

MHW593

The RF Line

LOW DISTORTION WIDEBAND AMPLIFIER

...low-noise, high-gain, ultra-linear, thin-film hybrid. Designed for multi-purpose broadband 50 to 100 ohm system applications requiring superior gain and current stability with temperature.

- Supply Voltage = 13.6 V Nominal
- Broadband Power Gain —
 $G_p = 34.5 \text{ dB (Typ) @ } f = 10\text{-}400 \text{ MHz}$
- Broadband Noise Figure —
 $NF = 4.0 \text{ dB (Typ) @ } f = 300 \text{ MHz}$
- Ideal for Low Level Wideband Linear Amplifiers and AM Modulators in VHF/UHF Communications Equipment and RF Instrumentation Applications

MAXIMUM RATINGS

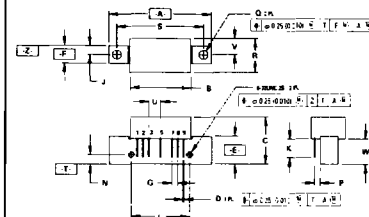
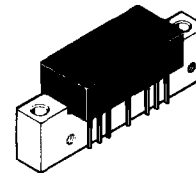
Rating	Symbol	Value	Unit
Supply Voltage	V_{DC}	16	Vdc
Input Power	P_{in}	3.0	dBm
Operating Case Temperature Range	T_C	-20 to +90	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-40 to +100	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($V_{DC} = 13.6 \text{ Vdc}$, $Z_0 = 50 \Omega$, $T_C = 25^{\circ}\text{C}$. All characteristics guaranteed over bandwidth listed under "Frequency Range", unless specified otherwise.)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	10	—	400	MHz
Power Gain	G_p	33	34.5	36	dB
Gain Flatness	F	—	—	± 1.0	dB
Voltage Standing Wave Ratio, In/Out ($f = 10\text{-}300 \text{ MHz}$) ($f = 300\text{-}400 \text{ MHz}$)	VSWR	—	1.5:1 2:1	—	—
1 dB Compression ($f = 10 \text{ MHz}$) ($f = 200 \text{ MHz}$) ($f = 400 \text{ MHz}$)	P1	— 500 —	600 600 200	—	mW
Reverse Isolation	P_{RI}	45	50	—	dB
2nd Harmonic ($P_{out} = 10 \text{ mW}$)	d_{so}	—	-55	—	dB
Third Order Intercept	I_{TO}	—	38	—	dBm
Peak Envelope Power for -32 dB Distortion	PEP	—	300	—	mW
Noise Figure ($f = 60 \text{ MHz}$) ($f = 300 \text{ MHz}$)	NF	— —	3.7 4.0	— 5.5	dB
DC Voltage	V_{DC}	—	13.6	16	V
DC Current	I_{DC}	—	300	340	mA

10–400 MHz

HIGH GAIN AMPLIFIER



STYLE 1
PIN 1 RF INPUT
2 GROUND
3 GROUND
4 DELETED
5 VDC
6 DELETED
7 GROUND
8 GROUND
9 RF OUTPUT

NOTES:
1 DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982
2 CONTROLLING DIMENSION INCH

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	45.08	—	1.775
B	26.42	26.92	1.040	1.060
C	29.57	31.34	0.810	0.840
D	0.46	0.56	0.018	0.022
E	11.81	12.95	0.465	0.510
F	7.62	8.25	0.300	0.325
G	2.54 BSC	—	0.100 BSC	—
J	3.96 BSC	—	0.156 BSC	—
K	8.00	8.50	0.315	0.355
L	25.40 BSC	—	1.00 BSC	—
N	4.18 BSC	—	0.165 BSC	—
P	2.54 BSC	—	0.100 BSC	—
Q	3.76	4.27	0.148	0.168
R	—	15.11	—	0.595
S	38.10 BSC	—	1.500 BSC	—
U	5.08 BSC	—	0.200 BSC	—
V	7.11 BSC	—	0.280 BSC	—
W	11.95	11.43	0.435	0.450

