MMIC SURFACE MOUNT

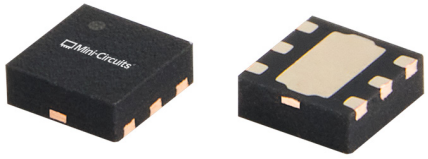
Low Noise Amplifier

TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

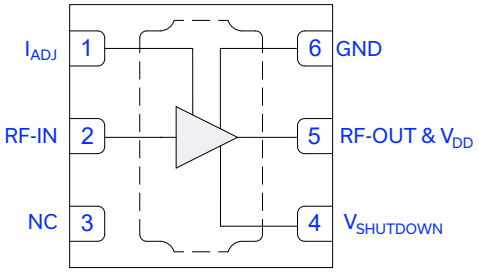
THE BIG DEAL

- Low Noise Figure, Typ. 0.5 dB
- High Gain, Typ. 18.7 dB
- High OIP3, Typ. +33.8 dBm
- Fast Shutdown Feature, 7.6 ns
- Single Supply Voltage, 51 mA at +5 V
- 1.5×1.5 mm 6-Lead QFN Style Package



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM (TOP VIEW)



APPLICATIONS

- Cellular Infrastructure
- Satellite Communications
- Radar, EW, and ECM Defense Systems

PRODUCT OVERVIEW

The TSS1-63ULN+ is a pHEMT-based wideband, ultra-low noise MMIC amplifier with high P1dB, high IP3, and voltage-controlled shutdown capability. Operating from 1000 to 6000 MHz, this amplifier features typical 0.5 dB noise figure, 18.7 dB gain, +21.9 dBm P1dB, and +33.8 dBm OIP3. This combination of characteristics makes it ideal for sensitive receiver applications. The TSS1-63ULN+ operates on a single +5 V supply and comes in a small, low profile, 1.5×1.5 mm QFN-style package for ease of integration into dense circuit board layouts.

KEY FEATURES

Features	Advantages
Ultra-Low Noise Figure, Typ. 0.5 dB	Operating from a single supply, this ultra-low noise MMIC enables low system noise figure performance, without the need for complicated discrete-based solutions.
High Gain, Typ. 18.7 dB	The MMIC amplifier's high gain enables fewer system components in receiver signal chains.
Shutdown Feature	A voltage-controlled shutdown feature allows the part to be quickly disabled to conserve power when not in use.
High Dynamic Range • Gain, Typ. 18.7 dB • OIP3, Typ. +33.8 dBm • P1dB, Typ. +21.9 dBm	The MMIC amplifier's unique combination of low noise figure, high gain, high P1dB, and high OIP3 enables optimum performance in sensitive high dynamic range receivers.
1.5×1.5 mm 6-Lead QFN-Style Package	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.

REV. OR
ECO-030097
TSS1-63ULN+
MCL NY
260518

Low Noise Amplifier

TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

ELECTRICAL SPECIFICATIONS[1] AT +25 °C AND Zo = 50Ω UNLESS NOTED OTHERWISE

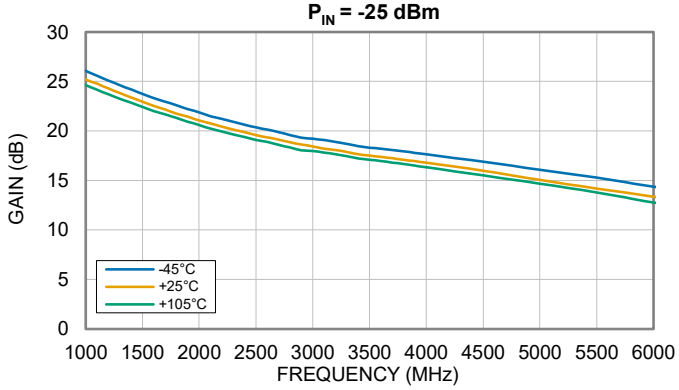
Parameter	Condition (MHz)	Amplifier - ON V_{DD} = +5 V ($V_{SHUTDOWN}$ = 0 V) Min.	Typ.	Max.	Amplifier - ON V_{DD} = +3 V ($V_{SHUTDOWN}$ = 0 V) Typ.	Amplifier - OFF[2] V_{DD} = +5 V ($V_{SHUTDOWN}$ = +5 V) Typ.	Units
Frequency Range		1000		6000		1000-6000	MHz
Gain	1000	24.2	25.2		23.5	-40.5	dB
	2000	19.8	21.4		19.8	-38.4	
	3000	17.2	18.7		17.2	-29.9	
	4000	15.8	17.1		15.4	-23.4	
	6000	11.7	14.2		11.8	-18.1	
Input Return Loss	1000		4		4		dB
	2000		8		6		
	3000		9		7		
	4000		8		6		
	6000		6		5		
Output Return Loss	1000		4		5		dB
	2000		5		6		
	3000		7		8		
	4000		10		13		
	6000		11		14		
Isolation	1000-6000		28.7		26.7	30.8	dB
Output Power at 1 dB Compression (P1dB)	1000		+21.6		+15.7		dBm
	2000		+22.1		+16.1		
	3000		+21.9		+16.1		
	4000		+21.0		+16.8		
	6000		+20.6		+15.6		
Output Third-Order Intercept Point (P_{OUT} = +4 dBm/Tone)	1000		+33.0		+23.7		dBm
	2000		+35.0		+24.6		
	3000		+33.8		+25.8		
	4000		+36.5		+25.9		
	6000		+37.5		+25.1		
Noise Figure[3]	1000		0.3		0.4		dB
	2000		0.3		0.4		
	3000		0.5		0.6		
	4000		0.6		0.7		
	6000		1.4		1.5		
ON Time (50% V_{CTRL} to 90% RF)			18.3				ns
RISE Time (10% RF to 90% RF)			4.4				ns
FALL Time (90% RF to 10% RF)			5.3				ns
OFF Time (50% V_{CTRL} to 10% RF)			7.6				ns
Device Operating Voltage (V_{DD})		+4.75	+5	+5.25	+3	+5	V
Device Operating Current (I_{DD})[4]			51		26	4.2	mA
Device Shutdown Voltage ($V_{SHUTDOWN}$)			0		0	+5	V
Device Shutdown Current ($I_{SHUTDOWN}$)			0.1		0.01	157	µA
Device Current Variation vs. Temperature[5]			0.007		0.007		mA/°C
Device Current Variation vs. Voltage[6]			0.013		0.013		mA/mV

1. Tested in Mini-Circuits Characterization Test/Evaluation Board TB-TSS1-63ULNC+. See Figure 2. Board loss de-embedded to the device.
2. Performance is comparable when V_{DD} = +5 V or +3 V when amplifier is OFF.
3. Typical value verified and set by averaging performance across three setups.
4. Current at P_{IN} = -25 dBm. Increases to 66 mA at P1dB. I_{ADJ} is left floating to achieve device nominal current.
5. (Current at +105 °C - Current at -45 °C) / (+150 °C)
6. (Current at +5.25 V - Current at +4.75 V) / (+0.5 V)

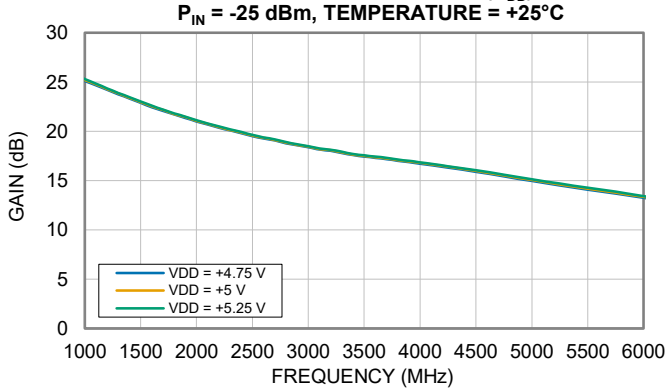
TYPICAL PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

