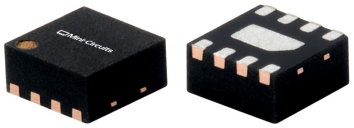
ULTRA LOW NOISE, HIGH IP3

# Monolithic Amplifier PMA2-252LN+

50Ω 1.5 to 2.5 GHz

## THE BIG DEAL

- Low Noise figure, 0.8 dB at 1.8 GHz
- High IP3, 30 dBm typ. at 1.8 GHz
- Adjustable Current, 25 to 80 mA
- P1dB 17.9 dBm typ. at 1.8 GHz
- Adjustable Gain, ±1.5 dB
- Active Bias
- May be used as a replacement for MGA-632P8[a,b]



*Generic photo used for illustration purposes only*

CASE STYLE: MC1631

***+RoHS Compliant***

*The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications*

## APPLICATIONS

- Base station infrastructure
- Satellite Communication (Inmarsat)
- LTE
- GPS
- Tactical Air Navigation

## PRODUCT OVERVIEW

Mini-Circuits PMA2-252LN+ is a E-PHEMT based Ultra-Low Noise MMIC Amplifier with a unique combinations of low noise and high IP3 making this amplifier ideal for sensitive high dynamic range receiver applications. This design operates on a single 3 to 4V supply.

## KEY FEATURES

| Feature | Advantages |
|---|---|
| Ultra Low Noise, 0.8 dB at 1.8 GHz | Excellent noise figure performance. Increases signal to noise ratio. |
| High IP3, +30 dBm at 1.8 GHz | Combining Low Noise and High IP3 makes this MMIC amplifier ideal for use in Low Noise Receiver Front End (RFE) as it gives the user advantages at both ends of the dynamic range: sensitivity & two-tone IM performance. |
| Adjustable Current | Provides users ability to set current consumption over a wide range from 25 to 80 mA. |
| 2mm x 2mm 8 lead MCLP Package | Low Inductance, repeatable transitions, excellent thermal contact to PCB |
| Max Input Power, +27 dBm | Ruggedized design operates up to high input powers often seen at Receiver inputs eliminating the need for an external limiter. |
| High Reliability | Low, small signal operating current of 57 mA nominal maintains junction temperatures typically below 100°C at 85°C ground lead temperature. |

A. Suitability for model replacement within a particular system must be determined by and is solely the responsibility of the customer based on, among other things, electrical performance criteria, stimulus conditions, application, compatibility with other components and environmental conditions and stresses.
B. The Avago MGA-632P8 part number is used for identification and comparison purposes only

REV. B
ECO-011027
PMA2-252LN
RS/TH/CP/AM
211213

# Monolithic Amplifier PMA2-252LN+

## ELECTRICAL SPECIFICATIONS[1] AT 25°C, UNLESS NOTED OTHERWISE

| Parameter | Condition (GHz) | Vs=4V Min. | Vs=4V Typ. | Vs=4V Max. | Vs=3V Typ. | Units |
|---|---|---|---|---|---|---|
| Frequency Range | | 1.5 | | 2.5 | | GHz |
| Noise Figure | 1.5 | | 0.7 | | 0.7 | dB |
| | 1.8 | | 0.8 | | 0.8 | |
| | 2.0 | | 0.8 | | 0.9 | |
| | 2.2 | | 0.8 | | 1.1 | |
| | 2.5 | | 1.2 | | 1.1 | |
| Gain | 1.5 | — | 19.5 | — | 18.8 | dB |
| | 1.8 | — | 18.6 | — | 17.8 | |
| | 2.0 | 15.8 | 17.6 | 19.5 | 16.8 | |
| | 2.2 | — | 16.5 | — | 15.7 | |
| | 2.5 | — | 15.7 | — | 14.8 | |
| Input Return Loss | 1.5 | | 21.3 | | 17.5 | dB |
| | 1.8 | | 19.9 | | 15.4 | |
| | 2.0 | | 18.0 | | 14.4 | |
| | 2.2 | | 16.3 | | 13.4 | |
| | 2.5 | | 14.9 | | 13.0 | |
| Output Return Loss | 1.5 | | 10.0 | | 10.8 | dB |
| | 1.8 | | 23.3 | | 28.5 | |
| | 2.0 | | 18.2 | | 16.9 | |
| | 2.2 | | 12.9 | | 11.9 | |
| | 2.5 | | 8.3 | | 7.9 | |
| Output Power @1 dB compression[2] | 1.5 | | 18.5 | | 16.2 | dBm |
| | 1.8 | | 17.9 | | 15.9 | |
| | 2.0 | | 17.8 | | 15.6 | |
| | 2.2 | | 17.4 | | 15.3 | |
| | 2.5 | | 16.2 | | 13.9 | |
| Output IP3 | 1.5 | | 31.1 | | 27.1 | dBm |
| | 1.8 | | 30.1 | | 25.5 | |
| | 2.0 | | 30.0 | | 25.3 | |
| | 2.2 | | 29.3 | | 24.8 | |
| | 2.5 | | 27.6 | | 23.2 | |
| Device Operating Voltage | | 3.8 | 4.0 | 4.2 | 3.0 | V |
| Device Operating Current at typical voltage[2] | | | 57 | 70 | 41 | mA |
| Device Current variation vs. Temperature at typical voltage[3] | | | -19.0 | | -3.4 | µA/°C |
| Device Current Variation vs Voltage | | | 0.018 | | 0.017 | mA/mV |
| Thermal Resitance | | | 53 | | 53 | °C/W |

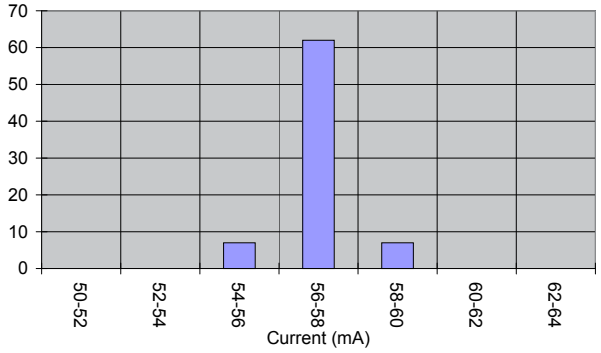
(1) Measured on Mini-Circuits Characterization test board TB-642+. See Characterization Test Circuit (Fig. 1) R1=825Ω, RBIAS=619Ω
(2) Current increases at P1dB
(3) (Current at 85°C - Current at -45°C)/130

## MAXIMUM RATINGS

| Parameter | Ratings |
|---|---|
| Operating Temperature (ground lead) | -40°C to 85°C |
| Storage Temperature | -65°C to 150°C |
| Junction Temperature | 150°C |
| Total Power Dissipation | 0.55W |
| Input Power (CW), Vs=3V or 4V | +25 dBm (5 minutes max), +20 dBm (continuous) |
| DC Voltage (Vs) | 5.5 V |

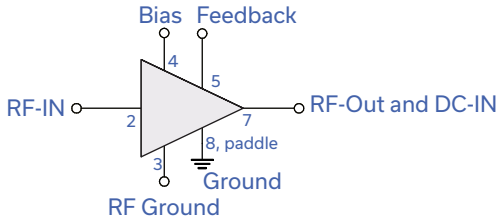
Permanent damage may occur if any of these limits are exceeded.
Electrical maximum ratings are not intended for continuous normal operation.

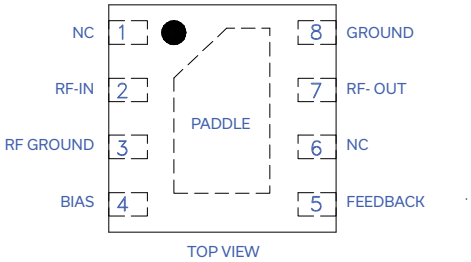
## DC CURRENT HISTOGRAM AT Vs+4V



# Monolithic Amplifier PMA2-252LN+

## SIMPLIFIED SCHEMATIC AND PAD DESCRIPTION




| Function | Pad Number | Description (Ref: Figure1) |
|---|---|---|
| RF IN | 2 | Connects to RF input via C1 and Pad 3 via L1 |
| RF-OUT | 7 | Connects to RF out via C2, Pad 5 via R1 and C3 |
| RF-Ground | 3 | Connects to ground via C4 and Pad 2 via L1 |
| Bias | 4 | Connects to Supply voltage (Vs) via Rbias |
| Feedback | 5 | Connected to pads via R1 and C3 |
| No Connection | 1,6 | Not used internally. Pin 1 Connected to ground on test board |
| Ground | 8 & paddle | Connects to ground |

## RECOMMENDED APPLICATION AND CHARACTERIZATION TEST CIRCUIT

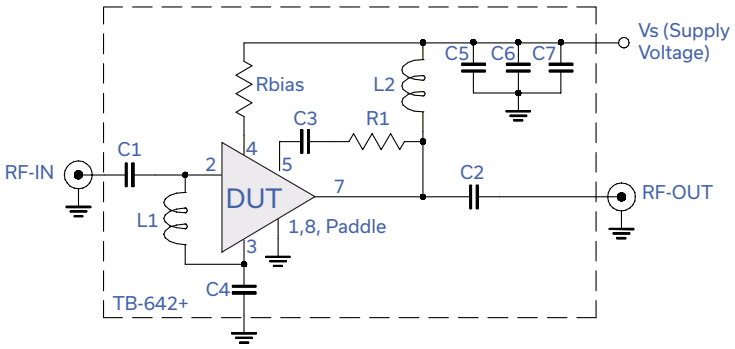
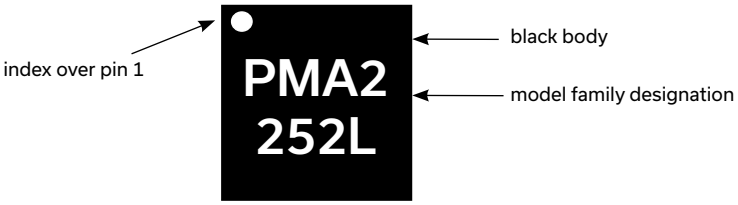


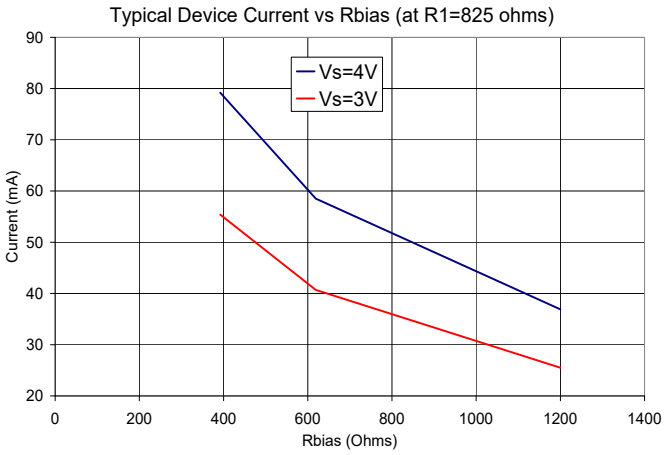

Fig 1. Application and Characterization Circuit
Note: This block diagram is used for characterization. (DUT soldered on Mini-Circuits Characterization test board TB-642+)
Gain, Return loss, Output power at 1dB compression (P1 dB), output IP3 (OIP3) and noise figure measured using Agilent's N5242A PNA-X microwave network analyzer.

Conditions:
1. Gain and Return loss: Pin= -25dBm
2. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, 0 dBm/tone at output.

## PRODUCT MARKING

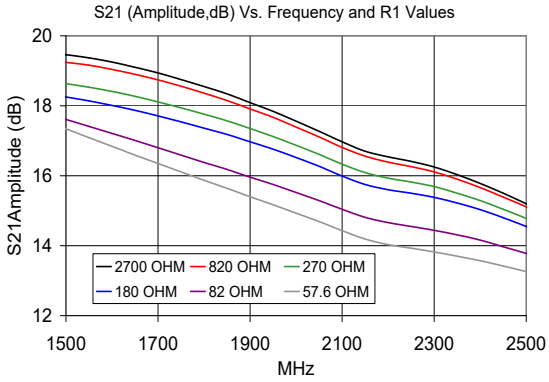


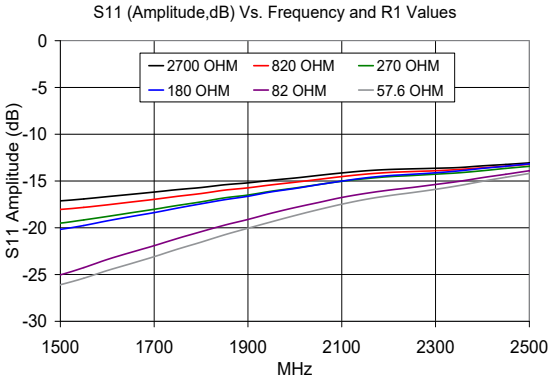

Marking may contain other features or characters for internal lot control

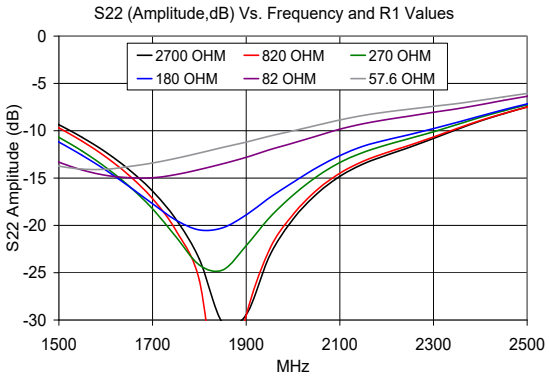


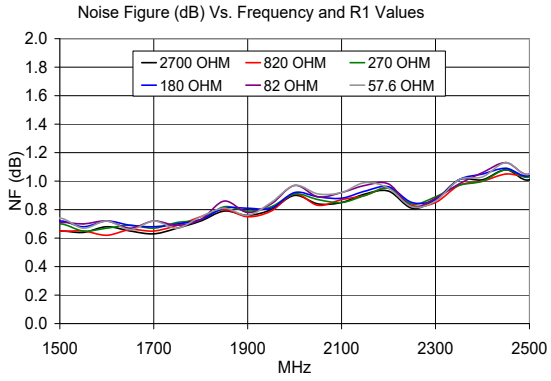
# Monolithic Amplifier PMA2-252LN+

## ADJUSTABLE GAIN PERFORMANCE (Vs. R1) AT Vs=4V

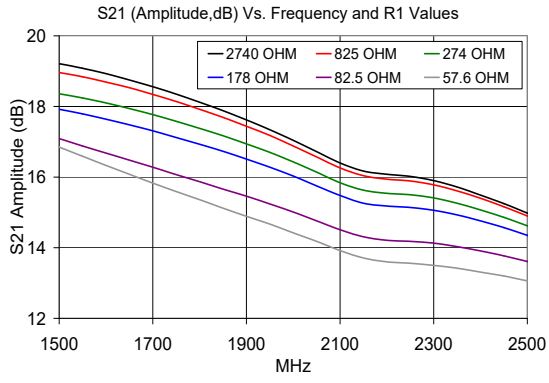


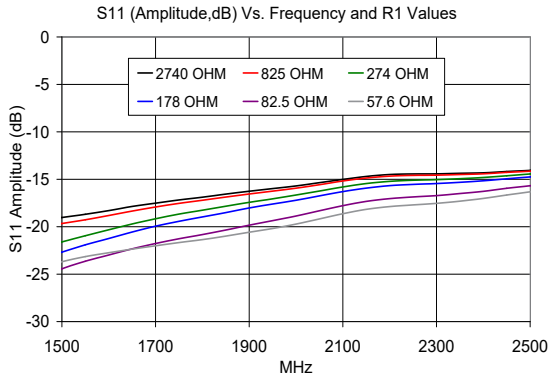



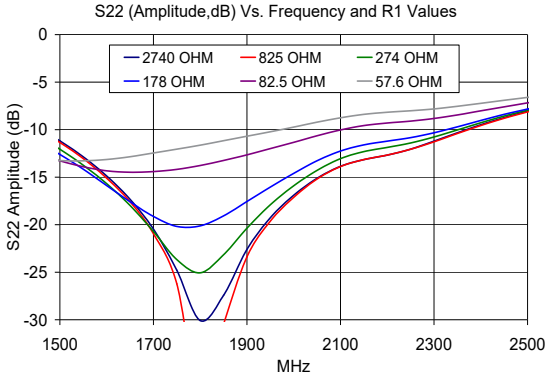



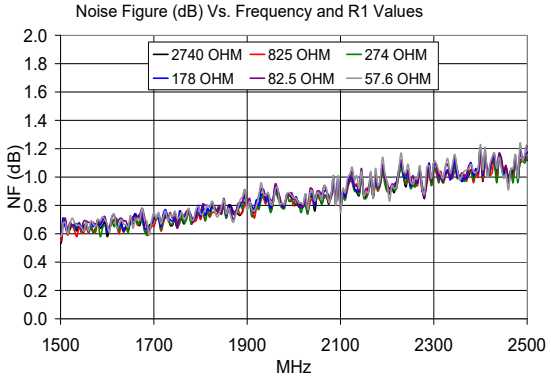




## ADJUSTABLE GAIN PERFORMANCE (VS. R1) AT Vs=3V



## ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS CLICK HERE

| | |
|---|---|
| **Performance Data** | Data Table<br>Swept Graphs<br>S-Parameter (S2P Files) Data Set (.zip file) |
| **Case Style** | MC1631 Plastic package, exposed paddle, lead finish: matte tin |
| **Tape & Reel**<br>**Standard quantities available on reel** | F66<br>7" reels with 20, 50, 100, 200, 500,1K,2K or 3K devices |
| **Suggested Layout for PCB Design** | PL-360 |
| **Evaluation Board** | TB-642+ |
| **Environmental Ratings** | ENV08T1 |

## ESD RATING

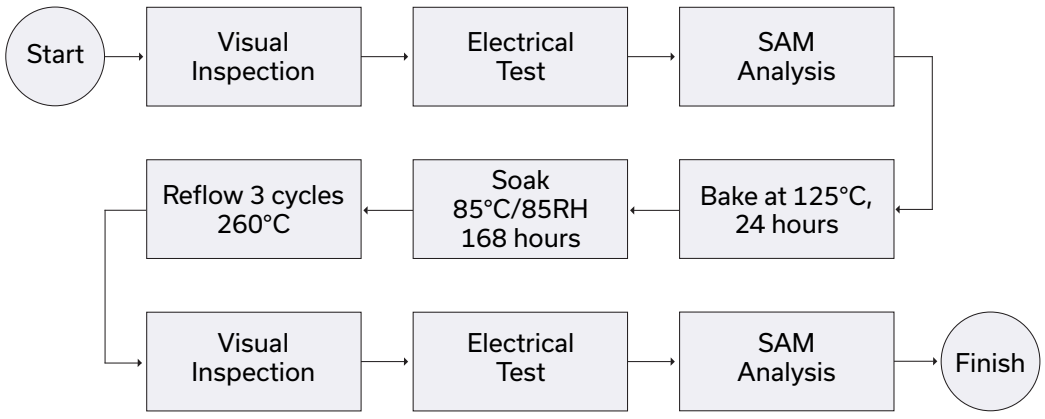
Human Body Model (HBM): Class 1A (250 to <500V) in accordance with ANSI/ESD STM 5.1 - 2001

