

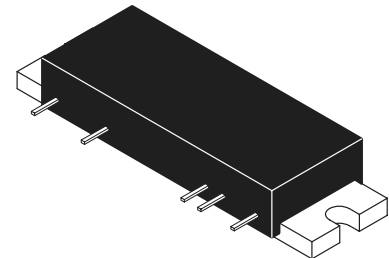
The RF Line
PCS Band
RF Linear LDMOS Amplifier

Designed for ultra-linear amplifier applications in 50 ohm systems operating in the PCS 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 modulation systems, such as TDMA and CDMA.

- Third Order Intercept: 49.5 dBm Typ
- Power Gain: 29 dB Typ (@ f = 1960 MHz)
- Excellent Phase Linearity and Group Delay Characteristics
- Ideal for Feedforward Base Station Applications

MHL19936

1900–2000 MHz
 12 W, 29 dB
RF LINEAR LDMOS AMPLIFIER



CASE 301AY-01, STYLE 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} | +16 | dBm |
| Storage Temperature Range | T_{stg} | -40 to +100 | $^\circ\text{C}$ |
| Operating Case Temperature Range | T_C | -20 to +100 | $^\circ\text{C}$ |

ELECTRICAL CHARACTERISTICS ($V_{DD} = 26$ Vdc, $T_C = 25^\circ\text{C}$; 50 Ω System)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|-------------|-----|-------|-------|------|
| Supply Current | I_{DD} | — | 1.4 | 1.45 | A |
| Power Gain (f = 1960 MHz) | G_p | 28 | 29 | 30 | dB |
| Gain Flatness (f = 1900–2000 MHz) | G_F | — | 0.2 | 0.4 | dB |
| Power Output @ 1 dB Comp. (f = 1950 MHz) | P_{1dB} | 40 | 41 | — | dBm |
| Input VSWR (f = 1900–2000 MHz) | $VSWR_{in}$ | — | 1.2:1 | 1.5:1 | |
| Third Order Intercept (f1 = 1950 MHz, f2 = 1955 MHz) | ITO | 49 | 49.5 | — | dBm |
| Noise Figure (f = 2000 MHz) | NF | — | 4.2 | 4.5 | dB |