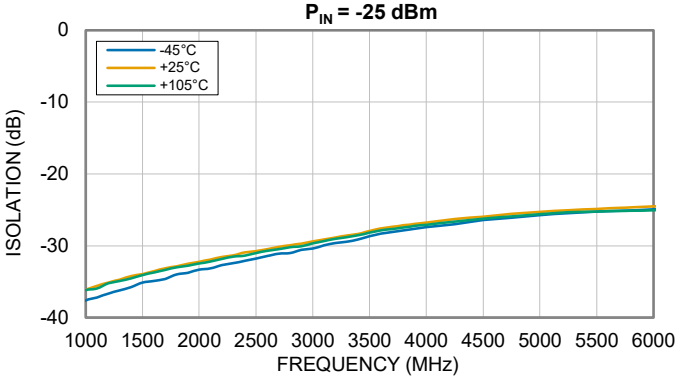
GAIN vs. TEMPERATURE
P_{IN} = -25 dBm



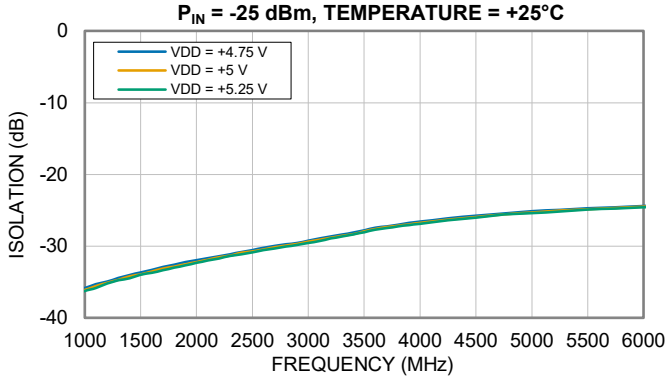
GAIN vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



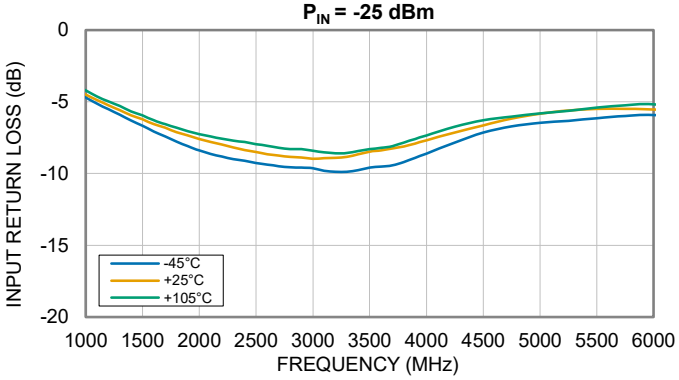
ISOLATION vs. TEMPERATURE
P_{IN} = -25 dBm



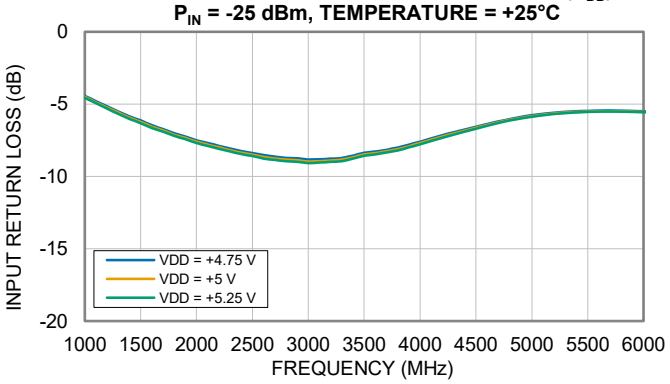
ISOLATION vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



INPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm



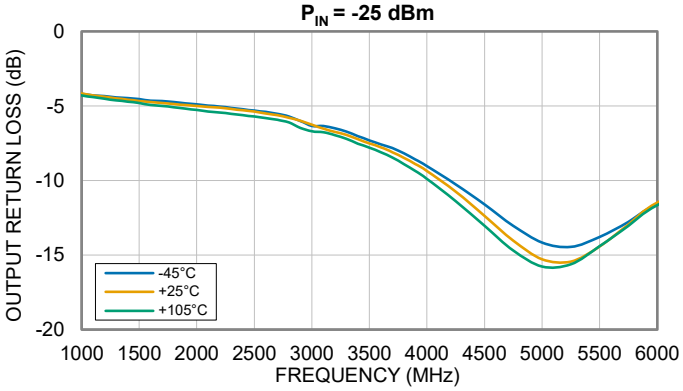
INPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



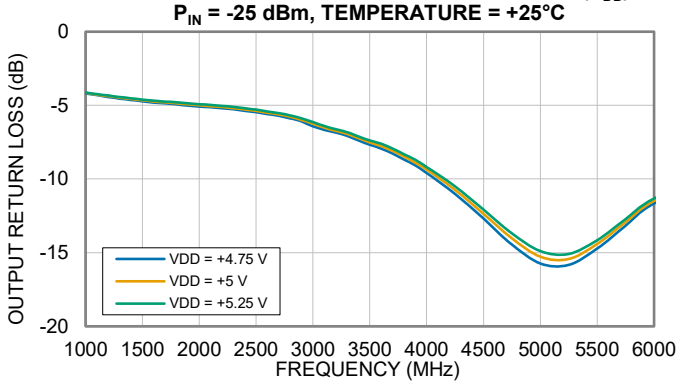
TYPICAL PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

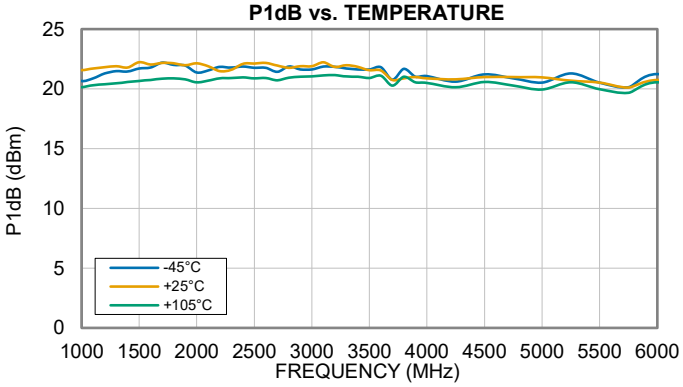
OUTPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm



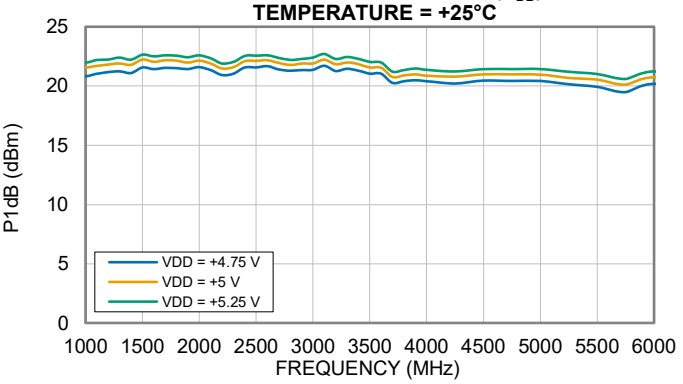
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



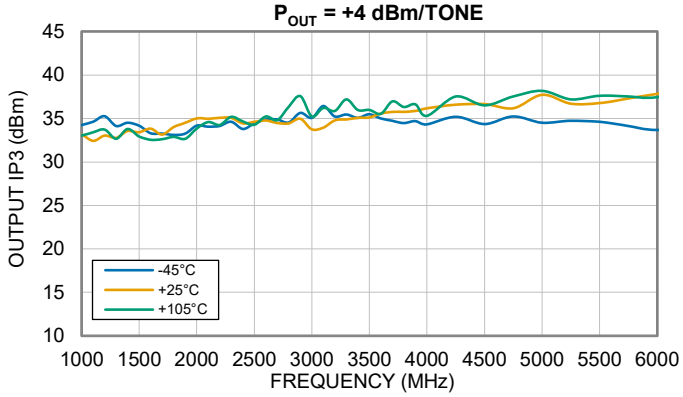
P1dB vs. TEMPERATURE



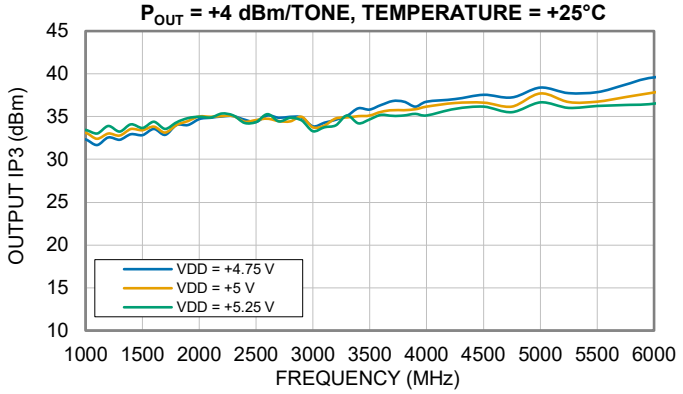
P1dB vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