Machine Model (MM): Class M1 (pass 25V) in accordance with ANSI/ESD STM5.2-1999

## MSL RATING

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

## MSL TEST FLOW CHART




NOTES

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

## *Typical Performance Data*

### NOTE: Use PDF Bookmarks to view DATA at required conditions

**Definitions:**

Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4V, Id = 59.59 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.45 | 38.31 | 24.80 | 10.04 | 4.01 | 0.89 | 31.32 | 18.52 | 0.61 |
| 1525 | 19.40 | 38.06 | 24.60 | 10.70 | 3.98 | 0.90 | 31.36 | 18.45 | 0.55 |
| 1550 | 19.36 | 38.10 | 24.33 | 11.38 | 4.07 | 0.91 | 30.97 | 18.18 | 0.61 |
| 1575 | 19.29 | 38.05 | 24.14 | 12.14 | 4.13 | 0.93 | 31.18 | 18.31 | 0.57 |
| 1600 | 19.22 | 37.61 | 23.81 | 12.97 | 4.00 | 0.94 | 31.56 | 18.67 | 0.59 |
| 1625 | 19.16 | 37.72 | 23.32 | 13.88 | 4.12 | 0.95 | 30.60 | 18.05 | 0.62 |
| 1650 | 19.08 | 37.64 | 22.82 | 14.83 | 4.14 | 0.96 | 31.30 | 18.39 | 0.56 |
| 1675 | 19.00 | 37.53 | 22.44 | 15.86 | 4.16 | 0.96 | 31.32 | 18.35 | 0.68 |
| 1700 | 18.92 | 37.52 | 21.99 | 16.98 | 4.21 | 0.97 | 30.71 | 18.02 | 0.62 |
| 1725 | 18.84 | 37.42 | 21.62 | 18.26 | 4.22 | 0.98 | 31.17 | 18.39 | 0.64 |
| 1750 | 18.74 | 37.48 | 21.26 | 19.75 | 4.31 | 0.98 | 30.77 | 17.93 | 0.65 |
| 1800 | 18.55 | 37.46 | 20.54 | 23.31 | 4.41 | 0.99 | 30.74 | 17.96 | 0.71 |
| 1850 | 18.34 | 37.41 | 19.86 | 27.42 | 4.49 | 1.00 | 30.86 | 18.00 | 0.75 |
| 1900 | 18.11 | 37.32 | 19.37 | 27.36 | 4.55 | 1.00 | 30.66 | 17.80 | 0.76 |
| 1925 | 17.99 | 37.39 | 19.09 | 25.34 | 4.64 | 1.00 | 30.73 | 17.97 | 0.87 |
| 1950 | 17.87 | 37.37 | 18.81 | 23.39 | 4.68 | 1.00 | 30.81 | 17.92 | 0.80 |
| 1975 | 17.75 | 37.24 | 18.52 | 21.57 | 4.66 | 1.00 | 30.48 | 17.66 | 0.79 |
| 2000 | 17.61 | 37.31 | 18.30 | 20.06 | 4.75 | 1.00 | 30.59 | 17.78 | 0.74 |
| 2025 | 17.46 | 37.23 | 18.07 | 18.70 | 4.76 | 0.99 | 30.38 | 17.71 | 0.89 |
| 2050 | 17.32 | 37.36 | 17.75 | 17.55 | 4.89 | 0.99 | 30.34 | 17.52 | 0.90 |
| 2075 | 17.16 | 37.26 | 17.49 | 16.65 | 4.89 | 0.99 | 29.96 | 17.40 | 0.89 |
| 2100 | 17.00 | 37.11 | 17.27 | 15.76 | 4.87 | 0.99 | 30.18 | 17.49 | 0.82 |
| 2125 | 16.84 | 37.55 | 17.00 | 15.11 | 5.17 | 0.98 | 29.92 | 17.31 | 1.00 |
| 2175 | 16.61 | 37.45 | 16.54 | 14.23 | 5.20 | 0.98 | 29.34 | 16.93 | 1.05 |
| 2200 | 16.54 | 37.17 | 16.33 | 13.99 | 5.06 | 0.98 | 30.07 | 17.45 | 0.82 |
| 2225 | 16.50 | 37.34 | 16.25 | 13.81 | 5.17 | 0.98 | 28.54 | 16.48 | 0.86 |
| 2250 | 16.50 | 37.08 | 16.12 | 13.49 | 5.00 | 0.97 | 29.68 | 17.08 | 0.84 |
| 2275 | 16.49 | 37.02 | 15.97 | 13.08 | 4.95 | 0.97 | 28.96 | 16.73 | 0.95 |
| 2300 | 16.45 | 36.76 | 15.88 | 12.64 | 4.79 | 0.97 | 29.00 | 16.69 | 1.06 |
| 2325 | 16.41 | 36.83 | 15.80 | 12.14 | 4.81 | 0.96 | 28.67 | 16.52 | 0.96 |
| 2350 | 16.34 | 36.87 | 15.67 | 11.62 | 4.82 | 0.95 | 29.53 | 16.82 | 0.89 |
| 2375 | 16.25 | 36.82 | 15.62 | 11.14 | 4.80 | 0.95 | 28.58 | 16.39 | 0.83 |
| 2450 | 15.94 | 37.14 | 15.32 | 9.71 | 4.96 | 0.92 | 28.59 | 16.36 | 1.07 |
| 2475 | 15.81 | 37.04 | 15.29 | 9.33 | 4.93 | 0.91 | 28.36 | 16.21 | 1.04 |
| 2500 | 15.68 | 37.19 | 15.19 | 8.94 | 5.01 | 0.90 | 28.54 | 16.24 | 1.24 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.5V, Id =50.69 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.24 | 36.98 | 21.62 | 10.79 | 3.59 | 0.90 | 29.20 | 17.37 | 0.58 |
| 1525 | 19.19 | 36.96 | 21.27 | 11.53 | 3.65 | 0.91 | 29.05 | 17.31 | 0.55 |
| 1550 | 19.14 | 37.02 | 20.92 | 12.31 | 3.74 | 0.93 | 28.40 | 17.06 | 0.58 |
| 1575 | 19.06 | 36.77 | 20.68 | 13.17 | 3.70 | 0.94 | 28.70 | 17.16 | 0.54 |
| 1600 | 18.99 | 36.54 | 20.43 | 14.14 | 3.67 | 0.95 | 29.19 | 17.48 | 0.63 |
| 1625 | 18.91 | 36.50 | 20.07 | 15.19 | 3.72 | 0.96 | 28.11 | 16.92 | 0.59 |
| 1650 | 18.83 | 36.51 | 19.68 | 16.37 | 3.78 | 0.97 | 28.73 | 17.24 | 0.57 |
| 1675 | 18.75 | 36.43 | 19.40 | 17.64 | 3.80 | 0.97 | 28.74 | 17.17 | 0.70 |
| 1700 | 18.66 | 36.36 | 19.08 | 19.09 | 3.82 | 0.98 | 27.98 | 16.89 | 0.63 |
| 1725 | 18.56 | 36.34 | 18.83 | 20.83 | 3.86 | 0.99 | 28.47 | 17.24 | 0.80 |
| 1750 | 18.46 | 36.41 | 18.59 | 22.85 | 3.94 | 0.99 | 27.90 | 16.79 | 0.66 |
| 1800 | 18.26 | 36.22 | 18.10 | 28.75 | 3.95 | 1.00 | 27.79 | 16.81 | 0.72 |
| 1850 | 18.04 | 36.11 | 17.66 | 31.88 | 3.99 | 1.00 | 27.92 | 16.87 | 0.76 |
| 1900 | 17.80 | 36.47 | 17.32 | 25.42 | 4.25 | 1.00 | 27.64 | 16.67 | 0.77 |
| 1925 | 17.68 | 36.26 | 17.12 | 22.95 | 4.19 | 1.00 | 27.77 | 16.83 | 0.86 |
| 1950 | 17.55 | 36.17 | 16.93 | 21.10 | 4.19 | 1.00 | 27.84 | 16.77 | 0.82 |
| 1975 | 17.42 | 36.20 | 16.74 | 19.48 | 4.25 | 1.00 | 27.39 | 16.53 | 0.81 |
| 2000 | 17.28 | 36.46 | 16.59 | 18.18 | 4.42 | 1.00 | 27.63 | 16.64 | 0.75 |
| 2025 | 17.13 | 36.34 | 16.41 | 17.03 | 4.41 | 0.99 | 27.46 | 16.55 | 0.89 |
| 2050 | 16.98 | 36.13 | 16.20 | 16.00 | 4.35 | 0.99 | 27.28 | 16.36 | 0.93 |
| 2075 | 16.82 | 36.55 | 16.01 | 15.20 | 4.61 | 0.99 | 26.99 | 16.25 | 0.92 |
| 2100 | 16.65 | 36.52 | 15.85 | 14.42 | 4.65 | 0.98 | 27.22 | 16.33 | 0.81 |
| 2125 | 16.50 | 36.36 | 15.61 | 13.83 | 4.61 | 0.98 | 26.90 | 16.16 | 1.03 |
| 2175 | 16.26 | 36.42 | 15.25 | 13.01 | 4.71 | 0.98 | 26.34 | 15.79 | 1.07 |
| 2200 | 16.18 | 36.33 | 15.11 | 12.78 | 4.68 | 0.97 | 27.00 | 16.28 | 0.83 |
| 2225 | 16.14 | 36.31 | 15.05 | 12.60 | 4.68 | 0.97 | 25.55 | 15.37 | 0.87 |
| 2250 | 16.12 | 36.18 | 14.98 | 12.31 | 4.60 | 0.97 | 26.51 | 15.92 | 0.84 |
| 2275 | 16.10 | 36.13 | 14.89 | 11.93 | 4.55 | 0.96 | 25.88 | 15.59 | 0.94 |
| 2300 | 16.06 | 36.11 | 14.84 | 11.55 | 4.53 | 0.96 | 25.81 | 15.55 | 1.09 |
| 2325 | 16.01 | 35.94 | 14.80 | 11.11 | 4.43 | 0.95 | 25.56 | 15.39 | 0.99 |
| 2350 | 15.93 | 36.08 | 14.70 | 10.65 | 4.49 | 0.94 | 26.25 | 15.69 | 0.86 |
| 2375 | 15.83 | 36.05 | 14.70 | 10.24 | 4.48 | 0.94 | 25.45 | 15.26 | 0.86 |
| 2450 | 15.50 | 36.31 | 14.52 | 8.97 | 4.60 | 0.91 | 25.38 | 15.16 | 1.15 |
| 2475 | 15.37 | 36.39 | 14.48 | 8.62 | 4.66 | 0.90 | 25.21 | 15.05 | 1.05 |
| 2500 | 15.23 | 36.45 | 14.41 | 8.28 | 4.69 | 0.89 | 25.35 | 15.03 | 1.25 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.5V, Id = 68.6 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.57 | 39.28 | 26.04 | 9.55 | 4.35 | 0.88 | 30.51 | 19.20 | 0.58 |
| 1525 | 19.54 | 39.31 | 26.39 | 10.16 | 4.46 | 0.89 | 30.49 | 19.13 | 0.57 |
| 1550 | 19.50 | 38.97 | 26.62 | 10.80 | 4.37 | 0.90 | 30.44 | 18.84 | 0.58 |
| 1575 | 19.44 | 39.20 | 26.83 | 11.48 | 4.57 | 0.92 | 30.33 | 19.00 | 0.53 |
| 1600 | 19.37 | 38.87 | 26.57 | 12.24 | 4.49 | 0.93 | 30.57 | 19.36 | 0.60 |
| 1625 | 19.31 | 38.76 | 26.15 | 13.05 | 4.51 | 0.94 | 30.02 | 18.73 | 0.64 |
| 1650 | 19.24 | 38.69 | 25.59 | 13.90 | 4.55 | 0.95 | 30.31 | 19.11 | 0.54 |
| 1675 | 19.17 | 38.73 | 25.17 | 14.80 | 4.64 | 0.96 | 30.40 | 19.11 | 0.67 |
| 1700 | 19.09 | 38.66 | 24.65 | 15.78 | 4.68 | 0.96 | 30.17 | 18.74 | 0.65 |
| 1725 | 19.01 | 38.57 | 24.19 | 16.87 | 4.70 | 0.97 | 30.35 | 19.18 | 0.66 |
| 1750 | 18.92 | 38.30 | 23.71 | 18.07 | 4.63 | 0.98 | 30.21 | 18.71 | 0.64 |
| 1800 | 18.73 | 38.40 | 22.77 | 20.83 | 4.80 | 0.99 | 30.18 | 18.74 | 0.70 |
| 1850 | 18.54 | 38.43 | 21.88 | 23.96 | 4.94 | 0.99 | 30.17 | 18.83 | 0.78 |
| 1900 | 18.31 | 38.17 | 21.17 | 25.89 | 4.92 | 1.00 | 30.08 | 18.68 | 0.78 |
| 1925 | 18.19 | 38.25 | 20.83 | 25.36 | 5.02 | 1.00 | 30.16 | 18.86 | 0.85 |
| 1950 | 18.08 | 38.17 | 20.49 | 24.12 | 5.03 | 1.00 | 30.19 | 18.80 | 0.82 |
| 1975 | 17.96 | 38.10 | 20.11 | 22.60 | 5.05 | 1.00 | 30.07 | 18.55 | 0.78 |
| 2000 | 17.82 | 38.29 | 19.78 | 21.14 | 5.22 | 1.00 | 30.12 | 18.71 | 0.78 |
| 2025 | 17.68 | 38.30 | 19.50 | 19.75 | 5.29 | 0.99 | 30.01 | 18.60 | 0.89 |
| 2050 | 17.53 | 38.31 | 19.12 | 18.60 | 5.36 | 0.99 | 29.96 | 18.48 | 0.85 |
| 2075 | 17.37 | 38.17 | 18.81 | 17.60 | 5.35 | 0.99 | 29.77 | 18.33 | 0.89 |
| 2100 | 17.21 | 38.25 | 18.49 | 16.66 | 5.46 | 0.99 | 30.00 | 18.43 | 0.81 |
| 2125 | 17.06 | 38.00 | 18.17 | 15.99 | 5.37 | 0.98 | 29.82 | 18.28 | 0.98 |
| 2175 | 16.83 | 38.18 | 17.62 | 15.10 | 5.58 | 0.98 | 29.56 | 17.88 | 1.02 |
| 2200 | 16.77 | 38.04 | 17.39 | 14.88 | 5.52 | 0.98 | 29.84 | 18.39 | 0.80 |
| 2225 | 16.73 | 38.16 | 17.25 | 14.70 | 5.61 | 0.98 | 29.36 | 17.42 | 0.87 |
| 2250 | 16.73 | 37.67 | 17.06 | 14.36 | 5.28 | 0.98 | 29.74 | 18.07 | 0.83 |
| 2275 | 16.73 | 37.60 | 16.88 | 13.90 | 5.21 | 0.98 | 29.61 | 17.68 | 0.96 |
| 2300 | 16.70 | 37.65 | 16.75 | 13.42 | 5.22 | 0.97 | 29.71 | 17.65 | 1.07 |
| 2325 | 16.66 | 37.47 | 16.64 | 12.87 | 5.11 | 0.97 | 29.55 | 17.49 | 0.97 |
| 2350 | 16.60 | 37.61 | 16.49 | 12.27 | 5.18 | 0.96 | 29.76 | 17.83 | 0.84 |
| 2375 | 16.51 | 37.48 | 16.40 | 11.76 | 5.11 | 0.95 | 29.63 | 17.35 | 0.89 |
| 2450 | 16.22 | 37.74 | 16.03 | 10.22 | 5.25 | 0.93 | 29.54 | 17.34 | 1.05 |
| 2475 | 16.09 | 37.67 | 15.95 | 9.80 | 5.23 | 0.92 | 29.44 | 17.21 | 1.08 |
| 2500 | 15.97 | 37.66 | 15.82 | 9.38 | 5.23 | 0.91 | 29.61 | 17.23 | 1.19 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4V, Id =61.67 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.93 | 38.63 | 23.21 | 9.44 | 3.87 | 0.87 | 31.93 | 18.94 | 0.42 |
| 1525 | 19.89 | 38.69 | 23.96 | 10.04 | 3.98 | 0.89 | 32.11 | 18.89 | 0.38 |
| 1550 | 19.86 | 38.59 | 24.72 | 10.66 | 4.01 | 0.90 | 31.80 | 18.62 | 0.38 |
| 1575 | 19.80 | 38.44 | 25.43 | 11.34 | 4.02 | 0.91 | 32.03 | 18.73 | 0.39 |
| 1600 | 19.74 | 38.10 | 25.81 | 12.06 | 3.95 | 0.92 | 32.41 | 19.08 | 0.41 |
| 1625 | 19.68 | 38.16 | 26.19 | 12.84 | 4.04 | 0.93 | 31.59 | 18.47 | 0.45 |
| 1650 | 19.61 | 38.18 | 26.24 | 13.65 | 4.12 | 0.94 | 32.20 | 18.84 | 0.35 |
| 1675 | 19.53 | 38.12 | 26.31 | 14.52 | 4.16 | 0.95 | 32.12 | 18.80 | 0.46 |
| 1700 | 19.46 | 38.07 | 26.15 | 15.45 | 4.19 | 0.96 | 31.59 | 18.45 | 0.40 |
| 1725 | 19.38 | 38.01 | 25.90 | 16.51 | 4.23 | 0.96 | 32.08 | 18.82 | 0.43 |
| 1750 | 19.29 | 37.90 | 25.50 | 17.65 | 4.24 | 0.97 | 31.83 | 18.36 | 0.43 |
| 1800 | 19.12 | 37.62 | 24.62 | 20.48 | 4.22 | 0.98 | 31.87 | 18.38 | 0.48 |
| 1850 | 18.92 | 37.85 | 23.75 | 23.76 | 4.44 | 0.99 | 31.93 | 18.43 | 0.52 |
| 1900 | 18.70 | 37.53 | 23.12 | 26.10 | 4.39 | 0.99 | 31.82 | 18.25 | 0.52 |
| 1925 | 18.59 | 37.75 | 22.74 | 25.72 | 4.56 | 0.99 | 31.73 | 18.42 | 0.57 |
| 1950 | 18.47 | 37.74 | 22.44 | 24.50 | 4.61 | 0.99 | 31.88 | 18.34 | 0.54 |
| 1975 | 18.35 | 37.68 | 22.02 | 22.88 | 4.62 | 0.99 | 31.55 | 18.12 | 0.51 |
| 2000 | 18.21 | 37.62 | 21.69 | 21.37 | 4.65 | 0.99 | 31.78 | 18.25 | 0.46 |
| 2025 | 18.08 | 37.82 | 21.26 | 19.90 | 4.81 | 0.99 | 31.61 | 18.12 | 0.61 |
| 2050 | 17.93 | 37.86 | 20.83 | 18.67 | 4.89 | 0.99 | 31.45 | 17.99 | 0.59 |
| 2075 | 17.76 | 38.04 | 20.50 | 17.60 | 5.06 | 0.98 | 31.09 | 17.88 | 0.60 |
| 2100 | 17.59 | 37.83 | 20.02 | 16.57 | 5.01 | 0.98 | 31.30 | 17.94 | 0.50 |
| 2125 | 17.43 | 38.03 | 19.60 | 15.80 | 5.19 | 0.98 | 31.08 | 17.79 | 0.71 |
| 2175 | 17.17 | 37.58 | 18.89 | 14.78 | 5.03 | 0.97 | 30.56 | 17.40 | 0.72 |
| 2200 | 17.09 | 37.74 | 18.58 | 14.56 | 5.16 | 0.97 | 31.14 | 17.85 | 0.52 |
| 2225 | 17.05 | 37.51 | 18.44 | 14.43 | 5.03 | 0.97 | 29.68 | 16.89 | 0.55 |
| 2250 | 17.06 | 37.45 | 18.27 | 14.16 | 4.98 | 0.97 | 30.84 | 17.55 | 0.50 |
| 2275 | 17.07 | 37.31 | 18.05 | 13.76 | 4.87 | 0.97 | 30.09 | 17.12 | 0.63 |
| 2300 | 17.06 | 37.13 | 17.93 | 13.31 | 4.75 | 0.96 | 30.19 | 17.12 | 0.75 |
| 2325 | 17.02 | 37.12 | 17.81 | 12.76 | 4.73 | 0.96 | 29.80 | 16.95 | 0.67 |
| 2350 | 16.97 | 37.22 | 17.65 | 12.19 | 4.77 | 0.95 | 30.85 | 17.29 | 0.55 |
| 2375 | 16.88 | 37.23 | 17.55 | 11.66 | 4.78 | 0.95 | 29.68 | 16.81 | 0.55 |