CASE 714-04

FIGURE 1 – POWER GAIN AND RETURN LOSS versus FREQUENCY

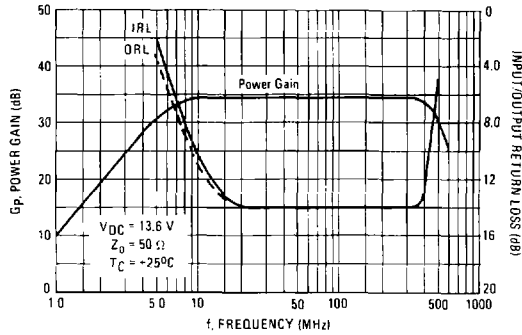


FIGURE 2 – POWER GAIN versus FREQUENCY

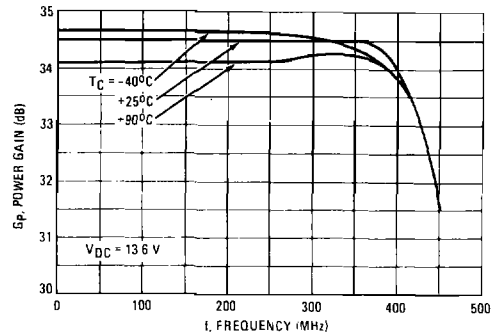


FIGURE 3 – POWER GAIN versus SUPPLY VOLTAGE

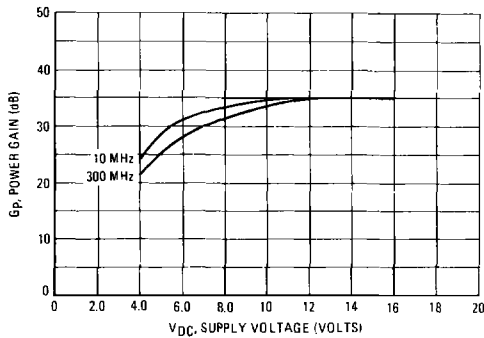


FIGURE 4 – NOISE FIGURE versus SUPPLY VOLTAGE

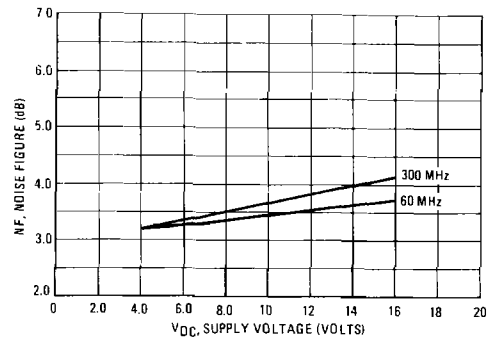


FIGURE 5 – OUTPUT POWER versus INPUT POWER

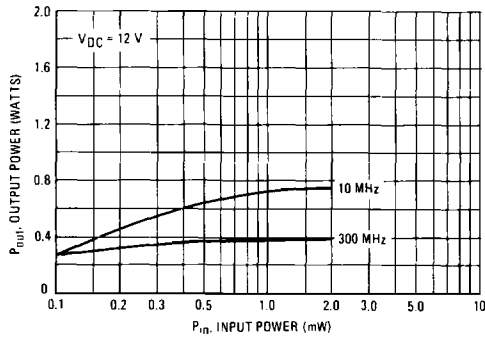


FIGURE 6 – OUTPUT POWER versus INPUT POWER

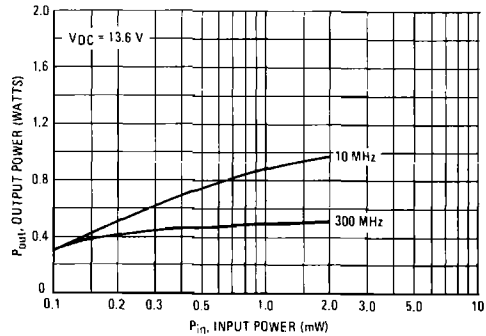


FIGURE 7 – INTERMODULATION DISTORTION – THIRD ORDER versus OUTPUT POWER

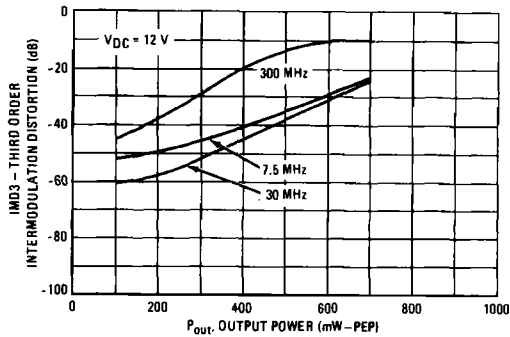


FIGURE 8 – INTERMODULATION DISTORTION – FIFTH ORDER versus OUTPUT POWER

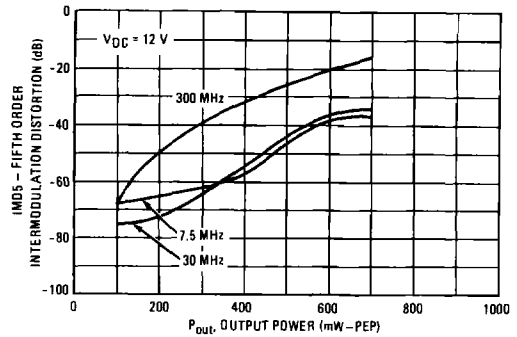


FIGURE 9 – INTERMODULATION DISTORTION – THIRD ORDER versus OUTPUT POWER

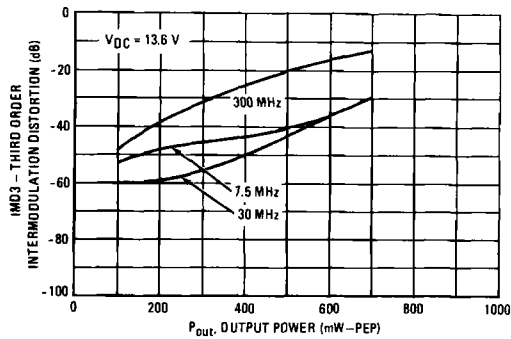


FIGURE 10 – INTERMODULATION DISTORTION – FIFTH ORDER versus OUTPUT POWER

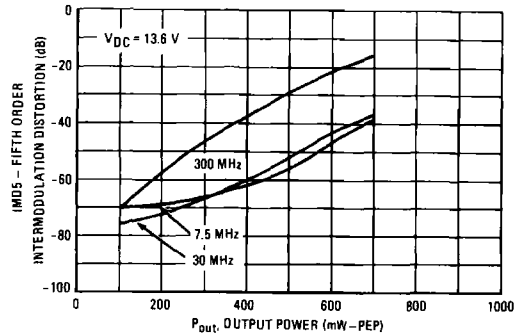


FIGURE 11 – DC CURRENT DRAIN versus SUPPLY VOLTAGE