OUTPUT IP3 vs. TEMPERATURE
P_{OUT} = +4 dBm/TONE



OUTPUT IP3 vs. DEVICE VOLTAGE (V_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



Low Noise Amplifier

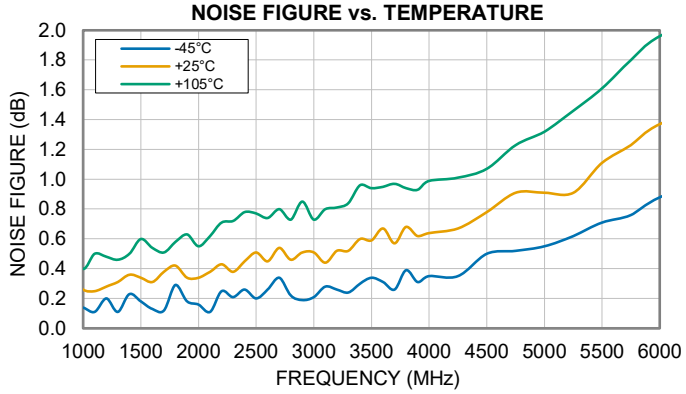
TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

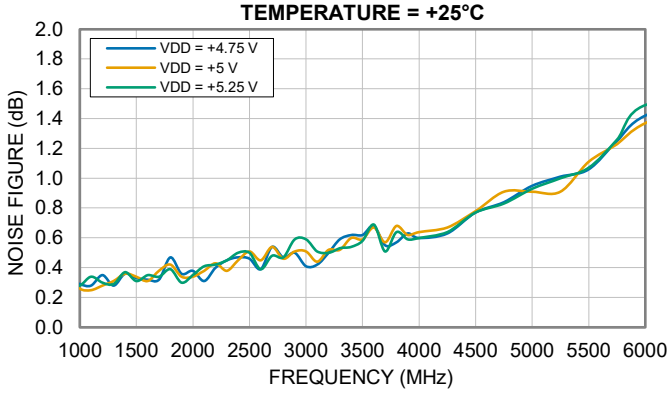
TYPICAL PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

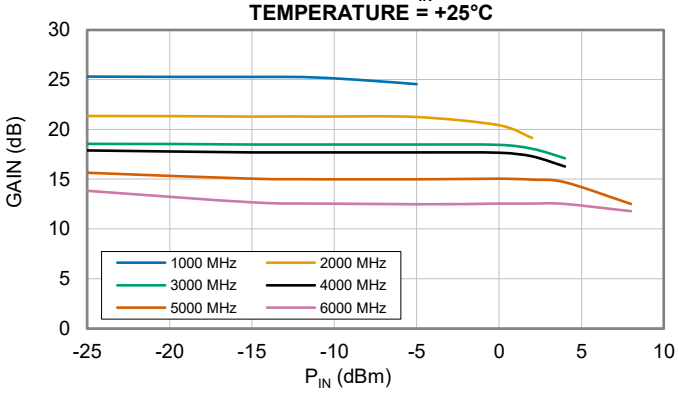
NOISE FIGURE vs. TEMPERATURE



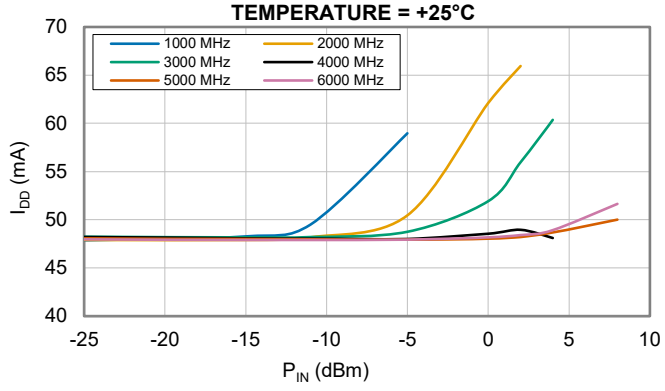
NOISE FIGURE vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



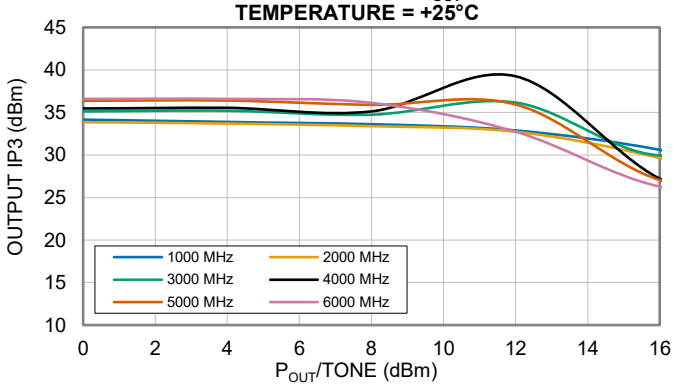
GAIN vs. P_{IN}
TEMPERATURE = +25°C



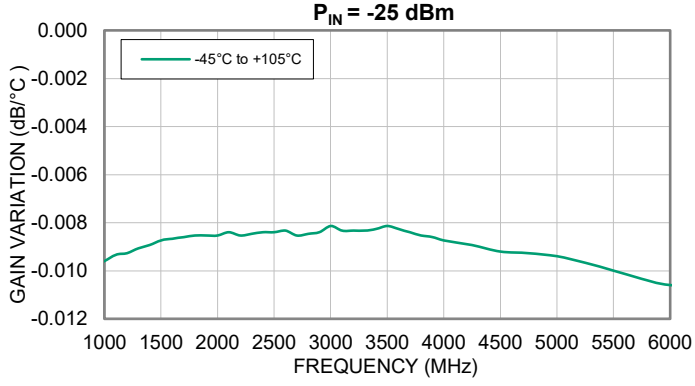
I_{DD} vs. P_{IN}
TEMPERATURE = +25°C



OUTPUT IP3 vs. P_{OUT}
TEMPERATURE = +25°C



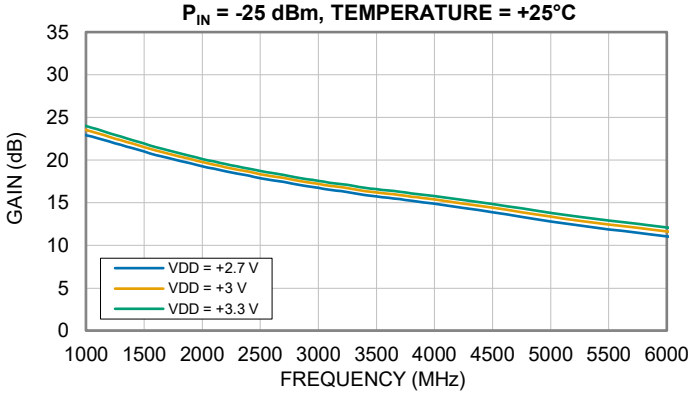
GAIN VARIATION vs. TEMPERATURE
P_{IN} = -25 dBm



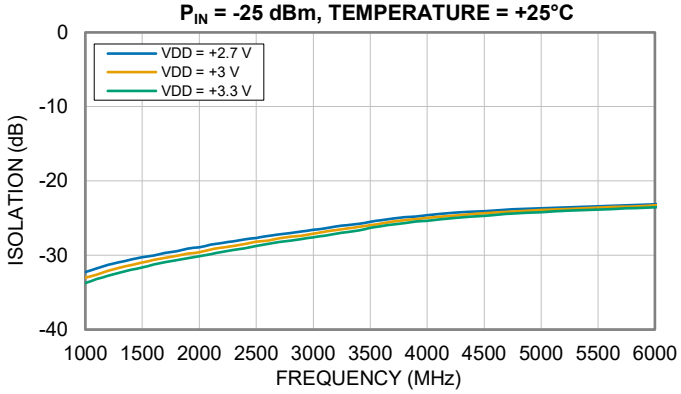
TYPICAL LOW VOLTAGE PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