| 2450 | 16.58 | 37.35 | 17.10 | 10.10 | 4.83 | 0.92 | 29.73 | 16.82 | 0.70 |
| 2475 | 16.46 | 37.40 | 16.95 | 9.66 | 4.87 | 0.91 | 29.49 | 16.65 | 0.71 |
| 2500 | 16.33 | 37.54 | 16.80 | 9.26 | 4.95 | 0.90 | 29.73 | 16.71 | 0.85 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.5V, Id =51.58 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.65 | 37.75 | 24.03 | 9.97 | 3.68 | 0.88 | 30.14 | 17.56 | 0.43 |
| 1525 | 19.60 | 37.70 | 24.16 | 10.63 | 3.74 | 0.90 | 30.05 | 17.52 | 0.35 |
| 1550 | 19.56 | 37.56 | 24.20 | 11.31 | 3.74 | 0.91 | 29.27 | 17.28 | 0.40 |
| 1575 | 19.49 | 37.34 | 24.23 | 12.07 | 3.72 | 0.92 | 29.89 | 17.40 | 0.32 |
| 1600 | 19.42 | 37.19 | 24.14 | 12.87 | 3.73 | 0.93 | 30.25 | 17.71 | 0.41 |
| 1625 | 19.35 | 37.08 | 23.75 | 13.75 | 3.75 | 0.94 | 29.10 | 17.18 | 0.41 |
| 1650 | 19.28 | 37.09 | 23.27 | 14.66 | 3.81 | 0.95 | 29.91 | 17.51 | 0.37 |
| 1675 | 19.20 | 37.08 | 22.93 | 15.67 | 3.87 | 0.96 | 29.81 | 17.46 | 0.46 |
| 1700 | 19.12 | 36.86 | 22.44 | 16.76 | 3.82 | 0.97 | 28.95 | 17.15 | 0.41 |
| 1725 | 19.04 | 36.98 | 22.03 | 18.04 | 3.93 | 0.97 | 29.61 | 17.49 | 0.49 |
| 1750 | 18.94 | 36.96 | 21.67 | 19.46 | 3.98 | 0.98 | 28.92 | 17.08 | 0.42 |
| 1800 | 18.75 | 36.91 | 20.93 | 23.13 | 4.06 | 0.99 | 28.76 | 17.09 | 0.47 |
| 1850 | 18.55 | 36.67 | 20.31 | 27.48 | 4.04 | 0.99 | 29.04 | 17.16 | 0.51 |
| 1900 | 18.32 | 36.74 | 19.83 | 27.45 | 4.17 | 0.99 | 28.72 | 16.99 | 0.54 |
| 1925 | 18.20 | 36.73 | 19.62 | 25.37 | 4.22 | 1.00 | 28.85 | 17.16 | 0.61 |
| 1950 | 18.08 | 36.66 | 19.35 | 23.34 | 4.23 | 0.99 | 28.90 | 17.07 | 0.57 |
| 1975 | 17.96 | 36.79 | 19.10 | 21.52 | 4.33 | 0.99 | 28.49 | 16.86 | 0.53 |
| 2000 | 17.82 | 36.86 | 18.86 | 19.99 | 4.42 | 0.99 | 28.81 | 16.99 | 0.50 |
| 2025 | 17.68 | 36.80 | 18.58 | 18.57 | 4.44 | 0.99 | 28.46 | 16.87 | 0.60 |
| 2050 | 17.52 | 36.82 | 18.28 | 17.41 | 4.50 | 0.99 | 28.36 | 16.74 | 0.61 |
| 2075 | 17.36 | 37.13 | 18.00 | 16.45 | 4.72 | 0.99 | 28.06 | 16.61 | 0.61 |
| 2100 | 17.18 | 36.88 | 17.73 | 15.48 | 4.64 | 0.98 | 28.27 | 16.66 | 0.52 |
| 2125 | 17.02 | 36.91 | 17.40 | 14.77 | 4.71 | 0.98 | 27.91 | 16.52 | 0.72 |
| 2175 | 16.75 | 36.95 | 16.88 | 13.80 | 4.83 | 0.97 | 27.32 | 16.16 | 0.75 |
| 2200 | 16.67 | 36.89 | 16.64 | 13.56 | 4.82 | 0.97 | 27.91 | 16.58 | 0.52 |
| 2225 | 16.63 | 36.76 | 16.52 | 13.40 | 4.76 | 0.97 | 26.39 | 15.71 | 0.54 |
| 2250 | 16.63 | 36.55 | 16.40 | 13.16 | 4.63 | 0.97 | 27.39 | 16.27 | 0.52 |
| 2275 | 16.63 | 36.61 | 16.28 | 12.80 | 4.64 | 0.97 | 26.65 | 15.92 | 0.65 |
| 2300 | 16.61 | 36.41 | 16.21 | 12.40 | 4.51 | 0.96 | 26.59 | 15.91 | 0.78 |
| 2325 | 16.56 | 36.42 | 16.14 | 11.90 | 4.50 | 0.96 | 26.34 | 15.75 | 0.67 |
| 2350 | 16.50 | 36.44 | 16.06 | 11.39 | 4.50 | 0.95 | 27.15 | 16.05 | 0.54 |
| 2375 | 16.41 | 36.38 | 16.02 | 10.92 | 4.47 | 0.94 | 26.19 | 15.64 | 0.52 |
| 2450 | 16.10 | 36.61 | 15.71 | 9.50 | 4.58 | 0.91 | 26.18 | 15.57 | 0.73 |
| 2475 | 15.97 | 36.59 | 15.63 | 9.09 | 4.57 | 0.90 | 25.95 | 15.43 | 0.71 |
| 2500 | 15.84 | 37.03 | 15.54 | 8.73 | 4.81 | 0.89 | 26.21 | 15.46 | 0.87 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.5V, Id = 72.08 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 20.00 | 39.98 | 21.73 | 8.92 | 4.38 | 0.86 | 32.29 | 19.67 | 0.42 |
| 1525 | 19.97 | 39.81 | 22.44 | 9.48 | 4.39 | 0.88 | 32.31 | 19.63 | 0.38 |
| 1550 | 19.94 | 39.67 | 23.22 | 10.05 | 4.41 | 0.89 | 32.03 | 19.33 | 0.41 |
| 1575 | 19.89 | 39.43 | 23.98 | 10.67 | 4.38 | 0.90 | 32.30 | 19.47 | 0.40 |
| 1600 | 19.83 | 39.18 | 24.45 | 11.31 | 4.35 | 0.92 | 32.71 | 19.82 | 0.44 |
| 1625 | 19.77 | 39.36 | 25.12 | 12.02 | 4.52 | 0.93 | 31.70 | 19.20 | 0.43 |
| 1650 | 19.71 | 38.98 | 25.63 | 12.73 | 4.41 | 0.94 | 32.33 | 19.55 | 0.36 |
| 1675 | 19.64 | 39.08 | 26.14 | 13.49 | 4.53 | 0.94 | 32.19 | 19.53 | 0.46 |
| 1700 | 19.58 | 39.06 | 26.35 | 14.31 | 4.59 | 0.95 | 31.75 | 19.17 | 0.44 |
| 1725 | 19.50 | 38.87 | 26.53 | 15.21 | 4.56 | 0.96 | 32.14 | 19.56 | 0.44 |
| 1750 | 19.41 | 38.91 | 26.43 | 16.17 | 4.65 | 0.97 | 31.93 | 19.09 | 0.42 |
| 1800 | 19.24 | 38.90 | 25.91 | 18.43 | 4.78 | 0.98 | 31.97 | 19.10 | 0.48 |
| 1850 | 19.06 | 38.90 | 25.24 | 21.03 | 4.91 | 0.98 | 32.03 | 19.19 | 0.54 |
| 1900 | 18.85 | 38.69 | 24.55 | 23.54 | 4.92 | 0.99 | 31.84 | 18.99 | 0.52 |
| 1925 | 18.74 | 38.63 | 24.18 | 24.21 | 4.95 | 0.99 | 31.76 | 19.16 | 0.60 |
| 1950 | 18.63 | 38.61 | 23.85 | 24.15 | 5.00 | 0.99 | 31.95 | 19.08 | 0.58 |
| 1975 | 18.51 | 38.37 | 23.41 | 23.47 | 4.92 | 0.99 | 31.68 | 18.82 | 0.54 |
| 2000 | 18.37 | 38.90 | 23.05 | 22.37 | 5.30 | 0.99 | 31.84 | 18.96 | 0.51 |
| 2025 | 18.24 | 38.61 | 22.55 | 21.06 | 5.19 | 0.99 | 31.71 | 18.86 | 0.63 |
| 2050 | 18.09 | 38.77 | 22.05 | 19.84 | 5.35 | 0.99 | 31.55 | 18.72 | 0.58 |
| 2075 | 17.93 | 38.94 | 21.67 | 18.80 | 5.54 | 0.99 | 31.32 | 18.58 | 0.61 |
| 2100 | 17.76 | 38.64 | 21.18 | 17.70 | 5.43 | 0.98 | 31.42 | 18.67 | 0.54 |
| 2125 | 17.60 | 38.84 | 20.69 | 16.90 | 5.63 | 0.98 | 31.29 | 18.50 | 0.69 |
| 2175 | 17.34 | 38.70 | 19.87 | 15.87 | 5.67 | 0.98 | 30.97 | 18.11 | 0.73 |
| 2200 | 17.27 | 38.59 | 19.59 | 15.65 | 5.63 | 0.98 | 31.41 | 18.60 | 0.54 |
| 2225 | 17.24 | 38.18 | 19.38 | 15.54 | 5.38 | 0.98 | 30.34 | 17.63 | 0.60 |
| 2250 | 17.25 | 38.21 | 19.16 | 15.27 | 5.38 | 0.98 | 31.08 | 18.26 | 0.55 |
| 2275 | 17.27 | 37.86 | 18.89 | 14.81 | 5.14 | 0.97 | 30.76 | 17.88 | 0.66 |
| 2300 | 17.26 | 37.81 | 18.74 | 14.31 | 5.09 | 0.97 | 30.82 | 17.86 | 0.76 |
| 2325 | 17.23 | 37.88 | 18.54 | 13.68 | 5.11 | 0.97 | 30.61 | 17.65 | 0.68 |
| 2350 | 17.18 | 37.76 | 18.34 | 13.03 | 5.02 | 0.96 | 31.15 | 18.04 | 0.60 |
| 2375 | 17.10 | 37.90 | 18.21 | 12.45 | 5.11 | 0.95 | 30.50 | 17.55 | 0.55 |
| 2450 | 16.82 | 38.00 | 17.67 | 10.71 | 5.16 | 0.93 | 30.51 | 17.54 | 0.85 |
| 2475 | 16.70 | 37.71 | 17.48 | 10.23 | 5.00 | 0.92 | 30.30 | 17.38 | 0.71 |
| 2500 | 16.58 | 37.99 | 17.34 | 9.79 | 5.17 | 0.91 | 30.41 | 17.42 | 0.88 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4V, Id = 58.6 mA @ Temperature = +85degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.03 | 39.03 | 22.64 | 9.82 | 4.53 | 0.89 | 30.55 | 18.22 | 0.76 |
| 1525 | 18.99 | 39.06 | 22.25 | 10.45 | 4.63 | 0.90 | 30.65 | 18.21 | 0.72 |
| 1550 | 18.94 | 38.87 | 21.89 | 11.10 | 4.61 | 0.91 | 30.65 | 17.96 | 0.76 |
| 1575 | 18.88 | 38.63 | 21.62 | 11.81 | 4.58 | 0.93 | 30.39 | 18.02 | 0.74 |
| 1600 | 18.81 | 38.52 | 21.34 | 12.59 | 4.60 | 0.94 | 30.71 | 18.41 | 0.78 |
| 1625 | 18.74 | 38.73 | 20.87 | 13.42 | 4.79 | 0.95 | 30.22 | 17.81 | 0.83 |
| 1650 | 18.67 | 38.49 | 20.45 | 14.28 | 4.74 | 0.96 | 30.44 | 18.14 | 0.72 |
| 1675 | 18.59 | 38.23 | 20.11 | 15.19 | 4.67 | 0.97 | 30.50 | 18.11 | 0.84 |
| 1700 | 18.51 | 38.44 | 19.71 | 16.17 | 4.85 | 0.97 | 30.40 | 17.81 | 0.79 |
| 1725 | 18.42 | 38.17 | 19.42 | 17.29 | 4.77 | 0.98 | 30.46 | 18.17 | 0.83 |
| 1750 | 18.33 | 38.27 | 19.14 | 18.46 | 4.90 | 0.99 | 30.46 | 17.73 | 0.82 |
| 1800 | 18.13 | 38.09 | 18.59 | 21.23 | 4.92 | 1.00 | 30.47 | 17.77 | 0.89 |
| 1850 | 17.93 | 38.17 | 18.01 | 24.15 | 5.09 | 1.00 | 30.34 | 17.81 | 0.94 |
| 1900 | 17.71 | 38.09 | 17.57 | 25.70 | 5.17 | 1.01 | 30.22 | 17.61 | 0.93 |
| 1925 | 17.59 | 38.00 | 17.35 | 25.15 | 5.17 | 1.01 | 30.23 | 17.78 | 1.05 |
| 1950 | 17.47 | 37.93 | 17.14 | 23.96 | 5.19 | 1.01 | 30.28 | 17.76 | 1.03 |
| 1975 | 17.34 | 37.91 | 16.89 | 22.54 | 5.24 | 1.01 | 30.18 | 17.47 | 1.03 |
| 2000 | 17.21 | 37.97 | 16.69 | 21.22 | 5.34 | 1.01 | 30.08 | 17.59 | 0.96 |
| 2025 | 17.07 | 38.23 | 16.49 | 19.90 | 5.56 | 1.01 | 30.07 | 17.51 | 1.10 |
| 2050 | 16.93 | 37.98 | 16.24 | 18.79 | 5.46 | 1.01 | 29.97 | 17.36 | 1.09 |
| 2075 | 16.77 | 38.28 | 16.01 | 17.88 | 5.73 | 1.00 | 29.86 | 17.19 | 1.10 |
| 2100 | 16.62 | 38.17 | 15.86 | 17.02 | 5.72 | 1.00 | 29.95 | 17.31 | 1.01 |
| 2125 | 16.48 | 37.94 | 15.61 | 16.35 | 5.64 | 1.00 | 29.81 | 17.15 | 1.20 |
| 2175 | 16.27 | 37.80 | 15.24 | 15.46 | 5.64 | 1.00 | 29.50 | 16.75 | 1.22 |
| 2200 | 16.21 | 37.86 | 15.09 | 15.21 | 5.70 | 1.00 | 29.89 | 17.30 | 1.06 |
| 2225 | 16.17 | 37.66 | 14.98 | 14.97 | 5.58 | 1.00 | 29.38 | 16.29 | 1.07 |
| 2250 | 16.16 | 37.64 | 14.86 | 14.59 | 5.55 | 0.99 | 29.80 | 16.95 | 1.07 |
| 2275 | 16.15 | 37.50 | 14.73 | 14.11 | 5.44 | 0.99 | 29.65 | 16.55 | 1.21 |
| 2300 | 16.12 | 37.49 | 14.64 | 13.60 | 5.42 | 0.99 | 29.69 | 16.54 | 1.29 |
| 2325 | 16.07 | 37.36 | 14.54 | 13.03 | 5.32 | 0.98 | 29.52 | 16.33 | 1.23 |
| 2350 | 16.01 | 37.40 | 14.45 | 12.45 | 5.34 | 0.98 | 29.83 | 16.68 | 1.13 |
| 2375 | 15.92 | 37.23 | 14.36 | 11.91 | 5.24 | 0.97 | 29.56 | 16.21 | 1.12 |
| 2450 | 15.63 | 37.51 | 14.12 | 10.38 | 5.41 | 0.95 | 29.33 | 16.18 | 1.33 |
| 2475 | 15.49 | 37.67 | 14.10 | 9.95 | 5.53 | 0.94 | 29.28 | 16.04 | 1.31 |
| 2500 | 15.37 | 37.54 | 13.99 | 9.54 | 5.46 | 0.93 | 29.25 | 16.02 | 1.50 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.5V, Id = 50.16 mA @ Temperature = +85degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.81 | 37.88 | 19.69 | 10.26 | 4.11 | 0.90 | 29.17 | 17.20 | 0.77 |
| 1525 | 18.76 | 37.87 | 19.34 | 10.93 | 4.18 | 0.91 | 29.13 | 17.16 | 0.71 |
| 1550 | 18.71 | 37.62 | 19.05 | 11.63 | 4.13 | 0.92 | 28.51 | 16.96 | 0.77 |
| 1575 | 18.64 | 37.56 | 18.80 | 12.41 | 4.18 | 0.94 | 28.74 | 16.99 | 0.73 |
| 1600 | 18.57 | 37.35 | 18.60 | 13.24 | 4.16 | 0.95 | 29.25 | 17.35 | 0.76 |
| 1625 | 18.49 | 37.34 | 18.26 | 14.15 | 4.22 | 0.96 | 28.13 | 16.77 | 0.83 |
| 1650 | 18.42 | 37.33 | 17.95 | 15.14 | 4.28 | 0.97 | 28.82 | 17.07 | 0.73 |
| 1675 | 18.33 | 37.46 | 17.71 | 16.14 | 4.41 | 0.98 | 28.84 | 17.00 | 0.84 |
| 1700 | 18.25 | 37.15 | 17.43 | 17.29 | 4.31 | 0.98 | 28.08 | 16.74 | 0.80 |
| 1725 | 18.16 | 37.29 | 17.20 | 18.58 | 4.44 | 0.99 | 28.60 | 17.08 | 0.82 |
| 1750 | 18.06 | 37.09 | 17.01 | 19.97 | 4.40 | 1.00 | 28.07 | 16.64 | 0.84 |
| 1800 | 17.86 | 37.07 | 16.58 | 23.43 | 4.50 | 1.00 | 27.97 | 16.72 | 0.91 |
| 1850 | 17.65 | 37.03 | 16.16 | 26.96 | 4.58 | 1.01 | 28.11 | 16.73 | 0.94 |
| 1900 | 17.42 | 37.12 | 15.85 | 26.88 | 4.74 | 1.01 | 27.78 | 16.52 | 0.96 |
| 1925 | 17.30 | 37.07 | 15.69 | 25.22 | 4.77 | 1.02 | 27.95 | 16.67 | 1.05 |
| 1950 | 17.17 | 37.04 | 15.51 | 23.39 | 4.80 | 1.02 | 27.99 | 16.62 | 1.00 |
| 1975 | 17.05 | 37.03 | 15.33 | 21.70 | 4.85 | 1.02 | 27.61 | 16.36 | 1.01 |
| 2000 | 16.91 | 37.07 | 15.19 | 20.31 | 4.93 | 1.01 | 27.78 | 16.47 | 0.99 |
| 2025 | 16.77 | 37.21 | 15.04 | 19.00 | 5.06 | 1.01 | 27.59 | 16.39 | 1.09 |
| 2050 | 16.62 | 37.16 | 14.84 | 17.89 | 5.08 | 1.01 | 27.42 | 16.21 | 1.07 |
| 2075 | 16.47 | 37.36 | 14.67 | 17.02 | 5.27 | 1.01 | 27.14 | 16.07 | 1.11 |
| 2100 | 16.32 | 37.18 | 14.54 | 16.18 | 5.22 | 1.01 | 27.36 | 16.16 | 1.03 |
| 2125 | 16.17 | 37.20 | 14.38 | 15.53 | 5.29 | 1.00 | 27.06 | 15.98 | 1.25 |
| 2175 | 15.96 | 37.11 | 14.06 | 14.66 | 5.31 | 1.00 | 26.51 | 15.63 | 1.26 |
| 2200 | 15.89 | 37.10 | 13.94 | 14.42 | 5.33 | 1.00 | 27.22 | 16.13 | 1.03 |
| 2225 | 15.85 | 37.14 | 13.86 | 14.18 | 5.36 | 1.00 | 25.77 | 15.17 | 1.11 |
| 2250 | 15.84 | 36.93 | 13.79 | 13.84 | 5.22 | 1.00 | 26.74 | 15.73 | 1.07 |
| 2275 | 15.82 | 36.79 | 13.68 | 13.38 | 5.11 | 0.99 | 26.11 | 15.41 | 1.20 |
| 2300 | 15.79 | 36.77 | 13.63 | 12.90 | 5.09 | 0.99 | 26.02 | 15.37 | 1.32 |
| 2325 | 15.73 | 36.67 | 13.58 | 12.39 | 5.02 | 0.98 | 25.74 | 15.19 | 1.24 |
| 2350 | 15.66 | 36.60 | 13.50 | 11.86 | 4.97 | 0.98 | 26.45 | 15.48 | 1.15 |
| 2375 | 15.57 | 36.65 | 13.45 | 11.38 | 5.01 | 0.97 | 25.63 | 15.05 | 1.09 |
| 2450 | 15.26 | 36.91 | 13.28 | 9.92 | 5.15 | 0.94 | 25.56 | 14.96 | 1.35 |
