MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

MHW593

The RF Line

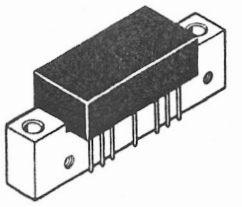
LOW DISTORTION WIDEBAND AMPLIFIER

. . . 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 dB (Typ) @ f = 10-400 MHz
- Broadband Noise Figure —
  NF = 4.0 dB (Typ) @ f = 300 MHz
- Ideal for Low Level Wideband Linear Amplifiers and AM Modulators in VHF/UHF Communications Equipment and RF Instrumentation Applications

10—400 MHz

HIGH GAIN AMPLIFIER

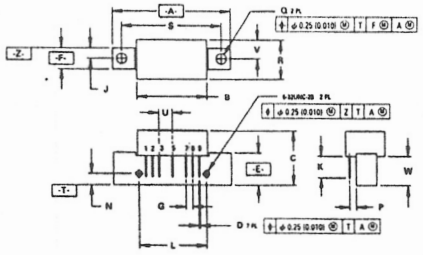


MAXIMUM RATINGS

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	°C
Storage Temperature Range	T_{stg}	-40 to +100	°C

ELECTRICAL CHARACTERISTICS (V_{DC} = 13.6 Vdc, Z_o = 50 Ω, T_C = 25°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	VSWR				
(f = 10-300 MHz)		—	1.5:1	—	
(f = 300-400 MHz)		—	2:1	—	
1 dB Compression	P1				mW
(f = 10 MHz)		—	600	—	
(f = 200 MHz)		500	600	—	
(f = 400 MHz)		—	200	—	
Reverse Isolation	P_{RI}	45	50	—	dB
2nd Harmonic (P_{out} = 10 mW)	d_{so}	—	-55	—	dB
Third Order Intercept	I_{TO}	—	38	—	dBm
Peak Envelope Power for -32 dB Distortion	PEP	—	300	—	mW
Noise Figure	NF				dB
(f = 60 MHz)		—	3.7	—	
(f = 300 MHz)		—	4.0	5.5	
DC Voltage	V_{DC}	—	13.6	16	V
DC Current	I_{DC}	—	300	340	mA



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

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

DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
A	—	45.08	—	1.775
B	26.42	26.92	1.040	1.060
C	20.57	21.34	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	4.19 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	11.05	11.43	0.435	0.450

