

Cellular Band RF Linear LDMOS Amplifier

Designed for ultra-linear amplifier applications in 50 ohm systems operating in the cellular 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 the most demanding analog or digital modulation systems, such as TDMA and CDMA.

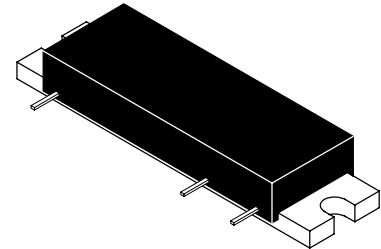
- Third Order Intercept: 49 dBm Typ
- Power Gain: 17.5 dB Typ (@ f = 880 MHz)
- Input and Output VSWR $\leq$ 1.5:1

Features

- Excellent Phase Linearity and Group Delay Characteristics
- Ideal for Feedforward Base Station Applications
- For Use in TDMA and CDMA Multi-Carrier Applications
- Replaced MHL9318. There are no form, fit or function changes with this part replacement.
- N Suffix Indicates Lead-Free Terminations

MHL9318N

**3.0 W, 17.5 dB
860 - 900 MHz
RF LINEAR LDMOS AMPLIFIER**



CASE 301AS-01, 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}	+20	dBm
Storage Temperature Range	T_{stg}	- 40 to +100	$^\circ\text{C}$
Operating Case Temperature Range	T_C	- 20 to +100	$^\circ\text{C}$

Table 2. Electrical Characteristics ($V_{DD} = 28 \text{ Vdc}$, $T_C = 25^\circ\text{C}$; 50 Ω System)

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Current	I_{DD}	—	500	560	mA
Power Gain (f = 880 MHz)	G_p	16.25	17.5	19.25	dB
Gain Flatness (f = 860 - 900 MHz)	G_F	—	0.1	0.2	dB
Power Output @ 1 dB Compression (f = 880 MHz)	P_{1dB}	—	35.5	—	dBm
Third Order Intercept (f1 = 879 MHz, f2 = 884 MHz)	ITO	47	49	—	dBm
Noise Figure (f = 960 MHz)	NF	—	3	4.5	dB