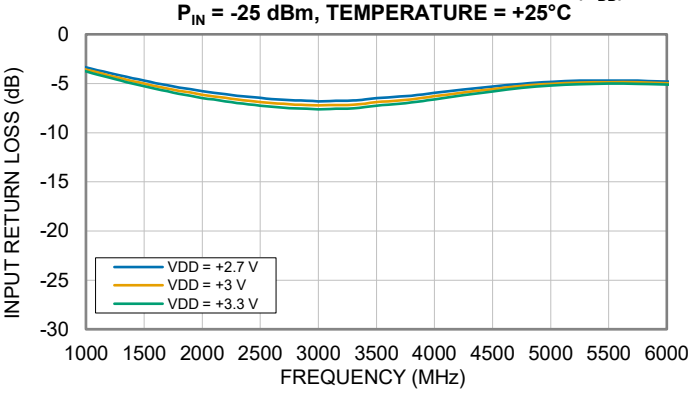
GAIN vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



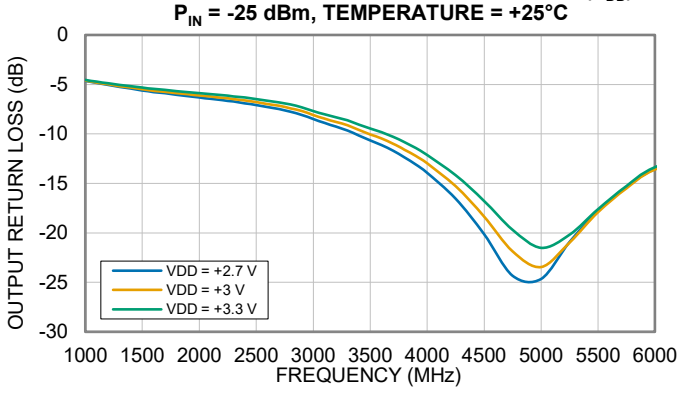
ISOLATION vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



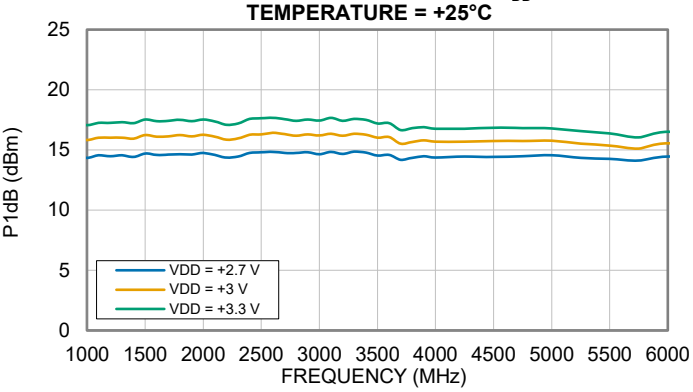
INPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



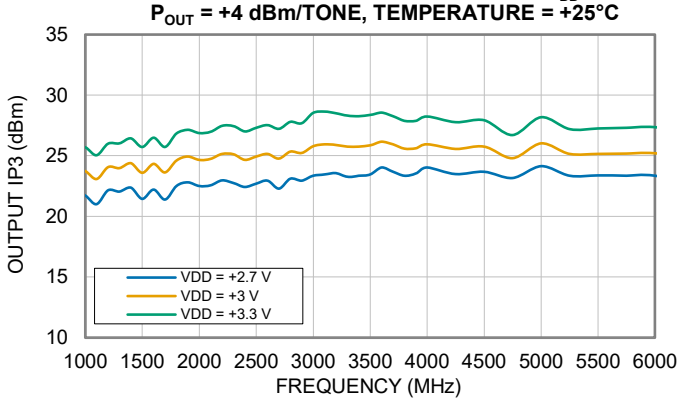
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C

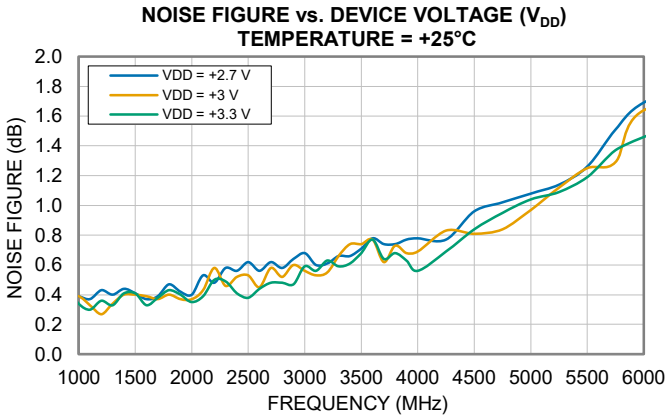


OUTPUT IP3 vs. DEVICE VOLTAGE (V_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



TYPICAL LOW VOLTAGE PERFORMANCE GRAPHS

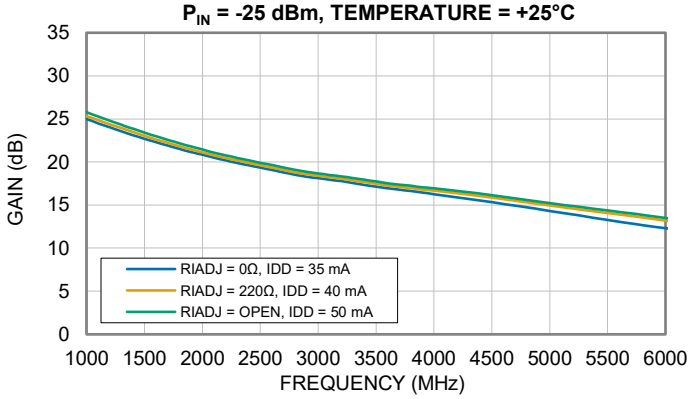
Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.



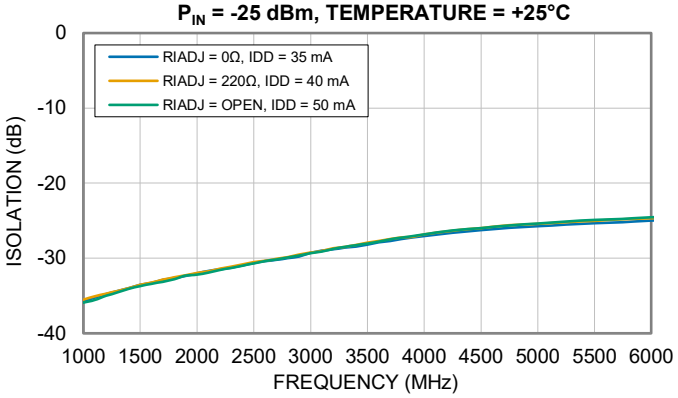
TYPICAL CURRENT ADJUST (I_{ADJ}) PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ by varying R_{IADJ} (Figure 3). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

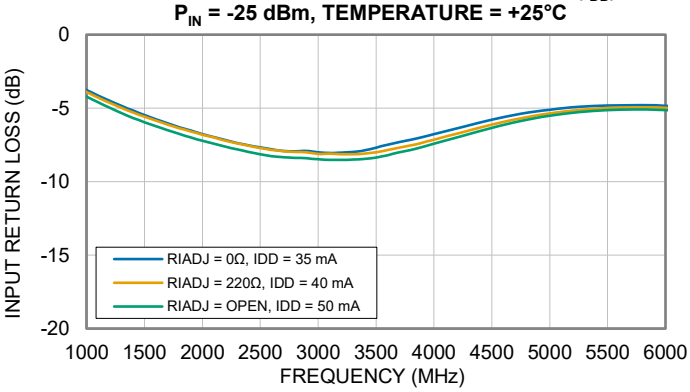
GAIN vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



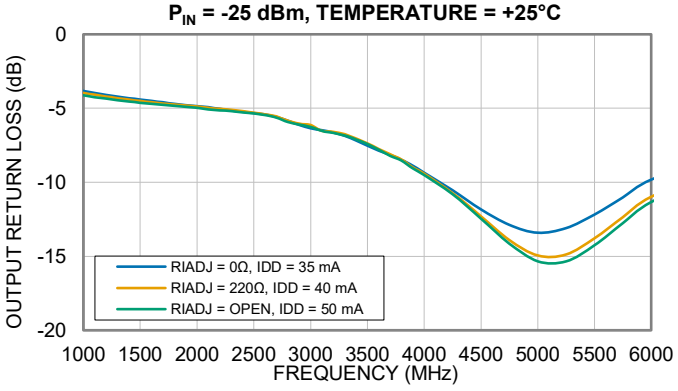
ISOLATION vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