| 2475 | 15.13 | 37.07 | 13.28 | 9.54 | 5.27 | 0.93 | 25.44 | 14.84 | 1.32 |
| 2500 | 15.01 | 37.08 | 13.20 | 9.14 | 5.28 | 0.93 | 25.51 | 14.80 | 1.50 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 4.5V, Id = 67.05 mA @ Temperature = +85degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.16 | 40.21 | 25.31 | 9.45 | 5.05 | 0.88 | 29.62 | 18.81 | 0.76 |
| 1525 | 19.12 | 40.09 | 24.98 | 10.05 | 5.08 | 0.88 | 29.67 | 18.77 | 0.73 |
| 1550 | 19.08 | 39.79 | 24.66 | 10.66 | 5.01 | 0.88 | 29.56 | 18.51 | 0.75 |
| 1575 | 19.02 | 39.82 | 24.38 | 11.33 | 5.12 | 0.89 | 29.50 | 18.59 | 0.71 |
| 1600 | 18.95 | 39.49 | 23.98 | 12.04 | 5.03 | 0.89 | 29.69 | 18.98 | 0.80 |
| 1625 | 18.89 | 39.35 | 23.42 | 12.81 | 5.03 | 0.89 | 29.27 | 18.36 | 0.78 |
| 1650 | 18.81 | 39.47 | 22.84 | 13.60 | 5.19 | 0.89 | 29.53 | 18.72 | 0.73 |
| 1675 | 18.74 | 39.16 | 22.44 | 14.43 | 5.09 | 0.90 | 29.61 | 18.72 | 0.87 |
| 1700 | 18.67 | 39.26 | 21.94 | 15.33 | 5.22 | 0.90 | 29.31 | 18.42 | 0.79 |
| 1725 | 18.58 | 39.09 | 21.55 | 16.30 | 5.19 | 0.90 | 29.50 | 18.82 | 0.83 |
| 1750 | 18.49 | 39.02 | 21.15 | 17.31 | 5.23 | 0.91 | 29.37 | 18.33 | 0.86 |
| 1800 | 18.30 | 39.00 | 20.41 | 19.65 | 5.36 | 0.91 | 29.23 | 18.42 | 0.89 |
| 1850 | 18.10 | 39.03 | 19.68 | 22.10 | 5.51 | 0.92 | 29.22 | 18.52 | 0.96 |
| 1900 | 17.88 | 38.85 | 19.09 | 23.98 | 5.54 | 0.92 | 29.25 | 18.32 | 0.96 |
| 1925 | 17.77 | 39.01 | 18.82 | 24.14 | 5.71 | 0.92 | 29.31 | 18.56 | 1.05 |
| 1950 | 17.65 | 38.92 | 18.53 | 23.71 | 5.72 | 0.93 | 29.26 | 18.53 | 1.02 |
| 1975 | 17.53 | 38.93 | 18.22 | 22.73 | 5.79 | 0.93 | 29.17 | 18.24 | 1.02 |
| 2000 | 17.40 | 39.08 | 17.98 | 21.69 | 5.96 | 0.93 | 29.21 | 18.41 | 0.98 |
| 2025 | 17.26 | 38.77 | 17.75 | 20.50 | 5.83 | 0.93 | 29.13 | 18.31 | 1.08 |
| 2050 | 17.12 | 38.91 | 17.44 | 19.45 | 5.99 | 0.93 | 29.11 | 18.18 | 1.06 |
| 2075 | 16.96 | 38.97 | 17.17 | 18.58 | 6.11 | 0.94 | 29.00 | 18.05 | 1.09 |
| 2100 | 16.82 | 38.94 | 16.97 | 17.69 | 6.17 | 0.94 | 29.11 | 18.16 | 1.03 |
| 2125 | 16.68 | 38.82 | 16.69 | 17.03 | 6.16 | 0.94 | 28.96 | 17.99 | 1.19 |
| 2175 | 16.47 | 38.54 | 16.23 | 16.16 | 6.07 | 0.95 | 28.71 | 17.61 | 1.26 |
| 2200 | 16.41 | 38.61 | 16.04 | 15.89 | 6.14 | 0.95 | 28.98 | 18.17 | 1.04 |
| 2225 | 16.37 | 38.36 | 15.93 | 15.66 | 5.98 | 0.95 | 28.56 | 17.13 | 1.11 |
| 2250 | 16.37 | 38.07 | 15.76 | 15.26 | 5.76 | 0.95 | 28.89 | 17.82 | 1.08 |
| 2275 | 16.36 | 37.93 | 15.59 | 14.73 | 5.64 | 0.95 | 28.69 | 17.40 | 1.21 |
| 2300 | 16.34 | 37.98 | 15.47 | 14.18 | 5.66 | 0.95 | 28.76 | 17.39 | 1.29 |
| 2325 | 16.29 | 37.93 | 15.37 | 13.57 | 5.62 | 0.96 | 28.63 | 17.20 | 1.20 |
| 2350 | 16.23 | 37.83 | 15.23 | 12.94 | 5.54 | 0.96 | 28.82 | 17.60 | 1.16 |
| 2375 | 16.15 | 38.05 | 15.14 | 12.38 | 5.69 | 0.96 | 28.63 | 17.09 | 1.15 |
| 2450 | 15.86 | 37.89 | 14.80 | 10.73 | 5.59 | 0.96 | 28.57 | 17.10 | 1.33 |
| 2475 | 15.73 | 37.85 | 14.75 | 10.30 | 5.58 | 0.97 | 28.55 | 16.96 | 1.33 |
| 2500 | 15.61 | 37.87 | 14.64 | 9.85 | 5.60 | 0.97 | 28.75 | 16.96 | 1.50 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3V, Id = 40.82 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.80 | 36.26 | 17.82 | 10.78 | 3.47 | 0.90 | 27.06 | 16.30 | 0.60 |
| 1525 | 18.75 | 36.32 | 17.52 | 11.51 | 3.54 | 0.92 | 26.98 | 16.31 | 0.65 |
| 1550 | 18.69 | 36.16 | 17.28 | 12.31 | 3.51 | 0.93 | 26.47 | 16.19 | 0.64 |
| 1575 | 18.62 | 36.10 | 17.03 | 13.15 | 3.57 | 0.95 | 26.61 | 16.15 | 0.70 |
| 1600 | 18.54 | 35.88 | 16.83 | 14.06 | 3.55 | 0.96 | 26.94 | 16.49 | 0.66 |
| 1625 | 18.46 | 35.81 | 16.65 | 15.11 | 3.58 | 0.97 | 26.00 | 16.08 | 0.69 |
| 1650 | 18.38 | 35.71 | 16.42 | 16.23 | 3.61 | 0.97 | 26.48 | 16.32 | 0.74 |
| 1675 | 18.29 | 35.78 | 16.25 | 17.47 | 3.70 | 0.98 | 26.32 | 16.27 | 0.69 |
| 1700 | 18.20 | 35.70 | 16.06 | 18.92 | 3.70 | 0.99 | 25.85 | 16.03 | 0.74 |
| 1725 | 18.11 | 35.67 | 15.87 | 20.58 | 3.65 | 1.00 | 26.32 | 16.35 | 0.71 |
| 1750 | 18.01 | 35.54 | 15.72 | 22.62 | 3.72 | 1.00 | 25.73 | 15.90 | 0.72 |
| 1800 | 17.80 | 35.50 | 15.39 | 28.53 | 3.86 | 1.01 | 25.60 | 15.98 | 0.76 |
| 1850 | 17.58 | 35.38 | 15.11 | 34.15 | 3.94 | 1.02 | 25.67 | 15.92 | 0.78 |
| 1900 | 17.34 | 35.50 | 14.90 | 26.47 | 3.94 | 1.02 | 25.38 | 15.76 | 0.86 |
| 1925 | 17.22 | 35.58 | 14.74 | 23.77 | 4.07 | 1.02 | 25.47 | 15.80 | 0.80 |
| 1950 | 17.09 | 35.57 | 14.62 | 21.63 | 4.07 | 1.02 | 25.61 | 15.90 | 0.86 |
| 1975 | 16.96 | 35.58 | 14.49 | 20.03 | 4.19 | 1.02 | 25.18 | 15.62 | 0.90 |
| 2000 | 16.82 | 35.69 | 14.38 | 18.57 | 4.16 | 1.01 | 25.29 | 15.66 | 0.92 |
| 2025 | 16.66 | 35.77 | 14.30 | 17.37 | 4.27 | 1.01 | 25.16 | 15.69 | 0.89 |
| 2050 | 16.51 | 35.80 | 14.16 | 16.33 | 4.32 | 1.01 | 25.07 | 15.58 | 0.90 |
| 2075 | 16.35 | 35.74 | 14.01 | 15.43 | 4.39 | 1.00 | 24.78 | 15.33 | 0.93 |
| 2100 | 16.19 | 35.82 | 13.87 | 14.69 | 4.55 | 1.00 | 24.95 | 15.41 | 0.95 |
| 2125 | 16.04 | 35.95 | 13.75 | 14.04 | 4.48 | 1.00 | 24.73 | 15.26 | 0.98 |
| 2175 | 15.79 | 35.85 | 13.47 | 13.23 | 4.59 | 0.99 | 24.12 | 14.85 | 0.95 |
| 2200 | 15.73 | 35.87 | 13.37 | 12.97 | 4.57 | 0.99 | 24.77 | 15.25 | 1.05 |
| 2225 | 15.69 | 35.80 | 13.30 | 12.78 | 4.58 | 0.99 | 23.59 | 14.48 | 0.98 |
| 2250 | 15.67 | 35.74 | 13.28 | 12.52 | 4.48 | 0.99 | 24.27 | 14.86 | 0.95 |
| 2275 | 15.65 | 35.69 | 13.25 | 12.18 | 4.46 | 0.98 | 23.82 | 14.63 | 1.08 |
| 2300 | 15.62 | 35.59 | 13.21 | 11.77 | 4.43 | 0.98 | 23.80 | 14.56 | 1.01 |
| 2325 | 15.55 | 35.60 | 13.21 | 11.34 | 4.40 | 0.97 | 23.41 | 14.30 | 0.98 |
| 2350 | 15.48 | 35.62 | 13.20 | 10.88 | 4.43 | 0.96 | 24.09 | 14.67 | 1.03 |
| 2375 | 15.39 | 35.79 | 13.16 | 10.42 | 4.38 | 0.96 | 23.37 | 14.28 | 1.10 |
| 2450 | 15.07 | 35.79 | 13.07 | 9.14 | 4.56 | 0.93 | 23.37 | 14.15 | 1.09 |
| 2475 | 14.93 | 35.95 | 13.07 | 8.80 | 4.66 | 0.92 | 23.07 | 13.95 | 1.18 |
| 2500 | 14.81 | 36.12 | 13.03 | 8.44 | 4.68 | 0.91 | 23.19 | 13.93 | 1.08 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 2.7V, Id =35.73 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.50 | 35.76 | 15.76 | 11.21 | 3.38 | 0.92 | 26.26 | 15.20 | 0.66 |
| 1525 | 18.45 | 35.68 | 15.51 | 11.99 | 3.41 | 0.93 | 26.20 | 15.20 | 0.68 |
| 1550 | 18.38 | 35.59 | 15.32 | 12.85 | 3.44 | 0.95 | 25.73 | 15.10 | 0.64 |
| 1575 | 18.31 | 35.46 | 15.13 | 13.76 | 3.44 | 0.96 | 25.84 | 15.09 | 0.72 |
| 1600 | 18.23 | 35.40 | 14.99 | 14.75 | 3.47 | 0.97 | 26.17 | 15.40 | 0.67 |
| 1625 | 18.14 | 35.20 | 14.84 | 15.93 | 3.45 | 0.98 | 25.30 | 15.02 | 0.70 |
| 1650 | 18.06 | 35.30 | 14.65 | 17.13 | 3.54 | 0.99 | 25.71 | 15.29 | 0.68 |
| 1675 | 17.96 | 35.24 | 14.51 | 18.56 | 3.56 | 1.00 | 25.60 | 15.24 | 0.75 |
| 1700 | 17.87 | 35.15 | 14.36 | 20.24 | 3.57 | 1.00 | 25.17 | 14.99 | 0.76 |
| 1725 | 17.77 | 35.12 | 14.22 | 22.27 | 3.60 | 1.01 | 25.56 | 15.30 | 0.72 |
| 1750 | 17.67 | 35.10 | 14.12 | 24.83 | 3.64 | 1.02 | 25.04 | 14.92 | 0.74 |
| 1800 | 17.46 | 34.99 | 13.89 | 33.78 | 3.68 | 1.02 | 24.90 | 14.96 | 0.80 |
| 1850 | 17.23 | 35.06 | 13.66 | 32.04 | 3.78 | 1.03 | 24.93 | 14.91 | 0.82 |
| 1900 | 16.98 | 34.97 | 13.50 | 24.25 | 3.83 | 1.03 | 24.65 | 14.74 | 0.86 |
| 1925 | 16.86 | 34.96 | 13.39 | 22.01 | 3.86 | 1.03 | 24.67 | 14.82 | 0.84 |
| 1950 | 16.73 | 35.09 | 13.30 | 20.21 | 3.95 | 1.03 | 24.85 | 14.90 | 0.88 |
| 1975 | 16.60 | 35.14 | 13.18 | 18.77 | 4.01 | 1.03 | 24.46 | 14.61 | 0.91 |
| 2000 | 16.45 | 35.17 | 13.13 | 17.46 | 4.07 | 1.02 | 24.50 | 14.65 | 0.93 |
| 2025 | 16.29 | 35.38 | 13.05 | 16.40 | 4.21 | 1.02 | 24.38 | 14.68 | 0.94 |
| 2050 | 16.14 | 35.22 | 12.93 | 15.44 | 4.17 | 1.02 | 24.29 | 14.56 | 0.94 |
| 2075 | 15.98 | 35.37 | 12.82 | 14.61 | 4.28 | 1.01 | 23.97 | 14.31 | 1.00 |
| 2100 | 15.81 | 35.27 | 12.73 | 13.93 | 4.28 | 1.01 | 24.15 | 14.38 | 1.00 |
| 2125 | 15.66 | 35.31 | 12.61 | 13.34 | 4.34 | 1.00 | 23.93 | 14.24 | 0.97 |
| 2175 | 15.41 | 35.48 | 12.41 | 12.56 | 4.49 | 1.00 | 23.35 | 13.84 | 0.97 |
| 2200 | 15.35 | 35.39 | 12.31 | 12.31 | 4.45 | 1.00 | 24.00 | 14.22 | 1.07 |
| 2225 | 15.30 | 35.36 | 12.26 | 12.10 | 4.44 | 0.99 | 22.82 | 13.47 | 1.00 |
| 2250 | 15.28 | 35.40 | 12.27 | 11.86 | 4.46 | 0.99 | 23.50 | 13.82 | 0.99 |
| 2275 | 15.25 | 35.29 | 12.25 | 11.54 | 4.39 | 0.99 | 23.05 | 13.61 | 1.08 |
| 2300 | 15.21 | 35.07 | 12.22 | 11.15 | 4.26 | 0.98 | 23.04 | 13.55 | 1.01 |
| 2325 | 15.14 | 35.04 | 12.25 | 10.74 | 4.24 | 0.97 | 22.66 | 13.30 | 1.00 |
| 2350 | 15.07 | 35.31 | 12.23 | 10.32 | 4.37 | 0.97 | 23.28 | 13.61 | 1.07 |
| 2375 | 14.98 | 35.10 | 12.23 | 9.89 | 4.26 | 0.96 | 22.59 | 13.28 | 1.07 |
| 2450 | 14.64 | 35.52 | 12.16 | 8.70 | 4.45 | 0.93 | 22.54 | 13.07 | 1.12 |
| 2475 | 14.50 | 35.71 | 12.18 | 8.37 | 4.57 | 0.91 | 22.25 | 12.89 | 1.13 |
| 2500 | 14.37 | 35.63 | 12.15 | 8.03 | 4.52 | 0.90 | 22.38 | 12.86 | 1.18 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.3V, Id = 46.05 mA @ Temperature = +25degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.04 | 37.00 | 20.02 | 10.44 | 3.65 | 0.90 | 28.03 | 17.26 | 0.62 |
| 1525 | 18.99 | 36.78 | 19.66 | 11.14 | 3.63 | 0.91 | 27.98 | 17.25 | 0.65 |
| 1550 | 18.93 | 36.73 | 19.36 | 11.89 | 3.68 | 0.92 | 27.38 | 17.14 | 0.61 |
| 1575 | 18.87 | 36.67 | 19.08 | 12.69 | 3.71 | 0.94 | 27.58 | 17.06 | 0.64 |
| 1600 | 18.79 | 36.67 | 18.83 | 13.53 | 3.78 | 0.95 | 27.90 | 17.41 | 0.61 |
| 1625 | 18.72 | 36.37 | 18.58 | 14.52 | 3.71 | 0.96 | 26.95 | 16.97 | 0.69 |
| 1650 | 18.64 | 36.35 | 18.28 | 15.55 | 3.76 | 0.97 | 27.45 | 17.24 | 0.71 |
| 1675 | 18.55 | 36.37 | 18.02 | 16.68 | 3.82 | 0.97 | 27.30 | 17.16 | 0.69 |
| 1700 | 18.47 | 36.25 | 17.76 | 17.98 | 3.82 | 0.98 | 26.82 | 16.89 | 0.70 |
| 1725 | 18.38 | 36.23 | 17.55 | 19.44 | 3.87 | 0.99 | 27.32 | 17.26 | 0.67 |
| 1750 | 18.28 | 36.19 | 17.36 | 21.13 | 3.90 | 0.99 | 26.65 | 16.77 | 0.72 |
| 1800 | 18.08 | 36.03 | 16.92 | 25.76 | 3.92 | 1.00 | 26.53 | 16.85 | 0.76 |
| 1850 | 17.87 | 36.24 | 16.55 | 31.51 | 4.11 | 1.01 | 26.63 | 16.79 | 0.76 |
| 1900 | 17.63 | 36.18 | 16.27 | 27.88 | 4.18 | 1.01 | 26.37 | 16.62 | 0.83 |
| 1925 | 17.51 | 36.12 | 16.09 | 25.15 | 4.19 | 1.01 | 26.40 | 16.68 | 0.81 |
| 1950 | 17.39 | 36.08 | 15.93 | 22.79 | 4.22 | 1.01 | 26.58 | 16.75 | 0.85 |
| 1975 | 17.26 | 36.09 | 15.76 | 21.04 | 4.26 | 1.01 | 26.17 | 16.47 | 0.89 |
| 2000 | 17.12 | 36.42 | 15.63 | 19.46 | 4.47 | 1.01 | 26.30 | 16.51 | 0.88 |
| 2025 | 16.96 | 36.22 | 15.50 | 18.17 | 4.43 | 1.00 | 26.13 | 16.57 | 0.88 |
| 2050 | 16.81 | 36.36 | 15.33 | 17.03 | 4.55 | 1.00 | 26.09 | 16.44 | 0.90 |
| 2075 | 16.65 | 36.34 | 15.15 | 16.06 | 4.59 | 1.00 | 25.72 | 16.19 | 0.92 |
| 2100 | 16.50 | 36.19 | 14.97 | 15.28 | 4.56 | 1.00 | 25.93 | 16.29 | 0.97 |
| 2125 | 16.35 | 36.35 | 14.82 | 14.62 | 4.69 | 0.99 | 25.72 | 16.13 | 0.94 |
| 2175 | 16.10 | 36.36 | 14.49 | 13.76 | 4.77 | 0.99 | 25.05 | 15.70 | 0.96 |
| 2200 | 16.04 | 36.21 | 14.34 | 13.51 | 4.71 | 0.99 | 25.78 | 16.17 | 1.02 |
| 2225 | 16.00 | 36.25 | 14.26 | 13.31 | 4.73 | 0.99 | 24.47 | 15.34 | 0.99 |
| 2250 | 15.98 | 36.11 | 14.22 | 13.05 | 4.65 | 0.98 | 25.20 | 15.75 | 0.96 |
| 2275 | 15.97 | 35.92 | 14.18 | 12.70 | 4.54 | 0.98 | 24.73 | 15.49 | 1.06 |
| 2300 | 15.94 | 35.87 | 14.10 | 12.27 | 4.49 | 0.98 | 24.73 | 15.44 | 1.00 |
| 2325 | 15.88 | 35.91 | 14.10 | 11.80 | 4.51 | 0.97 | 24.31 | 15.18 | 0.98 |
| 2350 | 15.82 | 36.07 | 14.05 | 11.33 | 4.58 | 0.96 | 25.04 | 15.58 | 1.00 |
| 2375 | 15.73 | 36.03 | 14.01 | 10.85 | 4.56 | 0.96 | 24.29 | 15.20 | 1.03 |
| 2450 | 15.41 | 36.19 | 13.86 | 9.51 | 4.64 | 0.93 | 24.30 | 15.05 | 1.10 |
| 2475 | 15.28 | 36.33 | 13.85 | 9.14 | 4.73 | 0.92 | 23.98 | 14.88 | 1.07 |
