MMIC SURFACE MOUNT

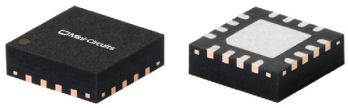
# SPDT RF Switch

# M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

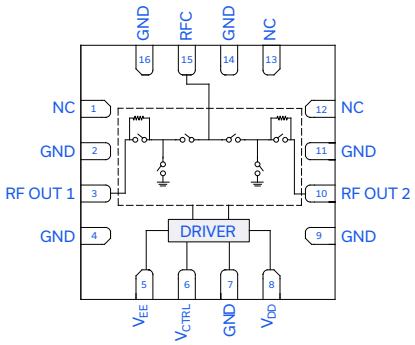
## THE BIG DEAL

- Wideband, DC to 30 GHz
- Low Insertion Loss, Typ. 1.0 dB
- High Isolation, Typ. 65 dB
- High Input IP3, Typ. +48 dBm
- Fast Rise/Fall Time, Typ. 6.9 ns/7.1 ns
- 3x3 mm, 16-Lead QFN-Style Package



*Generic photo used for illustration purposes only*

## FUNCTIONAL DIAGRAM




## APPLICATIONS

- Radar, EW and ECM Defense Systems
- Communication Infrastructure
- Test and Measurement

## PRODUCT OVERVIEW

Mini-Circuits' M3SWA2-34DR+ is a GaAs MMIC SPDT absorptive switch with an internal driver designed for wideband operation from DC to 30 GHz. This switch enables fast, nano-second switching across a wide frequency range with minimum gate lag effects. This model provides excellent isolation, high linearity and is capable of withstanding +27 dBm RF input power. It is packaged in a small 3x3 mm QFN-Style package for ease of integration in compact assemblies.

## KEY FEATURES

| Features | Advantages |
|---|---|
| Absorptive Design | Absorptive switch design enables excellent return loss on all ports, minimizing reflection at the unselected port. |
| High Isolation:<br>• 61 dB Typ. RFC to RF1/RF2<br>• 65 dB Typ. RF1 to RF2 | High isolation significantly reduces leakage of power into OFF ports. |
| High Linearity and Input Power:<br>• Input Power at P1dB, +25.2 dBm Typ.<br>• Input IP3, +48 dBm Typ.<br>• Max RF Input Power, +27 dBm CW | High linearity minimizes unwanted intermodulation products which are difficult or impossible to filter in multi-carrier environments, or in the presence of strong interfering signal from adjacent circuitry. High RF input power tolerance protects the device from damage due to unexpected spikes in signal level. |
| Fast RF Switching Time:<br>• Rise/Fall Time, Typ. 6.9 ns/7.1 ns<br>• On/Off Time, Typ. 23.3 ns/16.5 ns<br>• Settling to 0.05 dB, Typ. 29 ns | Fast switching makes this model suitable for applications where extremely fast transition between ports is required, such as automated switching networks. |
| Compact Size, 3x3 mm | Small footprint saves space in dense layouts, while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB. Industry standard packaging allows for ease of assembly in high volume manufacturing processes. |

# SPDT RF Switch

# M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

## ELECTRICAL SPECIFICATIONS[1,2,3] AT +25° C, $V_{DD}$= +3.3 V, $V_{EE}$= -3.3 V, UNLESS NOTED OTHERWISE

| Parameter | Condition (GHz) | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Frequency Range | | DC | | 30 | GHz |
| Insertion Loss | 0.01 | | 0.6 | | dB |
| | 0.1 | | 0.6 | | |
| | 1.0 | | 0.6 | | |
| | 10 | | 1.0 | | |
| | 20 | | 1.3 | | |
| | 30 | | 2.2 | | |
| Isolation Between Ports, RF1 & RF2 | 0.01 | 68 | 79 | | dB |
| | 0.1 | 74 | 78 | | |
| | 1.0 | 63 | 67 | | |
| | 10 | 59 | 65 | | |
| | 20 | 49 | 53 | | |
| | 30 | 44 | 48 | | |
| Isolation Between RFC & RF1/RF2 Ports | 0.01 | 71 | 83 | | dB |
| | 0.1 | 73 | 77 | | |
| | 1.0 | 61 | 65 | | |
| | 10 | 46 | 50 | | |
| | 20 | 41 | 48 | | |
| | 30 | 41 | 45 | | |
| Return Loss - RFC | 0.01 | 15 | 19 | | dB |
| | 0.1 | 20 | 24 | | |
| | 1.0 | 17 | 21 | | |
| | 10 | 13 | 17 | | |
| | 20 | 12 | 17 | | |
| | 30 | 13 | 20 | | |
| Return Loss - RF1 & RF2 (On & Off State) | 0.01 | 15 | 19 | | dB |
| | 0.1 | 16 | 22 | | |
| | 1.0 | 17 | 22 | | |
| | 10 | 14 | 21 | | |
| | 20 | 11 | 17 | | |
| | 30 | 7 | 14 | | |
| Input IP3 ($P_{IN}$ = +5 dBm/Tone) | 0.01 | | +46 | | dBm |
| | 0.1 | | +50 | | |
| | 1.0 | | +52 | | |
| | 10 | | +51 | | |
| | 20 | | +46 | | |
| | 30 | | +42 | | |
| Input Power at P1dB | 0.01 | | +19.8 | | dBm |
| | 0.1 | | +24.5 | | |
| | 1.0 | | +26.1 | | |
| | 10 | | +27.4 | | |
| | 20 | | +27.8 | | |
| | 30 | | +25.7 | | |
| Input Power at P0.1dB | 0.01 | | +17.7 | | dBm |
| | 0.1 | | +21.6 | | |
| | 1.0 | | +23.4 | | |
| | 10 | | +26.3 | | |
| | 20 | | +26.9 | | |
| | 30 | | +24.4 | | |

1. Tested on Mini-Circuits Characterization Test Board TB-M3SWA234DRC+. See Figure 2.
2. Bi-directional, refer to S-Parameters for actual performance.
3. All RF-ports must be DC blocked or held at 0 V DC.

# SPDT RF Switch

# M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

## DC ELECTRICAL SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Positive Supply Voltage, $V_{DD}$ | +3.3 | | +3.6 | V |
| Negative Supply Voltage, $V_{EE}$ | -3.6 | | -3.3 | V |
| Positive Supply Current, $I_{DD}$ | | 2.7 | 2.9 | mA |
| Negative Supply Current, $I_{EE}$ | | 1.6 | 1.8 | mA |
| Control Voltage Low | | 0 | +0.8 | V |
| Control Voltage High | +1.8 | +2 | +3.6 | V |
| Control Current Low | | 0.01 | 1 | µA |
| Control Current High | | 5 | 9 | µA |

## SWITCHING SPECIFICATIONS

| Parameter | Condition | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|
| ON Time, 50% Control to 90% RF output | RF $P_{IN}$ at RFC = 0 dBm<br>RF Frequency = 150 MHz<br>Control Frequency = 1 kHz<br>Control High = +2 V<br>Control Low = 0 V | | 23 | | ns |
| OFF Time, 50% Control to 10% RF output | | | 16 | | ns |
| Video Leakage | | | +5.4 | | mV |
| Rise Time, 10% to 90% of RF output | | | 6.9 | | ns |
| Fall Time, 90% to 10% of RF output | | | 7.1 | | ns |
| Settling time (50% VCTRL to 0.05 dB of final RF output) | | | 29 | | ns |

## TRUTH TABLE

| State of Control Voltage | RFC to RF1 | RFC to RF2 |
|---|---|---|
| Low | ON | OFF |
| High | OFF | ON |

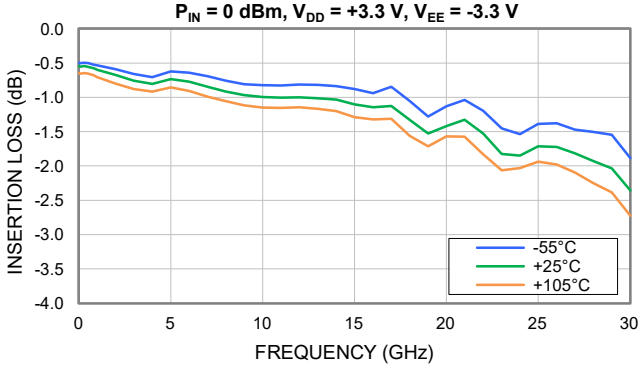
# SPDT RF Switch

# M3SWA2-34DR+

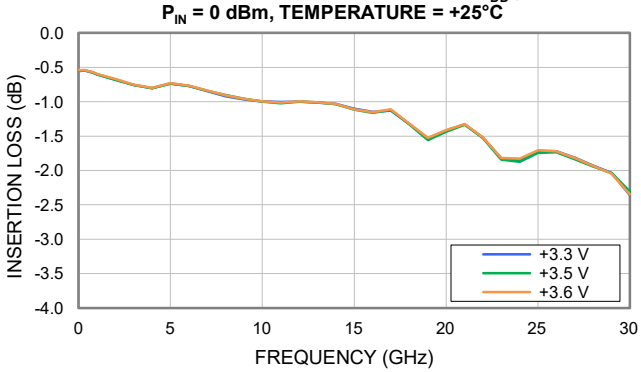
50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

## TYPICAL PERFORMANCE GRAPHS

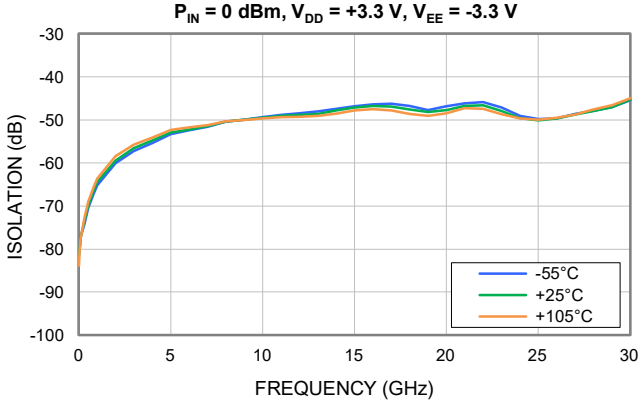
INSERTION LOSS RFC-RF OUT[4] vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



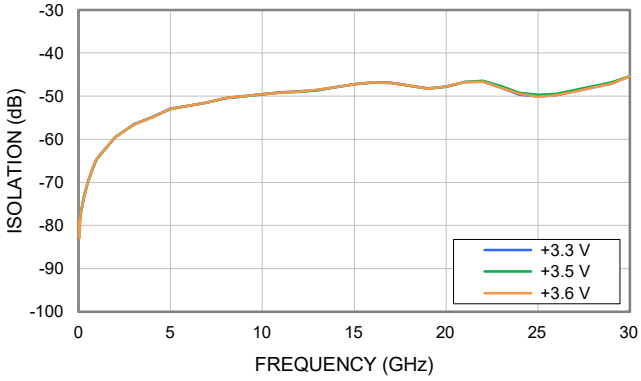

INSERTION LOSS RFC-RF OUT[4] vs. $V_{DD}$[6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



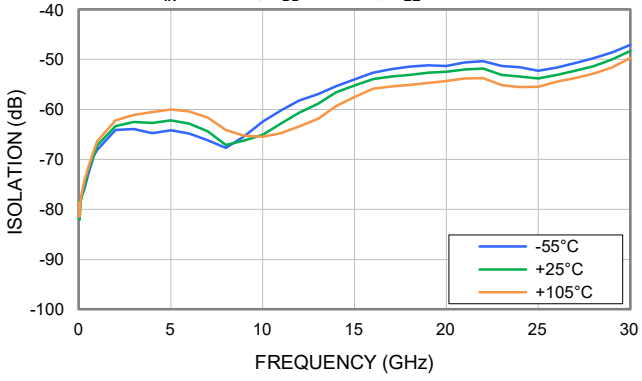

ISOLATION RFC-RF OUT[5] vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



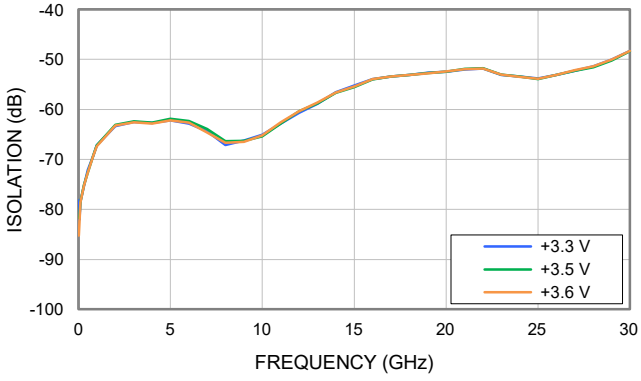

ISOLATION RFC-RF OUT[5] vs. $V_{DD}$[6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C




ISOLATION RF1 - RF2 vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



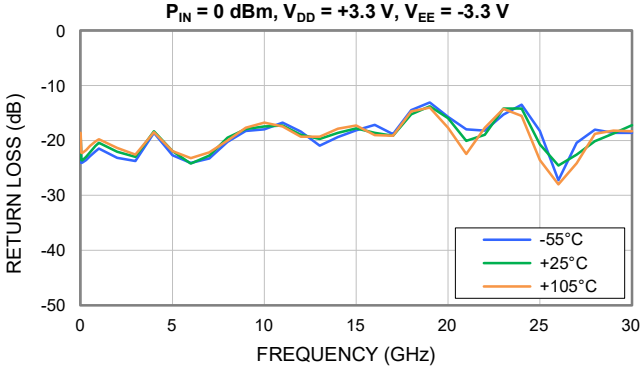

ISOLATION RF1 - RF2 vs. $V_{DD}$[6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



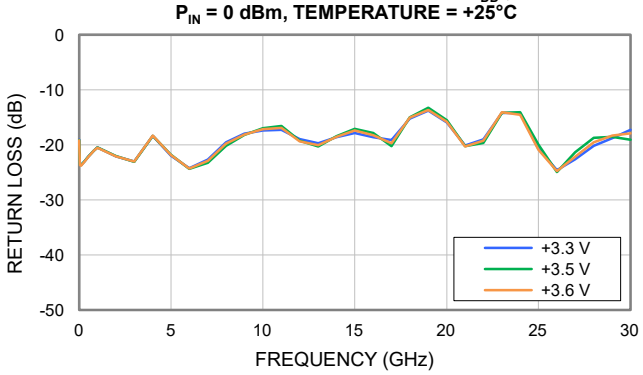

4. RF OUT is defined as either RF1 (ON) or RF2 (ON)
5. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
6. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## TYPICAL PERFORMANCE GRAPHS

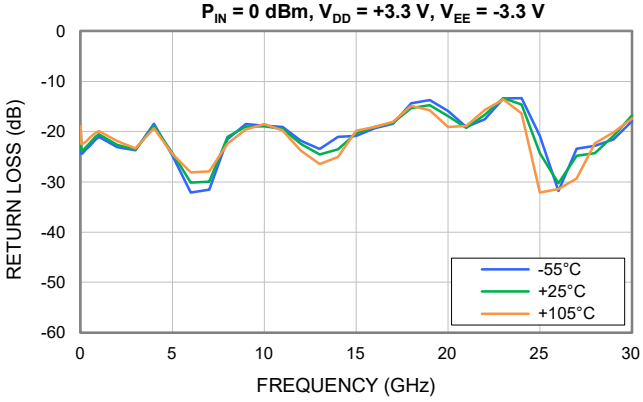
RFC INPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



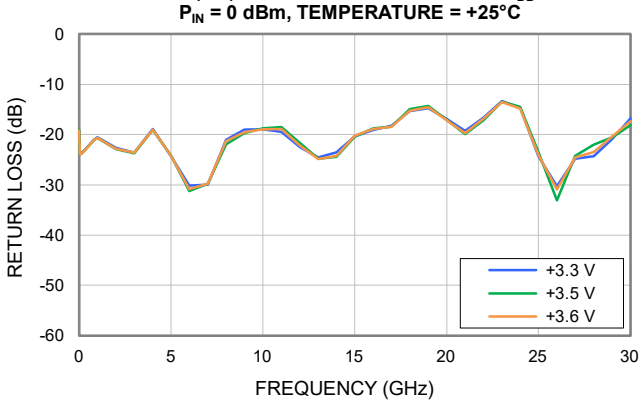

RFC INPUT RETURN LOSS vs. $V_{DD}$ [6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



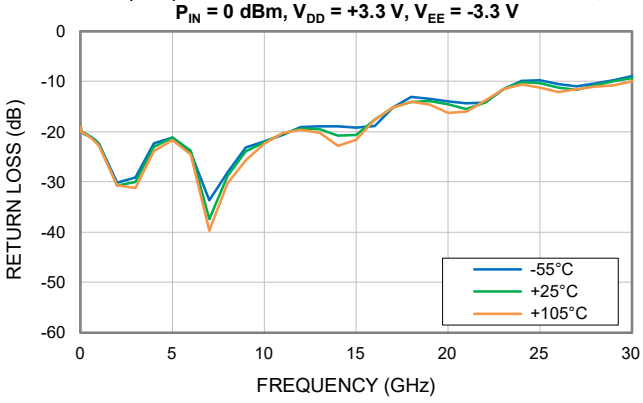

RF1 (ON) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



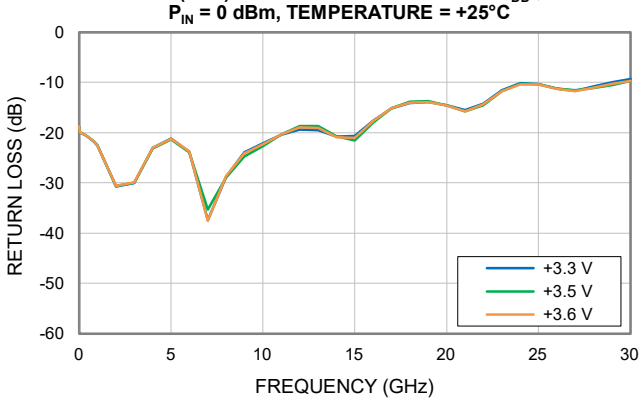

RF1 (ON) OUTPUT RETURN LOSS vs. $V_{DD}$ [6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C




RF1 (OFF) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



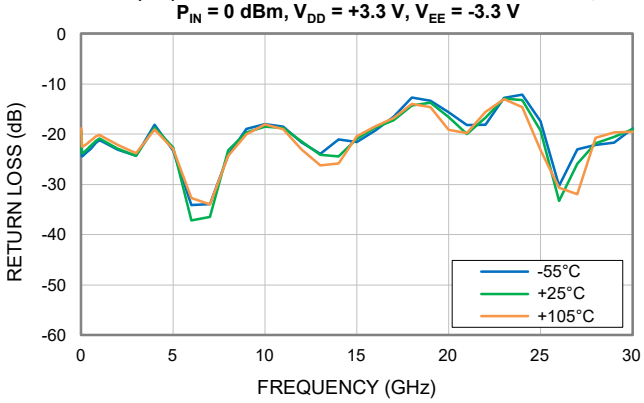

RF1 (OFF) OUTPUT RETURN LOSS vs. $V_{DD}$ [6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



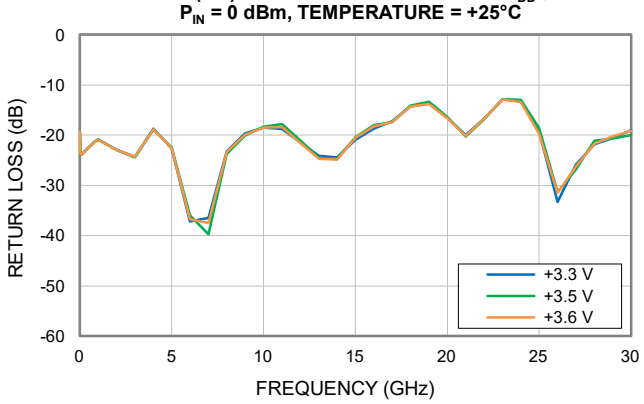

4. RF OUT is defined as either RF1 (ON) or RF2 (ON)
5. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
6. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## TYPICAL PERFORMANCE GRAPHS

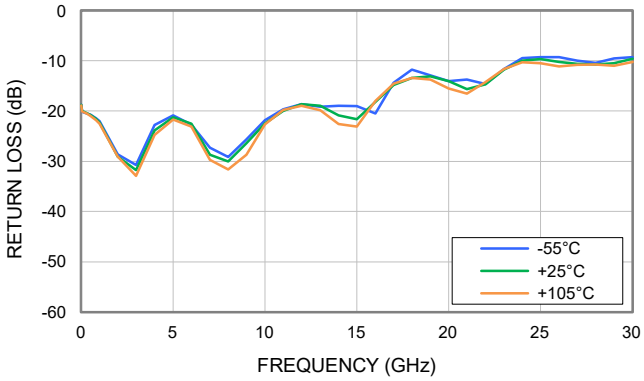
RF2 (ON) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



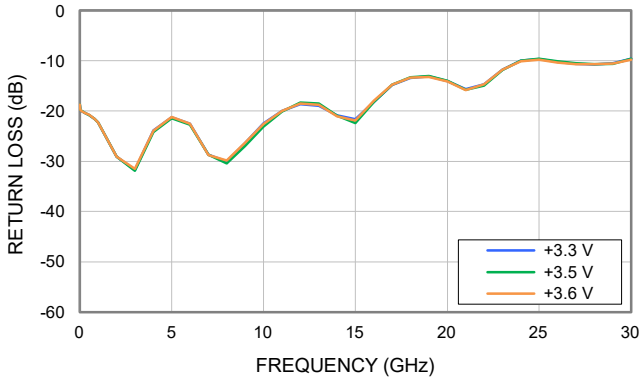

RF2 (ON) OUTPUT RETURN LOSS vs. $V_{DD}$[6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



