

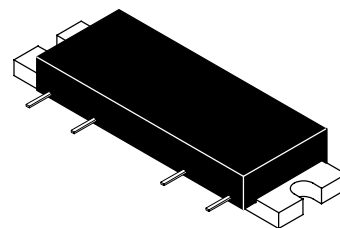
## 3G Band RF Linear LDMOS Amplifier

Designed for ultra-linear amplifier applications in 50 ohm systems operating in the 3G frequency band. A silicon FET Class A design provides outstanding linearity and gain. In addition, the excellent group delay and phase linearity characteristics are ideal for digital CDMA modulation systems.

- Third Order Intercept: 45 dBm Typ
- Power Gain: 31 dB Typ (@ f = 2140 MHz)
- Input VSWR  $\leq$  1.5:1

### Features

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

**MHL21336N**
**2110-2170 MHz  
3.0 W, 31 dB  
RF LINEAR LDMOS AMPLIFIER**

**CASE 301AP-02, STYLE 1**
**Table 1. Absolute 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	$P_{in}$	+5	dBm
Storage Temperature Range	$T_{stg}$	- 40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	$T_C$	- 20 to +100	$^\circ\text{C}$

**Table 2. Electrical Characteristics** ( $V_{DD} = 26$  Vdc,  $T_C = 25^\circ\text{C}$ ; 50  $\Omega$  System)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	$I_{DD}$	—	500	525	mA
Power Gain (f = 2140 MHz)	$G_p$	30	31	33	dB
Gain Flatness (f = 2110 - 2170 MHz)	$G_F$	—	0.15	0.4	dB
Power Output @ 1 dB Compression (f = 2140 MHz)	$P_{1dB}$	34	35	—	dBm
Third Order Intercept (f1 = 2137 MHz, f2 = 2142 MHz)	ITO	44	45	—	dBm
Noise Figure (f = 2170 MHz)	NF	—	4.5	5	dB

**NOTE - CAUTION** - MOS devices are susceptible to damage from electrostatic charge. Reasonable precautions in handling and packaging MOS devices should be observed.