TYPICAL CHARACTERISTICS

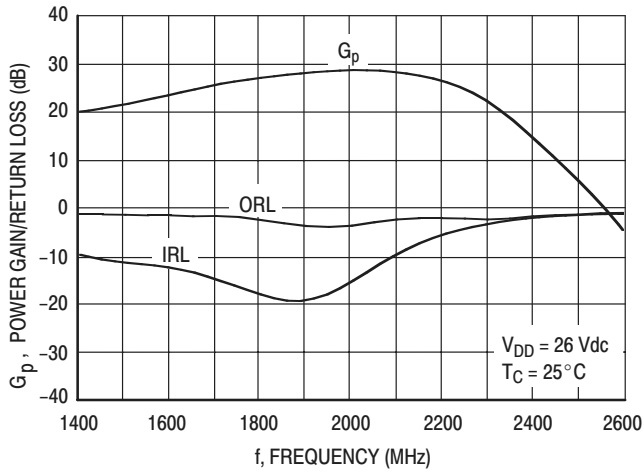


Figure 1. Power Gain, Input Return Loss, Output Return Loss versus Frequency

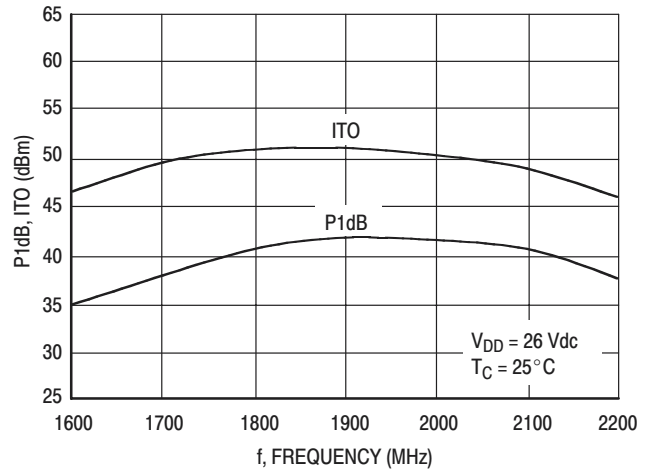


Figure 2. P1dB, ITO versus Frequency

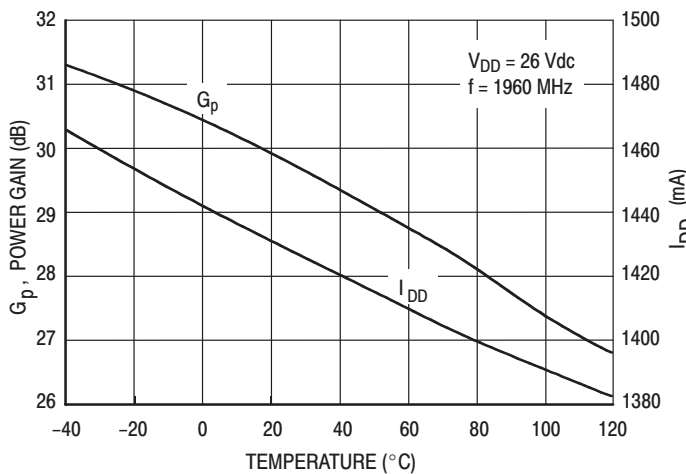


Figure 3. Power Gain, I_{DD} versus Temperature

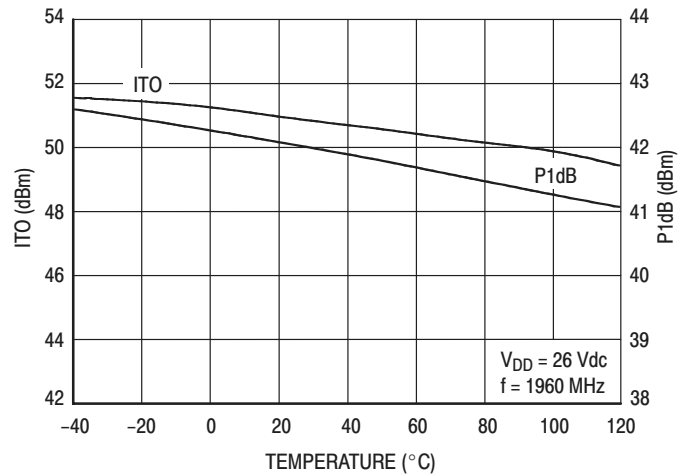


Figure 4. ITO, P1dB versus Temperature