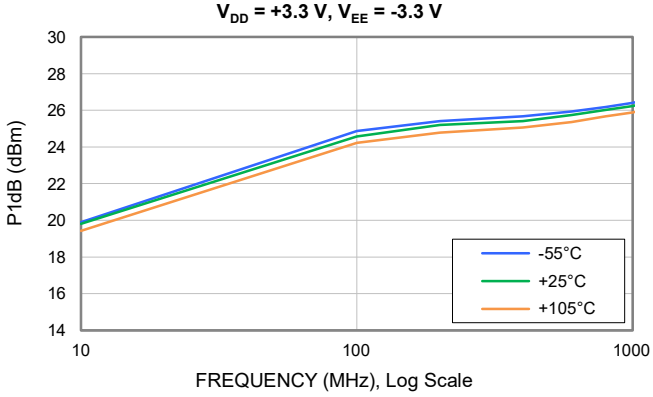

RF2 (OFF) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



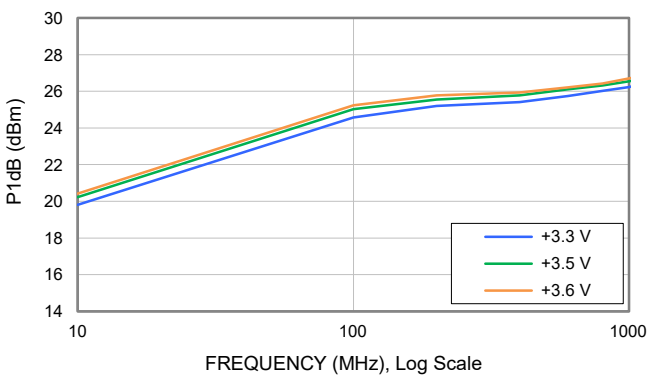

RF2 (OFF) OUTPUT RETURN LOSS vs. $V_{DD}$[6],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C




INPUT P1dB vs. TEMPERATURE,
$V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V




INPUT P1dB vs. $V_{DD}$[6],
TEMPERATURE = +25°C




4. RF OUT is defined as either RF1 (ON) or RF2 (ON)
5. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
6. $V_{EE}$ is the negative equivalent value to $V_{DD}$

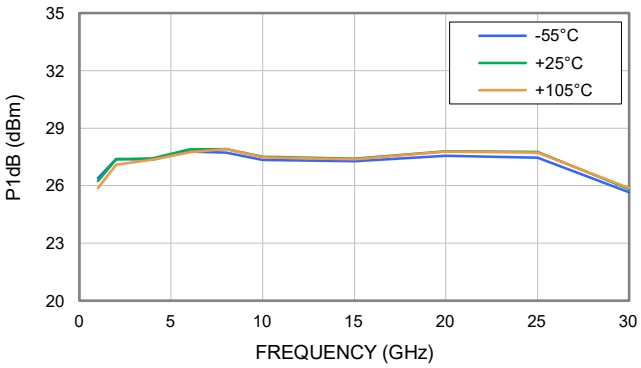
# SPDT RF Switch

# M3SWA2-34DR+

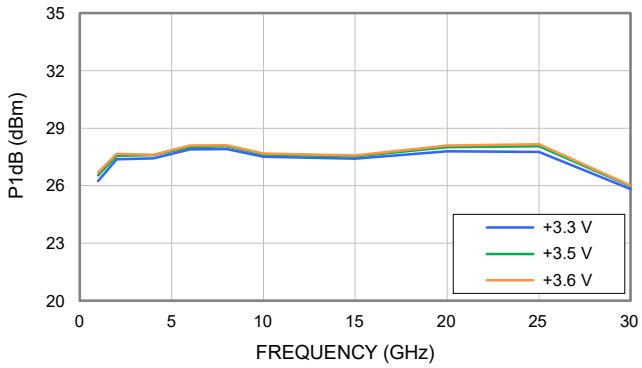
50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

## TYPICAL PERFORMANCE GRAPHS

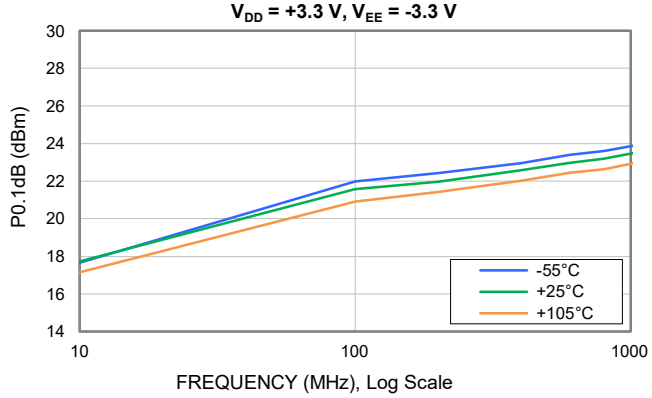
**INPUT P1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



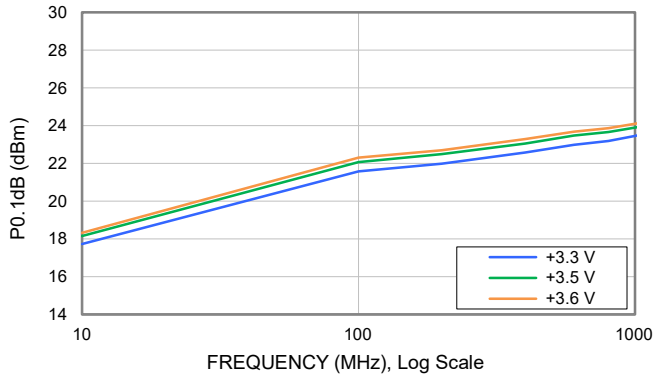

**INPUT P1dB vs. $V_{DD}$[6], TEMPERATURE = +25°C**



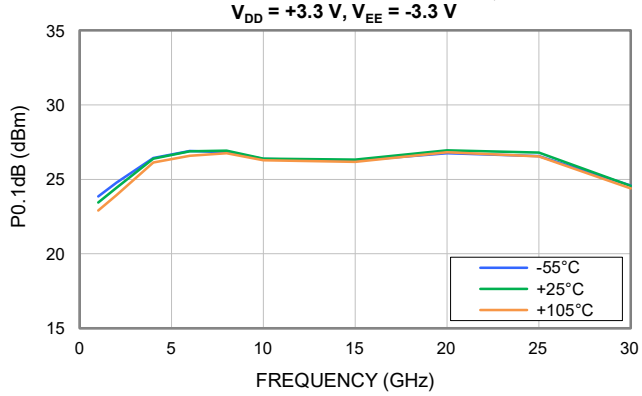

**INPUT P0.1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



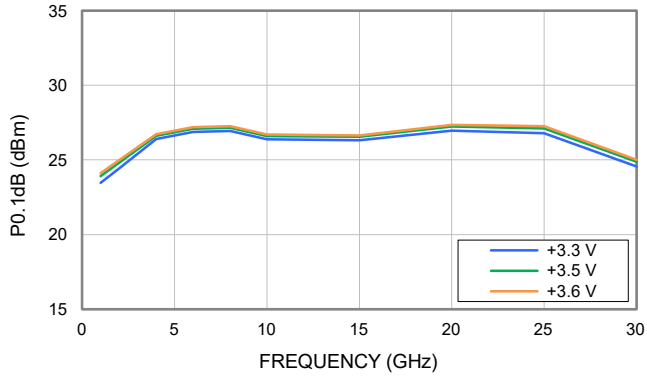

**INPUT P0.1dB vs. $V_{DD}$[6], TEMPERATURE = +25°C**




**INPUT P0.1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**

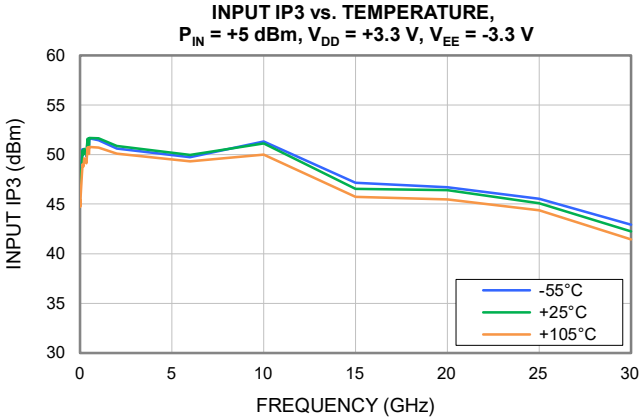


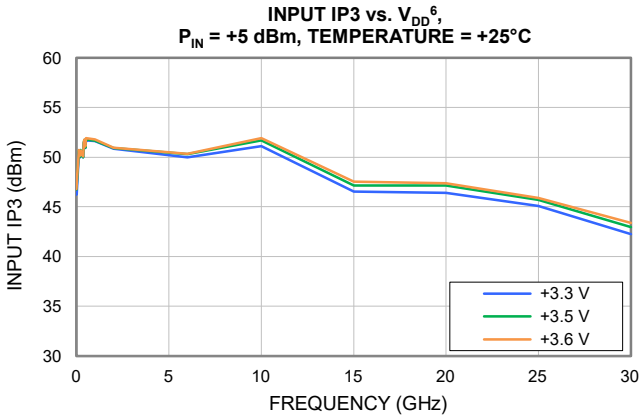

**INPUT P0.1dB vs. $V_{DD}$[6], TEMPERATURE = +25°C**




4. RF OUT is defined as either RF1 (ON) or RF2 (ON)
5. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
6. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## TYPICAL PERFORMANCE GRAPHS



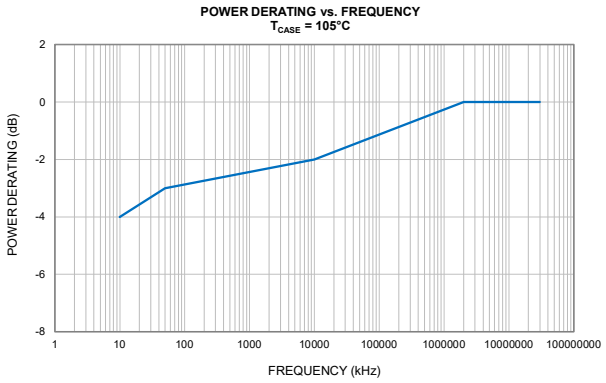




4. RF OUT is defined as either RF1 (ON) or RF2 (ON)
5. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
6. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## ABSOLUTE MAXIMUM RATINGS[7]

| Parameter | Ratings |
|---|---|
| Operating Temperature (ground lead) | -55°C to +105°C |
| Storage Temperature | -65°C to +150°C |
| Junction Temperature[8] | +150°C |
| Total Power Dissipation | 0.43 W |
| Through Path @ +105°C[9,10]<br>Input Power at RFC (CW),<br>($V_{DD}$ = +3.5 V, $V_{EE}$ = -3.5 V) | +29 dBm |
| Input Power at RF1/RF2 (CW), RF Applied to Selected Power<br>($V_{DD}$ = +3.5 V, $V_{EE}$ = -3.5 V) | +29 dBm |
| Input Power at RF1/RF2 (CW), RF Applied to Unselected Power<br>($V_{DD}$ = +3.5 V, $V_{EE}$ = -3.5 V) | +29 dBm |
| Hot Switching @ +105°C[9]<br>Input Power at RFC (CW), ($V_{DD}$ = +3.5 V, $V_{EE}$ = -3.5 V) | +24 dBm @ < 2 GHz<br>+27 dBm @ 2-30 GHz |
| DC Voltage ($V_{DD}$) | 0 V to +5 V |
| DC Voltage ($V_{EE}$) | -5 V to 0 V |

7. Permanent damage may occur if any of these limits are exceeded. Maximum ratings are not intended for continuous normal operation.
8. Peak temperature on top of Die.
9. Validated at +105°C.
10. See derating curve at right for power derating over frequency.




## THERMAL RESISTANCE

| Parameter | Ratings | Ratings |
|---|---|---|
| Thermal Resistance ($\Theta_{jc}$)[11] | Through Path RFC to RF-OUT 1 | 184°C/W |
| | Through Path RF-OUT 1 to RFC | 217°C/W |
| | Termination Path | 363°C/W |

11. $\Theta_{jc}$= (Hot Spot Temperature on Die - Temperature at Ground Lead)/Dissipated Power

## ESD RATING

| | Class | Voltage Range | Reference Standard |
|---|---|---|---|
| HBM | 1A | 250 V to < 500 V | ANSI/ESDA/JEDEC JS-001-2017 |
| CDM | C3 | ≥ 1000 V | JESD22-C101F |

ESD HANDLING PRECAUTION: This device is designed to be Class 1A for HBM. Static charges may easily produce potentials higher than this with improper handling and can discharge into DUT and damage it. As a preventive measure Industry standard ESD handling precautions should be used at all times to protect the device from ESD damage.

## MSL RATING

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020E/JEDEC J-STD-033C

# SPDT RF Switch

# M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

## FUNCTIONAL DIAGRAM

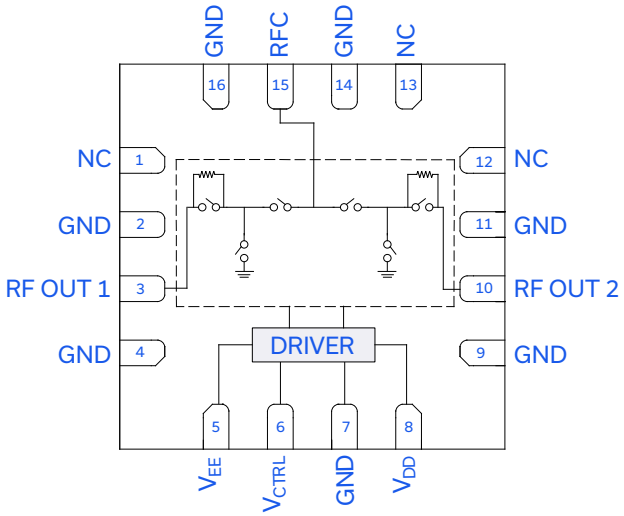



Figure 1. M3SWA2-34DR+ Functional Diagram

## PAD DESCRIPTION

| Function | Pad Number | Application Description (Refer to Fig 2) |
|---|---|---|
| RFC | 15 | RFC Pad connects to RF Input port. |
| RF OUT 1 | 3 | RF OUT 1 Pad connects to RF Output port 1. |
| RF OUT 2 | 10 | RF OUT 2 Pad connects to RF Output port 2. |
| $V_{DD}$ | 8 | $V_{DD}$ Pad connects to positive DC Input. |
| $V_{EE}$ | 5 | $V_{EE}$ Pad connects to negative DC Input. |
| $V_{CTRL}$ | 6 | $V_{CTRL}$ Pad connects to switch control voltage input. |
| GND | 2, 4, 7, 9, 11, 14, 16 & Paddle | Connects to ground. |
| NC | 1, 12, 13 | Not used internally. Connected to ground on test board. |

## CHARACTERIZATION TEST BOARD

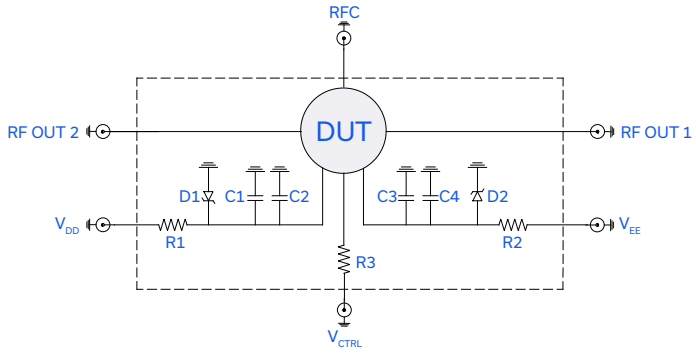



Figure 2. M3SWA2-34DR+ Characterization and Application Circuit

**Electrical Parameters and Conditions**
Insertion Loss, Isolation, Return Loss, Input Power at 1dB Compression (P1dB), and Input IP3 tested using PNA-X N5247B microwave network analyzer and P5022A vector network analyzer.

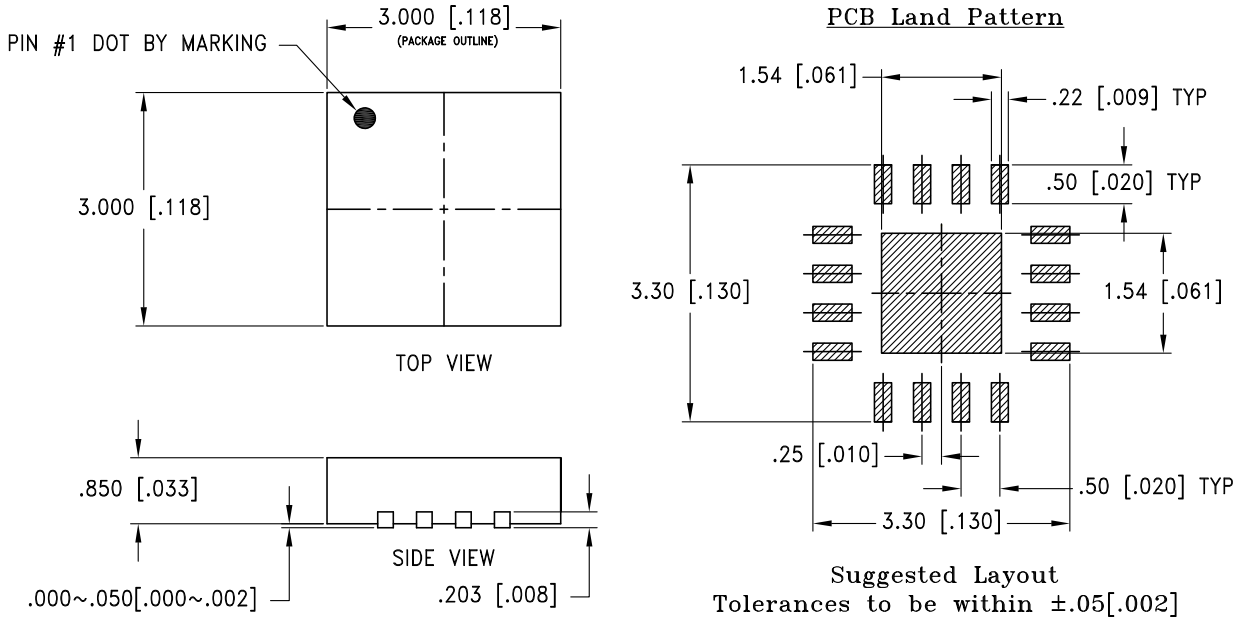
Conditions:
1. Insertion Loss, Isolation, and Return Loss: $P_{IN}$ = 0 dBm
2. Input IP3 (IIP3): Two tones, spaced 1 MHz apart, +5 dBm/Tone at input.