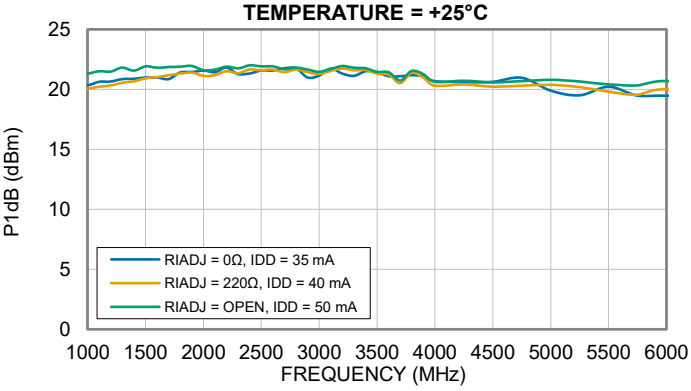
INPUT RETURN LOSS vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



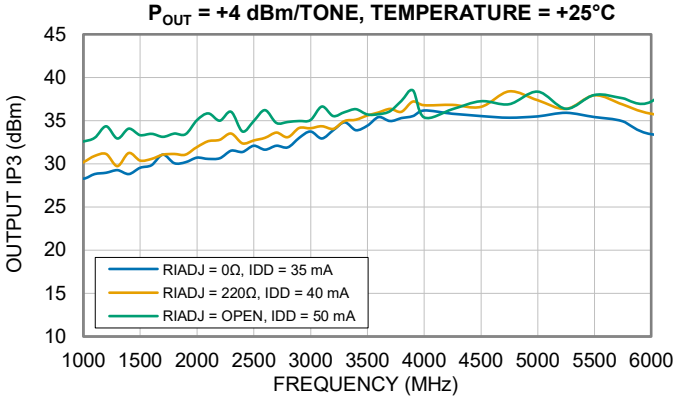
OUTPUT RETURN LOSS vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. DEVICE CURRENT (I_{DD})
TEMPERATURE = +25°C



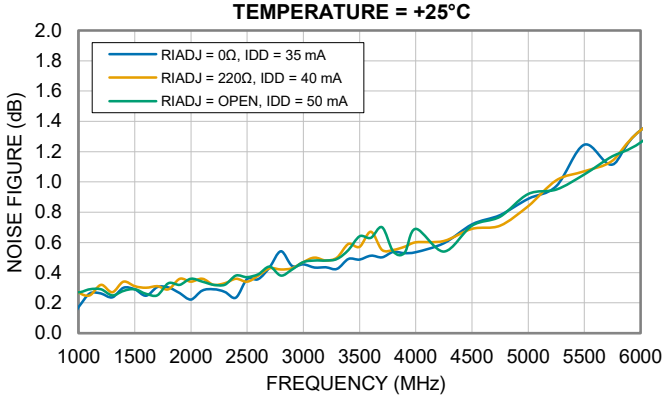
OUTPUT IP3 vs. DEVICE CURRENT (I_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



TYPICAL CURRENT ADJUST (I_{ADJ}) PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ by varying R_{IADJ} (Figure 3). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

NOISE FIGURE vs. DEVICE CURRENT (I_{DD})
TEMPERATURE = +25°C



Low Noise Amplifier

TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

ABSOLUTE MAXIMUM RATINGS[7]

Parameter	Ratings
Operating Temperature	-45 °C to +105 °C
Storage Temperature	-65 °C to +150 °C
Total Power Dissipation	0.89 W
Junction Temperature[8]	+150 °C
Input Power (CW)	
V_{DD} = +5 V & $V_{SHUTDOWN}$ = 0 V	+19 dBm
V_{DD} = +3 V & $V_{SHUTDOWN}$ = 0 V	+19 dBm
DC Voltage on RF-OUT & V_{DD}	
$V_{SHUTDOWN}$ = 0 V	+10 V
$V_{SHUTDOWN}$ = +5 V	+10 V
DC Voltage on RF-IN	
$V_{SHUTDOWN}$ = 0 V	+1 V
$V_{SHUTDOWN}$ = +5 V	+1 V
DC Voltage on $V_{SHUTDOWN}$	
V_{DD} = 0 V	+8 V
V_{DD} = +5 V	+8 V
DC Current on RF-OUT & V_{DD}	
$V_{SHUTDOWN}$ = 0 V	130 mA
$V_{SHUTDOWN}$ = +5 V	10 mA
DC Current $V_{SHUTDOWN}$	
$V_{SHUTDOWN}$ = 0 V	0.5 mA
$V_{SHUTDOWN}$ = +5 V	0.5 mA

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.

POWER ON / POWER OFF LOGIC

Amplifier State	V_{DD}			$V_{SHUTDOWN}$		
	Min	Typ.	Max	Min	Typ.	Max
Amplifier - ON (V_{DD} = +5 V)	+2.7 V	+5 V	+5.25 V	0 V	0 V	+0.9 V
Amplifier - OFF (V_{DD} = +5 V)				+1 V	+5 V	+5.25 V
Amplifier - ON (V_{DD} = +3 V)	+2.7 V	+3 V	+5.25 V	0 V	0 V	+0.9 V
Amplifier - OFF (V_{DD} = +3 V)				+1 V	+3 V	+5.25 V

THERMAL RESISTANCE

Parameter	Ratings
Thermal Resistance (Θ_{JC})[9]	50.7 °C/W

9. Θ_{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-001-2023
CDM	C3	> 1000 V	ANSI/ESDA/JEDEC JS-002-2022

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

Low Noise Amplifier

TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

FUNCTIONAL DIAGRAM (TOP VIEW)

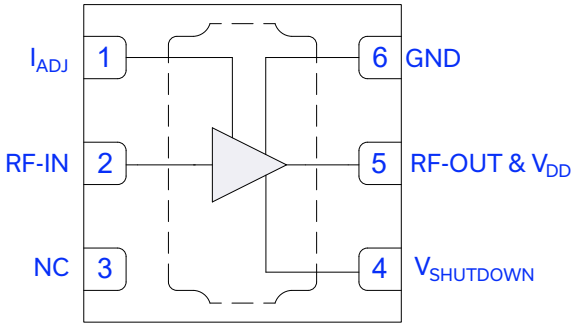


Figure 1. TSS1-63ULN+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description (Refer to Figure 2)
RF-OUT & V_{DD}	5	RF-OUT & V_{DD} Pad connects to RF-Output port and voltage input port, V_{DD}.
$V_{SHUTDOWN}$	4	DC Input Pad connects to voltage input port, $V_{SHUTDOWN}$.
RF-IN	2	RF-IN Pad connects to RF-Input port.
I_{ADJ}	1	DC Pad used to adjust current by adjusting I_{ADJ}. For normal operation I_{ADJ} should be left unconnected.
NC	3	Not used internally. Connected to ground on test board.
GND	6 & Paddle	Connects to ground.

EVALUATION BOARD

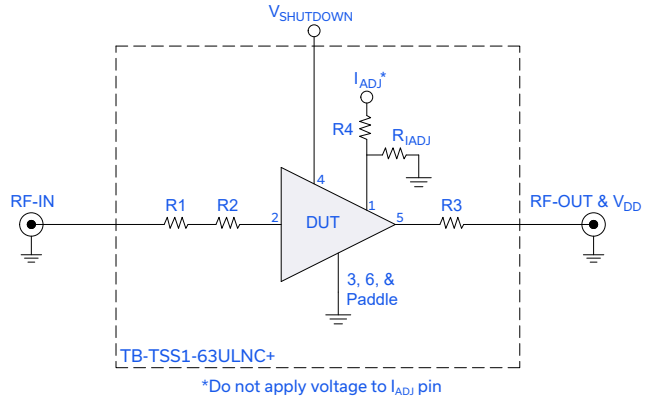


Figure 2. TSS1-63ULN+ Evaluation and Application Circuit

Component	Size	Value	Part Number	Manufacturer
R1-R4	0402	0Ω	RK73Z1ETTP	KOA Speer
R_{IADJ}	0402	DNI	N/A	N/A

Electrical Parameters and Conditions
Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3), and Noise Figure measured using N5242A PNA-X microwave network analyzer.