| 2500 | 15.16 | 36.42 | 13.79 | 8.75 | 4.77 | 0.91 | 24.14 | 14.89 | 1.04 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3V, Id =41.95 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.32 | 36.16 | 20.58 | 10.20 | 3.21 | 0.88 | 26.51 | 15.98 | 0.42 |
| 1525 | 19.28 | 35.96 | 20.23 | 10.84 | 3.20 | 0.90 | 26.45 | 16.00 | 0.47 |
| 1550 | 19.22 | 36.09 | 19.97 | 11.53 | 3.30 | 0.91 | 25.94 | 15.89 | 0.42 |
| 1575 | 19.15 | 35.80 | 19.69 | 12.29 | 3.26 | 0.92 | 26.22 | 15.87 | 0.46 |
| 1600 | 19.09 | 35.71 | 19.42 | 13.08 | 3.28 | 0.93 | 26.42 | 16.18 | 0.39 |
| 1625 | 19.01 | 35.58 | 19.23 | 13.99 | 3.29 | 0.94 | 25.60 | 15.82 | 0.46 |
| 1650 | 18.94 | 35.47 | 18.90 | 14.95 | 3.30 | 0.95 | 26.05 | 16.07 | 0.47 |
| 1675 | 18.85 | 35.49 | 18.69 | 16.01 | 3.35 | 0.96 | 25.87 | 16.03 | 0.47 |
| 1700 | 18.77 | 35.52 | 18.46 | 17.21 | 3.41 | 0.97 | 25.45 | 15.76 | 0.49 |
| 1725 | 18.69 | 35.40 | 18.23 | 18.57 | 3.41 | 0.98 | 25.88 | 16.11 | 0.58 |
| 1750 | 18.59 | 35.45 | 18.04 | 20.14 | 3.48 | 0.98 | 25.32 | 15.72 | 0.48 |
| 1800 | 18.40 | 35.28 | 17.64 | 24.36 | 3.50 | 0.99 | 25.20 | 15.77 | 0.51 |
| 1850 | 18.19 | 35.25 | 17.27 | 31.39 | 3.57 | 1.00 | 25.28 | 15.76 | 0.54 |
| 1900 | 17.96 | 35.32 | 17.00 | 31.22 | 3.68 | 1.00 | 25.06 | 15.59 | 0.61 |
| 1925 | 17.84 | 35.28 | 16.84 | 27.32 | 3.70 | 1.00 | 25.06 | 15.68 | 0.55 |
| 1950 | 17.73 | 35.29 | 16.69 | 24.37 | 3.74 | 1.00 | 25.20 | 15.73 | 0.62 |
| 1975 | 17.60 | 35.33 | 16.52 | 22.16 | 3.79 | 1.00 | 24.85 | 15.52 | 0.63 |
| 2000 | 17.46 | 35.53 | 16.38 | 20.30 | 3.92 | 1.00 | 24.99 | 15.55 | 0.62 |
| 2025 | 17.31 | 35.51 | 16.26 | 18.82 | 3.96 | 1.00 | 24.81 | 15.59 | 0.64 |
| 2050 | 17.16 | 35.51 | 16.09 | 17.56 | 4.00 | 1.00 | 24.77 | 15.48 | 0.61 |
| 2075 | 17.00 | 35.60 | 15.92 | 16.49 | 4.09 | 0.99 | 24.49 | 15.25 | 0.65 |
| 2100 | 16.83 | 35.46 | 15.73 | 15.54 | 4.07 | 0.99 | 24.65 | 15.32 | 0.67 |
| 2125 | 16.67 | 35.58 | 15.55 | 14.80 | 4.18 | 0.99 | 24.47 | 15.17 | 0.65 |
| 2175 | 16.40 | 35.70 | 15.18 | 13.81 | 4.31 | 0.98 | 23.88 | 14.81 | 0.63 |
| 2200 | 16.32 | 35.75 | 15.00 | 13.55 | 4.35 | 0.98 | 24.44 | 15.12 | 0.75 |
| 2225 | 16.29 | 35.51 | 14.92 | 13.36 | 4.24 | 0.98 | 23.33 | 14.41 | 0.68 |
| 2250 | 16.28 | 35.60 | 14.86 | 13.16 | 4.28 | 0.98 | 23.95 | 14.80 | 0.64 |
| 2275 | 16.28 | 35.28 | 14.82 | 12.87 | 4.11 | 0.97 | 23.50 | 14.59 | 0.73 |
| 2300 | 16.26 | 35.35 | 14.77 | 12.46 | 4.12 | 0.97 | 23.51 | 14.51 | 0.68 |
| 2325 | 16.21 | 35.38 | 14.76 | 12.03 | 4.13 | 0.97 | 23.18 | 14.25 | 0.67 |
| 2350 | 16.16 | 35.24 | 14.69 | 11.52 | 4.05 | 0.96 | 23.81 | 14.65 | 0.67 |
| 2375 | 16.08 | 35.47 | 14.65 | 11.05 | 4.15 | 0.95 | 23.12 | 14.28 | 0.71 |
| 2450 | 15.77 | 35.57 | 14.45 | 9.66 | 4.19 | 0.93 | 23.11 | 14.15 | 0.76 |
| 2475 | 15.63 | 35.82 | 14.47 | 9.28 | 4.33 | 0.92 | 22.77 | 13.93 | 0.76 |
| 2500 | 15.50 | 35.96 | 14.39 | 8.88 | 4.40 | 0.91 | 23.01 | 13.96 | 0.75 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 2.7V, Id =36.04 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.80 | 35.85 | 16.79 | 10.40 | 3.27 | 0.90 | 25.31 | 14.61 | 0.39 |
| 1525 | 18.75 | 35.62 | 16.51 | 11.06 | 3.25 | 0.91 | 25.28 | 14.64 | 0.43 |
| 1550 | 18.69 | 35.50 | 16.29 | 11.79 | 3.26 | 0.93 | 24.88 | 14.59 | 0.42 |
| 1575 | 18.62 | 35.53 | 16.07 | 12.57 | 3.33 | 0.94 | 25.15 | 14.56 | 0.43 |
| 1600 | 18.55 | 35.40 | 15.88 | 13.39 | 3.33 | 0.95 | 25.31 | 14.82 | 0.38 |
| 1625 | 18.47 | 35.30 | 15.75 | 14.35 | 3.35 | 0.96 | 24.61 | 14.54 | 0.44 |
| 1650 | 18.39 | 35.09 | 15.52 | 15.37 | 3.32 | 0.97 | 25.01 | 14.76 | 0.49 |
| 1675 | 18.31 | 35.14 | 15.39 | 16.50 | 3.39 | 0.98 | 24.87 | 14.71 | 0.44 |
| 1700 | 18.22 | 35.00 | 15.21 | 17.81 | 3.38 | 0.99 | 24.52 | 14.47 | 0.49 |
| 1725 | 18.13 | 35.05 | 15.06 | 19.26 | 3.44 | 0.99 | 24.88 | 14.79 | 0.42 |
| 1750 | 18.03 | 35.15 | 14.93 | 20.97 | 3.52 | 1.00 | 24.45 | 14.45 | 0.48 |
| 1800 | 17.83 | 35.00 | 14.64 | 25.77 | 3.55 | 1.01 | 24.31 | 14.48 | 0.48 |
| 1850 | 17.62 | 35.07 | 14.41 | 33.54 | 3.66 | 1.02 | 24.38 | 14.45 | 0.51 |
| 1900 | 17.38 | 34.93 | 14.24 | 28.88 | 3.68 | 1.02 | 24.18 | 14.34 | 0.57 |
| 1925 | 17.27 | 34.91 | 14.12 | 25.49 | 3.71 | 1.02 | 24.16 | 14.34 | 0.56 |
| 1950 | 17.15 | 35.03 | 14.04 | 22.96 | 3.79 | 1.02 | 24.31 | 14.40 | 0.56 |
| 1975 | 17.02 | 34.94 | 13.91 | 21.06 | 3.79 | 1.02 | 24.00 | 14.15 | 0.62 |
| 2000 | 16.88 | 35.12 | 13.83 | 19.35 | 3.91 | 1.02 | 24.09 | 14.17 | 0.63 |
| 2025 | 16.72 | 35.17 | 13.76 | 18.01 | 3.98 | 1.02 | 23.94 | 14.23 | 0.61 |
| 2050 | 16.57 | 35.11 | 13.65 | 16.86 | 3.99 | 1.01 | 23.85 | 14.08 | 0.61 |
| 2075 | 16.41 | 35.18 | 13.53 | 15.85 | 4.07 | 1.01 | 23.59 | 13.85 | 0.64 |
| 2100 | 16.24 | 35.32 | 13.40 | 14.98 | 4.18 | 1.01 | 23.75 | 13.94 | 0.69 |
| 2125 | 16.08 | 35.30 | 13.27 | 14.28 | 4.21 | 1.00 | 23.54 | 13.75 | 0.67 |
| 2175 | 15.80 | 35.41 | 13.00 | 13.33 | 4.34 | 1.00 | 23.03 | 13.39 | 0.64 |
| 2200 | 15.73 | 35.35 | 12.90 | 13.07 | 4.33 | 1.00 | 23.54 | 13.75 | 0.72 |
| 2225 | 15.69 | 35.43 | 12.81 | 12.88 | 4.37 | 1.00 | 22.51 | 13.06 | 0.69 |
| 2250 | 15.68 | 35.18 | 12.77 | 12.68 | 4.24 | 0.99 | 23.11 | 13.37 | 0.66 |
| 2275 | 15.67 | 35.15 | 12.76 | 12.38 | 4.21 | 0.99 | 22.71 | 13.19 | 0.72 |
| 2300 | 15.66 | 35.07 | 12.73 | 11.99 | 4.15 | 0.99 | 22.73 | 13.10 | 0.68 |
| 2325 | 15.60 | 35.14 | 12.72 | 11.55 | 4.17 | 0.98 | 22.37 | 12.85 | 0.66 |
| 2350 | 15.54 | 35.22 | 12.68 | 11.08 | 4.20 | 0.97 | 22.99 | 13.15 | 0.72 |
| 2375 | 15.46 | 35.16 | 12.68 | 10.61 | 4.16 | 0.96 | 22.31 | 12.83 | 0.68 |
| 2450 | 15.14 | 35.41 | 12.58 | 9.27 | 4.27 | 0.94 | 22.31 | 12.59 | 0.76 |
| 2475 | 15.00 | 35.69 | 12.60 | 8.91 | 4.43 | 0.93 | 21.97 | 12.44 | 0.69 |
| 2500 | 14.88 | 35.82 | 12.53 | 8.50 | 4.48 | 0.91 | 22.19 | 12.35 | 0.75 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.3V, Id = 46.43 mA @ Temperature = -45degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 19.53 | 36.77 | 22.78 | 10.03 | 3.35 | 0.88 | 27.81 | 16.97 | 0.42 |
| 1525 | 19.48 | 36.68 | 22.54 | 10.65 | 3.38 | 0.89 | 27.75 | 16.99 | 0.45 |
| 1550 | 19.43 | 36.65 | 22.29 | 11.34 | 3.43 | 0.91 | 27.17 | 16.85 | 0.43 |
| 1575 | 19.37 | 36.57 | 22.04 | 12.07 | 3.46 | 0.92 | 27.48 | 16.83 | 0.46 |
| 1600 | 19.30 | 36.46 | 21.74 | 12.84 | 3.48 | 0.93 | 27.68 | 17.14 | 0.38 |
| 1625 | 19.23 | 36.34 | 21.52 | 13.72 | 3.50 | 0.94 | 26.81 | 16.75 | 0.48 |
| 1650 | 19.16 | 36.09 | 21.11 | 14.68 | 3.45 | 0.95 | 27.27 | 17.04 | 0.49 |
| 1675 | 19.08 | 36.06 | 20.87 | 15.69 | 3.49 | 0.96 | 27.12 | 16.99 | 0.46 |
| 1700 | 19.00 | 36.10 | 20.55 | 16.86 | 3.56 | 0.97 | 26.62 | 16.69 | 0.49 |
| 1725 | 18.92 | 35.94 | 20.27 | 18.15 | 3.54 | 0.97 | 27.11 | 17.04 | 0.44 |
| 1750 | 18.82 | 36.00 | 20.01 | 19.59 | 3.61 | 0.98 | 26.51 | 16.61 | 0.45 |
| 1800 | 18.63 | 35.87 | 19.47 | 23.45 | 3.66 | 0.99 | 26.35 | 16.64 | 0.49 |
| 1850 | 18.42 | 35.92 | 19.03 | 29.21 | 3.77 | 0.99 | 26.44 | 16.65 | 0.51 |
| 1900 | 18.19 | 35.91 | 18.62 | 30.46 | 3.85 | 1.00 | 26.22 | 16.51 | 0.59 |
| 1925 | 18.08 | 35.91 | 18.41 | 27.39 | 3.89 | 1.00 | 26.26 | 16.57 | 0.53 |
| 1950 | 17.96 | 35.88 | 18.20 | 24.58 | 3.92 | 1.00 | 26.42 | 16.64 | 0.58 |
| 1975 | 17.84 | 36.06 | 18.00 | 22.43 | 4.04 | 1.00 | 26.03 | 16.39 | 0.61 |
| 2000 | 17.70 | 36.02 | 17.80 | 20.54 | 4.06 | 1.00 | 26.19 | 16.45 | 0.59 |
| 2025 | 17.55 | 35.96 | 17.62 | 19.08 | 4.09 | 0.99 | 26.01 | 16.47 | 0.63 |
| 2050 | 17.40 | 36.05 | 17.39 | 17.76 | 4.17 | 0.99 | 25.95 | 16.37 | 0.64 |
| 2075 | 17.23 | 36.12 | 17.19 | 16.69 | 4.26 | 0.99 | 25.65 | 16.14 | 0.65 |
| 2100 | 17.07 | 36.12 | 16.95 | 15.75 | 4.31 | 0.99 | 25.82 | 16.21 | 0.65 |
| 2125 | 16.91 | 36.22 | 16.73 | 15.00 | 4.41 | 0.98 | 25.63 | 16.06 | 0.62 |
| 2175 | 16.63 | 36.13 | 16.25 | 14.00 | 4.45 | 0.98 | 24.98 | 15.67 | 0.63 |
| 2200 | 16.56 | 36.23 | 16.09 | 13.73 | 4.52 | 0.98 | 25.62 | 16.03 | 0.73 |
| 2225 | 16.53 | 36.14 | 15.95 | 13.55 | 4.48 | 0.98 | 24.35 | 15.29 | 0.66 |
| 2250 | 16.52 | 35.79 | 15.88 | 13.35 | 4.30 | 0.97 | 25.03 | 15.69 | 0.61 |
| 2275 | 16.52 | 35.81 | 15.83 | 13.06 | 4.29 | 0.97 | 24.56 | 15.46 | 0.72 |
| 2300 | 16.50 | 35.91 | 15.73 | 12.65 | 4.32 | 0.97 | 24.54 | 15.40 | 0.63 |
| 2325 | 16.45 | 35.88 | 15.70 | 12.19 | 4.30 | 0.96 | 24.17 | 15.17 | 0.64 |
| 2350 | 16.40 | 35.77 | 15.59 | 11.69 | 4.23 | 0.96 | 24.88 | 15.55 | 0.68 |
| 2375 | 16.32 | 35.95 | 15.54 | 11.19 | 4.31 | 0.95 | 24.12 | 15.19 | 0.73 |
| 2450 | 16.01 | 36.06 | 15.27 | 9.77 | 4.36 | 0.92 | 24.13 | 15.07 | 0.84 |
| 2475 | 15.87 | 36.17 | 15.28 | 9.39 | 4.44 | 0.91 | 23.79 | 14.83 | 0.72 |
| 2500 | 15.75 | 36.51 | 15.14 | 8.99 | 4.61 | 0.90 | 24.01 | 14.90 | 0.69 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3V, Id = 40.58 mA @ Temperature = +85degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.41 | 36.75 | 16.38 | 10.74 | 3.79 | 0.91 | 26.97 | 16.17 | 0.77 |
| 1525 | 18.35 | 36.69 | 16.15 | 11.46 | 3.83 | 0.93 | 26.91 | 16.19 | 0.81 |
| 1550 | 18.29 | 36.67 | 15.96 | 12.26 | 3.89 | 0.94 | 26.41 | 16.08 | 0.79 |
| 1575 | 18.22 | 36.43 | 15.78 | 13.09 | 3.85 | 0.95 | 26.47 | 15.99 | 0.81 |
| 1600 | 18.14 | 36.38 | 15.59 | 13.98 | 3.90 | 0.97 | 26.87 | 16.36 | 0.78 |
| 1625 | 18.06 | 36.28 | 15.45 | 14.96 | 3.91 | 0.98 | 25.90 | 15.94 | 0.79 |
| 1650 | 17.98 | 36.26 | 15.24 | 16.05 | 3.96 | 0.98 | 26.36 | 16.21 | 0.89 |
| 1675 | 17.89 | 36.31 | 15.10 | 17.20 | 4.04 | 0.99 | 26.27 | 16.14 | 0.87 |
| 1700 | 17.80 | 36.19 | 14.93 | 18.56 | 4.04 | 1.00 | 25.78 | 15.89 | 0.90 |
| 1725 | 17.71 | 36.22 | 14.76 | 20.03 | 4.10 | 1.01 | 26.23 | 16.21 | 0.84 |
| 1750 | 17.61 | 36.15 | 14.63 | 21.72 | 4.12 | 1.01 | 25.65 | 15.79 | 0.89 |
| 1800 | 17.40 | 36.07 | 14.36 | 25.93 | 4.18 | 1.02 | 25.56 | 15.85 | 0.96 |
| 1850 | 17.18 | 36.23 | 14.09 | 29.20 | 4.36 | 1.03 | 25.58 | 15.78 | 0.95 |
| 1900 | 16.94 | 36.15 | 13.88 | 25.99 | 4.41 | 1.03 | 25.31 | 15.60 | 1.04 |
| 1925 | 16.82 | 36.26 | 13.75 | 23.93 | 4.51 | 1.03 | 25.34 | 15.65 | 1.03 |
| 1950 | 16.70 | 36.35 | 13.65 | 22.12 | 4.60 | 1.03 | 25.56 | 15.77 | 1.06 |
| 1975 | 16.57 | 36.24 | 13.52 | 20.56 | 4.59 | 1.03 | 25.10 | 15.46 | 1.09 |
| 2000 | 16.43 | 36.21 | 13.41 | 19.13 | 4.63 | 1.03 | 25.19 | 15.48 | 1.13 |
| 2025 | 16.28 | 36.17 | 13.30 | 18.02 | 4.66 | 1.03 | 25.10 | 15.52 | 1.15 |
| 2050 | 16.13 | 36.28 | 13.18 | 16.98 | 4.77 | 1.02 | 24.97 | 15.39 | 1.15 |
| 2075 | 15.98 | 36.45 | 13.06 | 16.10 | 4.91 | 1.02 | 24.65 | 15.14 | 1.15 |
| 2100 | 15.83 | 36.50 | 12.91 | 15.38 | 4.99 | 1.02 | 24.84 | 15.23 | 1.16 |
| 2125 | 15.69 | 36.38 | 12.81 | 14.77 | 4.97 | 1.02 | 24.64 | 15.08 | 1.18 |
| 2175 | 15.46 | 36.36 | 12.55 | 13.98 | 5.04 | 1.01 | 23.97 | 14.67 | 1.20 |
| 2200 | 15.40 | 36.32 | 12.46 | 13.69 | 5.02 | 1.01 | 24.73 | 15.12 | 1.26 |
| 2225 | 15.36 | 36.40 | 12.39 | 13.45 | 5.07 | 1.01 | 23.48 | 14.30 | 1.23 |
| 2250 | 15.34 | 36.28 | 12.34 | 13.14 | 4.99 | 1.01 | 24.16 | 14.68 | 1.21 |
| 2275 | 15.31 | 36.07 | 12.31 | 12.77 | 4.86 | 1.00 | 23.70 | 14.45 | 1.35 |
| 2300 | 15.28 | 36.09 | 12.26 | 12.31 | 4.86 | 1.00 | 23.70 | 14.40 | 1.21 |
| 2325 | 15.21 | 36.02 | 12.24 | 11.83 | 4.81 | 0.99 | 23.30 | 14.11 | 1.24 |
| 2350 | 15.14 | 35.98 | 12.20 | 11.35 | 4.78 | 0.98 | 23.96 | 14.47 | 1.29 |
| 2375 | 15.05 | 36.03 | 12.17 | 10.87 | 4.81 | 0.98 | 23.22 | 14.09 | 1.31 |
| 2450 | 14.73 | 36.20 | 12.06 | 9.53 | 4.90 | 0.95 | 23.21 | 13.94 | 1.36 |
| 2475 | 14.58 | 36.59 | 12.10 | 9.23 | 5.17 | 0.94 | 22.95 | 13.76 | 1.37 |
| 2500 | 14.48 | 36.34 | 11.98 | 8.73 | 4.98 | 0.93 | 23.02 | 13.72 | 1.39 |