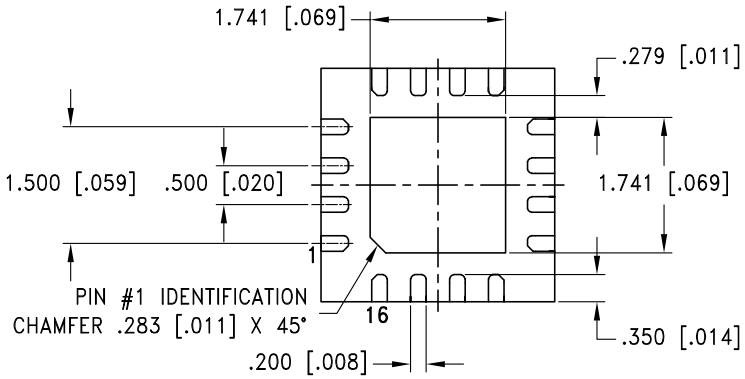
| Component | Value | Size | Part Number | Manufacturer |
|---|---|---|---|---|
| C2, C3 | 100 pF | 0402 | GRM1555C1H101JA01D | Murata |
| C1, C4 | 0.1 uF | 0402 | GRM155R71C104KA88D | Murata |
| R1, R2 | 11.5 Ω | 0402 | RP73PF1E11R5BTDF | TE Connectivity |
| R3 | 100 Ω | 0402 | RK73H1ETTP1000F | KOA |
| D1, D2 | $V_Z$ = +5.6 V | SOD-123 | SZMMSZ5232BT1G | ON Semiconductor |

# SPDT RF Switch M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

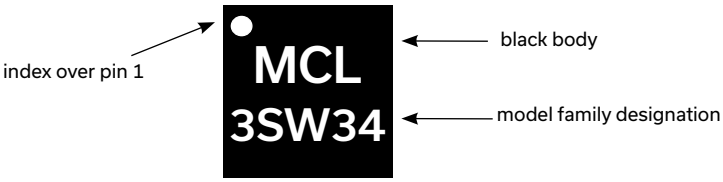
## CASE STYLE DRAWING




Weight: .02 grams
Dimensions are in mm [Inches]. Tolerances: 3 Pl. ±.05 [.002]

## PRODUCT MARKING




Marking may contain other features or characters for internal lot control

# SPDT RF Switch

## M3SWA2-34DR+

50 Ω DC to 30 GHz Absorptive RF Switch with Internal Driver

**ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASH BOARD** CLICK HERE

| | |
|---|---|
| **Performance Data & Graphs** | Data<br>Graphs<br>S-Parameter (S3P Files) Data Set (.zip file) |
| **Case Style** | DQ3005. Plastic package, exposed paddle, Lead Finish: Matte-Tin |
| **RoHS Status** | Compliant |
| **Tape & Reel**<br>**Standard quantities available on reel** | F104<br>7" reels with 20, 50, 100, 200, 500, 1000, or 2000 devices |
| **Suggested Layout for PCB Design** | PL-768 |
| **Evaluation Board** | TB-M3SWA234DRC+<br>Gerber File |
| **Environmental Ratings** | ENV08T1 |

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-Circuits' 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/terms/viewterm.html

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.3V, $V_{EE}$ = -3.3V @ Temperature = +25°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.5 | 81.5 | 84.6 | 78.2 | 81.9 | 19.3 | 19.1 | 19.3 | 18.8 | 18.8 | 19.3 |
| 0.05 | 0.6 | 0.6 | 80.0 | 80.0 | 83.5 | 82.0 | 23.6 | 23.6 | 23.8 | 19.9 | 19.9 | 23.8 |
| 0.1 | 0.5 | 0.6 | 77.5 | 77.7 | 79.1 | 78.5 | 23.6 | 23.7 | 23.8 | 20.1 | 20.0 | 23.8 |
| 0.3 | 0.5 | 0.5 | 73.6 | 73.9 | 75.3 | 75.6 | 23.0 | 23.0 | 23.1 | 20.4 | 20.4 | 23.1 |
| 0.5 | 0.6 | 0.6 | 69.9 | 71.6 | 72.1 | 73.2 | 22.1 | 22.2 | 22.2 | 20.9 | 20.8 | 22.4 |
| 0.8 | 0.6 | 0.6 | 66.4 | 67.7 | 69.3 | 70.0 | 21.0 | 21.0 | 21.1 | 21.8 | 21.6 | 21.3 |
| 1.0 | 0.6 | 0.6 | 64.5 | 65.9 | 67.2 | 68.4 | 20.6 | 20.5 | 20.6 | 22.5 | 22.3 | 20.9 |
| 2.0 | 0.7 | 0.7 | 59.5 | 60.8 | 63.3 | 64.7 | 22.5 | 22.0 | 22.7 | 30.7 | 29.1 | 22.9 |
| 3.0 | 0.8 | 0.7 | 56.6 | 58.0 | 62.5 | 64.2 | 23.0 | 23.5 | 23.6 | 30.0 | 31.8 | 24.3 |
| 4.0 | 0.8 | 0.8 | 54.8 | 55.8 | 62.7 | 65.1 | 18.3 | 18.7 | 18.9 | 23.0 | 23.9 | 18.7 |
| 5.0 | 0.7 | 0.7 | 52.9 | 54.4 | 62.2 | 65.1 | 22.2 | 22.0 | 24.3 | 21.2 | 21.2 | 22.7 |
| 6.0 | 0.8 | 0.8 | 52.2 | 53.9 | 62.8 | 65.9 | 25.3 | 24.2 | 30.2 | 23.8 | 22.5 | 37.2 |
| 7.0 | 0.8 | 0.8 | 51.5 | 53.1 | 64.4 | 68.7 | 23.7 | 22.7 | 29.9 | 37.4 | 28.7 | 36.4 |
| 8.0 | 0.9 | 0.9 | 50.4 | 51.7 | 67.1 | 71.9 | 19.5 | 20.2 | 21.1 | 28.8 | 30.0 | 23.2 |
| 9.0 | 1.0 | 0.9 | 50.0 | 51.1 | 66.2 | 68.6 | 17.9 | 18.7 | 19.0 | 23.9 | 26.5 | 19.7 |
| 10.0 | 1.0 | 1.0 | 49.5 | 50.5 | 65.1 | 65.2 | 17.4 | 17.4 | 18.9 | 22.1 | 22.5 | 18.5 |
| 11.0 | 1.0 | 1.0 | 49.1 | 50.2 | 63.2 | 62.8 | 17.6 | 17.2 | 19.4 | 20.4 | 20.0 | 18.8 |
| 12.0 | 1.0 | 1.0 | 48.9 | 50.0 | 61.5 | 60.6 | 19.3 | 18.9 | 22.5 | 19.4 | 18.7 | 21.4 |
| 13.0 | 1.0 | 1.0 | 48.6 | 49.8 | 60.8 | 58.8 | 19.8 | 19.7 | 24.6 | 19.5 | 18.9 | 24.1 |
| 14.0 | 1.0 | 1.0 | 47.9 | 50.4 | 59.7 | 56.6 | 18.6 | 18.8 | 23.5 | 20.8 | 20.9 | 24.5 |
| 15.0 | 1.1 | 1.1 | 47.2 | 50.1 | 56.8 | 55.2 | 17.8 | 17.9 | 20.4 | 20.7 | 21.6 | 20.9 |
| 16.0 | 1.1 | 1.1 | 46.8 | 48.9 | 54.9 | 53.9 | 19.0 | 18.6 | 19.1 | 17.6 | 18.2 | 18.7 |
| 17.0 | 1.1 | 1.1 | 46.9 | 48.7 | 54.4 | 53.4 | 19.8 | 19.1 | 18.3 | 15.2 | 14.8 | 17.2 |
| 18.0 | 1.3 | 1.3 | 47.6 | 48.8 | 54.2 | 53.1 | 15.9 | 15.2 | 15.4 | 14.1 | 13.4 | 14.3 |
| 19.0 | 1.5 | 1.5 | 48.2 | 48.8 | 53.7 | 52.7 | 14.4 | 13.8 | 14.8 | 13.9 | 13.1 | 13.7 |
| 20.0 | 1.4 | 1.4 | 47.7 | 48.0 | 53.7 | 52.5 | 16.2 | 15.9 | 16.9 | 14.6 | 14.0 | 16.6 |
| 21.0 | 1.3 | 1.3 | 46.9 | 46.8 | 53.1 | 52.0 | 20.2 | 20.1 | 19.3 | 15.5 | 15.6 | 20.0 |
| 22.0 | 1.5 | 1.5 | 47.1 | 46.6 | 52.6 | 51.8 | 19.3 | 19.0 | 16.7 | 14.2 | 14.7 | 16.7 |
| 23.0 | 1.8 | 1.8 | 49.2 | 48.0 | 53.5 | 53.1 | 14.7 | 14.2 | 13.4 | 11.5 | 11.8 | 12.9 |
| 24.0 | 1.7 | 1.8 | 52.5 | 49.6 | 54.0 | 53.4 | 15.3 | 14.2 | 14.7 | 10.2 | 10.0 | 13.2 |
| 25.0 | 1.7 | 1.7 | 53.1 | 50.1 | 54.0 | 53.8 | 22.3 | 20.7 | 24.3 | 10.3 | 9.7 | 19.3 |
| 26.0 | 1.7 | 1.7 | 53.3 | 49.7 | 53.3 | 53.1 | 24.6 | 28.7 | 30.3 | 11.3 | 10.2 | 33.3 |
| 27.0 | 1.8 | 1.8 | 53.0 | 48.8 | 52.4 | 52.3 | 22.6 | 23.9 | 24.8 | 11.7 | 10.6 | 25.9 |
| 28.0 | 1.9 | 1.9 | 52.1 | 48.0 | 51.5 | 51.4 | 20.3 | 20.1 | 24.3 | 10.8 | 10.7 | 21.8 |
| 29.0 | 2.0 | 2.0 | 51.4 | 47.1 | 50.8 | 50.1 | 18.8 | 19.0 | 20.9 | 10.0 | 10.5 | 20.6 |
| 30.0 | 2.3 | 2.4 | 49.1 | 45.3 | 49.8 | 48.3 | 17.2 | 18.0 | 16.8 | 9.3 | 9.6 | 19.0 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 19.9 | 19.8 | 17.8 | 17.7 |
| 0.1 | 24.6 | 24.6 | 21.6 | 21.6 |
| 0.2 | 25.2 | 25.2 | 22.0 | 22.0 |
| 0.4 | 25.4 | 25.5 | 22.6 | 22.6 |
| 0.6 | 25.7 | 25.8 | 23.0 | 23.0 |
| 0.8 | 26.0 | 26.1 | 23.2 | 23.2 |
| 1.0 | 26.2 | 26.3 | 23.5 | 23.5 |
| 2.0 | 27.4 | 27.4 | 24.5 | 24.4 |
| 4.0 | 27.4 | 27.5 | 26.4 | 26.4 |
| 6.0 | 28.0 | 27.9 | 27.0 | 26.9 |
| 8.0 | 27.9 | 28.0 | 26.9 | 26.9 |
| 10.0 | 27.5 | 27.5 | 26.4 | 26.4 |
| 15.0 | 27.5 | 27.4 | 26.4 | 26.3 |
| 20.0 | 27.8 | 27.8 | 27.0 | 27.0 |
| 25.0 | 27.8 | 27.8 | 26.8 | 26.8 |
| 30.0 | 26.0 | 25.8 | 24.7 | 24.6 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.3 | 46.3 |
| 0.50 | 46.8 | 46.8 |
| 0.75 | 47.0 | 46.9 |
| 1 | 47.0 | 47.1 |
| 10 | 46.3 | 46.3 |
| 100 | 49.5 | 49.4 |
| 125 | 50.5 | 50.4 |
| 150 | 50.3 | 50.3 |
| 175 | 50.0 | 50.0 |
| 200 | 50.1 | 50.0 |
| 225 | 50.6 | 50.6 |
| 250 | 50.4 | 50.3 |
| 275 | 50.4 | 50.2 |
| 300 | 50.4 | 50.3 |
| 325 | 50.2 | 50.1 |
| 350 | 50.1 | 50.0 |
| 375 | 50.7 | 50.5 |
| 400 | 51.4 | 51.4 |
| 425 | 51.7 | 51.6 |
| 450 | 51.3 | 51.2 |
| 475 | 51.0 | 50.9 |
| 500 | 51.7 | 51.7 |
| 1000 | 51.6 | 51.7 |
| 2000 | 50.9 | 50.9 |
| 6000 | 50.0 | 50.0 |
| 10000 | 51.3 | 51.1 |
| 15000 | 46.8 | 46.6 |
| 20000 | 46.7 | 46.4 |
| 25000 | 45.1 | 45.2 |
| 30000 | 42.7 | 42.3 |