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

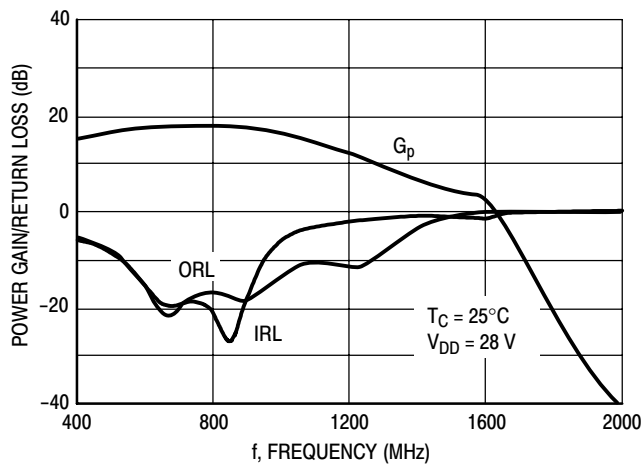


Figure 1. Power Gain, Input Return Loss, Output Return Loss versus Frequency

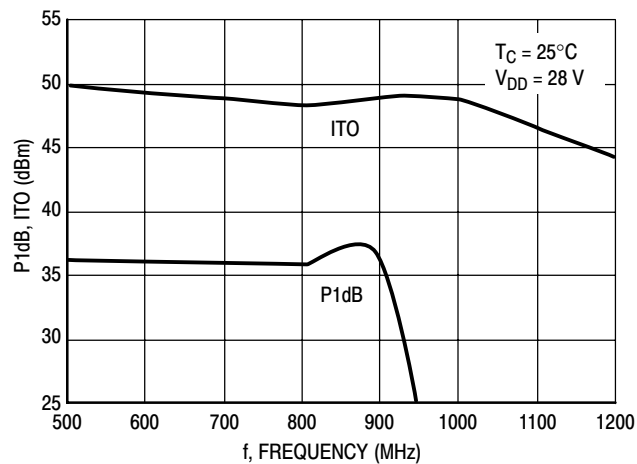


Figure 2. P1dB, ITO versus Frequency

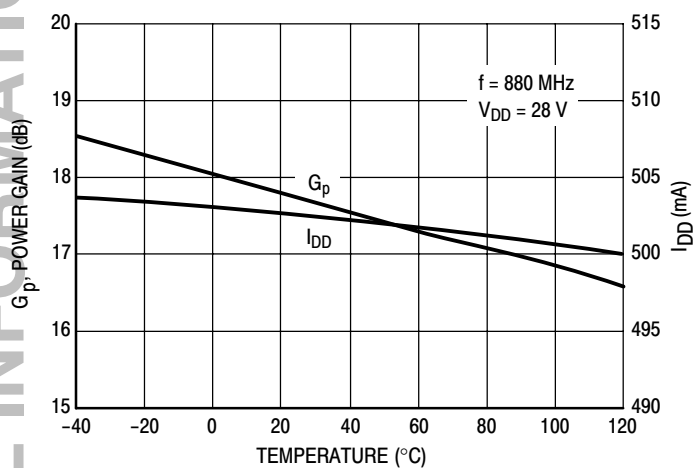


Figure 3. Power Gain, I_{DD} versus Temperature

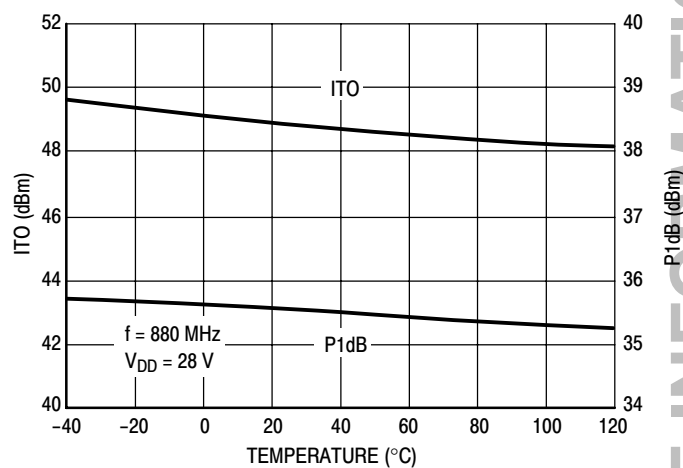


Figure 4. ITO, P1dB versus Temperature

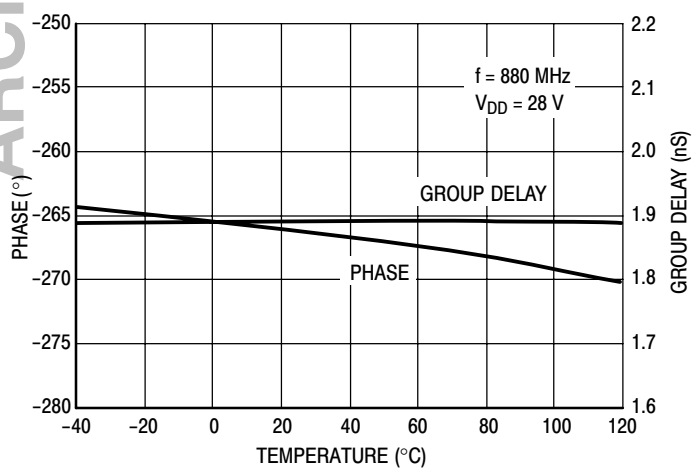


Figure 5. Phase⁽¹⁾, Group Delay⁽¹⁾ versus Temperature
1. In Production Test Fixture