### TYPICAL CHARACTERISTICS

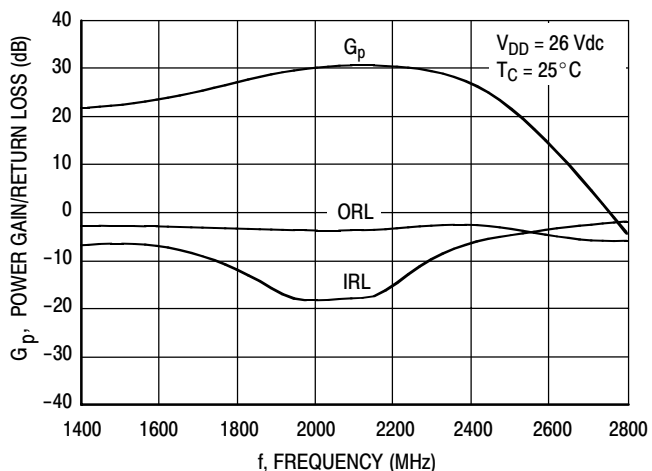


Figure 1. Power Gain, Input Return Loss, Output Return Loss versus Frequency

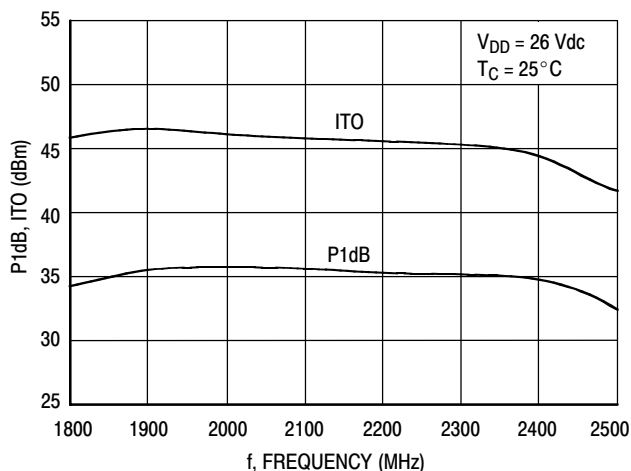


Figure 2.  $P_{1dB}$ , ITO versus Frequency

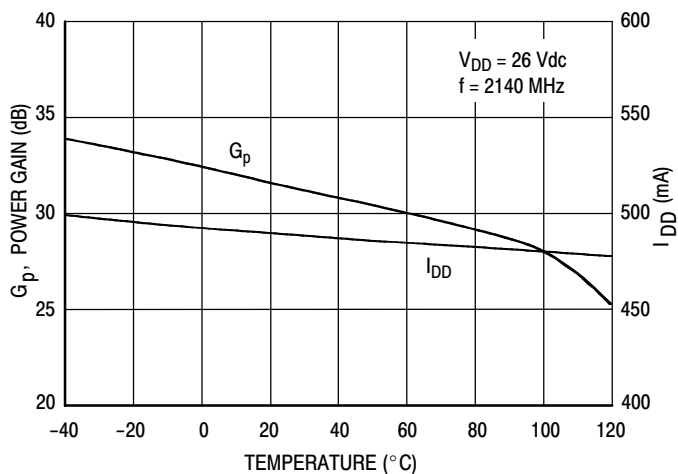


Figure 3. Power Gain,  $I_{DD}$  versus Temperature

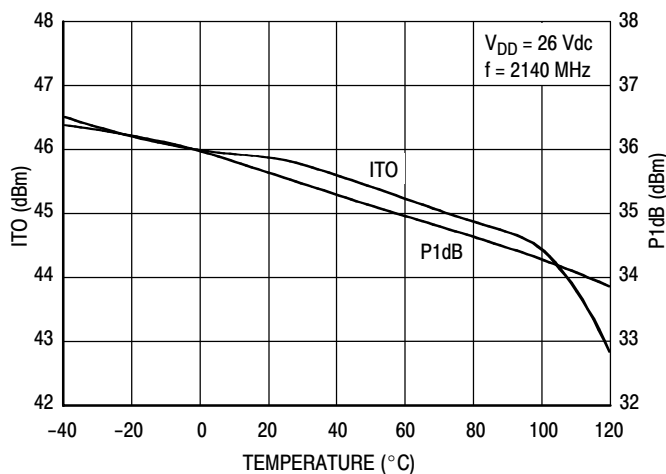


Figure 4. ITO,  $P_{1dB}$  versus Temperature

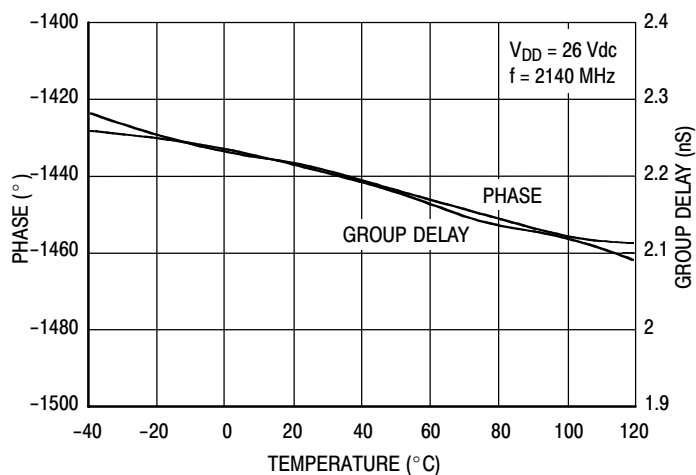