*Typical Performance Data*

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

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.5V, $V_{EE}$ = -3.5V @ Temperature = +25°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.5 | 81.5 | 86.0 | 81.7 | 83.4 | 19.1 | 19.1 | 19.2 | 18.8 | 18.7 | 19.2 |
| 0.05 | 0.5 | 0.5 | 81.0 | 79.8 | 81.3 | 82.5 | 23.6 | 23.6 | 23.8 | 19.9 | 19.9 | 23.8 |
| 0.1 | 0.5 | 0.5 | 77.7 | 77.8 | 78.5 | 78.7 | 23.7 | 23.7 | 23.9 | 20.1 | 20.0 | 23.9 |
| 0.3 | 0.5 | 0.5 | 73.2 | 74.7 | 75.1 | 76.2 | 23.0 | 23.1 | 23.1 | 20.4 | 20.4 | 23.2 |
| 0.5 | 0.6 | 0.6 | 70.1 | 71.0 | 72.7 | 73.6 | 22.1 | 22.1 | 22.3 | 20.9 | 20.8 | 22.4 |
| 0.8 | 0.6 | 0.6 | 66.5 | 67.5 | 69.2 | 70.0 | 21.0 | 21.0 | 21.2 | 21.8 | 21.6 | 21.4 |
| 1.0 | 0.6 | 0.6 | 64.5 | 65.8 | 67.2 | 68.4 | 20.5 | 20.5 | 20.7 | 22.5 | 22.3 | 20.9 |
| 2.0 | 0.7 | 0.7 | 59.4 | 60.8 | 63.1 | 64.9 | 22.4 | 22.0 | 22.9 | 30.6 | 29.1 | 23.0 |
| 3.0 | 0.8 | 0.7 | 56.6 | 58.1 | 62.4 | 64.3 | 23.0 | 23.6 | 23.8 | 30.0 | 31.9 | 24.5 |
| 4.0 | 0.8 | 0.8 | 54.9 | 55.9 | 62.6 | 65.1 | 18.4 | 18.8 | 19.1 | 23.1 | 24.2 | 18.9 |
| 5.0 | 0.7 | 0.7 | 53.0 | 54.6 | 61.9 | 65.3 | 22.0 | 21.8 | 24.2 | 21.3 | 21.4 | 22.5 |
| 6.0 | 0.8 | 0.8 | 52.2 | 54.0 | 62.3 | 65.8 | 25.1 | 24.3 | 31.2 | 23.9 | 22.7 | 36.0 |
| 7.0 | 0.8 | 0.8 | 51.5 | 53.3 | 63.9 | 69.2 | 23.8 | 23.2 | 29.7 | 35.3 | 28.7 | 39.7 |
| 8.0 | 0.9 | 0.9 | 50.5 | 51.9 | 66.3 | 72.0 | 20.1 | 20.9 | 22.0 | 28.9 | 30.4 | 23.8 |
| 9.0 | 1.0 | 0.9 | 50.0 | 51.2 | 66.3 | 68.9 | 18.2 | 18.8 | 19.8 | 24.7 | 27.0 | 20.1 |
| 10.0 | 1.0 | 1.0 | 49.6 | 50.7 | 65.4 | 65.7 | 17.0 | 17.0 | 18.8 | 22.7 | 23.0 | 18.3 |
| 11.0 | 1.0 | 1.0 | 49.2 | 50.3 | 63.3 | 62.9 | 16.9 | 16.6 | 18.5 | 20.4 | 20.1 | 17.8 |
| 12.0 | 1.0 | 1.0 | 48.9 | 50.1 | 61.4 | 60.4 | 19.5 | 19.2 | 21.6 | 18.7 | 18.3 | 21.0 |
| 13.0 | 1.0 | 1.0 | 48.6 | 50.0 | 61.0 | 58.8 | 20.4 | 20.3 | 24.8 | 18.7 | 18.5 | 24.5 |
| 14.0 | 1.0 | 1.0 | 47.9 | 50.6 | 60.2 | 56.7 | 18.4 | 18.5 | 24.5 | 20.7 | 20.9 | 24.7 |
| 15.0 | 1.1 | 1.1 | 47.2 | 50.4 | 57.3 | 55.5 | 17.2 | 17.1 | 20.4 | 21.6 | 22.4 | 20.5 |
| 16.0 | 1.2 | 1.2 | 46.9 | 49.0 | 55.2 | 54.0 | 18.4 | 17.8 | 18.8 | 18.0 | 18.2 | 18.0 |
| 17.0 | 1.1 | 1.1 | 46.9 | 48.8 | 54.6 | 53.4 | 21.1 | 20.2 | 18.4 | 15.1 | 14.8 | 17.4 |
| 18.0 | 1.3 | 1.3 | 47.6 | 49.0 | 54.3 | 53.2 | 15.6 | 15.0 | 14.9 | 13.8 | 13.3 | 14.2 |
| 19.0 | 1.5 | 1.6 | 48.3 | 48.9 | 54.1 | 52.7 | 13.9 | 13.3 | 14.3 | 13.7 | 13.0 | 13.4 |
| 20.0 | 1.4 | 1.4 | 47.8 | 48.0 | 54.0 | 52.5 | 16.0 | 15.5 | 17.1 | 14.6 | 14.0 | 16.4 |
| 21.0 | 1.3 | 1.3 | 46.9 | 46.7 | 53.2 | 51.9 | 20.6 | 20.2 | 19.9 | 15.7 | 15.8 | 20.3 |
| 22.0 | 1.5 | 1.5 | 47.1 | 46.4 | 52.5 | 51.8 | 20.2 | 19.6 | 17.2 | 14.6 | 14.9 | 16.9 |
| 23.0 | 1.8 | 1.8 | 49.2 | 47.7 | 53.4 | 53.0 | 14.7 | 14.2 | 13.5 | 11.8 | 11.8 | 12.8 |
| 24.0 | 1.8 | 1.9 | 52.2 | 49.2 | 53.9 | 53.4 | 15.3 | 14.1 | 14.5 | 10.3 | 10.0 | 13.0 |
| 25.0 | 1.7 | 1.7 | 52.9 | 49.6 | 54.1 | 54.0 | 21.9 | 19.9 | 23.4 | 10.3 | 9.6 | 18.6 |
| 26.0 | 1.7 | 1.7 | 53.5 | 49.4 | 53.4 | 53.1 | 24.9 | 28.8 | 33.1 | 11.2 | 10.1 | 31.3 |
| 27.0 | 1.8 | 1.8 | 53.0 | 48.6 | 52.6 | 52.3 | 21.3 | 22.9 | 24.2 | 11.5 | 10.5 | 26.8 |
| 28.0 | 1.9 | 1.9 | 52.2 | 47.7 | 51.6 | 51.5 | 18.7 | 19.1 | 22.0 | 11.1 | 10.7 | 21.2 |
| 29.0 | 2.0 | 2.0 | 51.8 | 46.8 | 50.6 | 50.2 | 18.5 | 19.0 | 20.5 | 10.5 | 10.6 | 20.7 |
| 30.0 | 2.3 | 2.3 | 49.7 | 45.4 | 50.0 | 48.4 | 19.1 | 20.0 | 18.1 | 9.7 | 9.6 | 20.0 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.2 | 20.2 | 18.2 | 18.1 |
| 0.1 | 25.0 | 25.1 | 22.1 | 22.1 |
| 0.2 | 25.6 | 25.6 | 22.5 | 22.5 |
| 0.4 | 25.8 | 25.8 | 23.1 | 23.1 |
| 0.6 | 26.1 | 26.1 | 23.5 | 23.5 |
| 0.8 | 26.3 | 26.4 | 23.7 | 23.7 |
| 1.0 | 26.5 | 26.5 | 23.9 | 23.9 |
| 2.0 | 27.6 | 27.6 | 24.9 | 24.8 |
| 4.0 | 27.6 | 27.6 | 26.6 | 26.7 |
| 6.0 | 28.1 | 28.0 | 27.2 | 27.1 |
| 8.0 | 28.1 | 28.1 | 27.1 | 27.2 |
| 10.0 | 27.6 | 27.6 | 26.6 | 26.6 |
| 15.0 | 27.6 | 27.5 | 26.6 | 26.5 |
| 20.0 | 28.0 | 28.0 | 27.2 | 27.2 |
| 25.0 | 28.1 | 28.1 | 27.1 | 27.1 |
| 30.0 | 26.1 | 26.0 | 25.0 | 24.9 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.7 | 46.8 |
| 0.50 | 47.2 | 47.2 |
| 0.75 | 47.3 | 47.3 |
| 1 | 47.3 | 47.4 |
| 10 | 47.2 | 47.2 |
| 100 | 49.7 | 49.7 |
| 125 | 50.7 | 50.7 |
| 150 | 50.6 | 50.5 |
| 175 | 50.1 | 50.0 |
| 200 | 50.3 | 50.2 |
| 225 | 50.7 | 50.7 |
| 250 | 50.6 | 50.5 |
| 275 | 50.5 | 50.4 |
| 300 | 50.6 | 50.4 |
| 325 | 50.2 | 50.2 |
| 350 | 50.2 | 50.0 |
| 375 | 50.8 | 50.6 |
| 400 | 51.6 | 51.5 |
| 425 | 51.8 | 51.7 |
| 450 | 51.4 | 51.3 |
| 475 | 51.1 | 51.0 |
| 500 | 51.9 | 51.8 |
| 1000 | 51.7 | 51.9 |
| 2000 | 51.0 | 50.9 |
| 6000 | 50.3 | 50.3 |
| 10000 | 51.7 | 51.7 |
| 15000 | 47.4 | 47.2 |
| 20000 | 47.2 | 47.2 |
| 25000 | 45.7 | 45.8 |
| 30000 | 43.2 | 43.0 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.6V, $V_{EE}$ = -3.6V @ Temperature = +25°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.53 | 78.7 | 81.2 | 86.4 | 85.2 | 19.2 | 19.2 | 19.3 | 18.8 | 18.7 | 19.3 |
| 0.05 | 0.5 | 0.54 | 83.0 | 82.9 | 83.9 | 82.6 | 23.6 | 23.6 | 23.9 | 19.9 | 19.9 | 23.8 |
| 0.1 | 0.5 | 0.54 | 77.5 | 78.1 | 79.2 | 78.6 | 23.7 | 23.8 | 23.9 | 20.1 | 20.0 | 23.9 |
| 0.3 | 0.5 | 0.54 | 73.5 | 74.1 | 75.3 | 76.3 | 23.0 | 23.1 | 23.2 | 20.4 | 20.4 | 23.2 |
| 0.5 | 0.6 | 0.55 | 70.0 | 71.4 | 72.7 | 74.1 | 22.2 | 22.1 | 22.3 | 20.9 | 20.8 | 22.5 |
| 0.8 | 0.6 | 0.57 | 66.2 | 67.3 | 69.3 | 70.2 | 21.1 | 21.1 | 21.2 | 21.8 | 21.6 | 21.4 |
| 1.0 | 0.6 | 0.59 | 64.5 | 65.8 | 67.4 | 68.2 | 20.6 | 20.5 | 20.7 | 22.5 | 22.3 | 21.0 |
| 2.0 | 0.7 | 0.66 | 59.4 | 60.8 | 63.2 | 64.6 | 22.5 | 22.1 | 22.8 | 30.6 | 29.1 | 23.0 |
| 3.0 | 0.8 | 0.74 | 56.6 | 58.0 | 62.6 | 64.4 | 23.0 | 23.5 | 23.6 | 29.9 | 31.5 | 24.3 |
| 4.0 | 0.8 | 0.79 | 54.9 | 55.8 | 62.8 | 65.2 | 18.3 | 18.7 | 19.0 | 23.0 | 23.9 | 18.8 |
| 5.0 | 0.7 | 0.72 | 53.0 | 54.5 | 62.2 | 65.3 | 22.1 | 21.9 | 24.2 | 21.2 | 21.2 | 22.6 |
| 6.0 | 0.8 | 0.75 | 52.2 | 53.8 | 62.6 | 65.7 | 25.1 | 24.3 | 30.9 | 23.8 | 22.5 | 36.7 |
| 7.0 | 0.8 | 0.82 | 51.4 | 53.0 | 64.6 | 68.8 | 23.8 | 22.9 | 29.8 | 37.5 | 28.8 | 37.5 |
| 8.0 | 0.9 | 0.88 | 50.4 | 51.7 | 66.6 | 71.6 | 19.8 | 20.5 | 21.3 | 28.6 | 29.8 | 23.4 |
| 9.0 | 1.0 | 0.94 | 50.0 | 51.0 | 66.5 | 68.6 | 18.1 | 18.8 | 19.5 | 24.1 | 26.4 | 19.9 |
| 10.0 | 1.0 | 0.99 | 49.5 | 50.5 | 65.2 | 65.6 | 17.2 | 17.1 | 18.9 | 22.3 | 22.6 | 18.5 |
| 11.0 | 1.0 | 1.01 | 49.1 | 50.2 | 63.3 | 62.6 | 17.2 | 16.9 | 18.9 | 20.3 | 20.0 | 18.4 |
| 12.0 | 1.0 | 0.98 | 48.9 | 49.9 | 61.3 | 60.4 | 19.6 | 19.3 | 22.1 | 18.9 | 18.5 | 21.6 |
| 13.0 | 1.0 | 1.00 | 48.5 | 49.8 | 60.7 | 58.6 | 20.1 | 20.1 | 24.9 | 19.1 | 18.8 | 24.7 |
| 14.0 | 1.0 | 1.01 | 47.9 | 50.4 | 59.7 | 56.6 | 18.6 | 18.7 | 24.3 | 20.9 | 21.1 | 24.9 |
| 15.0 | 1.1 | 1.09 | 47.2 | 50.1 | 56.9 | 55.4 | 17.4 | 17.4 | 20.2 | 21.1 | 21.9 | 20.5 |
| 16.0 | 1.2 | 1.15 | 46.8 | 48.9 | 54.9 | 53.9 | 18.7 | 18.2 | 18.9 | 17.7 | 17.9 | 18.3 |
| 17.0 | 1.1 | 1.11 | 46.9 | 48.7 | 54.4 | 53.4 | 20.4 | 19.7 | 18.4 | 15.2 | 14.8 | 17.4 |
| 18.0 | 1.3 | 1.32 | 47.6 | 48.8 | 54.2 | 53.0 | 15.7 | 15.1 | 15.3 | 14.1 | 13.4 | 14.3 |
| 19.0 | 1.5 | 1.53 | 48.3 | 48.8 | 53.9 | 52.8 | 14.2 | 13.6 | 14.6 | 13.9 | 13.2 | 13.8 |
| 20.0 | 1.4 | 1.41 | 47.7 | 48.1 | 53.6 | 52.4 | 16.2 | 15.8 | 17.1 | 14.7 | 14.2 | 16.7 |
| 21.0 | 1.3 | 1.32 | 46.8 | 46.8 | 53.0 | 51.9 | 20.5 | 20.3 | 19.7 | 15.8 | 15.8 | 20.2 |
| 22.0 | 1.5 | 1.52 | 47.1 | 46.6 | 52.6 | 51.8 | 19.6 | 19.3 | 16.9 | 14.3 | 14.7 | 16.7 |
| 23.0 | 1.8 | 1.82 | 49.2 | 48.0 | 53.3 | 53.0 | 14.6 | 14.1 | 13.5 | 11.7 | 11.8 | 12.9 |
| 24.0 | 1.7 | 1.83 | 52.5 | 49.4 | 54.1 | 53.5 | 15.6 | 14.6 | 14.9 | 10.4 | 10.1 | 13.5 |
| 25.0 | 1.7 | 1.71 | 53.3 | 50.1 | 54.1 | 53.9 | 22.7 | 20.9 | 24.0 | 10.4 | 9.8 | 19.7 |
| 26.0 | 1.7 | 1.72 | 53.5 | 49.7 | 53.3 | 53.1 | 24.8 | 28.5 | 30.9 | 11.3 | 10.4 | 31.5 |
| 27.0 | 1.8 | 1.82 | 53.0 | 48.9 | 52.4 | 52.1 | 22.1 | 23.6 | 24.5 | 11.7 | 10.7 | 26.3 |
| 28.0 | 1.9 | 1.93 | 52.3 | 48.0 | 51.7 | 51.4 | 19.5 | 19.6 | 23.5 | 11.0 | 10.7 | 21.7 |
| 29.0 | 2.0 | 2.05 | 52.0 | 47.1 | 50.6 | 50.0 | 18.3 | 18.7 | 20.4 | 10.3 | 10.5 | 20.2 |
| 30.0 | 2.3 | 2.35 | 49.2 | 45.3 | 49.7 | 48.3 | 17.9 | 18.5 | 17.4 | 9.7 | 9.8 | 19.1 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.5 | 20.4 | 18.3 | 18.3 |
| 0.1 | 25.2 | 25.2 | 22.4 | 22.3 |
| 0.2 | 25.8 | 25.8 | 22.7 | 22.7 |
| 0.4 | 25.9 | 26.0 | 23.3 | 23.3 |
| 0.6 | 26.2 | 26.3 | 23.7 | 23.7 |
| 0.8 | 26.4 | 26.5 | 23.9 | 23.9 |
| 1.0 | 26.7 | 26.7 | 24.2 | 24.1 |
| 2.0 | 27.7 | 27.7 | 25.0 | 25.0 |
| 4.0 | 27.6 | 27.7 | 26.7 | 26.8 |
| 6.0 | 28.2 | 28.1 | 27.3 | 27.2 |
| 8.0 | 28.1 | 28.2 | 27.2 | 27.3 |
| 10.0 | 27.7 | 27.7 | 26.7 | 26.7 |
| 15.0 | 27.6 | 27.6 | 26.7 | 26.6 |
| 20.0 | 28.1 | 28.1 | 27.4 | 27.4 |
| 25.0 | 28.2 | 28.2 | 27.3 | 27.3 |
| 30.0 | 26.1 | 26.0 | 25.1 | 25.0 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.8 | 46.9 |
| 0.50 | 47.2 | 47.3 |
| 0.75 | 47.3 | 47.4 |
| 1 | 47.4 | 47.4 |
| 10 | 47.5 | 47.5 |
| 100 | 49.8 | 49.8 |
| 125 | 50.7 | 50.7 |
| 150 | 50.6 | 50.5 |
| 175 | 50.2 | 50.1 |
| 200 | 50.4 | 50.3 |
| 225 | 50.7 | 50.7 |
| 250 | 50.6 | 50.5 |
| 275 | 50.6 | 50.4 |
| 300 | 50.6 | 50.5 |
| 325 | 50.3 | 50.2 |
| 350 | 50.2 | 50.1 |
| 375 | 50.8 | 50.6 |
| 400 | 51.6 | 51.5 |
| 425 | 51.8 | 51.7 |
| 450 | 51.4 | 51.3 |
| 475 | 51.1 | 51.1 |
| 500 | 51.9 | 51.9 |
| 1000 | 51.8 | 51.9 |
| 2000 | 51.0 | 51.0 |
| 6000 | 50.3 | 50.6 |
| 10000 | 52.1 | 51.9 |
| 15000 | 47.8 | 47.5 |
| 20000 | 47.4 | 47.4 |
| 25000 | 45.9 | 46.0 |
| 30000 | 43.5 | 43.4 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.3V, $V_{EE}$ = -3.3V @ Temperature = -55°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.5 | 80.3 | 84.8 | 78.9 | 84.5 | 19.5 | 19.3 | 19.5 | 18.9 | 18.8 | 19.6 |
| 0.05 | 0.5 | 0.5 | 81.0 | 80.4 | 80.8 | 81.4 | 24.1 | 24.2 | 24.5 | 20.0 | 19.9 | 24.5 |
| 0.1 | 0.5 | 0.5 | 77.2 | 78.4 | 77.8 | 78.7 | 24.1 | 24.2 | 24.4 | 20.3 | 20.2 | 24.3 |
| 0.3 | 0.5 | 0.5 | 74.2 | 74.8 | 75.9 | 76.6 | 23.6 | 23.7 | 23.5 | 20.6 | 20.4 | 23.6 |
| 0.5 | 0.5 | 0.5 | 70.5 | 71.7 | 72.9 | 74.0 | 22.9 | 22.9 | 22.8 | 20.9 | 20.7 | 23.0 |
| 0.8 | 0.5 | 0.5 | 67.1 | 68.3 | 69.3 | 70.8 | 22.0 | 22.0 | 21.6 | 21.7 | 21.5 | 21.8 |
| 1.0 | 0.5 | 0.5 | 65.2 | 66.5 | 68.1 | 69.2 | 21.5 | 21.5 | 21.1 | 22.4 | 22.0 | 21.2 |
| 2.0 | 0.6 | 0.6 | 60.1 | 61.7 | 64.1 | 65.8 | 23.6 | 23.2 | 23.1 | 30.1 | 28.6 | 23.1 |
| 3.0 | 0.7 | 0.6 | 57.3 | 58.6 | 63.9 | 66.3 | 23.7 | 24.2 | 23.7 | 29.1 | 30.7 | 24.4 |
| 4.0 | 0.7 | 0.7 | 55.4 | 56.5 | 64.8 | 67.6 | 18.6 | 18.9 | 18.5 | 22.3 | 22.8 | 18.1 |
| 5.0 | 0.6 | 0.6 | 53.3 | 54.9 | 64.2 | 67.8 | 22.8 | 22.7 | 24.8 | 21.2 | 20.9 | 23.3 |
| 6.0 | 0.6 | 0.6 | 52.4 | 54.1 | 64.8 | 68.5 | 24.9 | 24.1 | 32.2 | 24.2 | 22.7 | 34.1 |
| 7.0 | 0.7 | 0.7 | 51.6 | 53.2 | 66.2 | 71.0 | 24.3 | 23.3 | 31.5 | 33.7 | 27.3 | 33.9 |
| 8.0 | 0.8 | 0.7 | 50.4 | 51.7 | 67.7 | 69.7 | 20.2 | 21.2 | 21.5 | 28.1 | 29.2 | 24.2 |
| 9.0 | 0.8 | 0.8 | 49.9 | 51.0 | 65.7 | 65.4 | 18.3 | 19.1 | 18.5 | 23.2 | 25.6 | 18.9 |
| 10.0 | 0.8 | 0.8 | 49.3 | 50.4 | 63.5 | 62.5 | 18.0 | 18.0 | 18.8 | 21.9 | 21.8 | 18.0 |
| 11.0 | 0.8 | 0.8 | 48.8 | 50.0 | 61.3 | 60.2 | 17.1 | 16.7 | 19.1 | 20.7 | 19.6 | 18.5 |
| 12.0 | 0.8 | 0.8 | 48.4 | 49.6 | 59.5 | 58.2 | 18.4 | 18.4 | 21.8 | 19.1 | 18.6 | 21.6 |
| 13.0 | 0.8 | 0.8 | 48.1 | 49.4 | 58.7 | 56.9 | 21.0 | 21.2 | 23.5 | 18.9 | 19.1 | 23.9 |
| 14.0 | 0.8 | 0.8 | 47.5 | 49.8 | 57.7 | 55.3 | 19.7 | 19.4 | 21.1 | 19.0 | 18.9 | 21.1 |
| 15.0 | 0.9 | 0.8 | 46.8 | 49.5 | 55.5 | 54.0 | 18.2 | 18.2 | 20.8 | 19.2 | 19.0 | 21.6 |
| 16.0 | 0.9 | 0.9 | 46.4 | 48.3 | 53.7 | 52.7 | 17.2 | 17.4 | 19.4 | 18.9 | 20.5 | 19.3 |
| 17.0 | 0.8 | 0.8 | 46.2 | 47.9 | 52.9 | 52.0 | 20.1 | 18.8 | 18.4 | 15.2 | 14.4 | 16.5 |
| 18.0 | 1.0 | 1.1 | 46.8 | 48.2 | 52.5 | 51.4 | 15.5 | 14.5 | 14.3 | 13.1 | 11.8 | 12.8 |
| 19.0 | 1.3 | 1.3 | 47.7 | 48.4 | 52.2 | 51.2 | 13.4 | 13.1 | 13.7 | 13.4 | 12.9 | 13.4 |
| 20.0 | 1.1 | 1.1 | 46.8 | 47.3 | 52.5 | 51.3 | 16.2 | 15.8 | 15.9 | 14.0 | 14.1 | 15.7 |
| 21.0 | 1.0 | 1.0 | 46.2 | 46.2 | 51.8 | 50.6 | 18.7 | 18.0 | 19.1 | 14.3 | 13.7 | 18.2 |
| 22.0 | 1.2 | 1.2 | 46.2 | 45.9 | 51.3 | 50.3 | 18.3 | 18.2 | 17.6 | 14.2 | 14.6 | 18.1 |
| 23.0 | 1.5 | 1.4 | 48.0 | 47.2 | 51.9 | 51.3 | 15.7 | 15.3 | 13.4 | 11.5 | 11.7 | 12.8 |
| 24.0 | 1.5 | 1.5 | 51.6 | 49.1 | 52.4 | 51.6 | 14.4 | 13.5 | 13.4 | 9.9 | 9.4 | 12.1 |
| 25.0 | 1.4 | 1.4 | 52.2 | 49.8 | 52.7 | 52.3 | 20.4 | 18.3 | 20.8 | 9.8 | 9.3 | 17.4 |
| 26.0 | 1.4 | 1.3 | 53.0 | 49.7 | 52.1 | 51.6 | 27.3 | 34.5 | 31.8 | 10.5 | 9.3 | 30.3 |
| 27.0 | 1.5 | 1.4 | 52.4 | 48.7 | 51.2 | 50.8 | 20.4 | 21.5 | 23.4 | 11.0 | 10.0 | 23.0 |
| 28.0 | 1.5 | 1.5 | 52.0 | 47.9 | 50.3 | 49.8 | 18.1 | 18.2 | 22.8 | 10.4 | 10.4 | 22.1 |
| 29.0 | 1.5 | 1.5 | 52.1 | 47.1 | 49.3 | 48.6 | 18.7 | 19.1 | 21.6 | 9.8 | 9.6 | 21.7 |
| 30.0 | 1.8 | 1.9 | 49.2 | 45.4 | 48.6 | 47.1 | 18.7 | 18.9 | 18.0 | 9.0 | 9.3 | 18.9 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.0 | 19.9 | 17.7 | 17.7 |
| 0.1 | 24.9 | 24.9 | 22.1 | 22.0 |
| 0.2 | 25.5 | 25.4 | 22.5 | 22.4 |
| 0.4 | 25.7 | 25.7 | 23.0 | 22.9 |
| 0.6 | 25.9 | 26.0 | 23.4 | 23.4 |
| 0.8 | 26.2 | 26.2 | 23.6 | 23.6 |
| 1.0 | 26.4 | 26.4 | 23.9 | 23.9 |
| 2.0 | 27.4 | 27.4 | 24.8 | 24.8 |
| 4.0 | 27.4 | 27.4 | 26.4 | 26.5 |
| 6.0 | 27.9 | 27.8 | 26.9 | 26.9 |
| 8.0 | 27.7 | 27.7 | 26.8 | 26.8 |
| 10.0 | 27.4 | 27.3 | 26.4 | 26.4 |
| 15.0 | 27.4 | 27.3 | 26.4 | 26.3 |
| 20.0 | 27.5 | 27.6 | 26.8 | 26.8 |
| 25.0 | 27.5 | 27.5 | 26.6 | 26.6 |
| 30.0 | 25.8 | 25.7 | 24.8 | 24.6 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.7 | 46.6 |
| 0.50 | 47.2 | 47.1 |
| 0.75 | 47.3 | 47.3 |
| 1 | 47.4 | 47.4 |
| 10 | 47.3 | 47.4 |
| 100 | 49.6 | 49.7 |
| 125 | 50.5 | 50.5 |
| 150 | 50.4 | 50.5 |
| 175 | 50.1 | 50.2 |
| 200 | 50.1 | 50.1 |
| 225 | 50.5 | 50.4 |
| 250 | 50.2 | 50.2 |
| 275 | 50.2 | 50.2 |
| 300 | 50.2 | 50.2 |
| 325 | 49.9 | 49.9 |
| 350 | 49.9 | 49.8 |
| 375 | 50.4 | 50.4 |
| 400 | 51.1 | 51.2 |
| 425 | 51.3 | 51.3 |
| 450 | 51.0 | 51.0 |
| 475 | 50.7 | 50.8 |
| 500 | 51.6 | 51.8 |
| 1000 | 51.4 | 51.6 |
| 2000 | 50.7 | 50.6 |
| 6000 | 49.9 | 49.8 |
| 10000 | 51.4 | 51.3 |
| 15000 | 47.2 | 47.2 |
| 20000 | 46.8 | 46.7 |
| 25000 | 45.6 | 45.6 |
| 30000 | 43.3 | 42.9 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.5V, $V_{EE}$ = -3.5V @ Temperature = -55°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.5 | 87.7 | 78.7 | 78.4 | 84.6 | 19.3 | 19.4 | 19.4 | 19.2 | 18.8 | 19.6 |
| 0.05 | 0.5 | 0.5 | 80.0 | 81.2 | 82.5 | 81.6 | 24.3 | 24.7 | 24.6 | 20.5 | 20.0 | 25.0 |
| 0.1 | 0.5 | 0.5 | 77.7 | 77.7 | 78.7 | 78.0 | 24.3 | 24.7 | 24.5 | 20.8 | 20.2 | 24.9 |
| 0.3 | 0.5 | 0.5 | 74.1 | 75.1 | 75.9 | 76.1 | 23.6 | 24.0 | 23.8 | 21.1 | 20.5 | 24.1 |
| 0.5 | 0.5 | 0.5 | 70.8 | 72.4 | 73.2 | 74.1 | 22.8 | 23.0 | 23.2 | 21.4 | 20.9 | 23.4 |
| 0.8 | 0.5 | 0.5 | 67.0 | 68.5 | 69.7 | 71.0 | 21.6 | 21.9 | 22.2 | 22.2 | 21.6 | 22.3 |
| 1.0 | 0.5 | 0.5 | 65.2 | 66.8 | 67.8 | 69.5 | 21.0 | 21.2 | 21.7 | 22.8 | 22.1 | 21.7 |
| 2.0 | 0.6 | 0.5 | 60.1 | 61.7 | 64.1 | 65.8 | 22.8 | 22.4 | 24.1 | 29.6 | 28.5 | 23.5 |
| 3.0 | 0.6 | 0.6 | 57.3 | 58.7 | 63.8 | 66.1 | 23.4 | 23.7 | 24.3 | 29.1 | 30.8 | 24.6 |
| 4.0 | 0.7 | 0.6 | 55.4 | 56.5 | 64.5 | 67.6 | 18.1 | 18.5 | 19.3 | 22.7 | 23.2 | 18.6 |
| 5.0 | 0.6 | 0.6 | 53.2 | 55.0 | 64.1 | 68.1 | 22.5 | 22.5 | 25.6 | 21.8 | 21.3 | 23.5 |
| 6.0 | 0.6 | 0.6 | 52.4 | 54.2 | 64.4 | 68.5 | 25.0 | 24.5 | 33.9 | 25.4 | 22.9 | 33.0 |
| 7.0 | 0.7 | 0.6 | 51.6 | 53.3 | 66.1 | 71.5 | 25.0 | 23.8 | 30.7 | 30.1 | 27.1 | 32.0 |
| 8.0 | 0.7 | 0.7 | 50.4 | 51.9 | 67.4 | 70.0 | 20.8 | 21.4 | 22.1 | 27.4 | 29.1 | 24.2 |
| 9.0 | 0.8 | 0.7 | 49.9 | 51.0 | 65.6 | 65.4 | 18.2 | 18.9 | 19.8 | 23.8 | 26.2 | 19.8 |
| 10.0 | 0.8 | 0.7 | 49.4 | 50.5 | 63.9 | 63.0 | 17.2 | 17.2 | 19.4 | 22.9 | 22.7 | 18.3 |
| 11.0 | 0.8 | 0.8 | 48.9 | 50.1 | 61.9 | 60.5 | 16.6 | 16.2 | 18.4 | 21.3 | 19.9 | 17.4 |
| 12.0 | 0.8 | 0.7 | 48.6 | 49.7 | 59.7 | 58.4 | 18.8 | 18.7 | 20.4 | 18.6 | 18.2 | 20.5 |
| 13.0 | 0.8 | 0.7 | 48.2 | 49.5 | 58.9 | 56.8 | 21.5 | 21.5 | 23.7 | 18.3 | 18.5 | 24.5 |
| 14.0 | 0.8 | 0.7 | 47.4 | 50.0 | 58.2 | 55.0 | 19.2 | 18.8 | 21.6 | 18.7 | 19.0 | 21.9 |
| 15.0 | 0.9 | 0.8 | 46.7 | 49.8 | 55.7 | 54.0 | 17.3 | 17.2 | 21.2 | 19.4 | 19.7 | 21.4 |
| 16.0 | 0.9 | 0.9 | 46.3 | 48.3 | 53.9 | 52.7 | 17.0 | 16.8 | 19.5 | 19.9 | 20.6 | 18.5 |
| 17.0 | 0.8 | 0.8 | 46.1 | 48.0 | 53.1 | 52.0 | 21.2 | 19.9 | 18.3 | 15.4 | 14.4 | 16.5 |
| 18.0 | 1.0 | 1.0 | 46.8 | 48.3 | 52.7 | 51.6 | 14.5 | 14.0 | 14.1 | 12.8 | 11.8 | 12.8 |
| 19.0 | 1.3 | 1.2 | 47.7 | 48.4 | 52.5 | 51.3 | 12.7 | 12.4 | 13.6 | 13.3 | 12.8 | 13.1 |
| 20.0 | 1.1 | 1.1 | 47.0 | 47.3 | 52.8 | 51.3 | 15.8 | 15.1 | 15.9 | 14.1 | 13.9 | 15.4 |
| 21.0 | 1.0 | 1.0 | 46.2 | 46.1 | 51.9 | 50.6 | 19.3 | 18.5 | 19.1 | 14.3 | 13.9 | 18.4 |
| 22.0 | 1.2 | 1.1 | 46.1 | 45.6 | 51.3 | 50.4 | 19.4 | 19.2 | 18.3 | 14.5 | 14.9 | 18.1 |
| 23.0 | 1.4 | 1.4 | 48.0 | 46.8 | 52.0 | 51.3 | 15.2 | 14.7 | 13.8 | 11.9 | 11.8 | 12.8 |
| 24.0 | 1.5 | 1.5 | 51.4 | 48.8 | 52.4 | 51.6 | 13.9 | 13.0 | 13.6 | 10.1 | 9.5 | 12.1 |
| 25.0 | 1.3 | 1.4 | 52.1 | 49.4 | 52.9 | 52.4 | 19.6 | 17.4 | 20.4 | 9.9 | 9.3 | 17.0 |
| 26.0 | 1.4 | 1.3 | 53.2 | 49.3 | 52.2 | 51.7 | 26.1 | 30.6 | 32.5 | 10.4 | 9.3 | 26.7 |
| 27.0 | 1.5 | 1.4 | 52.5 | 48.3 | 51.4 | 50.8 | 19.6 | 21.2 | 23.7 | 10.7 | 9.9 | 24.1 |
| 28.0 | 1.5 | 1.5 | 52.1 | 47.6 | 50.3 | 50.0 | 17.2 | 17.7 | 20.6 | 10.6 | 10.3 | 21.4 |
| 29.0 | 1.5 | 1.5 | 52.4 | 46.8 | 49.4 | 48.7 | 18.4 | 18.6 | 20.5 | 10.3 | 9.7 | 20.8 |
| 30.0 | 1.8 | 1.8 | 49.9 | 45.2 | 48.7 | 47.1 | 20.0 | 20.5 | 19.1 | 9.4 | 9.4 | 19.8 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.4 | 20.3 | 18.1 | 18.0 |
| 0.1 | 25.4 | 25.3 | 22.6 | 22.5 |
| 0.2 | 25.8 | 25.8 | 23.0 | 22.9 |
| 0.4 | 26.0 | 26.0 | 23.5 | 23.5 |
| 0.6 | 26.2 | 26.2 | 23.9 | 23.9 |
| 0.8 | 26.4 | 26.5 | 24.1 | 24.1 |
| 1.0 | 26.7 | 26.7 | 24.4 | 24.3 |
| 2.0 | 27.6 | 27.6 | 25.2 | 25.1 |
| 4.0 | 27.5 | 27.5 | 26.6 | 26.7 |
| 6.0 | 28.0 | 27.9 | 27.1 | 27.1 |
| 8.0 | 27.9 | 27.9 | 27.0 | 27.0 |
| 10.0 | 27.5 | 27.5 | 26.6 | 26.6 |
| 15.0 | 27.5 | 27.4 | 26.6 | 26.5 |
| 20.0 | 27.7 | 27.8 | 27.0 | 27.0 |
| 25.0 | 27.7 | 27.8 | 26.9 | 26.9 |
| 30.0 | 26.0 | 25.9 | 25.1 | 24.9 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.9 | 46.8 |
| 0.50 | 47.3 | 47.2 |
| 0.75 | 47.4 | 47.3 |
| 1 | 47.4 | 47.3 |
| 10 | 48.1 | 48.1 |
| 100 | 50.0 | 49.9 |
| 125 | 50.9 | 50.8 |
| 150 | 50.7 | 50.6 |
| 175 | 50.3 | 50.2 |
| 200 | 50.2 | 50.2 |
| 225 | 50.6 | 50.6 |
| 250 | 50.4 | 50.3 |
| 275 | 50.3 | 50.3 |
| 300 | 50.3 | 50.2 |
| 325 | 49.9 | 50.0 |
| 350 | 49.9 | 49.9 |
| 375 | 50.5 | 50.5 |
| 400 | 51.2 | 51.3 |
| 425 | 51.5 | 51.4 |
| 450 | 51.1 | 51.1 |
| 475 | 50.8 | 50.8 |
| 500 | 51.8 | 51.8 |
| 1000 | 51.5 | 51.7 |
| 2000 | 50.7 | 50.7 |
| 6000 | 49.9 | 50.0 |
| 10000 | 51.6 | 51.5 |
| 15000 | 47.6 | 47.6 |
| 20000 | 47.1 | 47.0 |
| 25000 | 46.0 | 46.1 |
| 30000 | 43.7 | 43.4 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.6V, $V_{EE}$ = -3.6V @ Temperature = -55°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.5 | 0.5 | 93.3 | 78.6 | 80.9 | 82.2 | 19.5 | 19.5 | 19.6 | 18.8 | 18.7 | 19.7 |
| 0.05 | 0.5 | 0.5 | 80.4 | 82.5 | 80.6 | 82.5 | 24.7 | 24.8 | 25.0 | 20.0 | 19.9 | 25.0 |
| 0.1 | 0.5 | 0.5 | 78.4 | 78.9 | 78.4 | 78.6 | 24.6 | 24.8 | 25.0 | 20.3 | 20.2 | 24.9 |
| 0.3 | 0.5 | 0.4 | 74.0 | 75.4 | 76.6 | 76.7 | 24.0 | 24.2 | 24.1 | 20.6 | 20.5 | 24.0 |
| 0.5 | 0.5 | 0.5 | 70.4 | 71.9 | 73.1 | 74.1 | 23.1 | 23.1 | 23.2 | 21.0 | 20.7 | 23.4 |
| 0.8 | 0.5 | 0.5 | 67.2 | 68.7 | 69.8 | 70.7 | 22.0 | 22.0 | 22.0 | 21.8 | 21.5 | 22.2 |
| 1.0 | 0.5 | 0.5 | 65.3 | 66.5 | 68.1 | 69.4 | 21.3 | 21.3 | 21.5 | 22.4 | 22.0 | 21.7 |
| 2.0 | 0.5 | 0.5 | 60.1 | 61.7 | 64.3 | 65.6 | 23.1 | 22.6 | 23.5 | 30.0 | 28.6 | 23.4 |
| 3.0 | 0.6 | 0.6 | 57.3 | 58.7 | 63.9 | 66.2 | 23.1 | 23.6 | 23.6 | 29.0 | 30.7 | 24.2 |
| 4.0 | 0.6 | 0.6 | 55.3 | 56.4 | 65.1 | 67.7 | 18.2 | 18.5 | 18.7 | 22.3 | 22.8 | 18.4 |
| 5.0 | 0.6 | 0.5 | 53.2 | 54.8 | 64.1 | 67.7 | 22.9 | 22.8 | 25.4 | 21.2 | 20.9 | 23.7 |
| 6.0 | 0.6 | 0.6 | 52.4 | 54.1 | 64.8 | 68.8 | 25.2 | 24.5 | 34.4 | 24.1 | 22.7 | 34.8 |
| 7.0 | 0.6 | 0.6 | 51.5 | 53.1 | 66.6 | 71.1 | 24.3 | 23.3 | 30.8 | 32.5 | 27.1 | 32.0 |
| 8.0 | 0.7 | 0.6 | 50.4 | 51.7 | 67.6 | 69.3 | 20.1 | 20.9 | 21.3 | 27.9 | 29.1 | 23.8 |
| 9.0 | 0.7 | 0.7 | 49.8 | 50.9 | 65.5 | 65.2 | 18.0 | 18.7 | 19.0 | 23.3 | 25.7 | 19.3 |
| 10.0 | 0.8 | 0.7 | 49.3 | 50.3 | 63.4 | 62.7 | 17.6 | 17.5 | 19.1 | 22.0 | 22.0 | 18.2 |
| 11.0 | 0.8 | 0.7 | 48.8 | 49.9 | 61.3 | 60.3 | 17.0 | 16.7 | 18.6 | 20.5 | 19.5 | 18.1 |
| 12.0 | 0.8 | 0.7 | 48.5 | 49.5 | 59.5 | 58.3 | 18.8 | 18.9 | 21.1 | 18.6 | 18.4 | 21.4 |
| 13.0 | 0.7 | 0.7 | 48.1 | 49.3 | 58.8 | 56.9 | 20.7 | 21.0 | 23.9 | 18.7 | 19.0 | 24.6 |
| 14.0 | 0.8 | 0.7 | 47.3 | 49.7 | 57.8 | 54.9 | 19.2 | 18.9 | 22.0 | 19.2 | 19.1 | 21.9 |
| 15.0 | 0.8 | 0.8 | 46.6 | 49.5 | 55.3 | 53.7 | 17.7 | 17.7 | 21.0 | 19.4 | 19.3 | 21.8 |
| 16.0 | 0.9 | 0.8 | 46.2 | 48.2 | 53.5 | 52.6 | 17.3 | 17.4 | 19.2 | 19.1 | 20.4 | 18.9 |
| 17.0 | 0.8 | 0.8 | 46.1 | 47.8 | 52.9 | 51.9 | 20.8 | 19.5 | 18.1 | 15.1 | 14.2 | 16.3 |
| 18.0 | 1.0 | 1.0 | 46.7 | 48.2 | 52.6 | 51.6 | 14.7 | 13.8 | 14.1 | 12.9 | 11.6 | 12.6 |
| 19.0 | 1.2 | 1.2 | 47.7 | 48.3 | 52.3 | 51.3 | 13.0 | 12.7 | 13.8 | 13.4 | 13.0 | 13.7 |
| 20.0 | 1.0 | 1.0 | 46.8 | 47.3 | 52.3 | 51.2 | 16.2 | 15.6 | 16.4 | 14.3 | 14.2 | 15.9 |
| 21.0 | 1.0 | 0.9 | 46.1 | 46.1 | 51.7 | 50.5 | 19.7 | 18.9 | 19.2 | 14.6 | 13.9 | 18.3 |
| 22.0 | 1.1 | 1.1 | 46.2 | 45.8 | 51.2 | 50.4 | 18.6 | 18.4 | 17.4 | 14.3 | 14.6 | 17.7 |
| 23.0 | 1.4 | 1.4 | 47.9 | 47.1 | 52.0 | 51.3 | 15.1 | 14.6 | 13.5 | 11.7 | 11.6 | 12.7 |
| 24.0 | 1.4 | 1.4 | 51.6 | 49.0 | 52.6 | 51.7 | 14.2 | 13.4 | 13.6 | 9.9 | 9.5 | 12.5 |
| 25.0 | 1.3 | 1.3 | 52.4 | 49.7 | 52.8 | 52.2 | 20.3 | 18.2 | 21.1 | 9.8 | 9.4 | 18.0 |
| 26.0 | 1.3 | 1.3 | 53.2 | 49.6 | 52.0 | 51.6 | 26.1 | 33.9 | 34.0 | 10.6 | 9.4 | 28.3 |
| 27.0 | 1.4 | 1.3 | 52.4 | 48.5 | 51.2 | 50.6 | 20.9 | 22.1 | 23.4 | 11.1 | 10.1 | 23.9 |
| 28.0 | 1.4 | 1.4 | 51.9 | 47.8 | 50.4 | 49.9 | 18.4 | 18.7 | 22.2 | 10.6 | 10.4 | 22.3 |
| 29.0 | 1.5 | 1.5 | 52.5 | 47.1 | 49.5 | 48.5 | 18.4 | 18.8 | 20.6 | 10.0 | 9.6 | 20.3 |
| 30.0 | 1.7 | 1.8 | 49.3 | 45.4 | 48.5 | 47.1 | 18.4 | 18.4 | 18.3 | 9.2 | 9.6 | 18.5 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.6 | 20.5 | 18.3 | 18.2 |
| 0.1 | 25.6 | 25.5 | 22.8 | 22.8 |
| 0.2 | 26.0 | 26.0 | 23.2 | 23.2 |
| 0.4 | 26.2 | 26.2 | 23.7 | 23.7 |
| 0.6 | 26.3 | 26.4 | 24.1 | 24.1 |
| 0.8 | 26.5 | 26.6 | 24.3 | 24.3 |
| 1.0 | 26.8 | 26.8 | 24.6 | 24.5 |
| 2.0 | 27.6 | 27.6 | 25.3 | 25.3 |
| 4.0 | 27.5 | 27.6 | 26.7 | 26.8 |
| 6.0 | 28.0 | 27.9 | 27.2 | 27.2 |
| 8.0 | 27.9 | 27.9 | 27.1 | 27.1 |
| 10.0 | 27.6 | 27.5 | 26.7 | 26.7 |
| 15.0 | 27.5 | 27.4 | 26.7 | 26.6 |
| 20.0 | 27.8 | 27.9 | 27.1 | 27.2 |
| 25.0 | 27.8 | 27.9 | 27.0 | 27.1 |
| 30.0 | 26.1 | 26.0 | 25.2 | 25.0 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 46.9 | 46.8 |
| 0.50 | 47.3 | 47.1 |
| 0.75 | 47.3 | 47.1 |
| 1 | 47.4 | 47.2 |
| 10 | 48.2 | 48.4 |
| 100 | 50.0 | 50.1 |
| 125 | 51.0 | 51.0 |
| 150 | 50.7 | 50.8 |
| 175 | 50.3 | 50.4 |
| 200 | 50.3 | 50.3 |
| 225 | 50.7 | 50.6 |
| 250 | 50.5 | 50.4 |
| 275 | 50.3 | 50.4 |
| 300 | 50.3 | 50.3 |
| 325 | 50.1 | 50.0 |
| 350 | 50.0 | 49.9 |
| 375 | 50.5 | 50.5 |
| 400 | 51.3 | 51.3 |
| 425 | 51.4 | 51.5 |
| 450 | 51.0 | 51.1 |
| 475 | 50.8 | 50.9 |
| 500 | 51.8 | 51.9 |
| 1000 | 51.5 | 51.8 |
| 2000 | 50.7 | 50.7 |
| 6000 | 50.1 | 50.3 |
| 10000 | 52.0 | 51.6 |
| 15000 | 47.8 | 47.8 |
| 20000 | 47.4 | 47.4 |
| 25000 | 46.2 | 46.2 |
| 30000 | 44.0 | 43.8 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.3V, $V_{EE}$ = -3.3V @ Temperature = +105°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.6 | 0.6 | 84.5 | 83.8 | 81.1 | 78.6 | 18.8 | 18.6 | 18.9 | 19.0 | 18.9 | 18.8 |
| 0.05 | 0.7 | 0.7 | 80.1 | 81.6 | 82.1 | 81.4 | 22.3 | 22.3 | 22.5 | 20.1 | 20.0 | 22.5 |
| 0.1 | 0.7 | 0.7 | 77.8 | 77.6 | 77.9 | 78.9 | 22.3 | 22.4 | 22.5 | 20.2 | 20.2 | 22.5 |
| 0.3 | 0.6 | 0.6 | 72.8 | 73.7 | 74.2 | 74.8 | 21.8 | 21.9 | 22.0 | 20.6 | 20.5 | 22.0 |
| 0.5 | 0.7 | 0.7 | 69.0 | 70.1 | 71.6 | 72.8 | 21.1 | 21.1 | 21.2 | 21.1 | 21.0 | 21.3 |
| 0.8 | 0.7 | 0.7 | 65.6 | 66.6 | 68.3 | 68.9 | 20.2 | 20.2 | 20.3 | 22.0 | 21.8 | 20.5 |
| 1.0 | 0.7 | 0.7 | 63.6 | 64.8 | 66.4 | 67.3 | 19.8 | 19.8 | 19.9 | 22.8 | 22.5 | 20.2 |
| 2.0 | 0.8 | 0.8 | 58.5 | 59.8 | 62.1 | 63.3 | 21.7 | 21.4 | 21.9 | 30.7 | 29.1 | 22.1 |
| 3.0 | 0.9 | 0.9 | 55.7 | 57.0 | 61.1 | 62.4 | 22.6 | 22.9 | 23.3 | 31.2 | 32.9 | 23.8 |
| 4.0 | 0.9 | 0.9 | 54.1 | 54.9 | 60.5 | 62.6 | 18.5 | 18.9 | 19.3 | 23.8 | 24.7 | 19.1 |
| 5.0 | 0.9 | 0.9 | 52.4 | 53.8 | 60.0 | 62.2 | 22.0 | 21.9 | 24.5 | 21.7 | 21.7 | 23.0 |
| 6.0 | 0.9 | 0.9 | 51.8 | 53.3 | 60.4 | 62.8 | 24.1 | 23.2 | 28.1 | 24.5 | 23.2 | 32.7 |
| 7.0 | 1.0 | 1.0 | 51.2 | 52.7 | 61.6 | 64.8 | 23.0 | 22.2 | 27.9 | 39.7 | 29.7 | 34.0 |
| 8.0 | 1.1 | 1.0 | 50.3 | 51.6 | 64.2 | 68.9 | 20.0 | 20.6 | 22.4 | 30.3 | 31.6 | 24.4 |
| 9.0 | 1.1 | 1.1 | 50.0 | 51.0 | 65.3 | 72.0 | 17.7 | 18.4 | 19.6 | 25.7 | 28.7 | 20.1 |
| 10.0 | 1.2 | 1.1 | 49.6 | 50.5 | 65.5 | 70.1 | 16.7 | 16.8 | 18.6 | 22.4 | 22.7 | 18.1 |
| 11.0 | 1.2 | 1.2 | 49.4 | 50.4 | 64.7 | 66.7 | 17.7 | 17.4 | 19.8 | 20.3 | 19.8 | 19.0 |
| 12.0 | 1.1 | 1.1 | 49.3 | 50.2 | 63.4 | 64.3 | 19.6 | 19.4 | 23.8 | 19.6 | 18.9 | 23.0 |
| 13.0 | 1.2 | 1.2 | 49.1 | 50.3 | 63.6 | 61.8 | 19.4 | 19.3 | 26.4 | 20.2 | 19.8 | 26.3 |
| 14.0 | 1.2 | 1.2 | 48.5 | 51.0 | 63.0 | 59.3 | 17.9 | 17.9 | 25.1 | 22.8 | 22.6 | 25.9 |
| 15.0 | 1.3 | 1.3 | 47.9 | 50.7 | 59.5 | 57.5 | 17.3 | 17.5 | 19.9 | 21.6 | 23.1 | 20.5 |
| 16.0 | 1.3 | 1.3 | 47.5 | 49.5 | 57.1 | 55.8 | 19.6 | 19.0 | 19.1 | 17.6 | 18.0 | 18.4 |
| 17.0 | 1.3 | 1.3 | 47.8 | 49.5 | 56.6 | 55.4 | 19.9 | 19.2 | 18.1 | 15.2 | 14.6 | 16.8 |
| 18.0 | 1.5 | 1.6 | 48.6 | 49.6 | 56.4 | 55.1 | 15.3 | 14.7 | 14.9 | 14.1 | 13.4 | 14.0 |
| 19.0 | 1.7 | 1.7 | 49.1 | 49.5 | 55.9 | 54.7 | 14.6 | 14.0 | 15.8 | 14.6 | 13.7 | 14.7 |
| 20.0 | 1.6 | 1.6 | 48.4 | 48.6 | 55.6 | 54.3 | 17.8 | 17.7 | 19.1 | 16.3 | 15.6 | 19.2 |
| 21.0 | 1.6 | 1.6 | 47.6 | 47.3 | 54.7 | 53.8 | 22.5 | 22.5 | 18.9 | 16.0 | 16.5 | 19.8 |
| 22.0 | 1.8 | 1.8 | 48.3 | 47.4 | 54.2 | 53.8 | 17.9 | 17.7 | 15.7 | 13.8 | 14.2 | 15.6 |
| 23.0 | 2.0 | 2.1 | 50.3 | 48.7 | 55.2 | 55.4 | 14.8 | 14.2 | 13.6 | 11.6 | 11.7 | 13.0 |
| 24.0 | 1.9 | 2.0 | 53.4 | 49.7 | 55.7 | 55.5 | 16.7 | 15.5 | 16.4 | 10.6 | 10.3 | 14.7 |
| 25.0 | 1.9 | 1.9 | 53.4 | 49.9 | 55.4 | 55.7 | 23.7 | 23.6 | 32.1 | 11.2 | 10.5 | 23.2 |
| 26.0 | 2.0 | 2.0 | 53.4 | 49.5 | 54.5 | 54.9 | 28.0 | 31.3 | 31.4 | 12.1 | 11.1 | 30.6 |
| 27.0 | 2.1 | 2.1 | 52.5 | 48.8 | 53.7 | 54.1 | 24.2 | 25.6 | 29.3 | 11.6 | 10.8 | 31.9 |
| 28.0 | 2.2 | 2.3 | 51.0 | 47.6 | 52.8 | 53.6 | 18.8 | 18.9 | 22.3 | 11.0 | 10.7 | 20.7 |
| 29.0 | 2.3 | 2.4 | 50.2 | 46.7 | 52.1 | 51.6 | 18.2 | 18.4 | 20.2 | 10.8 | 11.0 | 19.7 |
| 30.0 | 2.7 | 2.7 | 48.1 | 45.0 | 51.1 | 49.7 | 18.3 | 19.1 | 17.5 | 10.0 | 10.3 | 19.5 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 19.5 | 19.4 | 17.3 | 17.2 |
| 0.1 | 24.3 | 24.2 | 21.0 | 20.9 |
| 0.2 | 24.9 | 24.8 | 21.5 | 21.4 |
| 0.4 | 25.1 | 25.1 | 22.1 | 22.0 |
| 0.6 | 25.4 | 25.4 | 22.5 | 22.4 |
| 0.8 | 25.7 | 25.7 | 22.7 | 22.6 |
| 1.0 | 25.9 | 25.9 | 23.0 | 22.9 |
| 2.0 | 27.1 | 27.1 | 24.0 | 23.9 |
| 4.0 | 27.4 | 27.4 | 26.1 | 26.1 |
| 6.0 | 27.8 | 27.7 | 26.7 | 26.6 |
| 8.0 | 27.9 | 27.9 | 26.7 | 26.8 |
| 10.0 | 27.5 | 27.5 | 26.3 | 26.3 |
| 15.0 | 27.5 | 27.4 | 26.3 | 26.2 |
| 20.0 | 27.8 | 27.8 | 26.9 | 26.8 |
| 25.0 | 27.8 | 27.7 | 26.5 | 26.5 |
| 30.0 | 26.0 | 25.9 | 24.6 | 24.4 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 44.7 | 44.7 |
| 0.50 | 45.3 | 45.3 |
| 0.75 | 45.4 | 45.4 |
| 1 | 45.5 | 45.5 |
| 10 | 44.8 | 44.7 |
| 100 | 48.2 | 48.1 |
| 125 | 49.2 | 49.0 |
| 150 | 49.0 | 48.9 |
| 175 | 48.9 | 48.8 |
| 200 | 49.1 | 48.9 |
| 225 | 49.7 | 49.6 |
| 250 | 49.5 | 49.4 |
| 275 | 49.6 | 49.4 |
| 300 | 49.6 | 49.5 |
| 325 | 49.4 | 49.2 |
| 350 | 49.3 | 49.1 |
| 375 | 49.9 | 49.6 |
| 400 | 50.5 | 50.4 |
| 425 | 50.9 | 50.7 |
| 450 | 50.5 | 50.3 |
| 475 | 50.2 | 50.1 |
| 500 | 50.9 | 50.8 |
| 1000 | 50.7 | 50.8 |
| 2000 | 50.2 | 50.1 |
| 6000 | 49.4 | 49.3 |
| 10000 | 50.1 | 50.0 |
| 15000 | 46.0 | 45.7 |
| 20000 | 45.7 | 45.5 |
| 25000 | 44.4 | 44.4 |
| 30000 | 41.7 | 41.5 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.5V, $V_{EE}$ = -3.5V @ Temperature = +105°C

| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.6 | 0.6 | 81.6 | 85.4 | 80.3 | 79.0 | 18.6 | 18.6 | 18.7 | 18.9 | 18.9 | 18.8 |
| 0.05 | 0.7 | 0.7 | 81.0 | 82.2 | 82.7 | 81.6 | 22.3 | 22.2 | 22.5 | 20.1 | 20.0 | 22.4 |
| 0.1 | 0.7 | 0.7 | 77.5 | 77.5 | 78.6 | 78.8 | 22.3 | 22.3 | 22.5 | 20.2 | 20.1 | 22.5 |
| 0.3 | 0.6 | 0.6 | 72.5 | 73.8 | 75.1 | 75.5 | 21.7 | 21.8 | 22.0 | 20.6 | 20.5 | 21.9 |
| 0.5 | 0.7 | 0.7 | 69.2 | 70.4 | 71.2 | 71.8 | 21.1 | 21.0 | 21.2 | 21.1 | 21.0 | 21.3 |
| 0.8 | 0.7 | 0.7 | 65.6 | 66.5 | 68.2 | 69.2 | 20.2 | 20.2 | 20.3 | 22.0 | 21.8 | 20.5 |
| 1.0 | 0.7 | 0.7 | 63.6 | 65.0 | 66.2 | 67.5 | 19.9 | 19.8 | 19.9 | 22.8 | 22.5 | 20.2 |
| 2.0 | 0.8 | 0.8 | 58.5 | 59.8 | 61.9 | 63.4 | 21.7 | 21.3 | 22.1 | 30.6 | 29.0 | 22.2 |
| 3.0 | 0.9 | 0.9 | 55.8 | 57.1 | 60.8 | 62.4 | 22.5 | 22.9 | 23.5 | 31.0 | 33.1 | 24.0 |
| 4.0 | 0.9 | 0.9 | 54.2 | 55.0 | 60.4 | 62.6 | 18.4 | 19.0 | 19.3 | 23.7 | 25.0 | 19.1 |
| 5.0 | 0.9 | 0.9 | 52.4 | 53.9 | 59.8 | 62.6 | 21.8 | 21.8 | 24.3 | 21.6 | 21.8 | 22.6 |
| 6.0 | 0.9 | 0.9 | 51.8 | 53.4 | 60.0 | 62.6 | 24.0 | 23.3 | 28.6 | 24.4 | 23.2 | 32.4 |
| 7.0 | 1.0 | 1.0 | 51.3 | 52.9 | 61.4 | 64.8 | 23.2 | 22.5 | 28.1 | 37.7 | 29.5 | 33.2 |
| 8.0 | 1.0 | 1.0 | 50.4 | 51.7 | 63.5 | 68.7 | 20.3 | 20.9 | 23.1 | 30.3 | 31.8 | 24.9 |
| 9.0 | 1.1 | 1.1 | 50.0 | 51.1 | 64.8 | 72.0 | 17.8 | 18.4 | 20.0 | 26.3 | 29.2 | 20.3 |
| 10.0 | 1.1 | 1.1 | 49.7 | 50.8 | 65.2 | 70.3 | 16.6 | 16.6 | 18.5 | 22.6 | 23.1 | 18.0 |
| 11.0 | 1.2 | 1.2 | 49.4 | 50.4 | 64.8 | 67.1 | 17.4 | 17.0 | 19.3 | 20.3 | 19.9 | 18.3 |
| 12.0 | 1.1 | 1.1 | 49.3 | 50.3 | 63.3 | 64.0 | 19.8 | 19.4 | 23.1 | 19.1 | 18.7 | 22.3 |
| 13.0 | 1.2 | 1.1 | 49.1 | 50.4 | 63.5 | 61.8 | 19.7 | 19.6 | 26.1 | 19.5 | 19.3 | 25.7 |
| 14.0 | 1.2 | 1.2 | 48.5 | 51.1 | 63.6 | 59.5 | 18.0 | 17.9 | 26.4 | 22.6 | 22.4 | 26.4 |
| 15.0 | 1.3 | 1.3 | 48.0 | 51.0 | 60.0 | 57.9 | 17.0 | 17.0 | 20.1 | 22.4 | 23.8 | 20.4 |
| 16.0 | 1.3 | 1.3 | 47.6 | 49.6 | 57.5 | 56.0 | 19.2 | 18.4 | 19.0 | 17.9 | 18.1 | 18.0 |
| 17.0 | 1.3 | 1.3 | 47.8 | 49.5 | 56.8 | 55.4 | 20.8 | 19.8 | 18.2 | 15.2 | 14.6 | 17.0 |
| 18.0 | 1.5 | 1.5 | 48.6 | 49.7 | 56.6 | 55.1 | 15.3 | 14.8 | 14.7 | 13.9 | 13.4 | 14.0 |
| 19.0 | 1.7 | 1.7 | 49.2 | 49.4 | 56.1 | 54.7 | 14.4 | 13.7 | 15.5 | 14.4 | 13.6 | 14.2 |
| 20.0 | 1.5 | 1.6 | 48.6 | 48.6 | 56.0 | 54.3 | 17.4 | 17.0 | 19.4 | 16.3 | 15.3 | 18.6 |
| 21.0 | 1.6 | 1.6 | 47.6 | 47.2 | 54.8 | 53.7 | 22.5 | 22.3 | 19.3 | 16.3 | 16.7 | 20.3 |
| 22.0 | 1.8 | 1.8 | 48.2 | 47.2 | 54.0 | 53.6 | 18.8 | 18.4 | 16.2 | 14.1 | 14.6 | 15.9 |
| 23.0 | 2.0 | 2.0 | 50.3 | 48.3 | 54.9 | 55.2 | 15.0 | 14.3 | 13.8 | 11.8 | 11.8 | 13.1 |
| 24.0 | 1.9 | 2.0 | 52.9 | 49.4 | 55.4 | 55.4 | 16.6 | 15.2 | 16.2 | 10.6 | 10.3 | 14.2 |
| 25.0 | 1.9 | 1.9 | 53.2 | 49.5 | 55.5 | 56.0 | 23.2 | 22.3 | 30.6 | 11.2 | 10.4 | 21.5 |
| 26.0 | 2.0 | 2.0 | 53.3 | 49.3 | 54.5 | 55.1 | 26.7 | 30.6 | 31.4 | 12.2 | 10.9 | 31.3 |
| 27.0 | 2.1 | 2.1 | 52.7 | 48.5 | 53.8 | 54.4 | 22.7 | 24.2 | 28.1 | 11.5 | 10.7 | 33.3 |
| 28.0 | 2.2 | 2.2 | 51.4 | 47.6 | 52.9 | 53.4 | 18.3 | 18.6 | 21.1 | 11.2 | 10.8 | 20.3 |
| 29.0 | 2.3 | 2.3 | 50.4 | 46.4 | 51.8 | 51.7 | 18.7 | 19.1 | 20.2 | 11.2 | 11.3 | 20.1 |
| 30.0 | 2.6 | 2.6 | 48.5 | 45.0 | 51.1 | 49.9 | 19.9 | 21.0 | 18.5 | 10.3 | 10.3 | 20.8 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 19.9 | 19.8 | 17.7 | 17.6 |
| 0.1 | 24.7 | 24.6 | 21.5 | 21.4 |
| 0.2 | 25.3 | 25.2 | 22.0 | 21.9 |
| 0.4 | 25.5 | 25.4 | 22.6 | 22.5 |
| 0.6 | 25.7 | 25.8 | 23.0 | 22.9 |
| 0.8 | 26.0 | 26.0 | 23.2 | 23.1 |
| 1.0 | 26.3 | 26.3 | 23.5 | 23.4 |
| 2.0 | 27.3 | 27.3 | 24.3 | 24.3 |
| 4.0 | 27.5 | 27.5 | 26.4 | 26.4 |
| 6.0 | 27.9 | 27.9 | 26.9 | 26.9 |
| 8.0 | 28.0 | 28.1 | 27.0 | 27.0 |
| 10.0 | 27.7 | 27.6 | 26.6 | 26.5 |
| 15.0 | 27.6 | 27.6 | 26.6 | 26.4 |
| 20.0 | 28.0 | 28.0 | 27.2 | 27.1 |
| 25.0 | 28.0 | 28.0 | 26.9 | 26.9 |
| 30.0 | 26.2 | 26.0 | 24.9 | 24.7 |

| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 45.5 | 45.6 |
| 0.50 | 46.0 | 46.1 |
| 0.75 | 46.2 | 46.2 |
| 1 | 46.2 | 46.3 |
| 10 | 45.7 | 45.4 |
| 100 | 48.5 | 48.3 |
| 125 | 49.5 | 49.2 |
| 150 | 49.2 | 49.0 |
| 175 | 49.1 | 48.8 |
| 200 | 49.2 | 49.0 |
| 225 | 49.9 | 49.7 |
| 250 | 49.7 | 49.5 |
| 275 | 49.7 | 49.4 |
| 300 | 49.8 | 49.5 |
| 325 | 49.5 | 49.3 |
| 350 | 49.4 | 49.1 |
| 375 | 50.0 | 49.6 |
| 400 | 50.7 | 50.5 |
| 425 | 51.0 | 50.8 |
| 450 | 50.5 | 50.4 |
| 475 | 50.3 | 50.1 |
| 500 | 51.1 | 50.9 |
| 1000 | 50.9 | 50.9 |
| 2000 | 50.3 | 50.2 |
| 6000 | 49.6 | 49.5 |
| 10000 | 50.5 | 50.4 |
| 15000 | 46.6 | 46.4 |
| 20000 | 46.2 | 46.0 |
| 25000 | 44.9 | 45.0 |
| 30000 | 42.3 | 42.2 |

*Typical Performance Data*

**Definitions:**

| STATE | CONTROL INPUT | RFC TO RF1 | RFC TO RF2 |
|---|---|---|---|
| 1 | HIGH | OFF | ON |
| 2 | LOW | ON | OFF |

TEST CONDITIONS: $V_{DD}$= +3.6V, $V_{EE}$ = -3.6V @ Temperature = +105°C

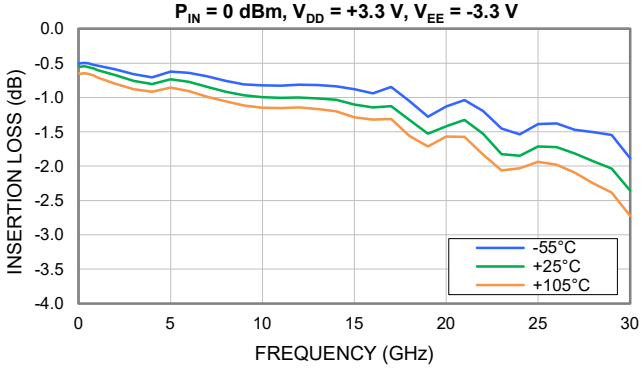
| FREQ | Insertion Loss | | Isolation | | | | Return Loss | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RFC-RF1 State 2 | RFC-RF2 State 1 | RFC-RF1 State 1 | RFC-RF2 State 2 | RF1-RF2 State 2 | RF1-RF2 State 1 | RFC State 2 | RFC State 1 | RF1 State 2 | RF1 State 1 | RF2 State 2 | RF2 State 1 |
| (GHz) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) | (dB) |
| 0.01 | 0.6 | 0.6 | 84.8 | 83.1 | 88.3 | 83.3 | 18.7 | 18.7 | 18.8 | 18.9 | 18.9 | 18.8 |
| 0.05 | 0.6 | 0.6 | 81.5 | 81.2 | 79.9 | 81.5 | 22.3 | 22.3 | 22.5 | 20.1 | 20.1 | 22.5 |
| 0.1 | 0.6 | 0.6 | 77.5 | 77.8 | 79.0 | 79.6 | 22.4 | 22.4 | 22.5 | 20.2 | 20.2 | 22.5 |
| 0.3 | 0.6 | 0.6 | 73.0 | 73.4 | 74.5 | 74.8 | 21.8 | 21.9 | 22.0 | 20.5 | 20.5 | 22.0 |
| 0.5 | 0.7 | 0.6 | 69.3 | 70.2 | 71.4 | 73.0 | 21.1 | 21.0 | 21.2 | 21.1 | 21.0 | 21.4 |
| 0.8 | 0.7 | 0.7 | 65.6 | 66.6 | 68.0 | 69.3 | 20.2 | 20.2 | 20.3 | 22.0 | 21.8 | 20.6 |
| 1.0 | 0.7 | 0.7 | 63.6 | 64.8 | 66.4 | 67.1 | 19.9 | 19.8 | 20.0 | 22.8 | 22.5 | 20.2 |
| 2.0 | 0.8 | 0.8 | 58.5 | 59.7 | 62.2 | 63.5 | 21.8 | 21.3 | 22.0 | 30.6 | 29.0 | 22.2 |
| 3.0 | 0.9 | 0.9 | 55.9 | 57.0 | 60.9 | 62.7 | 22.6 | 22.9 | 23.4 | 30.9 | 32.7 | 23.9 |
| 4.0 | 0.9 | 0.9 | 54.1 | 54.9 | 60.7 | 62.6 | 18.4 | 18.9 | 19.3 | 23.7 | 24.8 | 19.1 |
| 5.0 | 0.8 | 0.8 | 52.4 | 53.8 | 60.1 | 62.3 | 21.9 | 21.9 | 24.5 | 21.6 | 21.6 | 22.8 |
| 6.0 | 0.9 | 0.9 | 51.8 | 53.3 | 60.3 | 62.7 | 24.0 | 23.2 | 28.4 | 24.4 | 23.1 | 32.9 |
| 7.0 | 1.0 | 1.0 | 51.2 | 52.7 | 61.7 | 64.9 | 23.2 | 22.3 | 27.8 | 42.6 | 29.8 | 33.8 |
| 8.0 | 1.0 | 1.0 | 50.3 | 51.5 | 64.0 | 68.9 | 20.1 | 20.7 | 22.5 | 29.9 | 31.2 | 24.4 |
| 9.0 | 1.1 | 1.1 | 50.0 | 51.0 | 65.3 | 72.4 | 17.7 | 18.3 | 19.8 | 25.7 | 28.4 | 20.2 |
| 10.0 | 1.1 | 1.1 | 49.7 | 50.6 | 65.6 | 70.0 | 16.6 | 16.6 | 18.6 | 22.4 | 22.8 | 18.2 |
| 11.0 | 1.1 | 1.1 | 49.4 | 50.4 | 65.0 | 66.4 | 17.6 | 17.3 | 19.5 | 20.3 | 19.9 | 18.9 |
| 12.0 | 1.1 | 1.1 | 49.3 | 50.3 | 63.3 | 63.7 | 19.7 | 19.6 | 23.4 | 19.2 | 18.9 | 22.9 |
| 13.0 | 1.2 | 1.1 | 49.0 | 50.2 | 63.3 | 61.7 | 19.5 | 19.4 | 26.3 | 19.8 | 19.6 | 26.1 |
| 14.0 | 1.2 | 1.2 | 48.5 | 51.0 | 62.8 | 59.3 | 17.9 | 17.9 | 25.9 | 22.9 | 22.5 | 26.1 |
| 15.0 | 1.3 | 1.3 | 48.0 | 50.7 | 59.5 | 57.7 | 17.1 | 17.2 | 19.8 | 21.8 | 23.3 | 20.4 |
| 16.0 | 1.3 | 1.3 | 47.6 | 49.6 | 57.1 | 55.8 | 19.2 | 18.6 | 19.1 | 17.6 | 17.9 | 18.2 |
| 17.0 | 1.3 | 1.3 | 47.8 | 49.5 | 56.5 | 55.4 | 20.5 | 19.7 | 18.3 | 15.3 | 14.7 | 17.2 |
| 18.0 | 1.5 | 1.5 | 48.6 | 49.6 | 56.2 | 55.1 | 15.3 | 14.8 | 15.0 | 14.1 | 13.5 | 14.2 |
| 19.0 | 1.7 | 1.7 | 49.1 | 49.5 | 56.0 | 54.7 | 14.4 | 13.8 | 15.5 | 14.5 | 13.8 | 14.5 |
| 20.0 | 1.5 | 1.6 | 48.4 | 48.7 | 55.5 | 54.2 | 17.6 | 17.3 | 19.4 | 16.3 | 15.3 | 18.9 |
| 21.0 | 1.6 | 1.5 | 47.6 | 47.4 | 54.6 | 53.7 | 22.6 | 22.6 | 19.2 | 16.3 | 16.7 | 20.3 |
| 22.0 | 1.8 | 1.8 | 48.3 | 47.4 | 54.1 | 53.7 | 18.4 | 18.2 | 16.0 | 13.9 | 14.5 | 15.9 |
| 23.0 | 2.0 | 2.0 | 50.3 | 48.7 | 55.0 | 55.2 | 14.9 | 14.3 | 13.8 | 11.8 | 11.8 | 13.1 |
| 24.0 | 1.9 | 2.0 | 53.2 | 49.7 | 55.6 | 55.5 | 16.8 | 15.6 | 16.4 | 10.7 | 10.4 | 14.6 |
| 25.0 | 1.9 | 1.9 | 53.5 | 49.9 | 55.6 | 55.8 | 23.5 | 23.2 | 32.0 | 11.3 | 10.5 | 22.7 |
| 26.0 | 1.9 | 2.0 | 53.5 | 49.6 | 54.5 | 54.9 | 26.9 | 30.8 | 31.3 | 12.2 | 11.1 | 32.0 |
| 27.0 | 2.1 | 2.1 | 52.7 | 48.8 | 53.9 | 54.2 | 23.4 | 24.8 | 28.4 | 11.7 | 10.9 | 30.2 |
| 28.0 | 2.2 | 2.2 | 51.2 | 47.8 | 52.9 | 53.2 | 18.6 | 18.7 | 22.2 | 11.2 | 10.8 | 20.7 |
| 29.0 | 2.3 | 2.4 | 50.5 | 46.8 | 51.9 | 51.6 | 18.5 | 18.8 | 20.1 | 10.9 | 11.2 | 19.9 |
| 30.0 | 2.6 | 2.7 | 48.1 | 45.0 | 51.0 | 49.6 | 19.2 | 19.9 | 17.9 | 10.3 | 10.4 | 20.1 |

| FREQ | Input Power at 1dB Comp. | | Input Power at 0.1dB Comp. | |
|---|---|---|---|---|
| | RF1 State 2 | RF2 State 1 | RF1 State 2 | RF2 State 1 |
| (GHz) | (dBm) | (dBm) | (dBm) | (dBm) |
| 0.01 | 20.1 | 20.0 | 17.9 | 17.8 |
| 0.1 | 24.9 | 24.8 | 21.8 | 21.7 |
| 0.2 | 25.4 | 25.4 | 22.2 | 22.1 |
| 0.4 | 25.7 | 25.6 | 22.8 | 22.7 |
| 0.6 | 25.9 | 25.9 | 23.2 | 23.1 |
| 0.8 | 26.2 | 26.2 | 23.4 | 23.3 |
| 1.0 | 26.4 | 26.4 | 23.7 | 23.6 |
| 2.0 | 27.3 | 27.4 | 24.5 | 24.5 |
| 4.0 | 27.6 | 27.6 | 26.5 | 26.5 |
| 6.0 | 28.0 | 27.9 | 27.0 | 27.0 |
| 8.0 | 28.1 | 28.1 | 27.1 | 27.1 |
| 10.0 | 27.7 | 27.7 | 26.7 | 26.6 |
| 15.0 | 27.7 | 27.6 | 26.7 | 26.5 |
| 20.0 | 28.1 | 28.1 | 27.3 | 27.3 |
| 25.0 | 28.1 | 28.1 | 27.1 | 27.1 |
| 30.0 | 26.3 | 26.1 | 25.0 | 24.9 |