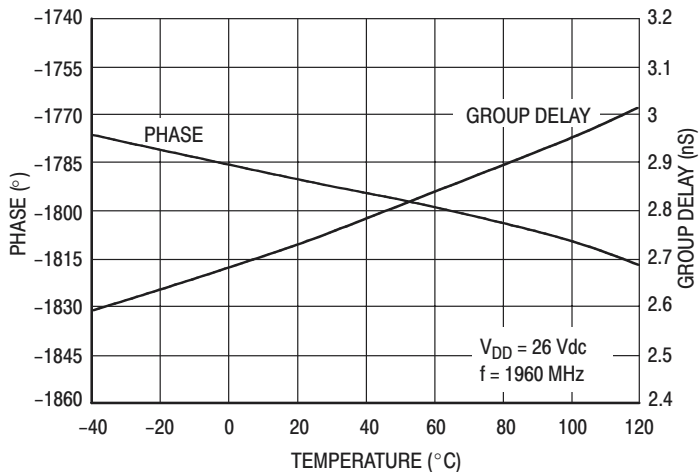


Figure 5. Phase⁽¹⁾, Group Delay⁽¹⁾ versus Temperature

⁽¹⁾In Production Test Fixture

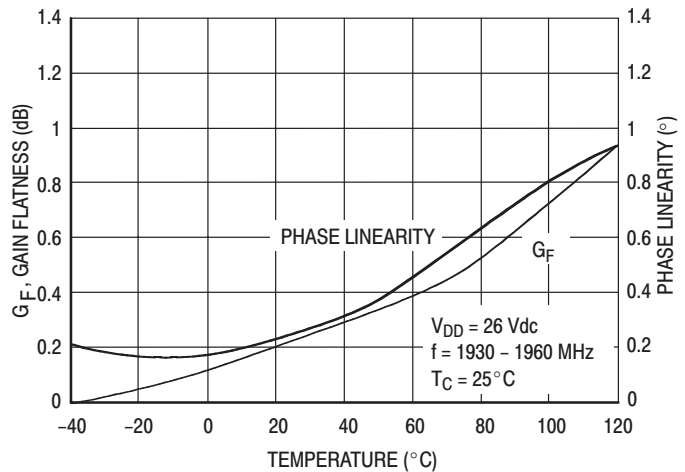


Figure 6. Gain Flatness, Phase Linearity versus Temperature

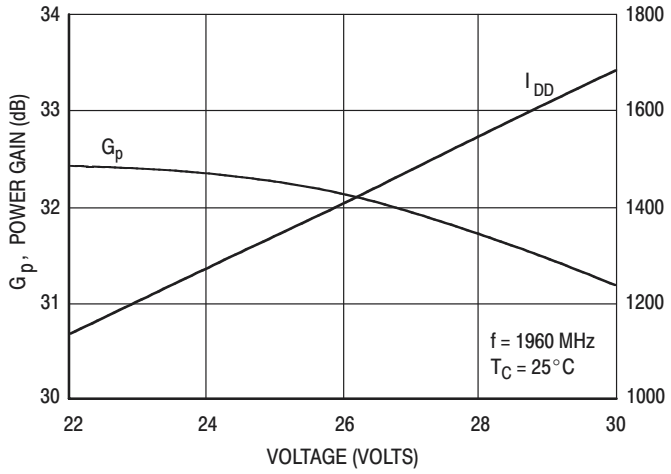


Figure 7. Power Gain, I_{DD} versus Voltage

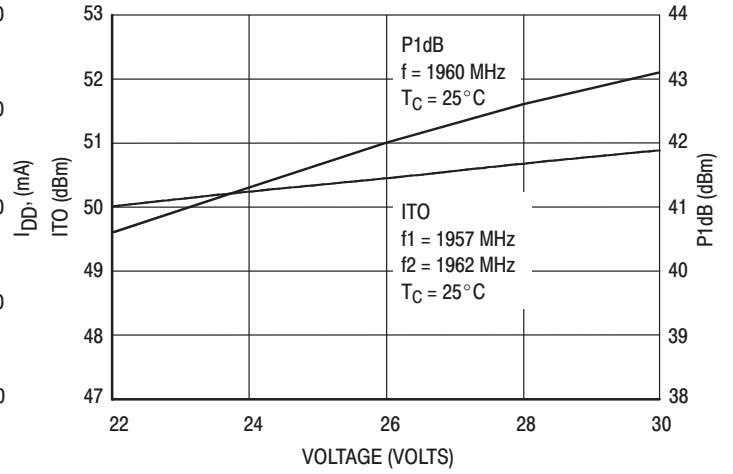


