

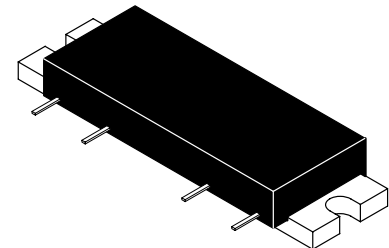
# PCS Band RF Linear LDMOS Amplifier

Designed for Class AB amplifier applications in 50 ohm systems operating in the PCS frequency band. A silicon FET design provides outstanding linearity and gain. In addition, the excellent group delay and phase linearity characteristics are ideal for digital modulation systems, such as TDMA and CDMA.

- Typical CDMA Performance: 1960 MHz, 28 Volts  
IS-95 CDMA Pilot, Sync, Paging, Traffic Codes 8 Through 13
- Adjacent Channel Power: -51 dBc @ 30 dBm, 885 kHz Channel Spacing
- Power Gain: 24.5 dB Min (@ f = 1960 MHz)
- 0.2 dB Typical Gain Flatness

## Features

- Excellent Phase Linearity and Group Delay Characteristics
- Ideal for Feedforward Base Station Applications
- N Suffix Indicates Lead-Free Terminations

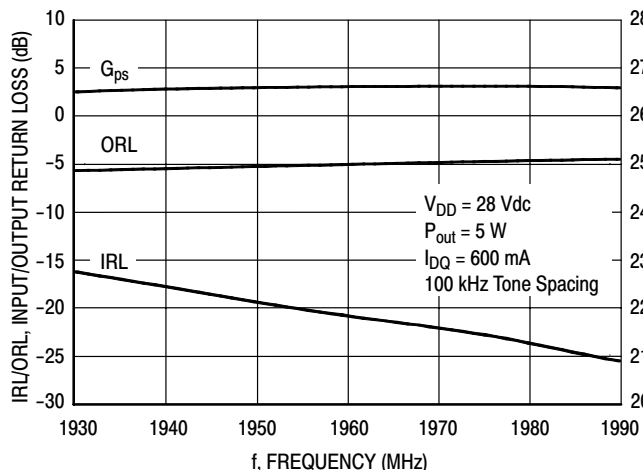
**MHPA19010N**
**1930 - 1990 MHz  
10 W, 24.5 dB  
RF HIGH POWER LDMOS AMPLIFIER**

**CASE 301AP-02, STYLE 3**
**Table 1. Maximum Ratings** ( $T_C = 25^\circ\text{C}$  unless otherwise noted)

Rating	Symbol	Value	Unit
DC Supply Voltage	$V_{DD}$	30	Vdc
RF Input Power (Single Carrier CW)	$P_{in}$	+20	dBm
Storage Temperature Range	$T_{stg}$	- 40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	$T_C$	- 20 to +100	$^\circ\text{C}$
Quiescent Bias Current	$I_{DQ}$	750	mA

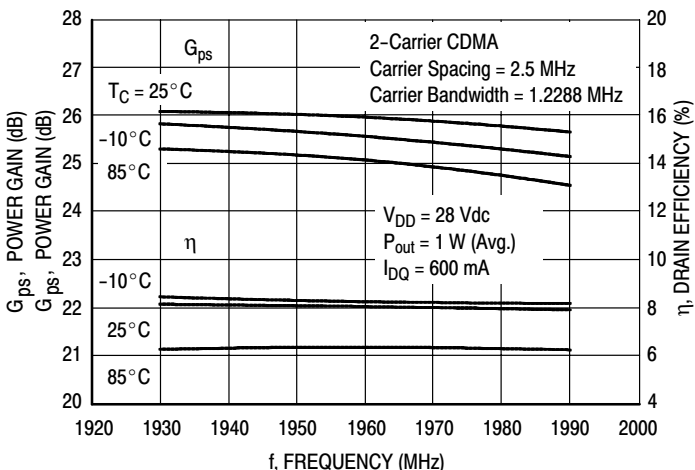
**Table 2. Electrical Characteristics** ( $V_{DD} = 28\text{ Vdc}$ ,  $V_{BIAS} \cong 8\text{ V}$  Set for Supply Current of 600 mA,  $T_C = 25^\circ\text{C}$ , 50  $\Omega$  System)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	$I_{DD}$	—	600	—	mA
Power Gain (f = 1960 MHz)	$G_p$	24.5	25	—	dB
Gain Flatness (f = 1930 - 1990 MHz)	$G_F$	—	0.2	0.5	dB
Power Output @ 1 dB Comp. (f = 1960 MHz)	$P_{1dB}$	—	41.5	—	dBm
Input VSWR (f = 1930 - 1990 MHz)	$VSWR_{in}$	—	1.5:1	2:1	
Noise Figure (f = 1960 MHz)	NF	—	8	10	dB
Adjacent Channel Power Rejection @ 30 dBm, 1.23 MHz BW, 885 kHz Channel Spacing	ACPR	—	-58	-51	dBc