## *Typical Performance Data*

**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 2.7V, Id = 35.35 mA @ Temperature = +85degC

| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.10 | 35.99 | 14.54 | 11.30 | 3.61 | 0.93 | 26.12 | 15.02 | 0.79 |
| 1525 | 18.04 | 35.86 | 14.35 | 12.07 | 3.62 | 0.95 | 26.07 | 15.04 | 0.82 |
| 1550 | 17.97 | 35.98 | 14.20 | 12.96 | 3.73 | 0.96 | 25.60 | 14.95 | 0.82 |
| 1575 | 17.90 | 35.92 | 14.07 | 13.87 | 3.76 | 0.97 | 25.66 | 14.88 | 0.87 |
| 1600 | 17.82 | 35.81 | 13.92 | 14.90 | 3.78 | 0.98 | 26.06 | 15.24 | 0.82 |
| 1625 | 17.73 | 35.60 | 13.81 | 16.01 | 3.74 | 0.99 | 25.11 | 14.86 | 0.91 |
| 1650 | 17.64 | 35.64 | 13.64 | 17.25 | 3.81 | 1.00 | 25.57 | 15.09 | 0.89 |
| 1675 | 17.55 | 35.59 | 13.53 | 18.62 | 3.84 | 1.01 | 25.44 | 15.03 | 0.91 |
| 1700 | 17.45 | 35.78 | 13.41 | 20.24 | 3.97 | 1.02 | 25.02 | 14.81 | 0.93 |
| 1725 | 17.36 | 35.44 | 13.29 | 22.15 | 3.87 | 1.02 | 25.44 | 15.13 | 0.89 |
| 1750 | 17.25 | 35.57 | 13.18 | 24.39 | 3.98 | 1.03 | 24.86 | 14.72 | 0.95 |
| 1800 | 17.04 | 35.54 | 12.96 | 30.11 | 4.05 | 1.04 | 24.77 | 14.79 | 0.96 |
| 1850 | 16.81 | 35.52 | 12.77 | 29.39 | 4.13 | 1.04 | 24.81 | 14.71 | 0.98 |
| 1900 | 16.56 | 35.47 | 12.60 | 23.96 | 4.19 | 1.04 | 24.48 | 14.55 | 1.09 |
| 1925 | 16.44 | 35.47 | 12.51 | 21.98 | 4.23 | 1.04 | 24.51 | 14.59 | 1.06 |
| 1950 | 16.31 | 35.58 | 12.42 | 20.35 | 4.33 | 1.04 | 24.69 | 14.69 | 1.10 |
| 1975 | 16.18 | 35.34 | 12.31 | 18.99 | 4.25 | 1.04 | 24.26 | 14.41 | 1.14 |
| 2000 | 16.03 | 35.66 | 12.24 | 17.74 | 4.45 | 1.04 | 24.31 | 14.44 | 1.17 |
| 2025 | 15.88 | 35.55 | 12.17 | 16.73 | 4.45 | 1.03 | 24.20 | 14.47 | 1.15 |
| 2050 | 15.73 | 35.73 | 12.06 | 15.79 | 4.58 | 1.03 | 24.09 | 14.34 | 1.15 |
| 2075 | 15.57 | 35.83 | 11.97 | 15.02 | 4.68 | 1.03 | 23.78 | 14.10 | 1.17 |
| 2100 | 15.42 | 35.79 | 11.85 | 14.36 | 4.70 | 1.03 | 23.94 | 14.17 | 1.22 |
| 2125 | 15.28 | 35.82 | 11.76 | 13.81 | 4.76 | 1.02 | 23.74 | 14.02 | 1.22 |
| 2175 | 15.05 | 35.90 | 11.55 | 13.04 | 4.87 | 1.02 | 23.11 | 13.61 | 1.21 |
| 2200 | 14.98 | 35.83 | 11.48 | 12.78 | 4.85 | 1.02 | 23.81 | 14.03 | 1.35 |
| 2225 | 14.94 | 35.86 | 11.43 | 12.54 | 4.86 | 1.01 | 22.65 | 13.25 | 1.27 |
| 2250 | 14.91 | 35.64 | 11.39 | 12.23 | 4.74 | 1.01 | 23.32 | 13.62 | 1.23 |
| 2275 | 14.88 | 35.56 | 11.38 | 11.88 | 4.68 | 1.01 | 22.87 | 13.37 | 1.38 |
| 2300 | 14.83 | 35.67 | 11.34 | 11.48 | 4.72 | 1.00 | 22.84 | 13.34 | 1.31 |
| 2325 | 14.76 | 35.46 | 11.34 | 11.04 | 4.61 | 0.99 | 22.45 | 13.03 | 1.26 |
| 2350 | 14.69 | 35.74 | 11.32 | 10.61 | 4.75 | 0.99 | 23.04 | 13.36 | 1.32 |
| 2375 | 14.60 | 35.57 | 11.29 | 10.15 | 4.65 | 0.98 | 22.35 | 13.01 | 1.34 |
| 2450 | 14.25 | 35.80 | 11.23 | 8.92 | 4.77 | 0.95 | 22.29 | 12.79 | 1.42 |
| 2475 | 14.09 | 36.17 | 11.28 | 8.65 | 5.02 | 0.94 | 22.05 | 12.63 | 1.44 |
| 2500 | 13.99 | 36.08 | 11.18 | 8.19 | 4.92 | 0.92 | 22.10 | 12.60 | 1.45 |

## *Typical Performance Data*

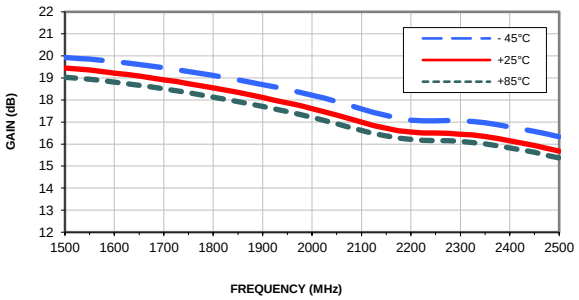
**Definitions:**
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 3.3V, Id = 45.53 mA @ Temperature = +85degC

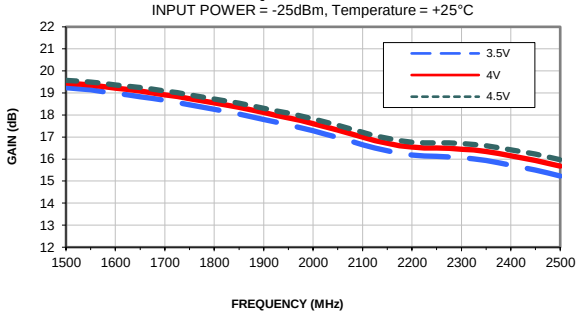
| FREQ | Gain | Isolation | Input Return Loss | Output Return Loss | Stability | | IP-3 Output | 1dB Comp. Output | Noise Figure |
|---|---|---|---|---|---|---|---|---|---|
| (MHz) | (dB) | (dB) | (dB) | (dB) | K | Measure | (dBm) | (dBm) | (dB) |
| 1500 | 18.63 | 37.39 | 18.16 | 10.39 | 3.97 | 0.90 | 27.98 | 17.11 | 0.75 |
| 1525 | 18.59 | 37.56 | 17.86 | 11.07 | 4.11 | 0.92 | 27.92 | 17.11 | 0.82 |
| 1550 | 18.52 | 37.30 | 17.65 | 11.82 | 4.07 | 0.93 | 27.38 | 17.01 | 0.80 |
| 1575 | 18.46 | 37.27 | 17.43 | 12.59 | 4.13 | 0.94 | 27.51 | 16.88 | 0.82 |
| 1600 | 18.39 | 37.18 | 17.19 | 13.42 | 4.15 | 0.95 | 27.93 | 17.30 | 0.76 |
| 1625 | 18.31 | 36.94 | 17.01 | 14.33 | 4.11 | 0.96 | 26.87 | 16.85 | 0.84 |
| 1650 | 18.23 | 36.96 | 16.74 | 15.30 | 4.18 | 0.97 | 27.42 | 17.10 | 0.87 |
| 1675 | 18.15 | 36.87 | 16.56 | 16.35 | 4.20 | 0.98 | 27.27 | 17.03 | 0.89 |
| 1700 | 18.06 | 36.71 | 16.34 | 17.54 | 4.18 | 0.99 | 26.77 | 16.78 | 0.89 |
| 1725 | 17.97 | 36.78 | 16.17 | 18.84 | 4.26 | 1.00 | 27.27 | 17.09 | 0.96 |
| 1750 | 17.87 | 36.74 | 15.99 | 20.28 | 4.30 | 1.00 | 26.66 | 16.64 | 0.88 |
| 1800 | 17.67 | 36.84 | 15.62 | 23.74 | 4.46 | 1.01 | 26.55 | 16.71 | 0.92 |
| 1850 | 17.46 | 36.76 | 15.31 | 27.21 | 4.52 | 1.02 | 26.62 | 16.65 | 0.94 |
| 1900 | 17.22 | 36.77 | 15.05 | 26.59 | 4.63 | 1.02 | 26.35 | 16.45 | 1.01 |
| 1925 | 17.11 | 36.62 | 14.89 | 24.90 | 4.60 | 1.02 | 26.41 | 16.49 | 1.02 |
| 1950 | 16.98 | 36.65 | 14.75 | 23.09 | 4.67 | 1.02 | 26.61 | 16.63 | 1.05 |
| 1975 | 16.86 | 36.78 | 14.59 | 21.58 | 4.78 | 1.02 | 26.14 | 16.31 | 1.09 |
| 2000 | 16.72 | 36.71 | 14.45 | 20.06 | 4.80 | 1.02 | 26.22 | 16.34 | 1.14 |
| 2025 | 16.57 | 36.72 | 14.33 | 18.89 | 4.87 | 1.02 | 26.11 | 16.40 | 1.11 |
| 2050 | 16.42 | 36.92 | 14.19 | 17.77 | 5.04 | 1.02 | 26.04 | 16.29 | 1.13 |
| 2075 | 16.27 | 36.91 | 14.03 | 16.86 | 5.08 | 1.01 | 25.71 | 16.01 | 1.15 |
| 2100 | 16.12 | 36.80 | 13.87 | 16.08 | 5.07 | 1.01 | 25.90 | 16.14 | 1.16 |
| 2125 | 15.98 | 36.97 | 13.72 | 15.46 | 5.23 | 1.01 | 25.69 | 15.98 | 1.18 |
| 2175 | 15.77 | 36.87 | 13.43 | 14.64 | 5.25 | 1.01 | 24.96 | 15.54 | 1.13 |
| 2200 | 15.71 | 36.67 | 13.32 | 14.34 | 5.14 | 1.01 | 25.81 | 16.03 | 1.28 |
| 2225 | 15.67 | 36.85 | 13.22 | 14.10 | 5.25 | 1.01 | 24.43 | 15.17 | 1.21 |
| 2250 | 15.65 | 36.71 | 13.16 | 13.77 | 5.15 | 1.00 | 25.20 | 15.60 | 1.17 |
| 2275 | 15.63 | 36.61 | 13.11 | 13.38 | 5.09 | 1.00 | 24.69 | 15.34 | 1.31 |
| 2300 | 15.60 | 36.53 | 13.03 | 12.89 | 5.02 | 1.00 | 24.69 | 15.27 | 1.24 |
| 2325 | 15.53 | 36.51 | 13.00 | 12.39 | 5.01 | 0.99 | 24.27 | 15.00 | 1.25 |
| 2350 | 15.47 | 36.58 | 12.94 | 11.87 | 5.03 | 0.98 | 24.99 | 15.42 | 1.27 |
| 2375 | 15.39 | 36.67 | 12.90 | 11.34 | 5.08 | 0.98 | 24.23 | 14.98 | 1.28 |
| 2450 | 15.07 | 36.79 | 12.75 | 9.94 | 5.16 | 0.95 | 24.23 | 14.87 | 1.36 |
| 2475 | 14.92 | 36.89 | 12.81 | 9.60 | 5.27 | 0.94 | 23.93 | 14.71 | 1.38 |
| 2500 | 14.83 | 36.83 | 12.64 | 9.10 | 5.19 | 0.93 | 24.02 | 14.66 | 1.38 |