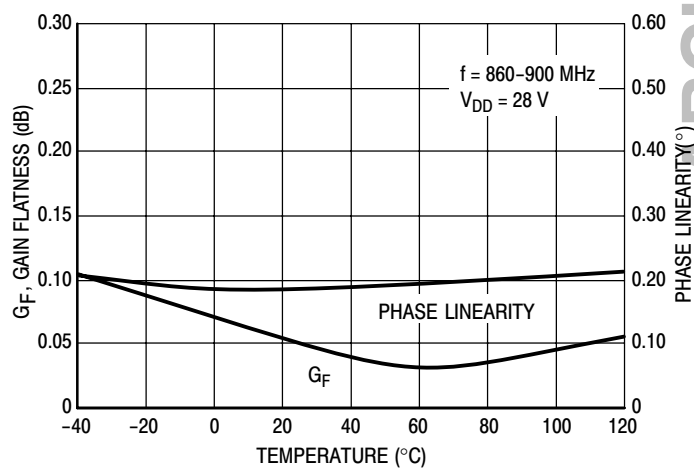


Figure 6. Gain Flatness, Phase Linearity versus Temperature

TYPICAL CHARACTERISTICS

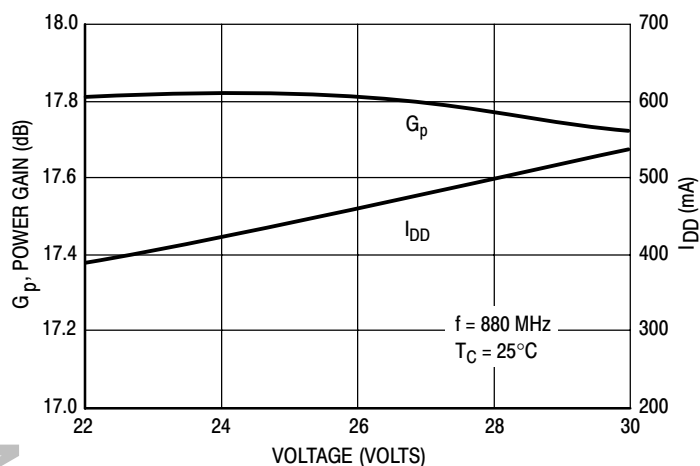


Figure 7. Power Gain, I_{DD} versus Voltage

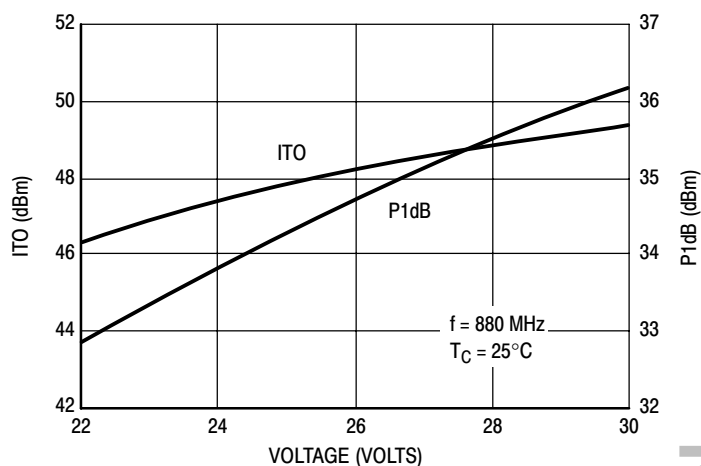


Figure 8. ITO, P1dB versus Voltage

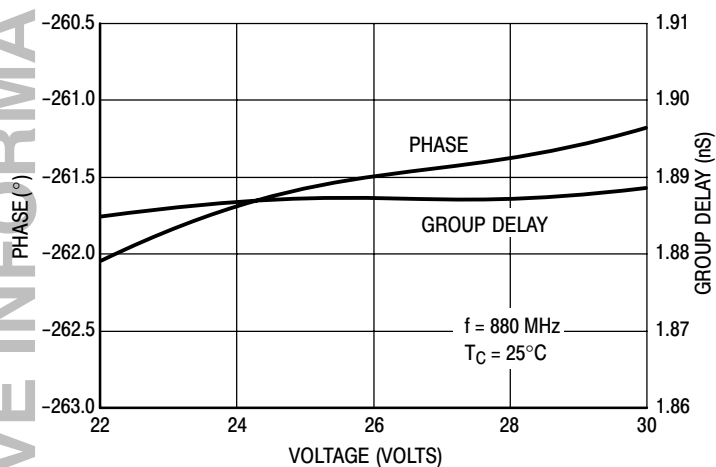


Figure 9. Phase⁽¹⁾, Group Delay⁽¹⁾ versus Voltage

1. In Production Test Fixture

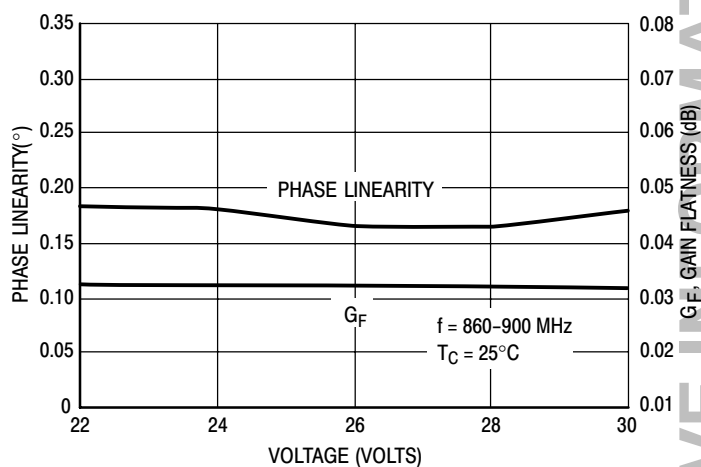
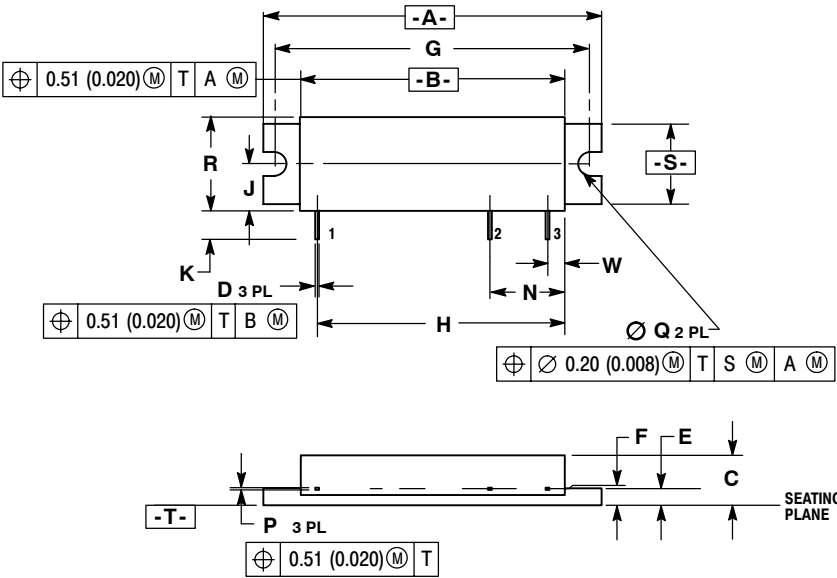


Figure 10. Phase Linearity, Gain Flatness versus Voltage

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
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
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. VDD
3. RF OUTPUT
CASE: GROUND

CASE 301AS-01
ISSUE A

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