Conditions:
1. Gain and Return Loss: P_{IN} = -25 dBm
2. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, +4 dBm/tone at output.

Power ON/Power OFF Sequence:
Caution: Permanent damage to the device will occur if the Power ON and Power OFF sequences are not followed.

POWER ON:
1. Set $V_{SHUTDOWN}$ = 0 V for ON mode or $V_{SHUTDOWN}$ = +5 V for OFF mode.
2. Set V_{DD} = +5 V.
4. Turn on $V_{SHUTDOWN}$.
3. Turn on V_{DD}.
5. Apply RF signal.

POWER OFF:
1. Turn off RF signal.
2. Turn off V_{DD}.
3. Turn off $V_{SHUTDOWN}$.

APPLICATION CIRCUIT - CURRENT ADJUST

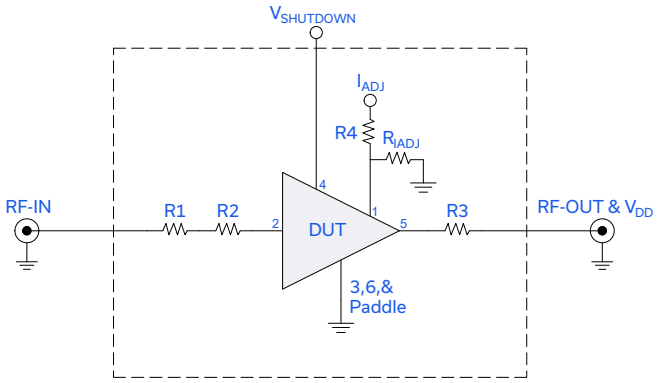


Figure 3. TSS1-63ULN+ Current Adjust Application Circuit

Electrical Parameters and Conditions
Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3), and Noise Figure measured using N5242A PNA-X microwave network analyzer.

Conditions:
1. Gain and Return Loss: P_{IN} = -25 dBm
2. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, +4 dBm/tone at output.

Component	Size	Value	Part Number	Manufacturer
R1-R4	0402	0Ω	RK73Z1ETTP	KOA Speer
R_{IADJ}	0402	0Ω	RK73Z1ETTP	KOA Speer
		220Ω	RK73H1ETTP2200F	

APPLICATION CIRCUIT - NARROWBAND MATCH

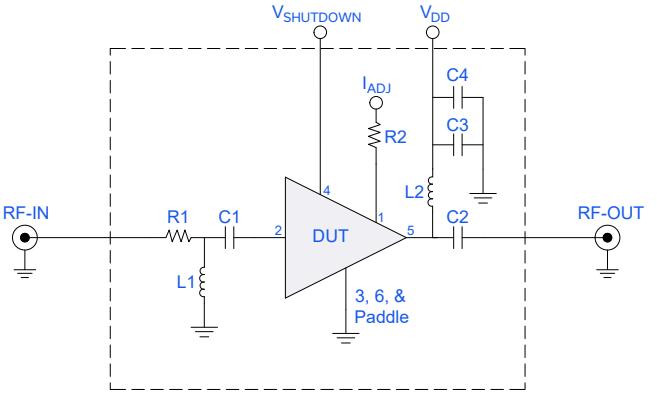


Figure 4. TSS1-63ULN+ 3400-3800 MHz Application Circuit

Electrical Parameters and Conditions
Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3), and Noise Figure measured using N5242A PNA-X microwave network analyzer.

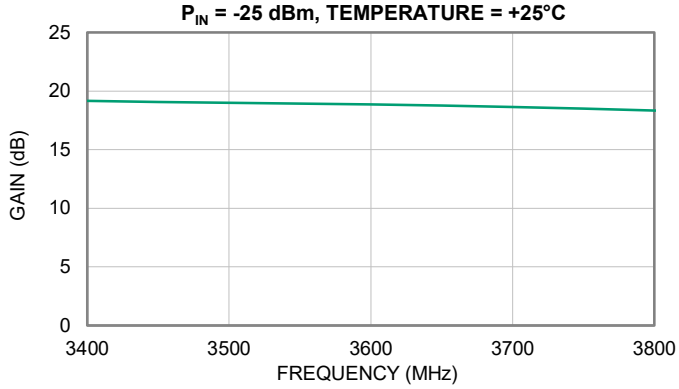
Conditions:
1. Gain and Return Loss: P_{IN} = -25 dBm
2. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, +4 dBm/tone at output.

Component	Size	Value	Part Number	Manufacturer
R1-R2	0402	0Ω	RK73Z1ETTP	KOA Speer
C1	0402	1.3 pF	GJM1555C1H1R3CB01	Murata
C2	0402	1.0 pF	GRM1555C1H1R0CA01	Murata
C3	0402	1 nF	GRM1555C1H102JA01J	Murata
C4	0402	0.1 µF	GRM155R71H104KE14D	Murata
L1	0402	1.5 nH	LQG15HS1N5S02	Murata
L2	0402	0.9 nH	LQG15WZ0N9B02D	Murata

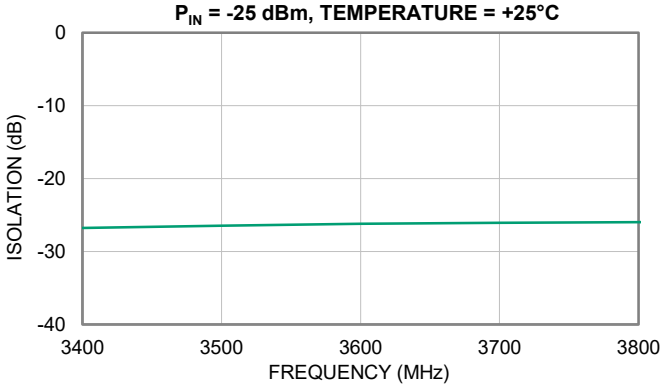
TYPICAL MATCHING TEST BOARD PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits 3400-3800 MHz Matched Characterization Test Board (Figure 4). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

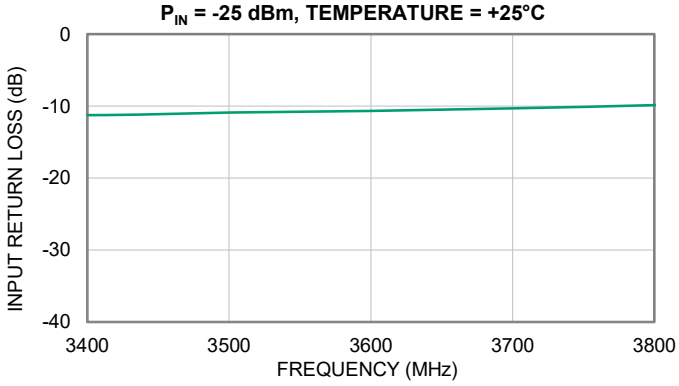
GAIN vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



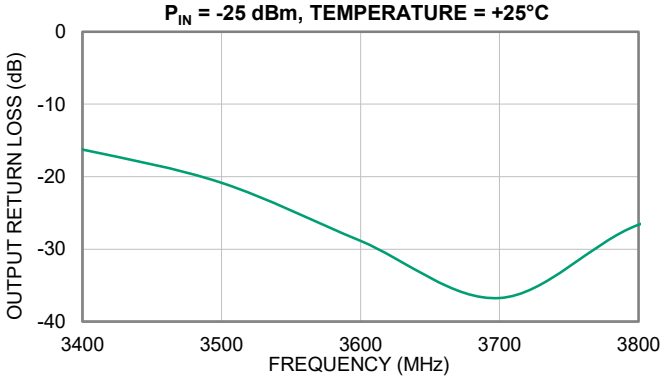
ISOLATION vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