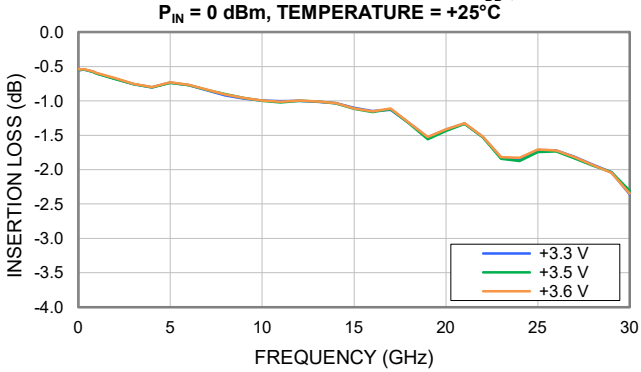
| FREQ | Input IP3 | |
|---|---|---|
| | RF1 State 2 | RF2 State 1 |
| (MHz) | (dBm) | (dBm) |
| 0.25 | 45.7 | 45.6 |
| 0.50 | 46.2 | 46.2 |
| 0.75 | 46.4 | 46.3 |
| 1 | 46.4 | 46.4 |
| 10 | 45.8 | 45.7 |
| 100 | 48.5 | 48.4 |
| 125 | 49.4 | 49.3 |
| 150 | 49.3 | 49.1 |
| 175 | 49.1 | 48.9 |
| 200 | 49.2 | 49.1 |
| 225 | 49.9 | 49.7 |
| 250 | 49.7 | 49.5 |
| 275 | 49.7 | 49.5 |
| 300 | 49.8 | 49.6 |
| 325 | 49.5 | 49.3 |
| 350 | 49.4 | 49.2 |
| 375 | 49.9 | 49.7 |
| 400 | 50.7 | 50.5 |
| 425 | 50.9 | 50.8 |
| 450 | 50.5 | 50.5 |
| 475 | 50.3 | 50.2 |
| 500 | 51.1 | 50.9 |
| 1000 | 50.8 | 50.9 |
| 2000 | 50.3 | 50.2 |
| 6000 | 49.9 | 49.8 |
| 10000 | 50.9 | 50.9 |
| 15000 | 47.0 | 46.7 |
| 20000 | 46.6 | 46.6 |
| 25000 | 45.1 | 45.2 |
| 30000 | 42.7 | 42.6 |

## *Typical Performance Curves*

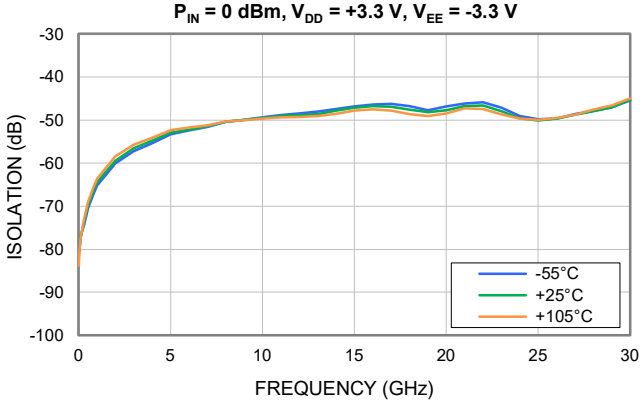
**INSERTION LOSS RFC-RF OUT[1] vs. TEMPERATURE, $P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



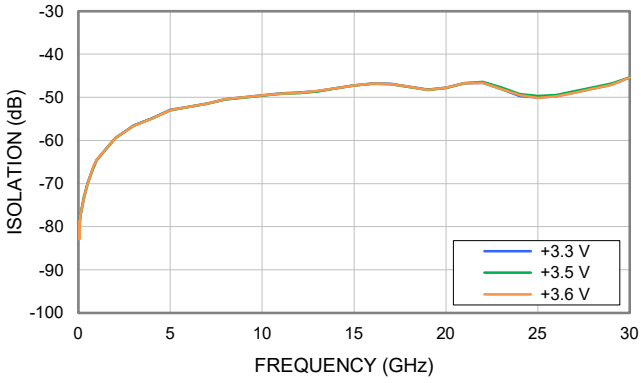

**INSERTION LOSS RFC-RF OUT[1]vs. $V_{DD}$[3], $P_{IN}$ = 0 dBm, TEMPERATURE = +25°C**



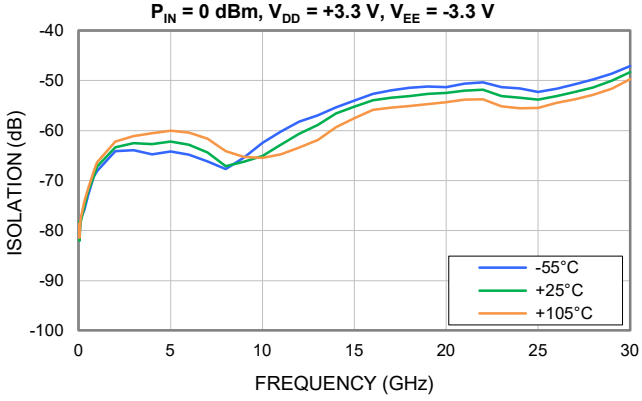

**ISOLATION RFC-RF OUT[2] vs. TEMPERATURE, $P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



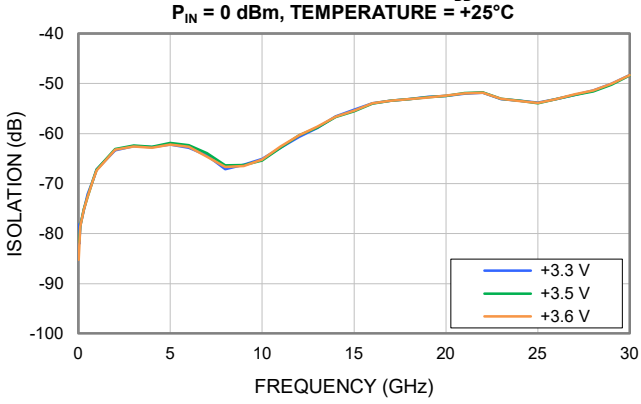

**ISOLATION RFC-RF OUT[2] vs. $V_{DD}$[3], $P_{IN}$ = 0 dBm, TEMPERATURE = +25°C**




**ISOLATION RF1 - RF2 vs. TEMPERATURE, $P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



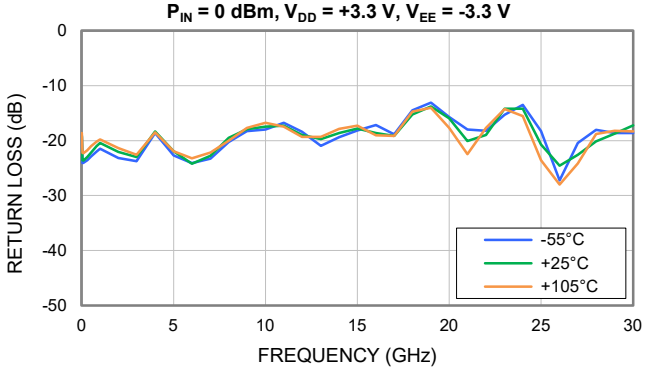

**ISOLATION RF1 - RF2 vs. $V_{DD}$[3], $P_{IN}$ = 0 dBm, TEMPERATURE = +25°C**



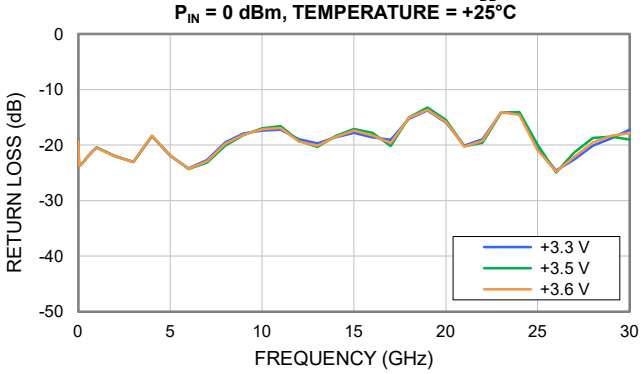

1. RF OUT is defined as either RF1 (ON) or RF2 (ON)
2. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
3. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## *Typical Performance Curves*

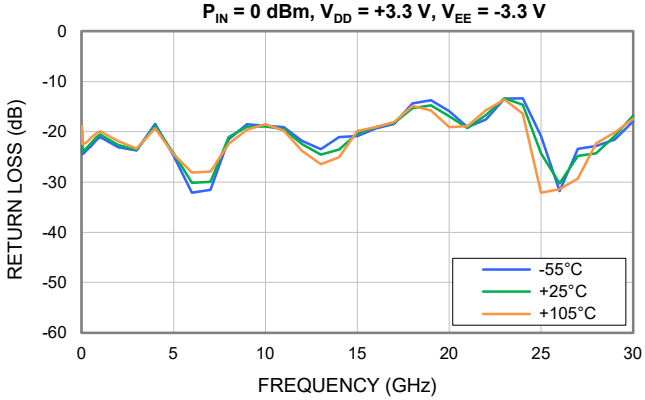
RFC INPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



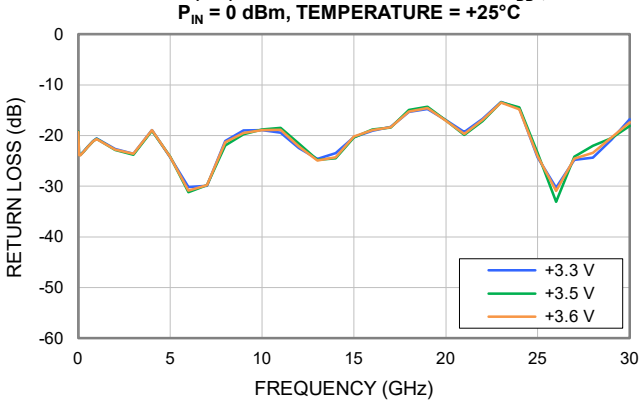

RFC INPUT RETURN LOSS vs. $V_{DD}$[3],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



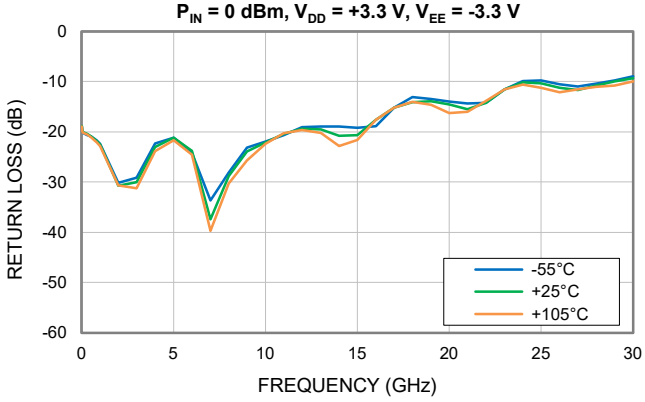

RF1 (ON) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



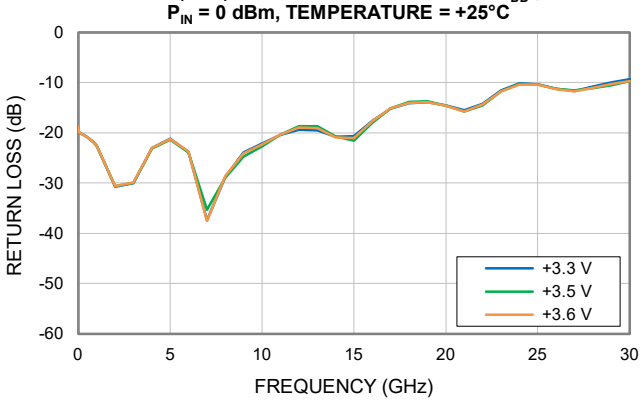

RF1 (ON) OUTPUT RETURN LOSS vs. $V_{DD}$[3],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C




RF1 (OFF) OUTPUT RETURN LOSS vs. TEMPERATURE,
$P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V



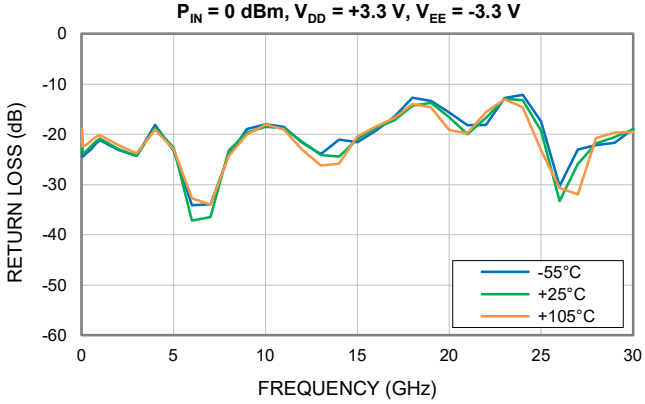

RF1 (OFF) OUTPUT RETURN LOSS vs. $V_{DD}$[3],
$P_{IN}$ = 0 dBm, TEMPERATURE = +25°C



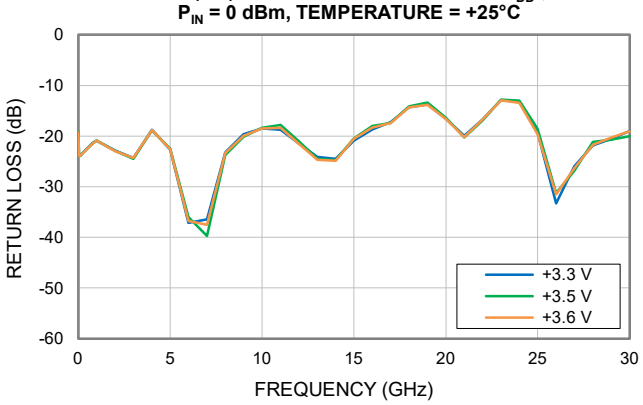

1. RF OUT is defined as either RF1 (ON) or RF2 (ON)
2. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
3. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## *Typical Performance Curves*

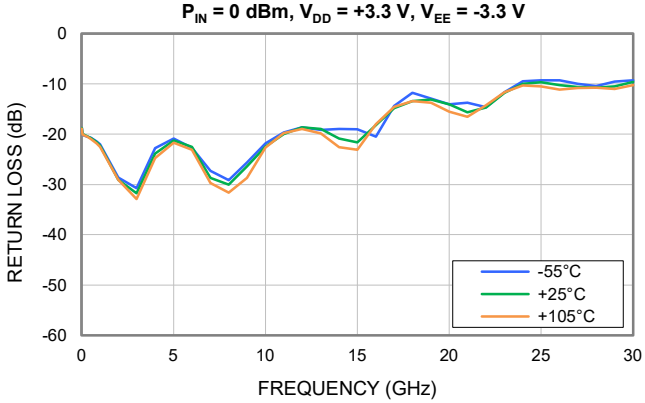
**RF2 (ON) OUTPUT RETURN LOSS vs. TEMPERATURE, $P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



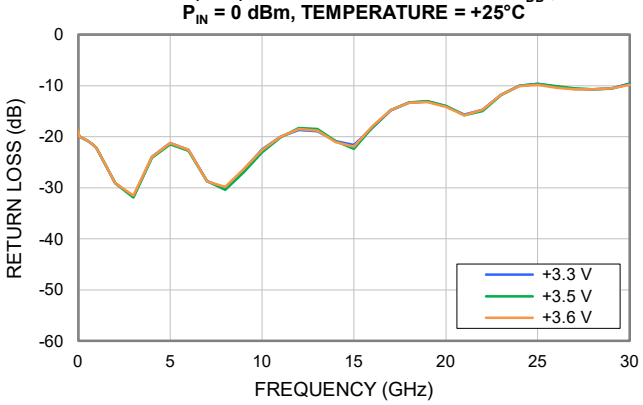

**RF2 (ON) OUTPUT RETURN LOSS vs. $V_{DD}$[3], $P_{IN}$ = 0 dBm, TEMPERATURE = +25°C**



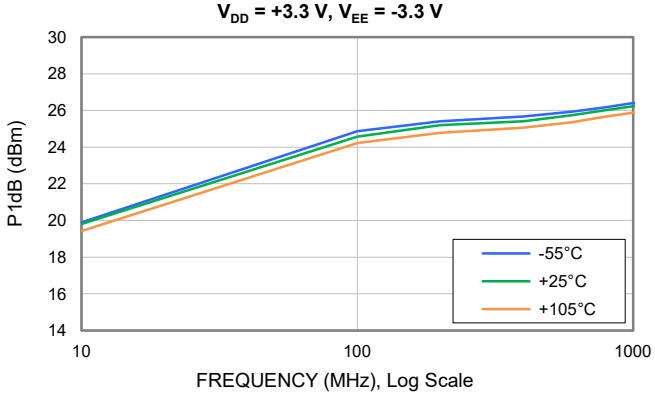

**RF2 (OFF) OUTPUT RETURN LOSS vs. TEMPERATURE, $P_{IN}$ = 0 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



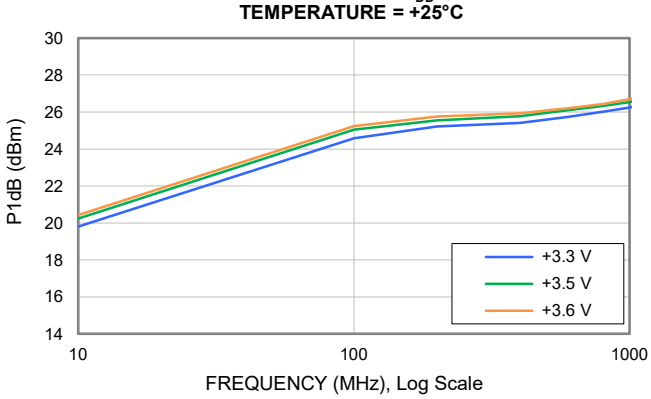

**RF2 (OFF) OUTPUT RETURN LOSS vs. $V_{DD}$[3], $P_{IN}$ = 0 dBm, TEMPERATURE = +25°C**




**INPUT P1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



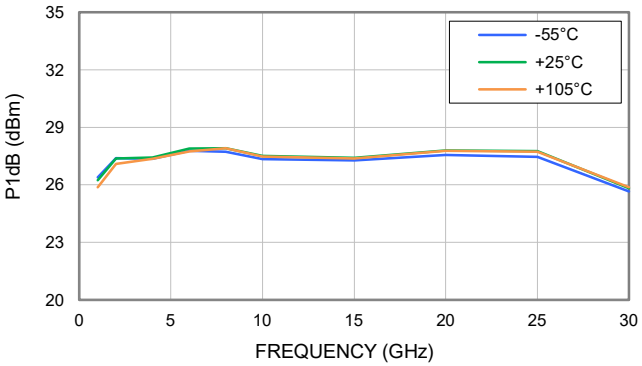

**INPUT P1dB vs. $V_{DD}$[3], TEMPERATURE = +25°C**



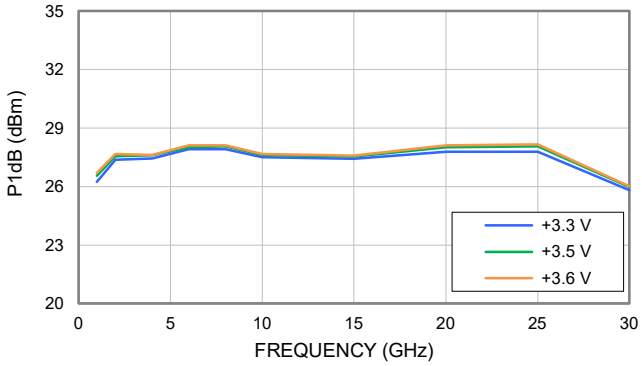

1. RF OUT is defined as either RF1 (ON) or RF2 (ON)
2. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
3. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## *Typical Performance Curves*

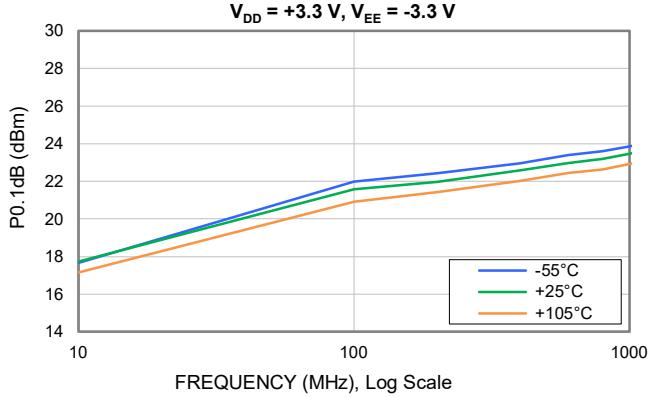
**INPUT P1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