Figure 8. ITO, P1dB versus Voltage

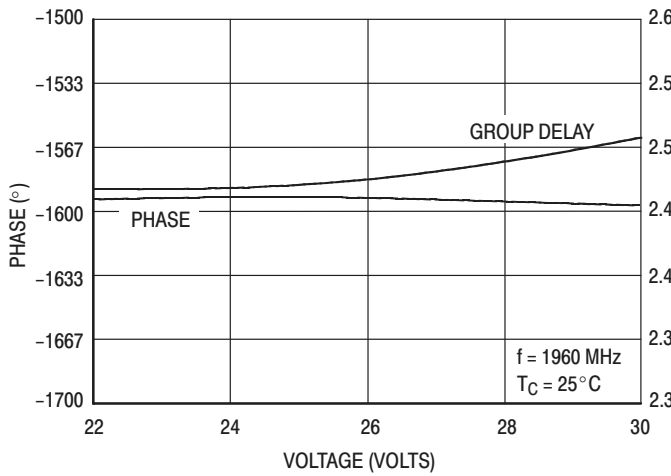


Figure 9. Phase⁽¹⁾, Group Delay⁽¹⁾ versus Voltage

⁽¹⁾In Production Test Fixture

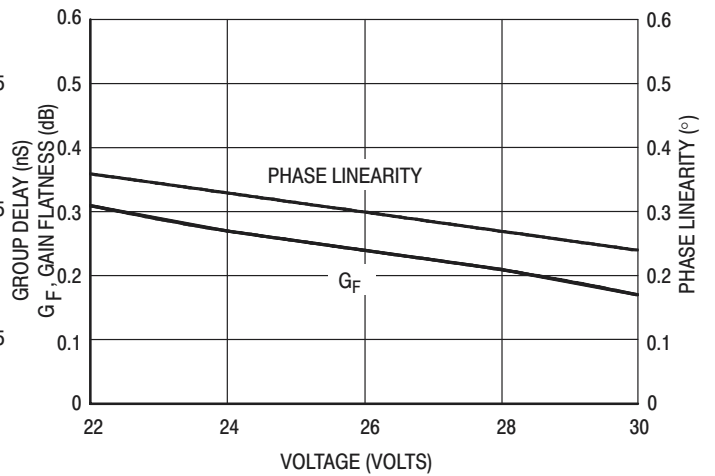
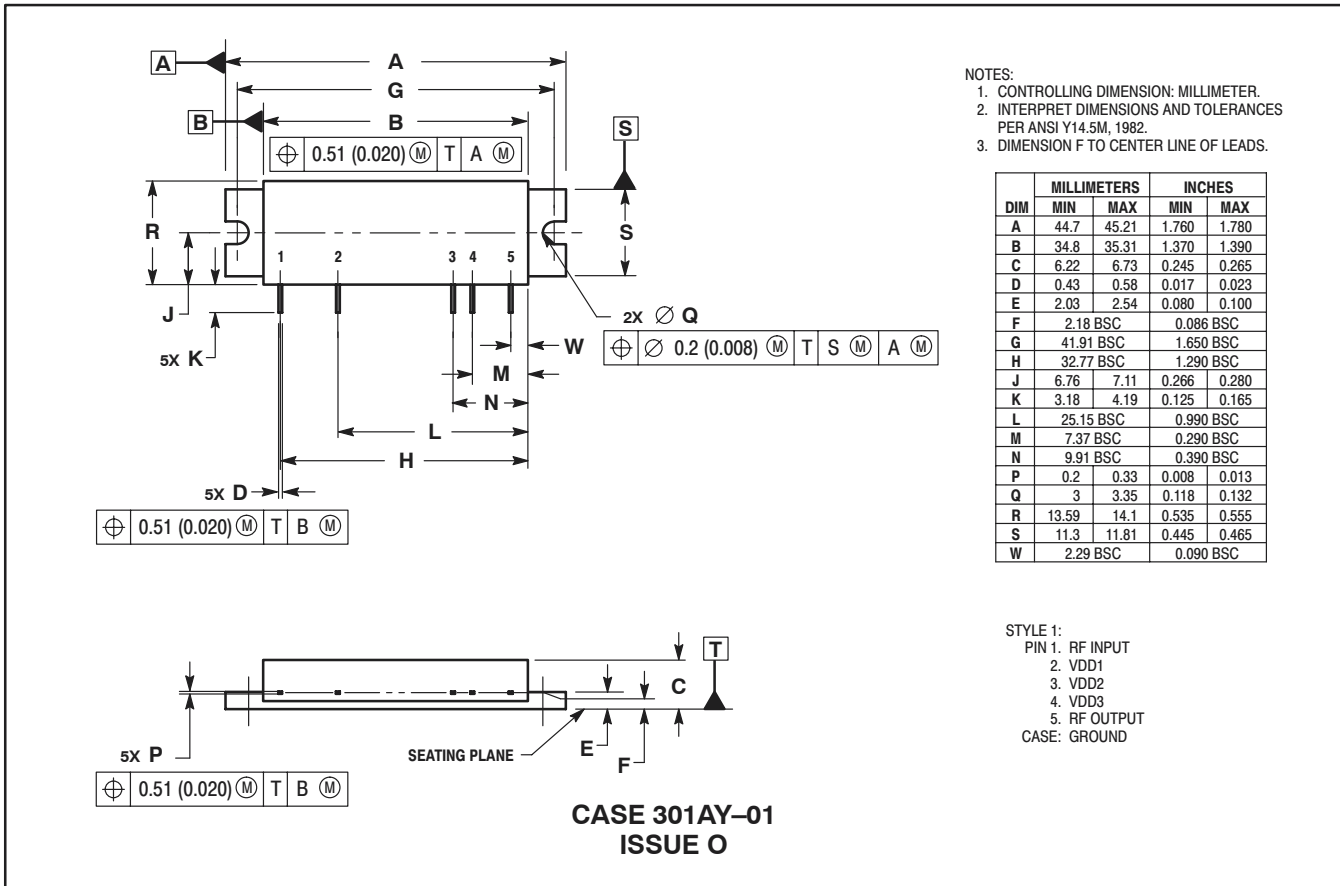


Figure 10. Phase Linearity, Gain Flatness versus Voltage

Freescale Semiconductor, Inc.

PACKAGE DIMENSIONS



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