## *Typical Performance Curves*

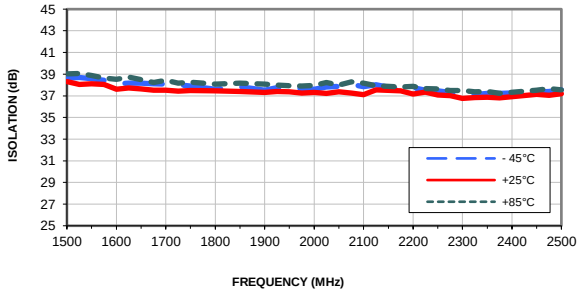
**GAIN vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 4V



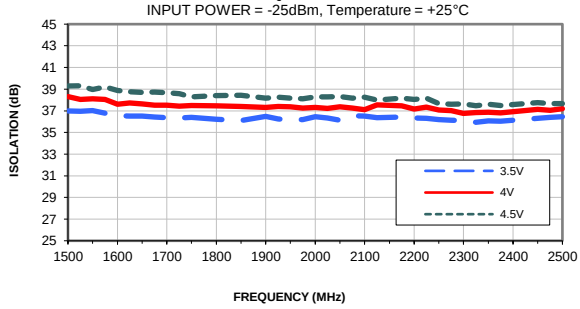

**GAIN vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C



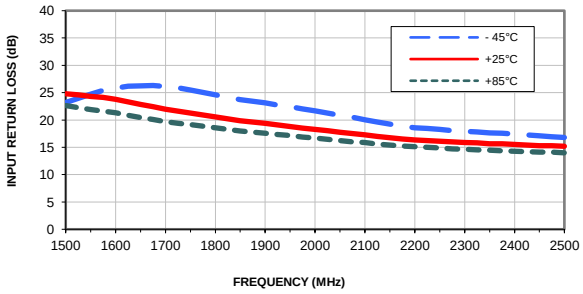

**ISOLATION vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 4V



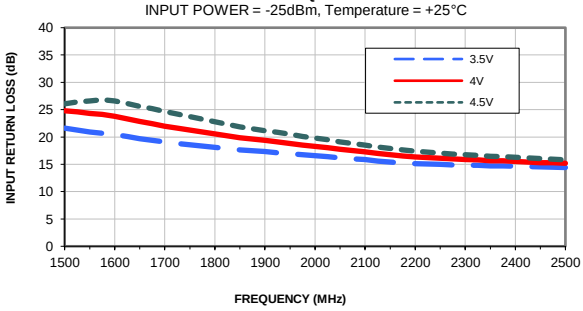

**ISOLATION vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C



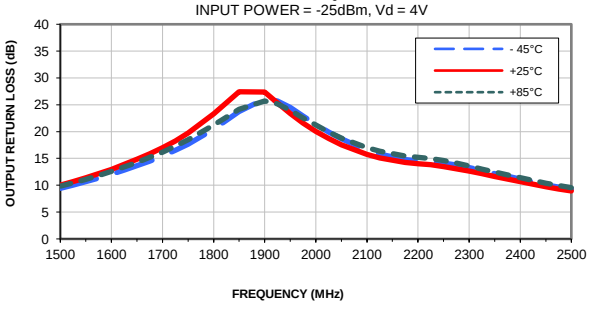

**INPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 4V



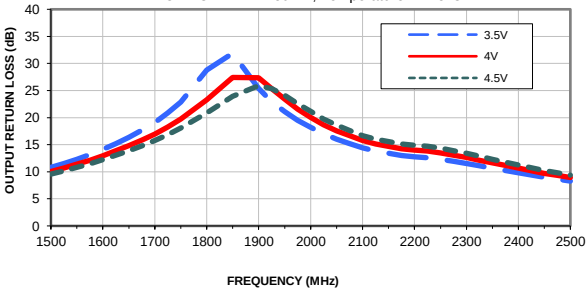

**INPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C




**OUTPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 4V

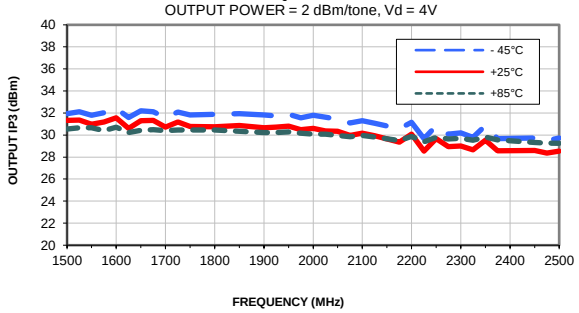



**OUTPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C

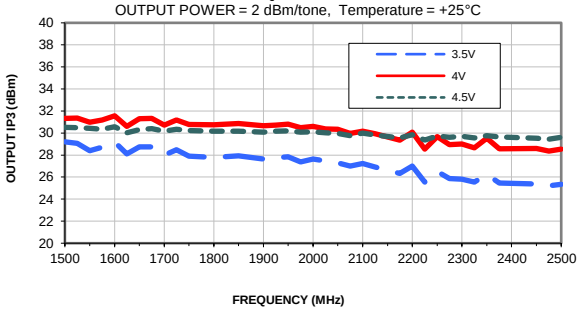


## *Typical Performance Curves*

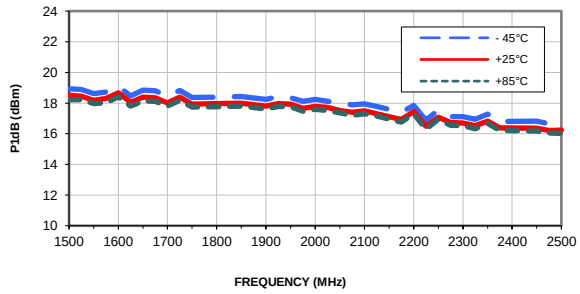
**OUTPUT IP3 vs. FREQUENCY & TEMPERATURE**
OUTPUT POWER = 2 dBm/tone, Vd = 4V



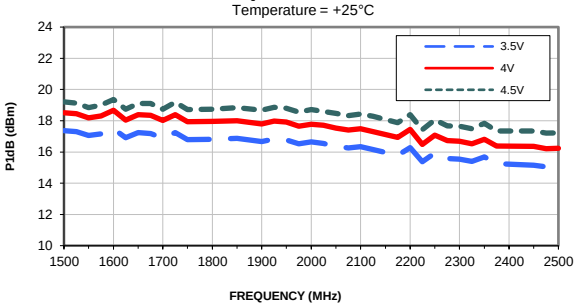

**OUTPUT IP3 vs. FREQUENCY & DEVICE VOLTAGE**
OUTPUT POWER = 2 dBm/tone, Temperature = +25°C



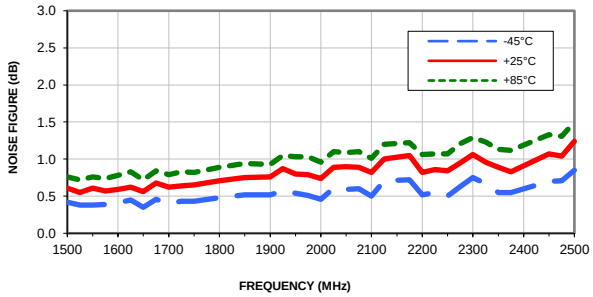

**P1dB vs. FREQUENCY & TEMPERATURE**
Vd = 4V



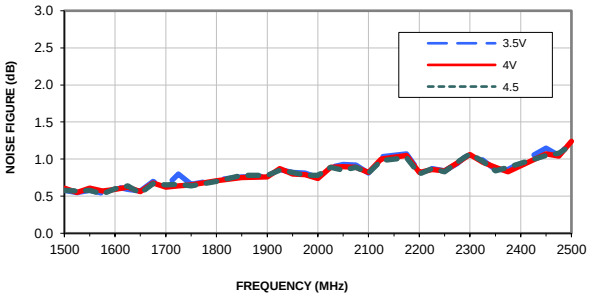

**P1dB vs. FREQUENCY & DEVICE VOLTAGE**
Temperature = +25°C



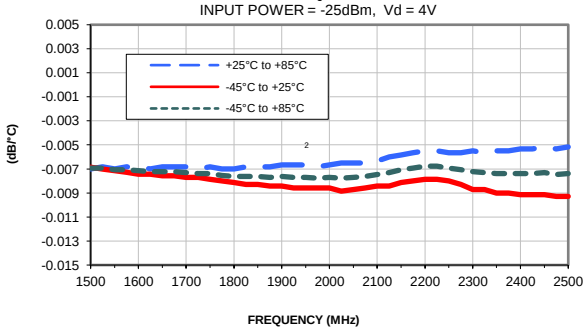

**NOISE FIGURE vs. FREQUENCY & TEMPERATURE**
Vd = 4V




**NOISE FIGURE vs. FREQUENCY & DEVICE VOLTAGE**
Temperature = +25°C

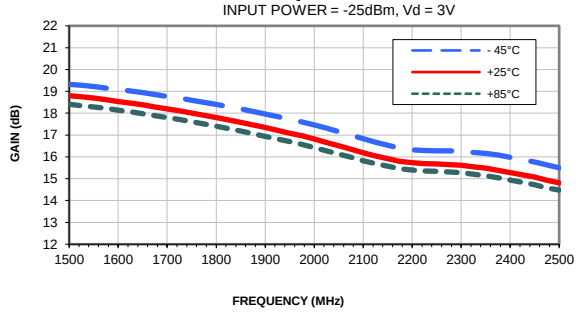



**GAIN VARIATION vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 4V

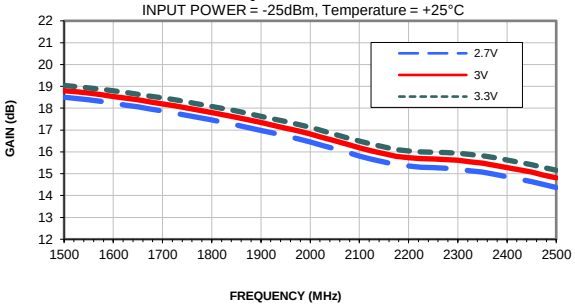


## *Typical Performance Curves*

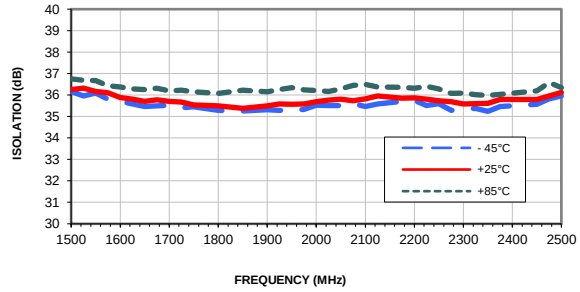
**GAIN vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 3V



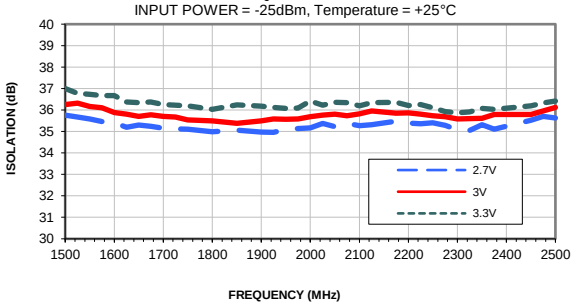

**GAIN vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C



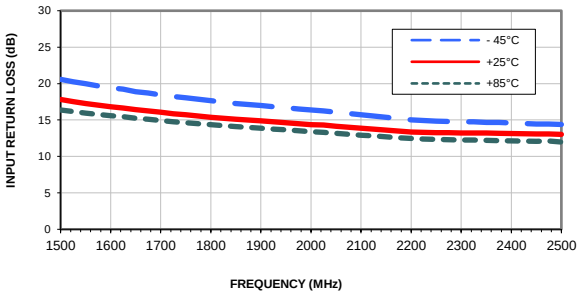

**ISOLATION vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 3V



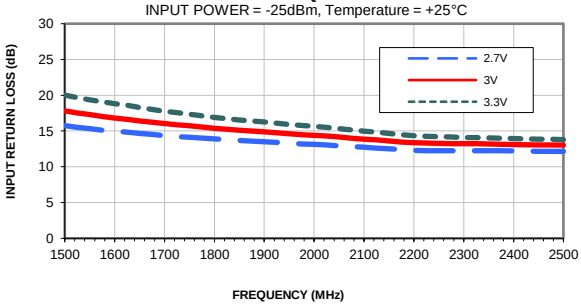

**ISOLATION vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C



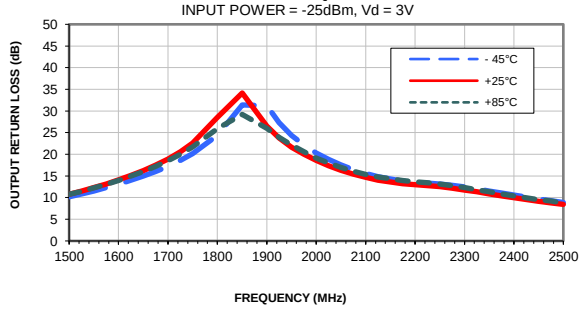

**INPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 3V



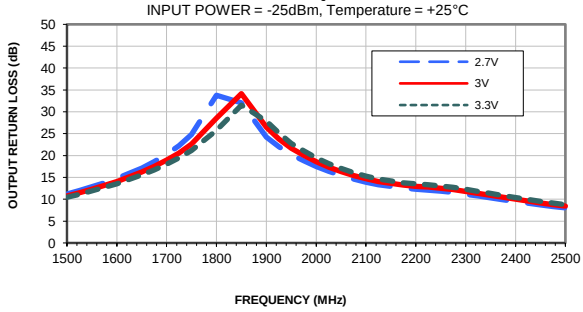

**INPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C




**OUTPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 3V

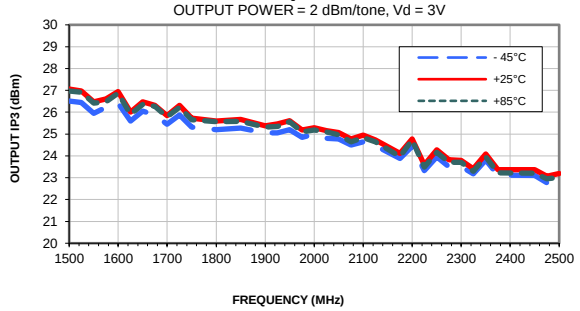



**OUTPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE**
INPUT POWER = -25dBm, Temperature = +25°C

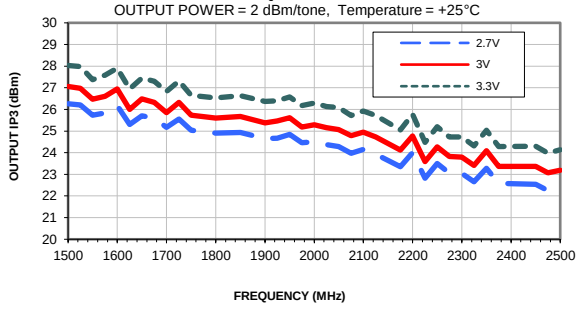


## Typical Performance Curves

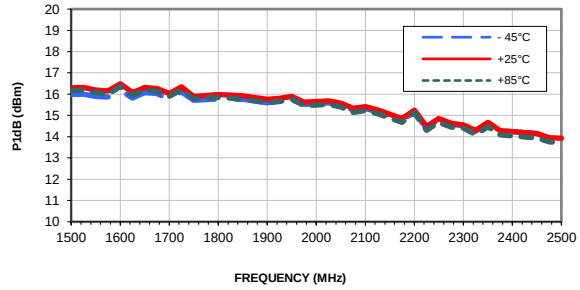
**OUTPUT IP3 vs. FREQUENCY & TEMPERATURE**
OUTPUT POWER = 2 dBm/tone, Vd = 3V