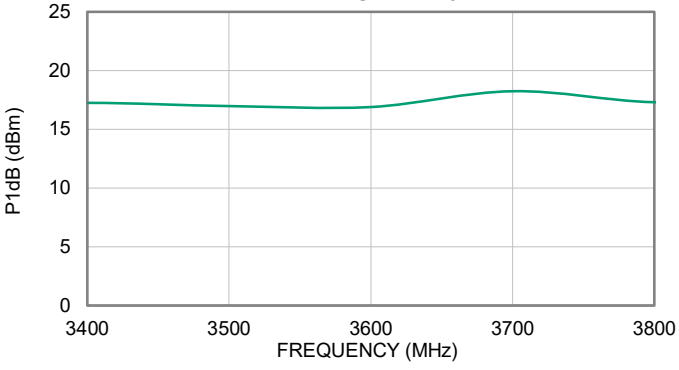
INPUT RETURN LOSS vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



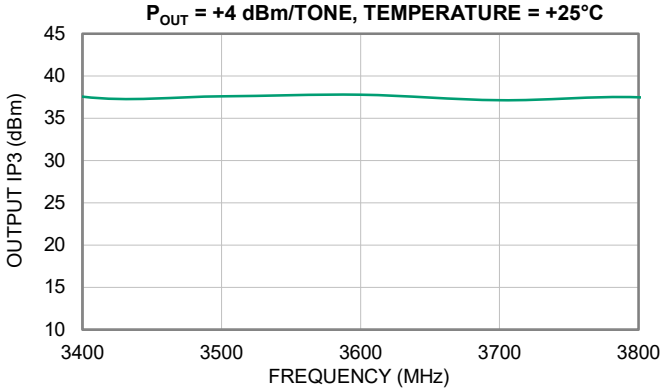
OUTPUT RETURN LOSS vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. FREQUENCY
TEMPERATURE = +25°C

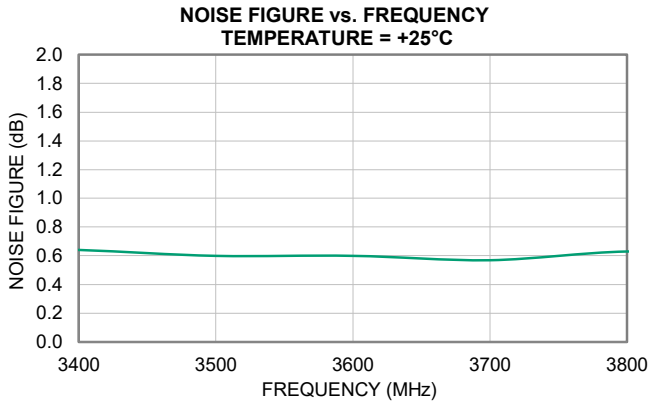


OUTPUT IP3 vs. FREQUENCY
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



TYPICAL MATCHING TEST BOARD PERFORMANCE GRAPHS

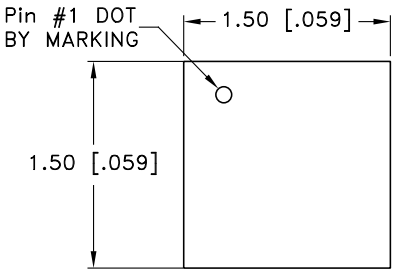
Note: The following data was taken on the Mini-Circuits 3400-3800 MHz Matched Characterization Test Board (Figure 4). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.



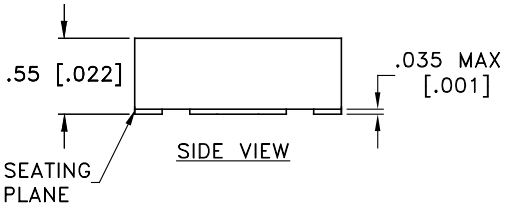
Low Noise Amplifier TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

CASE STYLE DRAWING

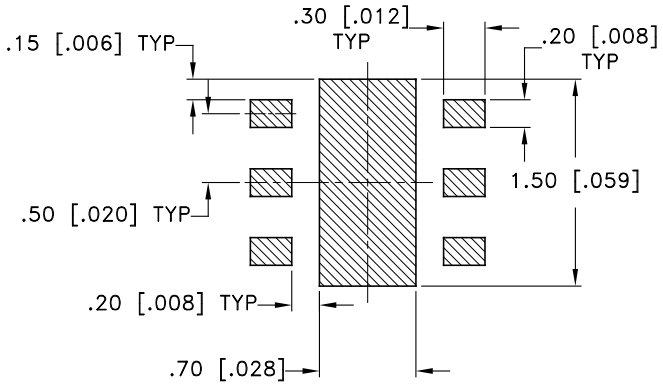


TOP VIEW

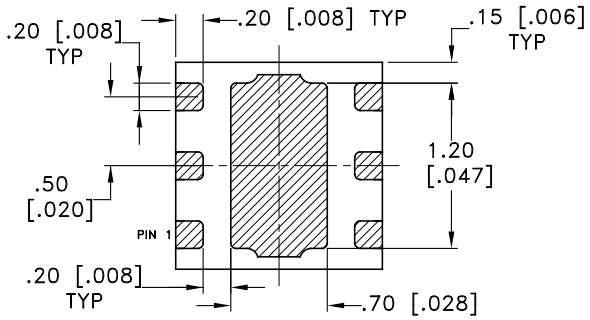


SIDE VIEW

PCB Land Pattern



Suggested Layout,
Tolerance to be within ±0.050 mm



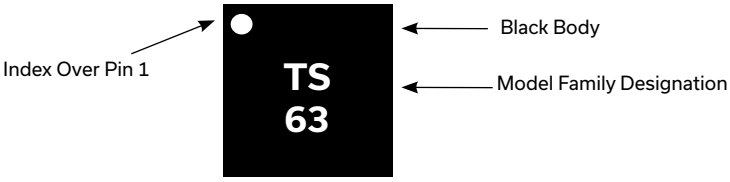
BOTTOM VIEW

NOTES:

1. DENOTES METALLIZATION

Weight: 0.0036 grams
Dimensions are in mm [inches]. Tolerances: 2Pl. ±0.05 mm [0.002 inches].

PRODUCT MARKING



Marking may contain other features or characters for internal lot control.

Low Noise Amplifier TSS1-63ULN+

50Ω 1000 to 6000 MHz Shutdown Feature

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD CLICK HERE

Performance Data & Graphs	Data Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	KC3011. Plastic package, exposed paddle, Lead Finish: Nickel Palladium Gold
RoHS Status	Compliant
Tape & Reel **Standard Quantities Available on Reel**	F66 7" Reels with 20, 50, 100, 200, 500, 1000, 2000, or 3000 devices
Suggested Layout for PCB Design	PL-862
Evaluation Board	TB-TSS1-63ULNC+ 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