Figure 5. Phase<sup>(1)</sup>, Group Delay<sup>(1)</sup> versus Temperature

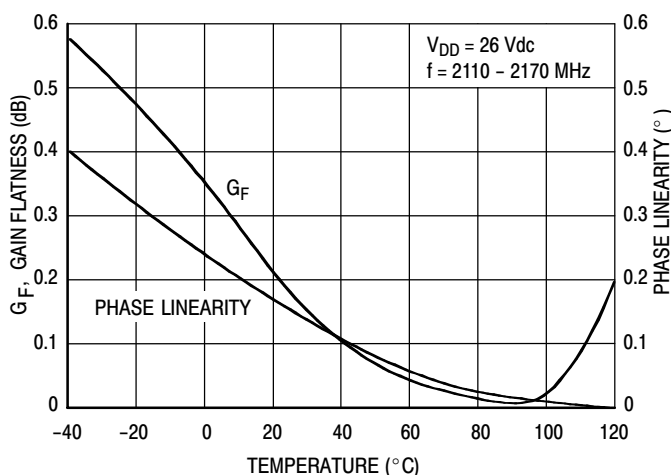


Figure 6. Gain Flatness, Phase Linearity versus Temperature

1. In Production Test Fixture

TYPICAL CHARACTERISTICS

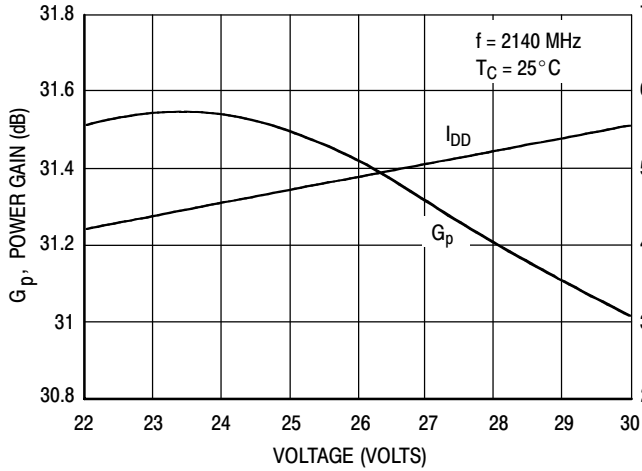


Figure 7. Power Gain, I<sub>DD</sub> versus Voltage

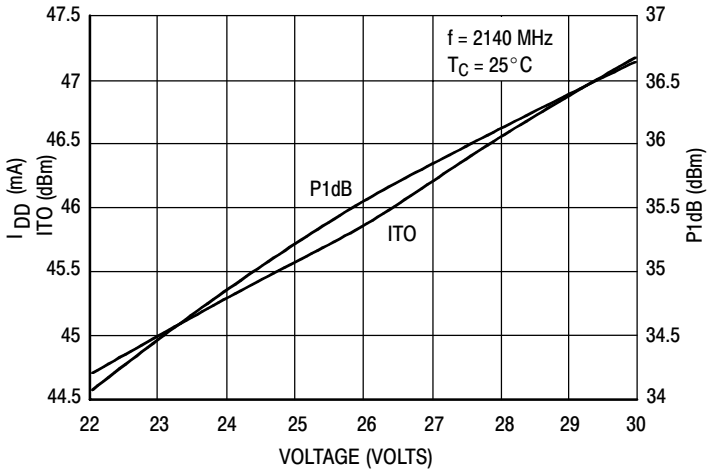


Figure 8. ITO, P1dB versus Voltage

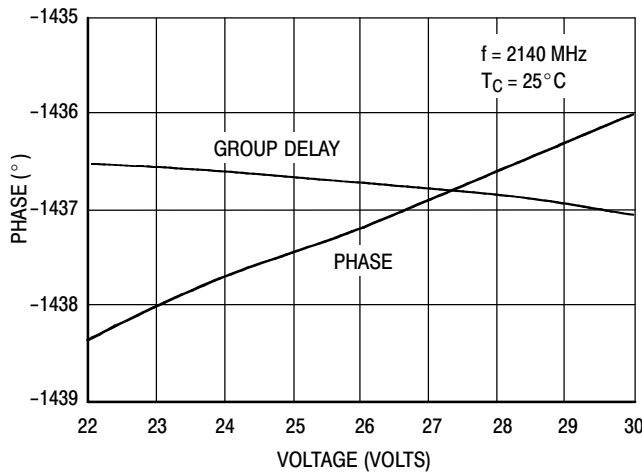


