS A 1/2 WATT VOLTAGE CONTROLLED POWER OSCILLATOR

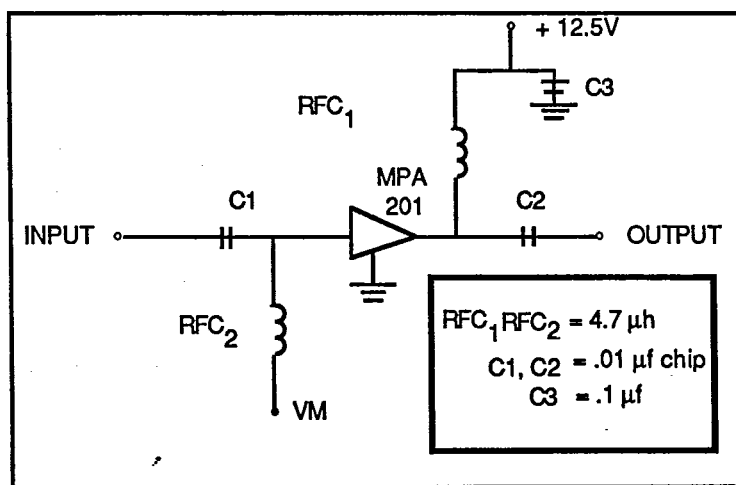


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**GAIN vs MODULATION VOLTAGE
(TYPICAL)**



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



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