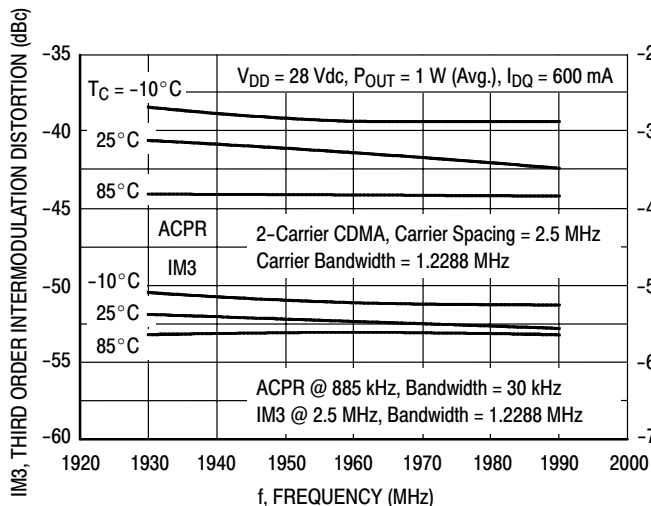
## TYPICAL CHARACTERISTICS



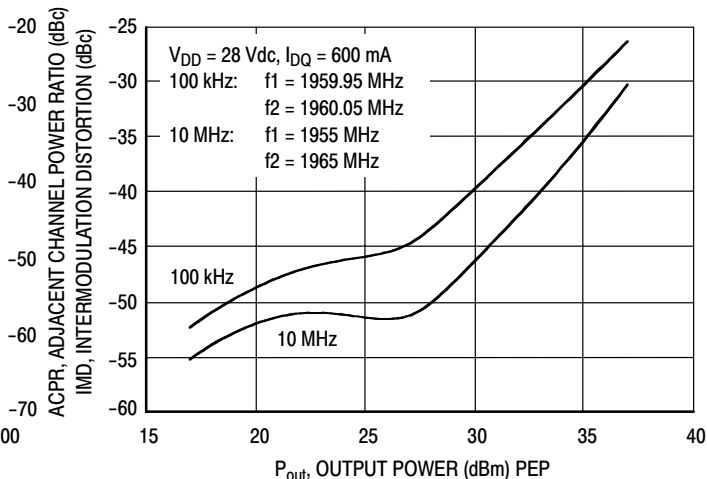
**Figure 1. Two-Tone Power Gain, Input Return Loss and Output Return Loss versus Frequency**



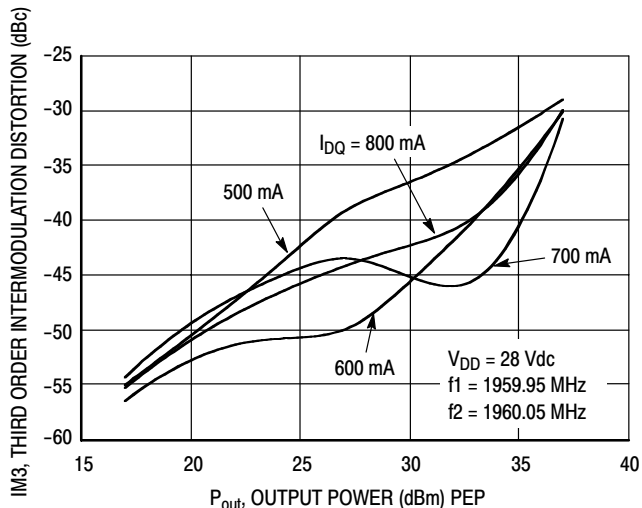
**Figure 2. 2-Carrier CDMA Power Gain and Efficiency versus Frequency**



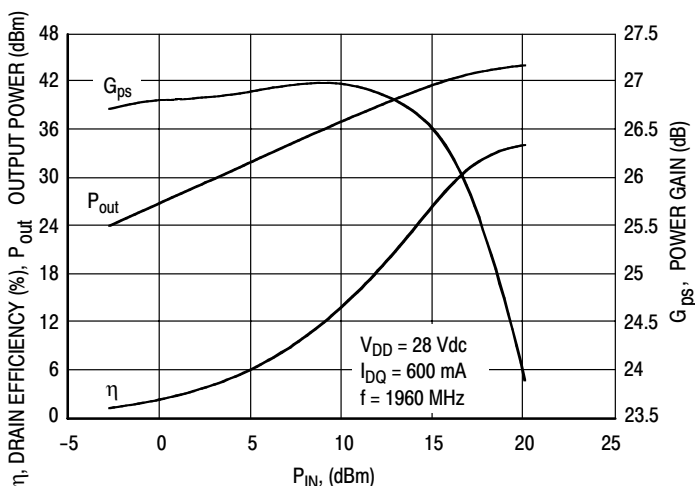
**Figure 3. 2-Carrier CDMA IM3 and ACPR versus Frequency**