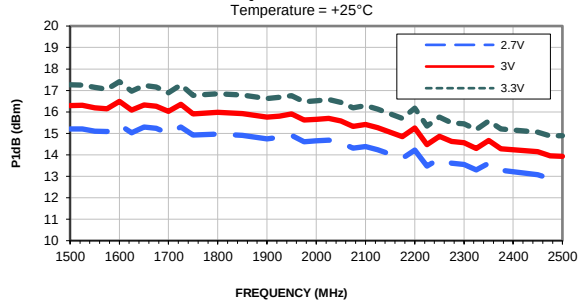

**OUTPUT IP3 vs. FREQUENCY & DEVICE VOLTAGE**
OUTPUT POWER = 2 dBm/tone, Temperature = +25°C



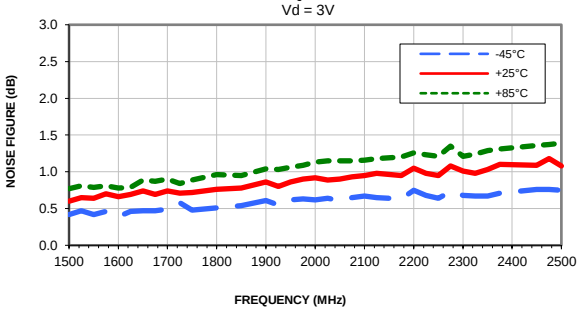

**P1dB vs. FREQUENCY & TEMPERATURE**
Vd = 3V



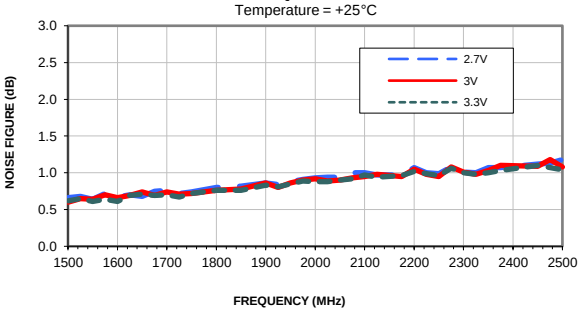

**P1dB vs. FREQUENCY & DEVICE VOLTAGE**
Temperature = +25°C



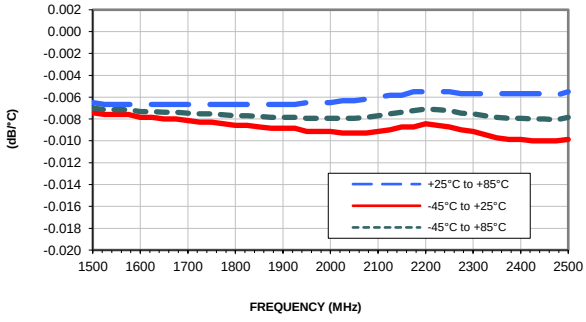

**NOISE FIGURE vs. FREQUENCY & TEMPERATURE**
Vd = 3V




**NOISE FIGURE vs. FREQUENCY & DEVICE VOLTAGE**
Temperature = +25°C




**GAIN VARIATION vs. FREQUENCY & TEMPERATURE**
INPUT POWER = -25dBm, Vd = 3V

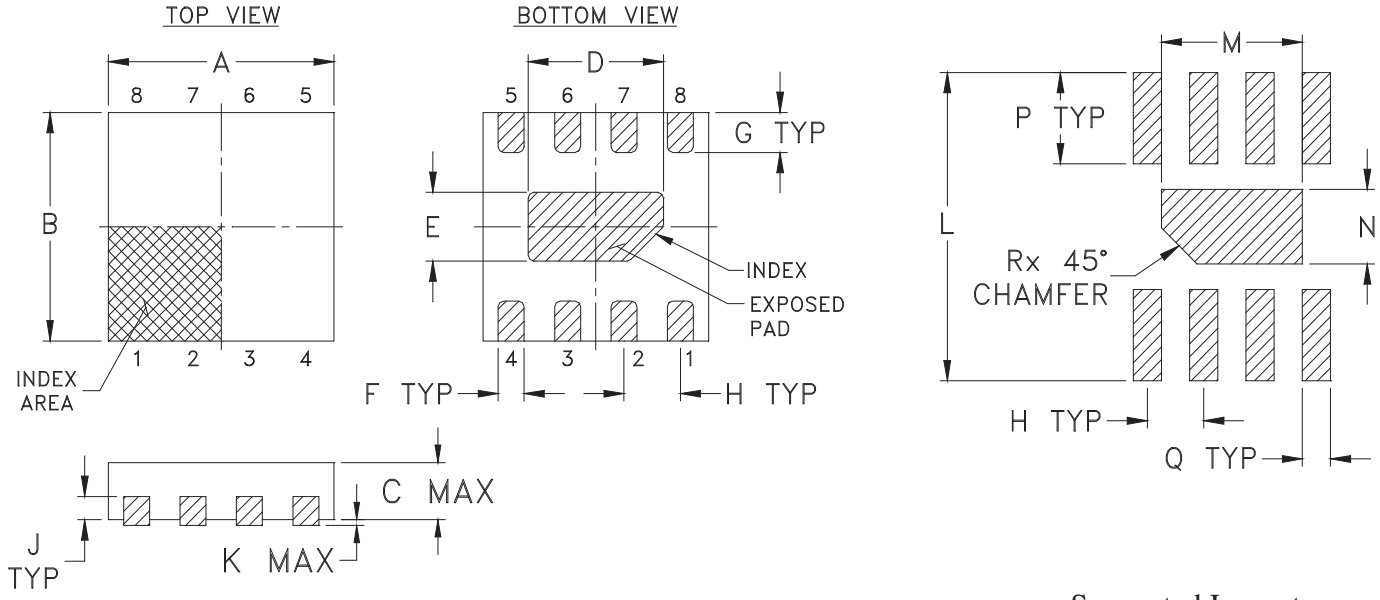


# Case Style MC

**MC1631**

## Outline Dimensions

**PCB Land Pattern**




Suggested Layout,
Tolerance to be within ±.002

| CASE #. | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MC1631 | .079 (2.00) | .079 (2.00) | .022 (.55) | .047 (1.20) | .024 (.60) | .009 (.23) | .014 (.35) | .020 (.50) | .008 (.20) | .002 (.05) | .106 (2.70) | .049 (1.25) | .026 (.65) | .031 (.80) |

| CASE #. | Q | R | WT, GRAM |
|---|---|---|---|
| MC1631 | .010 (.25) | .012 (.30) | .006 |

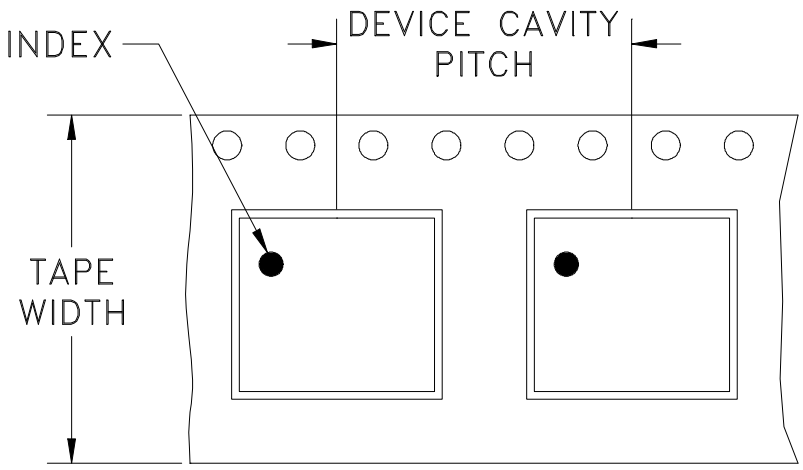
**Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005**

**Notes:**

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Matte-Tin plate. All models, (+) suffix.
3. Lead #1 identifier shall be located in the cross-hatched area shown.
   Identifier may be either a molded or marked feature.

# Tape & Reel Packaging TR-F108

DEVICE ORIENTATION IN T&R




DIRECTION OF FEED

| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel | |
|---|---|---|---|---|
| 12 | 4 | 7 | Small quantity standards | 20 |
| | | | | 50 |
| | | | | 100 |
| | | | | 200 |
| | | | | 500 |
| | | | | 1000 |
| | | 7 | Standard | 2000 |
| | | | | 3000 |

Note: Please Consult individual data sheet to determine device per reel availability

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

Mini-Circuits®
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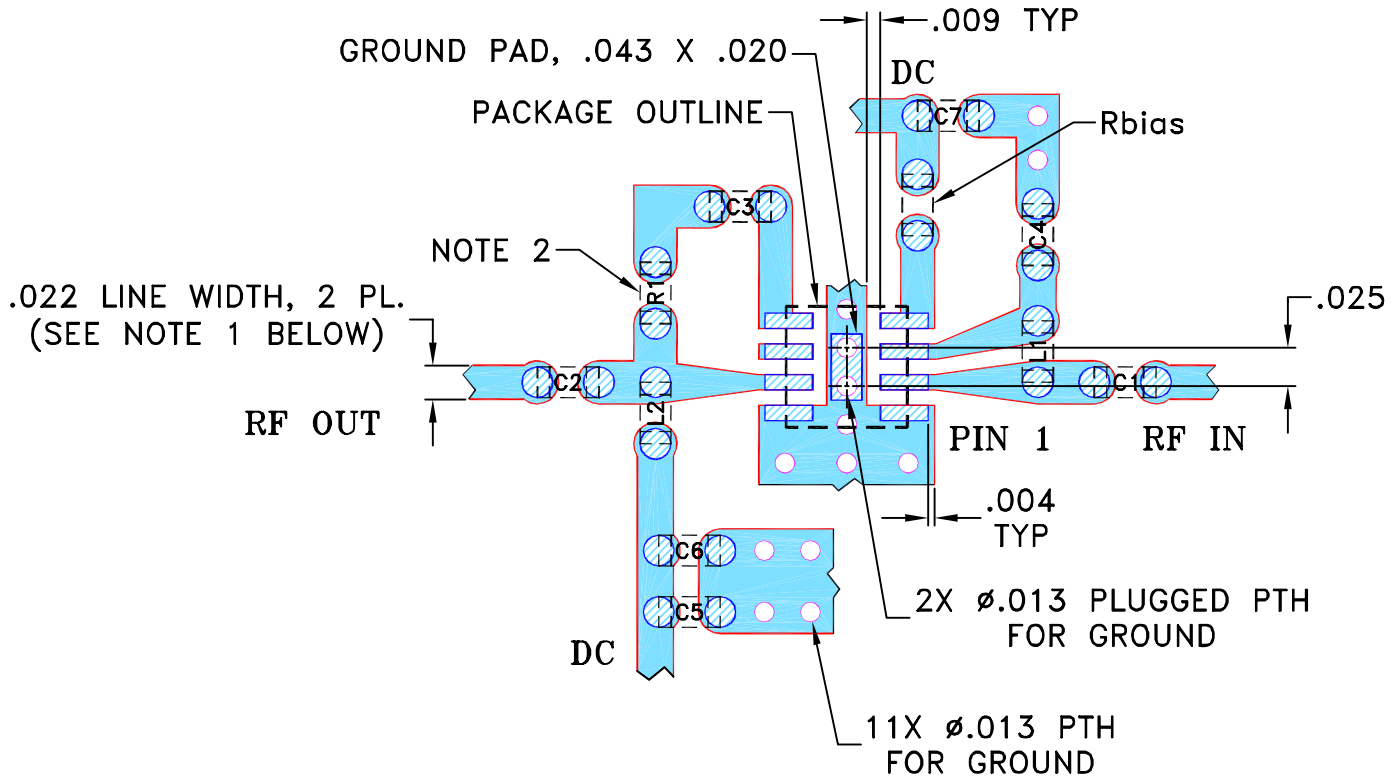
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

THIRD ANGLE PROJECTION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| OR | M135045 | NEW RELEASE | 12/30/11 | AV | DJ |
| | | | | | |
| | | | | | |
| | | | | | |

## SUGGESTED MOUNTING CONFIGURATION FOR MC1631 CASE STYLE, "08AM07" PIN CODE




NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .001"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. 0402 SIZE CHIP FOOT PRINTS SHOWN FOR REFERENCE, FOR COMPONENT VALUE REFER TO TB-642+.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

| UNLESS OTHERWISE SPECIFIED | | INITIALS | DATE |
|---|---|---|---|
| DIMENSIONS ARE IN INCHES | DRAWN | AV | 12/28/11 |
| TOLERANCES ON: | CHECKED | IL | 12/30/11 |
| 2 PL DECIMALS ± | APPROVED | DJ | 12/30/11 |
| 3 PL DECIMALS ± .005 | | | |
| ANGLES ± | | | |
| FRACTIONS ± | | | |



ASHEETA1.DWG REV:A DATE:01/12/95

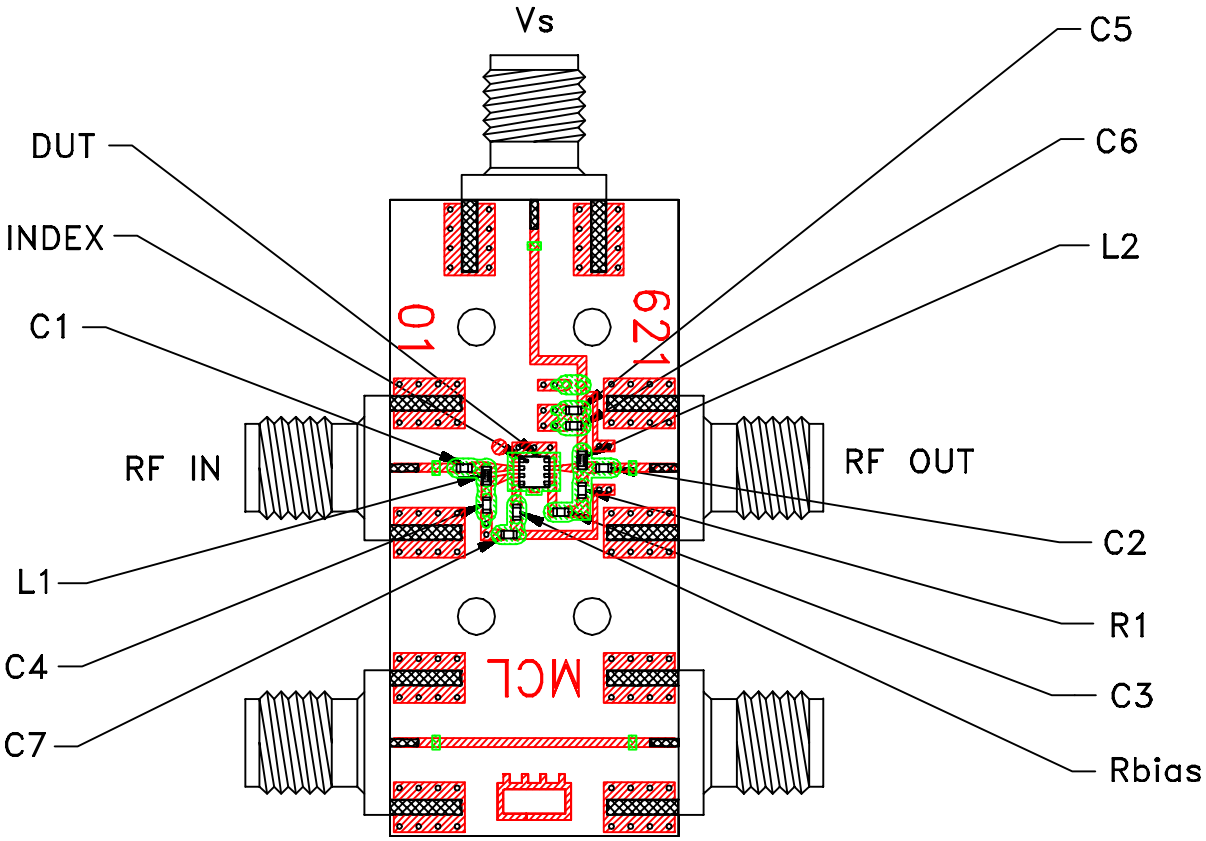
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

# PL, 08AM07, MC1631, TB-642+

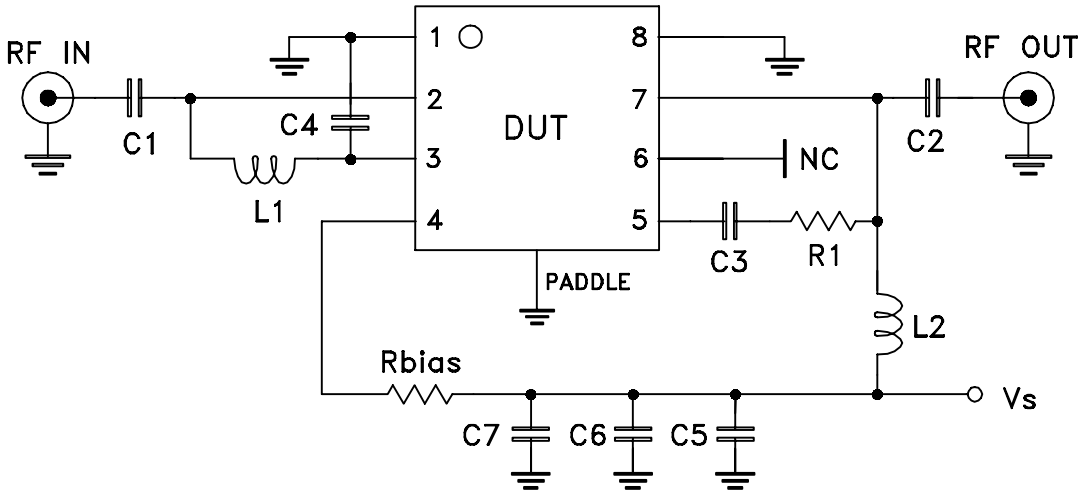
| SIZE | CODE IDENT | DRAWING NO: | REV: |
|---|---|---|---|
| A | 15542 | 98-PL-360 | OR |

| FILE: | SCALE: | SHEET: |
|---|---|---|
| 98PL360 | 8:1 | 1 OF 1 |

# Evaluation Board and Circuit




TB-642+




Schematic Diagram

| ITEM | DESCRIPTION |
|---|---|
| C1 | CAP, 27pF |
| C2 | CAP, 2.7pF |
| C3 | CAP, 1.2pF |
| C4 | CAP, 220pF |
| C5 | CAP, 7pF |
| C6, C7 | CAP, 0.1uF |
| R1 | RES, 825 Ohm |
| Rbias | RES, 619 Ohm |
| L1 | IND, 6.8nH |
| L2 | IND, 2.2nH |
| DUT | PMA2-252LN+ |

NOTES:

1. SMA Female connectors.
2. PCB material: Rogers RO4350 or equivalent, dielectric constant=3.5, dielectric thickness=.010 inch.

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**Environmental Specifications** **ENV08T1**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|---|---|---|
| Operating Temperature | -40° to 85° C or -45° to 85° C or -55° to 105° C or -40° to 105° C or -40° to 95° C<br>Ambient Environment | Individual Model Data Sheet |
| Storage Temperature | -55° to 100° C or -65° to 150°<br>Ambient Environment | Individual Model Data Sheet |
| HTOL | 1000 hours at 125°C | MIL-STD-883, Method 1005, Condition B |
| Thermal Shock | -55° to 100°C, 100 cycles | MIL-STD-202, Method 107, Condition A-3, except +100°C |
| Mechanical Shock | 1.5Kg, 0.5 ms, 5 shock pulses, Y1 direction only | MIL-STD-883, Method 2002, Condition B, except Y1 direction only |
| Vibration (Variable Frequency) | 50g peak | MIL-STD-883, Method 2007, Condition B |
| Autoclave | 15 psig, 100% RH, 121°C, 96 hours | JESD22-A102, Condition C |
| HAST | 130°C, 85% RH, 96 hours | JESD22-A110 |
| Solderability | 10X Magnification | J-STD-002, Para 4.2.5, Test S, 95% Coverage |
| Solder Reflow Heat | Sn-Pb Eutetic Process: 240°C peak<br>Pb-Free Process: 260°C peak | J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1 |
| Moisture Sensitivity: Level 1 | Bake at 125°C for 24 hours<br>Soak at 85°C/85% RH for 168 hours, Reflow 3 cycles at 260°C peak | J-STD-020 |

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| Specification | Test/Inspection Condition | Reference/Spec |
|---|---|---|
| Marking Resistance to Solvents | Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C;<br>distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C | MIL-STD-202, Method 215 |