CASE 714-04

FIGURE 1 – POWER GAIN AND RETURN LOSS versus FREQUENCY

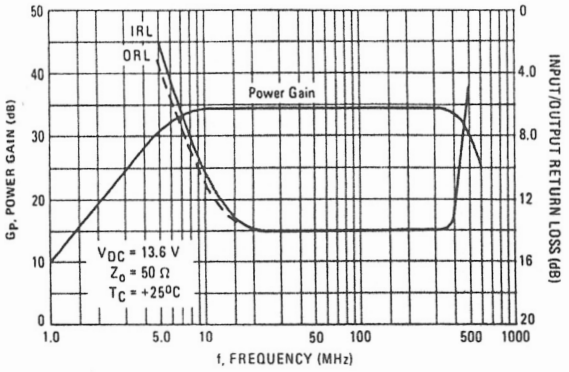


FIGURE 2 – POWER GAIN versus FREQUENCY

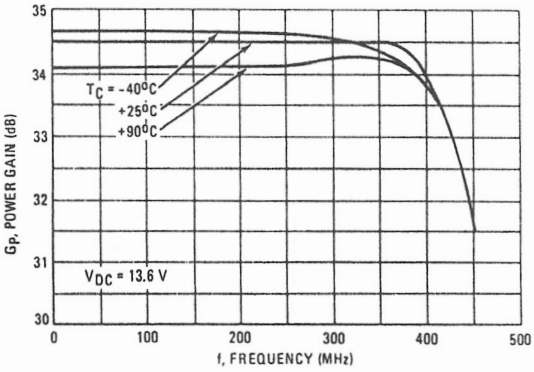


FIGURE 3 – POWER GAIN versus SUPPLY VOLTAGE

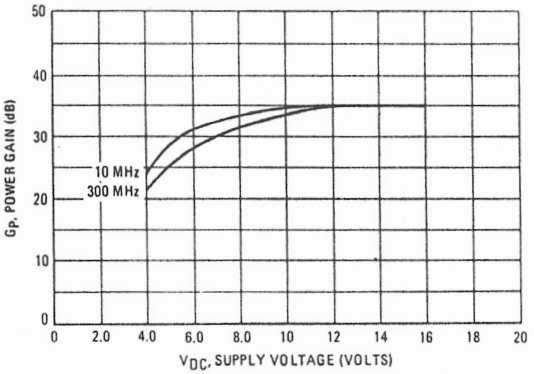


FIGURE 4 – NOISE FIGURE versus SUPPLY VOLTAGE

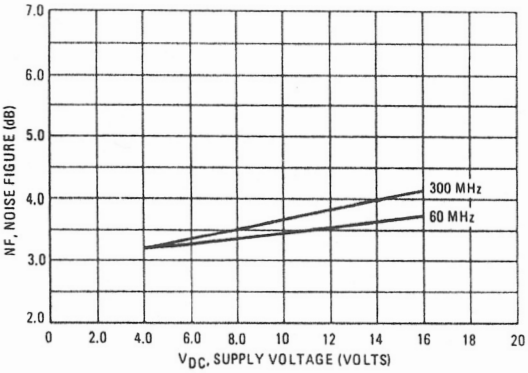


FIGURE 5 – OUTPUT POWER versus INPUT POWER

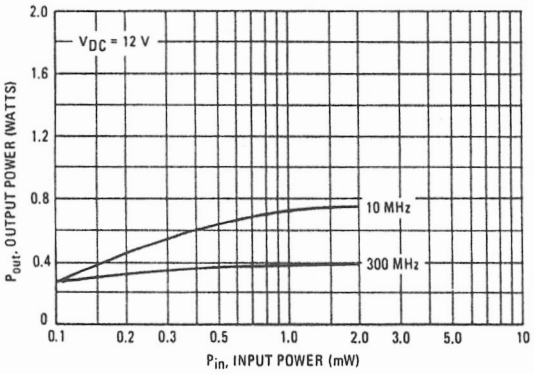


FIGURE 6 – OUTPUT POWER versus INPUT POWER

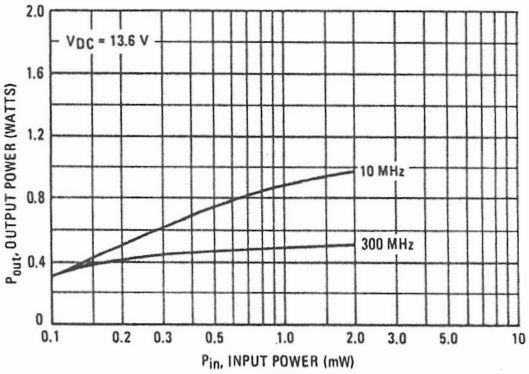


FIGURE 7 – INTERMODULATION DISTORTION – THIRD ORDER versus OUTPUT POWER

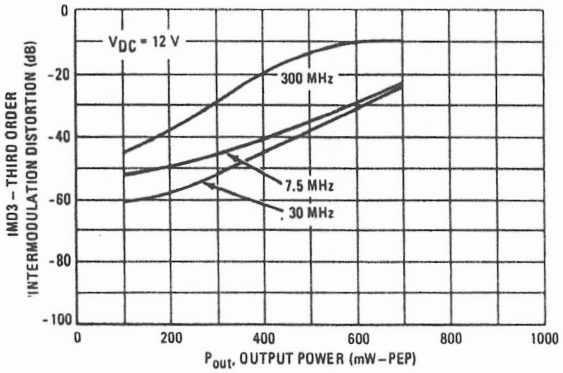


FIGURE 8 – INTERMODULATION DISTORTION – FIFTH ORDER versus OUTPUT POWER

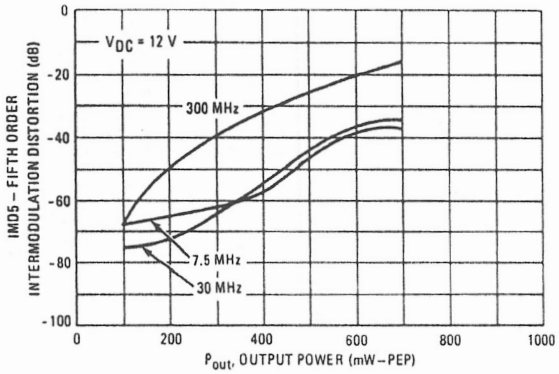


FIGURE 9 – INTERMODULATION DISTORTION – THIRD ORDER versus OUTPUT POWER

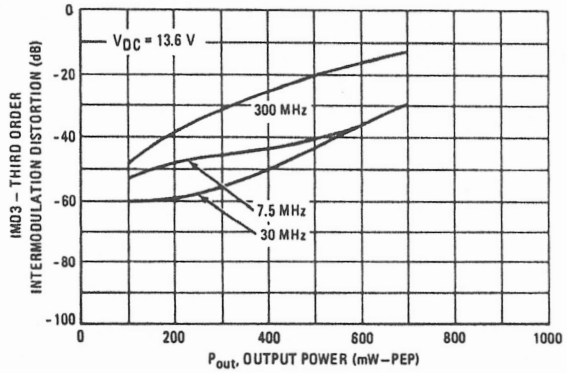


FIGURE 10 – INTERMODULATION DISTORTION – FIFTH ORDER versus OUTPUT POWER

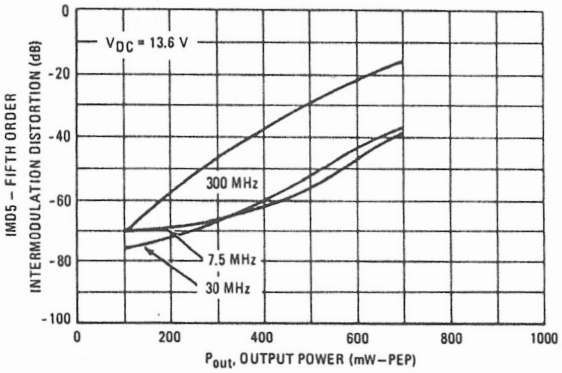


FIGURE 11 – DC CURRENT DRAIN versus SUPPLY VOLTAGE