Figure 9. Phase<sup>(1)</sup>, Group Delay<sup>(1)</sup> versus Voltage

1. In Production Test Fixture

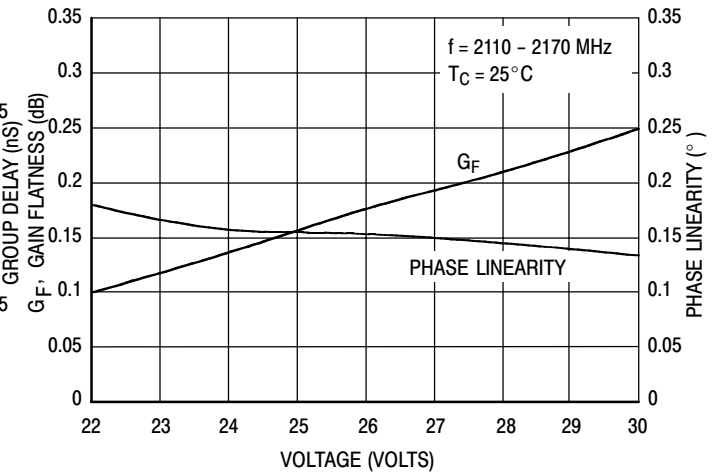
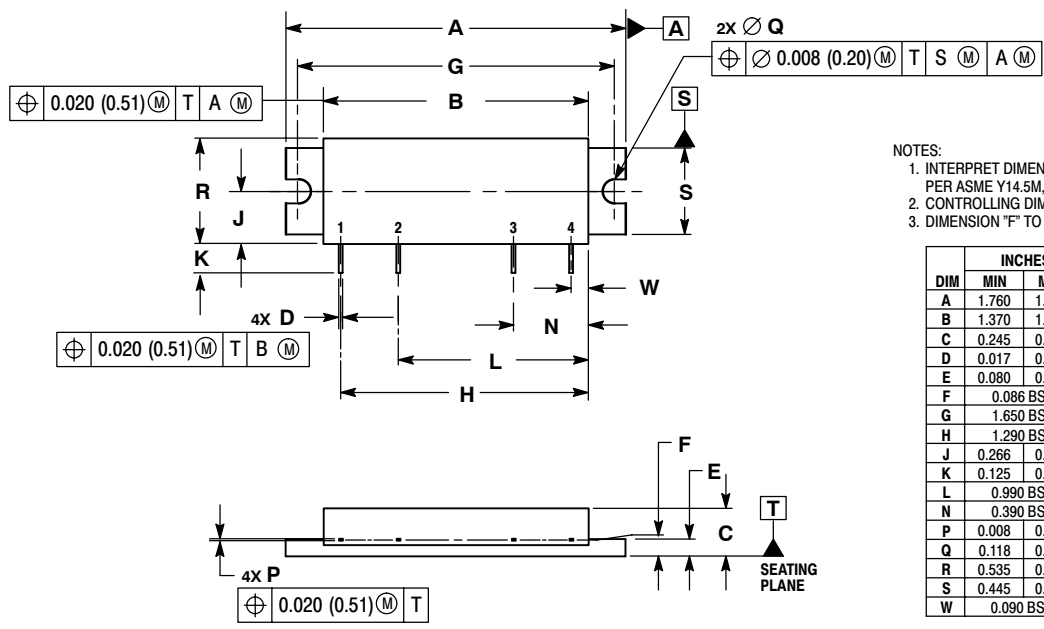


Figure 10. Phase Linearity, Gain Flatness versus Voltage

### 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 1:  
 PIN 1: RF INPUT  
 2: VDD1  
 3: VDD2  
 4: RF OUTPUT  
 CASE: GROUND

### CASE 301AP-02 ISSUE E

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