**Figure 4. Two-Tone CDMA IMD versus Output Power**

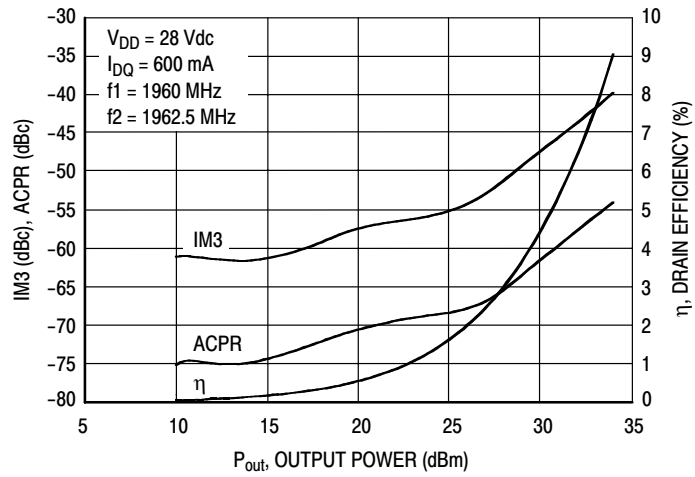


**Figure 5. Third Order Intermodulation Distortion versus Output Power**



**Figure 6. CW Output Power, Efficiency and Gain versus Input Power**

## TYPICAL CHARACTERISTICS



**Figure 7. 2-Carrier CDMA ACPR, IM3 and Efficiency versus Output Power**



# NOTES

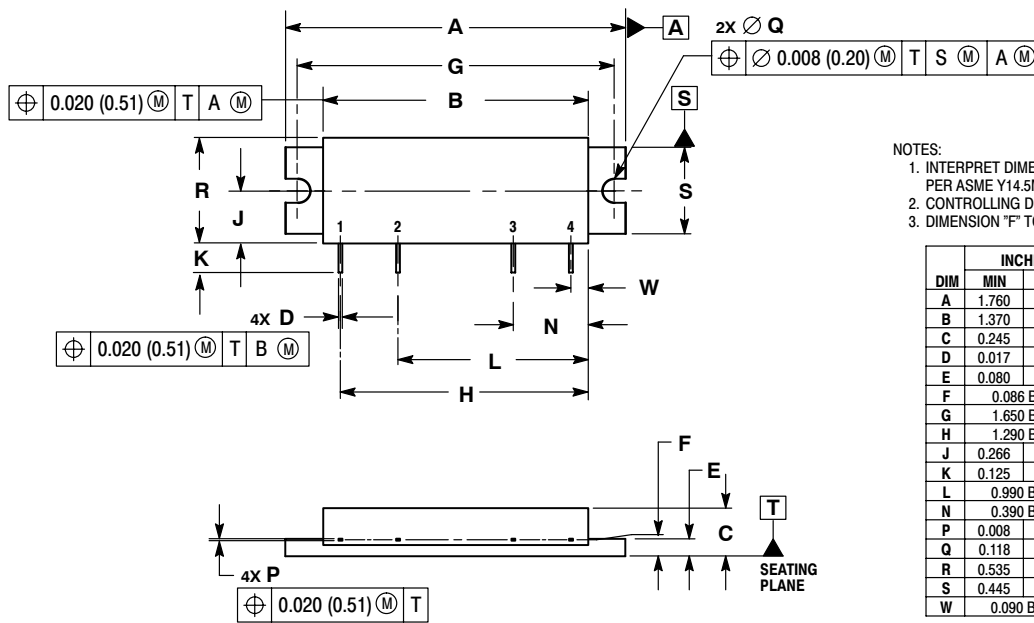


# NOTES



# NOTES

## PACKAGE DIMENSIONS



- NOTES:
1. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
  2. CONTROLLING DIMENSION: INCH.
  3. DIMENSION "F" TO CENTER OF LEADS.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.760	1.780	44.70	45.21
B	1.370	1.390	34.80	35.31
C	0.245	0.265	6.22	6.73
D	0.017	0.023	0.43	0.58
E	0.080	0.100	2.03	2.54
F	0.086 BSC		2.18 BSC	
G	1.650 BSC		41.91 BSC	
H	1.290 BSC		32.77 BSC	
J	0.266	0.280	6.76	7.11
K	0.125	0.165	3.18	4.19
L	0.990 BSC		25.15 BSC	
N	0.390 BSC		9.91 BSC	
P	0.008	0.013	0.20	0.33
Q	0.118	0.132	3.00	3.35
R	0.535	0.555	13.59	14.10
S	0.445	0.465	11.30	11.81
W	0.090 BSC		2.29 BSC	

- STYLE 3:
- PIN 1. RF INPUT
  - VBIAS
  - VDD
  - RF OUTPUT
- CASE: GROUND

### CASE 301AP-02 ISSUE E

Note:  $V_{DD}$  (Pin 3) should always be applied before  $V_{BIAS}$  (Pin 2).

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