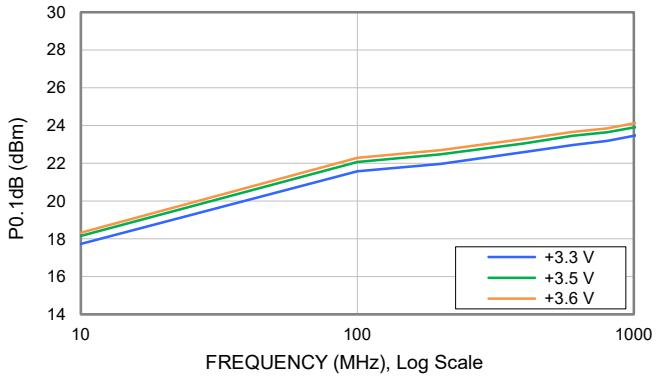

**INPUT P1dB vs. $V_{DD}$[3], TEMPERATURE = +25°C**



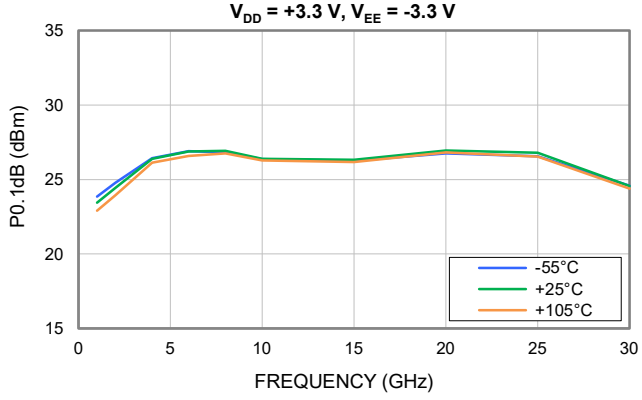

**INPUT P0.1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



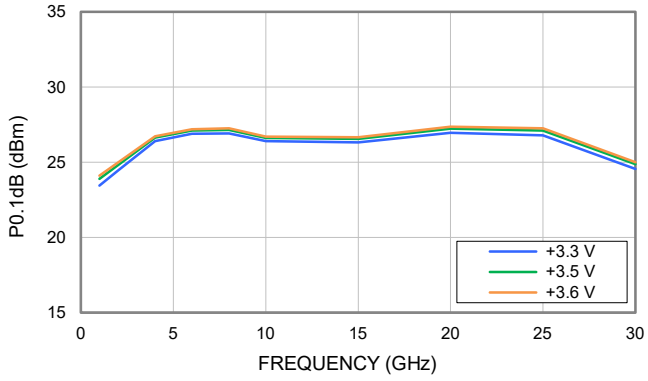

**INPUT P0.1dB vs. $V_{DD}$[3], TEMPERATURE = +25°C**




**INPUT P0.1dB vs. TEMPERATURE, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**



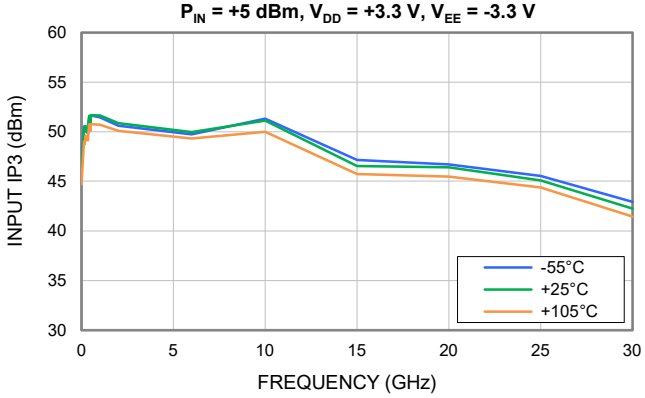

**INPUT P0.1dB vs. $V_{DD}$[3], TEMPERATURE = +25°C**



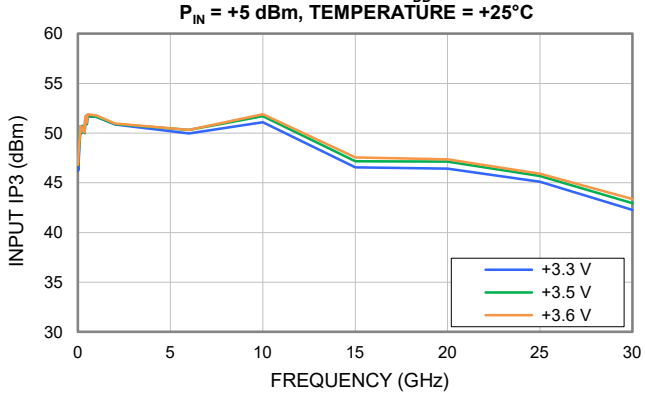

1. RF OUT is defined as either RF1 (ON) or RF2 (ON)
2. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
3. $V_{EE}$ is the negative equivalent value to $V_{DD}$

## *Typical Performance Curves*

**INPUT IP3 vs. TEMPERATURE,**
**$P_{IN}$ = +5 dBm, $V_{DD}$ = +3.3 V, $V_{EE}$ = -3.3 V**




**INPUT IP3 vs. $V_{DD}$[3],**
**$P_{IN}$ = +5 dBm, TEMPERATURE = +25°C**

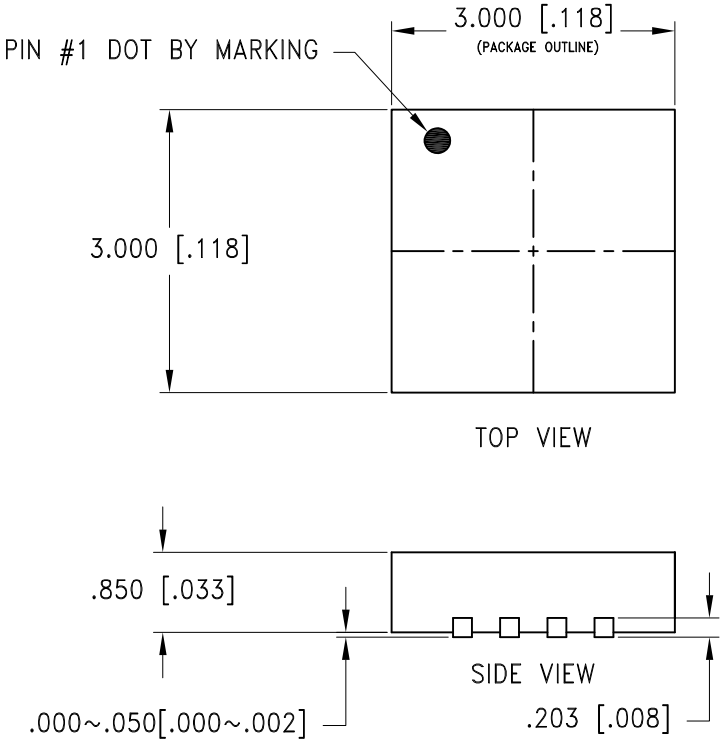


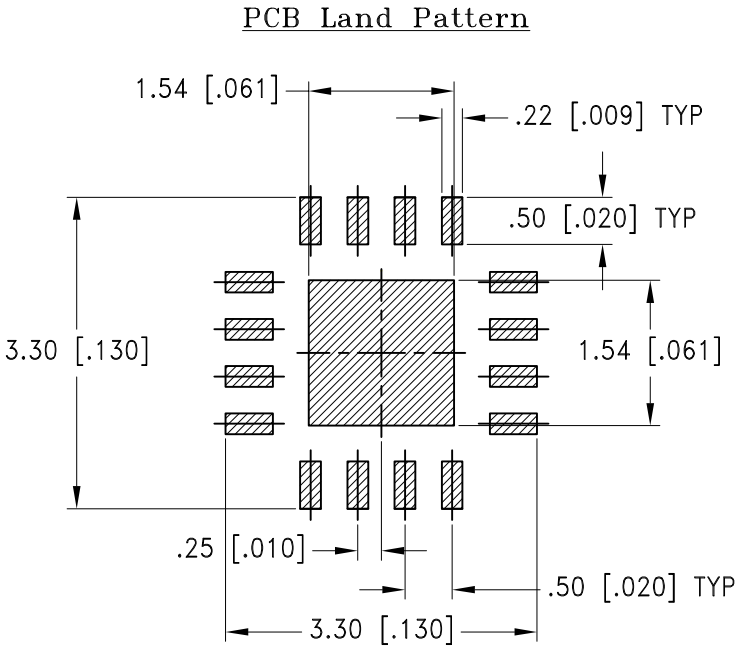

1. RF OUT is defined as either RF1 (ON) or RF2 (ON)
2. RF OUT is defined as either RF1 (OFF) or RF2 (OFF)
3. $V_{EE}$ is the negative equivalent value to $V_{DD}$

# Case Style DQ

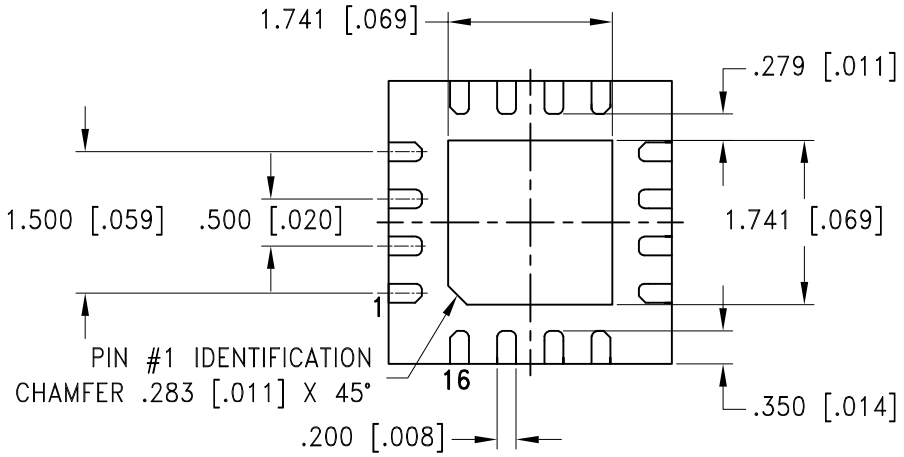
## Outline Dimensions

**DQ3005**




**Suggested Layout**
**Tolerances to be within ±.05[.002]**




**Weight= .02 Grams**

**Dimensions are in mm[inches]. Tolerances: 3 Pl. ±.05[.002]**

**Notes**:
1. Case material: Plastic.
2. Termination finish:
   ForRoHS Case Styles: Matte-Tin. All models, (+) suffix.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

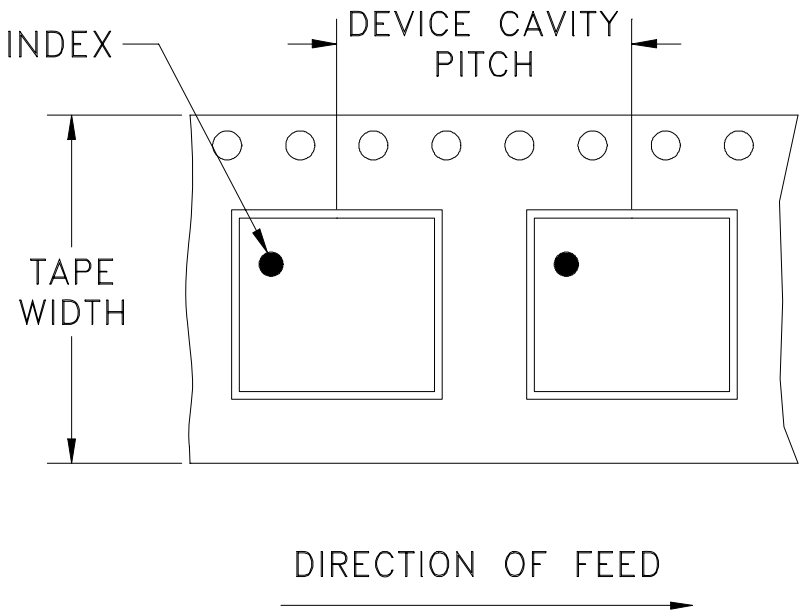

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# Tape & Reel Packaging TR-F104

DEVICE ORIENTATION IN T&R




| Tape Width, mm | Device Cavity Pitch, mm | Reel Size, inches | Devices per Reel | |
|---|---|---|---|---|
| 8 | 4 | 7 | Small quantity standards (see note) | 20 |
| | | | | 50 |
| | | | | 100 |
| | | | | 200 |
| | | | | 500 |
| | | | | 1000 |
| | | 7 | Standard | 2000 |

Note: Please Consult individual model 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

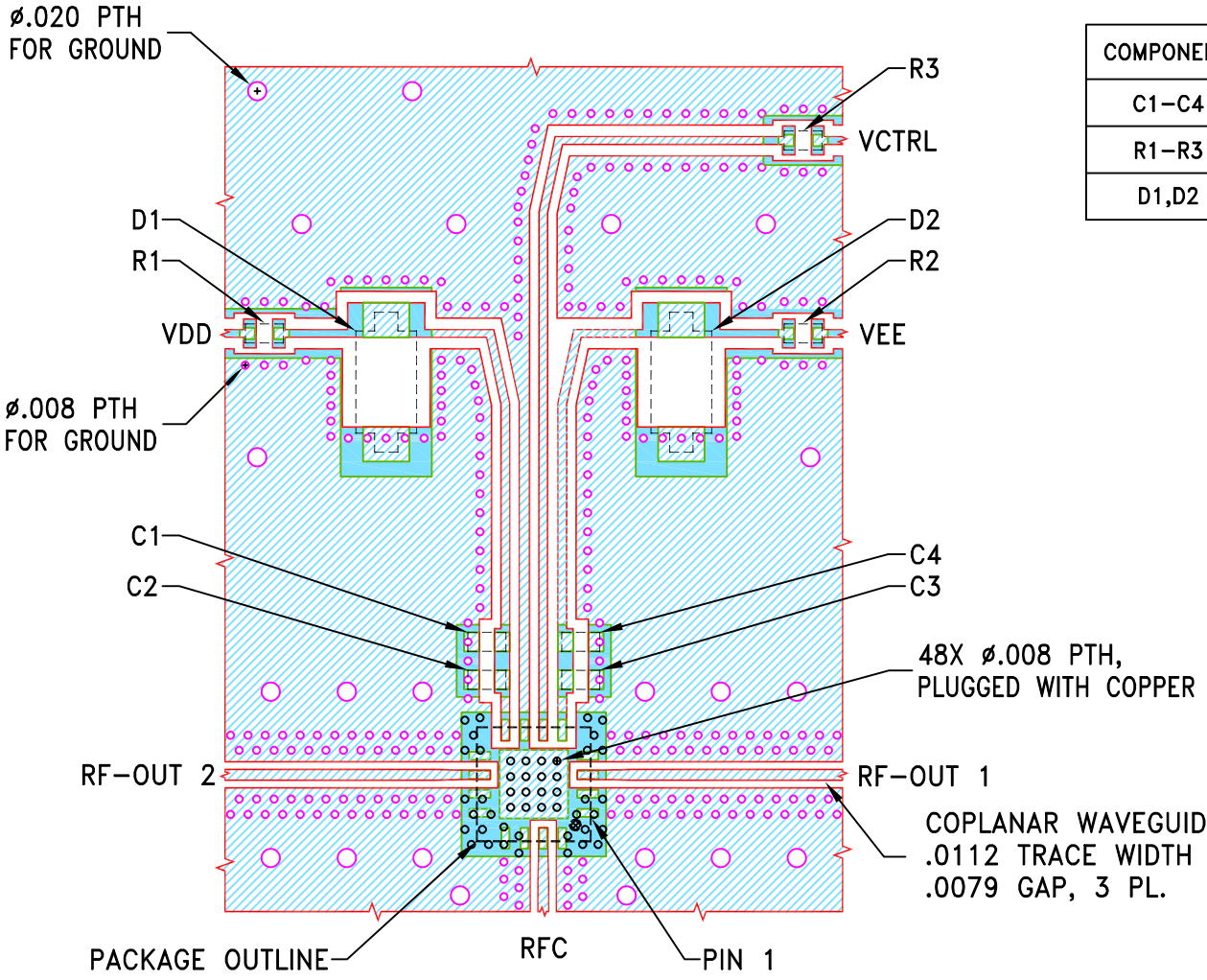
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THIRD ANGLE PROJECTION

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| REV | ECN No. | DESCRIPTION | DATE | DR | AUTH |
| OR | ECO-020351 | NEW RELEASE | 12/21/23 | ITG | IL |
| | | | | | |
| | | | | | |
| | | | | | |

# SUGGESTED MOUNTING CONFIGURATION FOR DQ3005 CASE STYLE




| COMPONENT | SIZE |
|---|---|
| C1-C4 | 0402 |
| R1-R3 | 0402 |
| D1,D2 | SOD-123 |

## NOTES:

1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066". COPPER: 1 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE, FOR COMPONENT VALUES REFER TO TB-M3SWA234DRC+.
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 | ITG | 12/21/23 |
| TOLERANCES ON: | CHECKED | GF | 12/21/23 |
| 2 PL DECIMALS ± | APPROVED | IL | 12/21/23 |
| 3 PL DECIMALS ± .005 | | | |
| ANGLES ± | | | |
| FRACTIONS ± | | | |

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

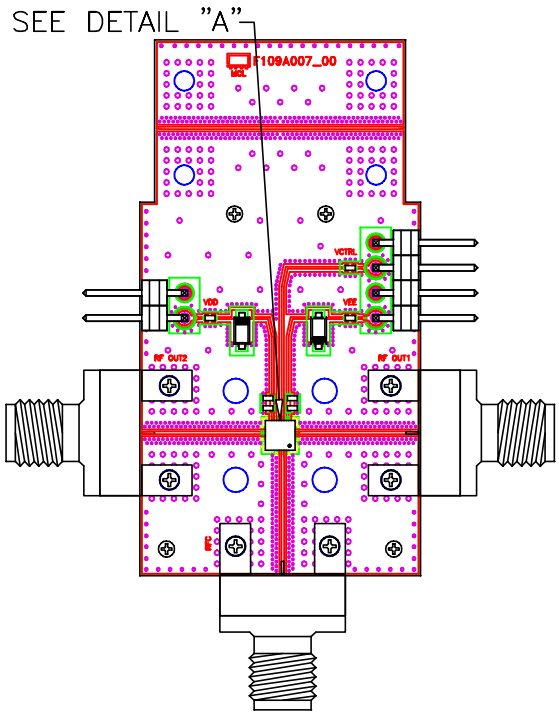
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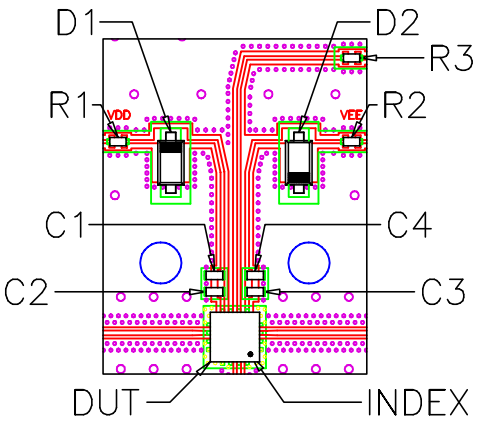
13 Neptune Avenue
Brooklyn NY 11235

PL, DQ3005, TB-M3SWA234DRC+

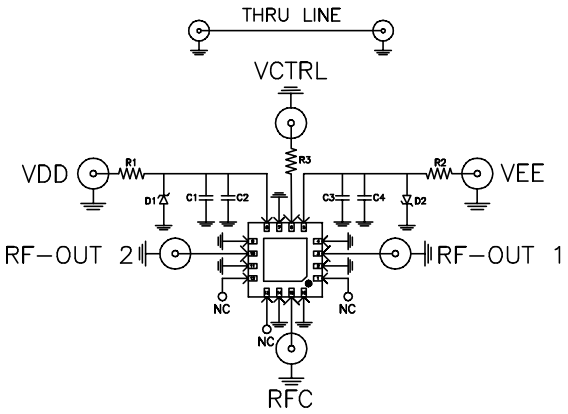
| SIZE | CODE IDENT | DRAWING NO: | REV: |
|---|---|---|---|
| A | 15542 | 98-PL-768 | OR |
| FILE: 98PL768 | SCALE: 5:1 | SHEET: 1 OF 1 | |

# Evaluation Board and Circuit




DETAIL "A"
Location of Units Components
(SCALE 2:1)




SCHEMATIC DIAGRAM
(SCALE 3:1)

| Component | Size | Value | Part Number | Manufacturer |
|---|---|---|---|---|
| C2,C3 | 0402 | 100pF | GRM1555C1H101JA01D | Murata |
| C1,C4 | 0402 | 0.1uF | GRM155R71C104KA88D | Murata |
| R1,R2 | 0402 | 11.5Ohm | RP73PF1E11R5BTDF | TE Connectivity |
| R3 | 0402 | 1000hm | RK73H1ETTP1000F | Koa |
| D1,D2 | SOD-123 | Vz=5.6V | SZMMSZ5232BT1G | ON Semiconductor |

## Notes:

1. 2.4mm Female Connectors.
2. PCB Material: Roger RO4350B or equivalent, Dielectric constant=3.5, Thickness=0.0066 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 |


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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 |



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