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +2.7 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 22 mA, $I_{SHUTDOWN}$ = 0.0123 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	23.8	-33.5	-2.8	-4.2	0.6	0.8	14.0	0.5	22.1
900	23.4	-32.8	-3.1	-4.4	0.6	0.8	14.6	0.4	22.1
1000	22.9	-32.3	-3.4	-4.7	0.7	0.8	14.3	0.4	21.7
1100	22.6	-31.8	-3.6	-4.9	0.7	0.8	14.5	0.4	21.0
1200	22.2	-31.3	-3.9	-5.1	0.7	0.8	14.5	0.4	22.1
1300	21.8	-31.0	-4.2	-5.3	0.8	0.9	14.5	0.4	22.1
1400	21.4	-30.6	-4.5	-5.4	0.8	0.9	14.4	0.4	22.4
1500	21.0	-30.3	-4.7	-5.6	0.8	0.9	14.7	0.4	21.5
1600	20.6	-30.0	-5.0	-5.8	0.9	0.9	14.6	0.4	22.2
1700	20.3	-29.7	-5.2	-5.9	0.9	0.9	14.6	0.4	21.4
1800	19.9	-29.5	-5.4	-6.1	0.9	0.9	14.6	0.5	22.5
1900	19.6	-29.1	-5.6	-6.2	0.9	0.9	14.6	0.4	22.8
2000	19.3	-28.9	-5.8	-6.3	1.0	0.9	14.7	0.4	22.5
2100	19.0	-28.6	-5.9	-6.5	1.0	0.9	14.6	0.5	22.6
2200	18.7	-28.3	-6.1	-6.6	1.0	0.9	14.3	0.5	23.0
2300	18.4	-28.1	-6.2	-6.7	1.0	0.9	14.4	0.6	22.8
2400	18.2	-27.9	-6.4	-6.9	1.0	0.9	14.7	0.6	22.4
2500	17.9	-27.7	-6.5	-7.1	1.1	0.9	14.8	0.6	22.7
2600	17.7	-27.4	-6.6	-7.3	1.1	0.9	14.8	0.6	23.0
2700	17.4	-27.2	-6.7	-7.5	1.1	0.9	14.7	0.6	22.3
2800	17.2	-27.0	-6.7	-7.8	1.1	0.9	14.7	0.6	23.1
2900	17.0	-26.8	-6.7	-8.1	1.1	1.0	14.8	0.6	23.0
3000	16.8	-26.6	-6.8	-8.5	1.2	1.0	14.6	0.7	23.3
3100	16.5	-26.4	-6.8	-8.9	1.2	1.0	14.8	0.6	23.5
3200	16.4	-26.1	-6.8	-9.3	1.2	1.0	14.7	0.6	23.6
3300	16.1	-25.9	-6.7	-9.7	1.2	1.0	14.8	0.7	23.3
3400	15.9	-25.8	-6.6	-10.2	1.2	1.0	14.8	0.7	23.3
3500	15.7	-25.5	-6.5	-10.7	1.2	1.1	14.5	0.7	23.5
3600	15.6	-25.3	-6.4	-11.1	1.2	1.1	14.6	0.8	24.0
3700	15.4	-25.1	-6.3	-11.7	1.2	1.1	14.2	0.7	23.7
3800	15.2	-24.9	-6.2	-12.4	1.2	1.1	14.3	0.7	23.4
3900	15.1	-24.8	-6.1	-13.1	1.2	1.1	14.5	0.8	23.5
4000	14.9	-24.6	-6.0	-13.9	1.2	1.1	14.4	0.8	24.0
4250	14.4	-24.3	-5.6	-16.5	1.2	1.2	14.4	0.8	23.5
4500	13.9	-24.1	-5.3	-20.1	1.2	1.2	14.4	1.0	23.7
4750	13.3	-23.8	-5.0	-24.3	1.2	1.3	14.5	1.0	23.2
5000	12.8	-23.7	-4.8	-24.6	1.3	1.3	14.5	1.1	24.1
5250	12.3	-23.6	-4.7	-20.9	1.3	1.3	14.3	1.1	23.4
5500	11.9	-23.4	-4.7	-17.8	1.3	1.3	14.2	1.3	23.4
5750	11.5	-23.3	-4.7	-15.4	1.3	1.3	14.1	1.5	23.4
6000	11.1	-23.1	-4.8	-13.6	1.3	1.3	14.5	1.7	23.4
7000	9.6	-22.3	-5.1	-9.8	1.3	1.2	14.4	2.0	21.8
7500	9.1	-21.8	-5.4	-9.4	1.4	1.2	13.8	2.1	21.7
8000	9.3	-20.8	-5.8	-9.9	1.4	1.1	13.4	2.3	21.2

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +3 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 26 mA, $I_{SHUTDOWN}$ = 0.0124 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	24.5	-34.1	-2.9	-4.2	0.6	0.8	15.4	0.5	23.9
900	24.0	-33.5	-3.3	-4.4	0.7	0.8	16.0	0.4	24.0
1000	23.5	-33.0	-3.6	-4.6	0.7	0.8	15.8	0.4	23.7
1100	23.2	-32.6	-3.9	-4.8	0.7	0.8	16.0	0.3	23.1
1200	22.7	-32.1	-4.2	-5.0	0.8	0.8	16.0	0.3	24.1
1300	22.3	-31.7	-4.5	-5.2	0.8	0.8	16.0	0.3	24.0
1400	21.9	-31.3	-4.8	-5.3	0.8	0.8	15.9	0.4	24.4
1500	21.5	-31.0	-5.0	-5.5	0.9	0.8	16.2	0.4	23.6
1600	21.1	-30.6	-5.3	-5.6	0.9	0.8	16.1	0.4	24.3
1700	20.8	-30.3	-5.5	-5.8	0.9	0.8	16.1	0.4	23.6
1800	20.4	-30.1	-5.7	-5.9	0.9	0.9	16.2	0.4	24.6
1900	20.1	-29.8	-5.9	-6.0	1.0	0.9	16.1	0.4	24.9
2000	19.8	-29.6	-6.2	-6.1	1.0	0.9	16.2	0.4	24.7
2100	19.5	-29.2	-6.3	-6.2	1.0	0.9	16.1	0.4	24.7
2200	19.2	-29.0	-6.5	-6.4	1.0	0.9	15.8	0.6	25.2
2300	18.9	-28.8	-6.6	-6.5	1.1	0.9	15.9	0.5	25.1
2400	18.6	-28.5	-6.8	-6.6	1.1	0.9	16.2	0.5	24.7
2500	18.4	-28.2	-6.9	-6.8	1.1	0.9	16.3	0.5	24.9
2600	18.1	-28.0	-7.0	-7.0	1.1	0.9	16.4	0.5	25.2
2700	17.9	-27.7	-7.1	-7.2	1.1	0.9	16.3	0.6	24.8
2800	17.6	-27.5	-7.1	-7.4	1.1	0.9	16.2	0.5	25.4
2900	17.4	-27.4	-7.2	-7.7	1.2	0.9	16.3	0.6	25.2
3000	17.2	-27.1	-7.2	-8.1	1.2	0.9	16.2	0.6	25.8
3100	17.0	-26.8	-7.2	-8.5	1.2	1.0	16.3	0.5	25.9
3200	16.8	-26.6	-7.2	-8.8	1.2	1.0	16.2	0.6	25.9
3300	16.6	-26.4	-7.2	-9.1	1.2	1.0	16.3	0.7	25.8
3400	16.4	-26.2	-7.0	-9.6	1.2	1.0	16.3	0.7	25.8
3500	16.2	-26.0	-6.9	-10.1	1.2	1.0	16.0	0.7	25.9
3600	16.1	-25.7	-6.8	-10.5	1.2	1.0	16.1	0.8	26.2
3700	15.9	-25.5	-6.7	-11.0	1.2	1.0	15.5	0.6	25.9
3800	15.7	-25.3	-6.6	-11.6	1.2	1.1	15.7	0.7	25.6
3900	15.6	-25.1	-6.5	-12.2	1.2	1.1	15.8	0.7	25.6
4000	15.4	-25.0	-6.3	-13.0	1.2	1.1	15.7	0.7	26.0
4250	14.9	-24.7	-5.9	-15.3	1.2	1.2	15.7	0.8	25.6
4500	14.4	-24.3	-5.6	-18.3	1.2	1.2	15.7	0.8	25.8
4750	13.9	-24.1	-5.2	-21.9	1.2	1.2	15.7	0.8	24.8
5000	13.4	-23.9	-5.0	-23.4	1.2	1.3	15.7	1.0	26.0
5250	12.9	-23.8	-4.9	-21.0	1.3	1.3	15.5	1.1	25.2
5500	12.5	-23.6	-4.9	-17.9	1.3	1.3	15.4	1.3	25.2
5750	12.1	-23.5	-4.9	-15.5	1.3	1.3	15.1	1.3	25.2
6000	11.6	-23.3	-5.0	-13.6	1.3	1.3	15.6	1.6	25.2
7000	10.1	-22.5	-5.3	-9.6	1.3	1.2	15.3	1.8	24.2
7500	9.7	-22.0	-5.6	-9.1	1.4	1.1	14.8	2.1	24.0
8000	9.8	-21.0	-5.9	-9.5	1.3	1.1	14.4	2.1	23.5

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +3.3 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 30 mA, $I_{SHUTDOWN}$ = 0.0125 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	24.9	-34.8	-3.1	-4.2	0.7	0.8	16.6	0.4	25.8
900	24.5	-34.2	-3.4	-4.4	0.7	0.8	17.2	0.5	25.8
1000	24.0	-33.8	-3.8	-4.6	0.7	0.8	17.1	0.3	25.7
1100	23.6	-33.2	-4.1	-4.7	0.8	0.8	17.2	0.3	25.1
1200	23.2	-32.8	-4.4	-4.9	0.8	0.8	17.2	0.4	26.0
1300	22.8	-32.4	-4.7	-5.1	0.8	0.8	17.3	0.3	26.0
1400	22.4	-32.0	-5.0	-5.2	0.9	0.8	17.2	0.4	26.4
1500	21.9	-31.7	-5.3	-5.3	0.9	0.8	17.5	0.4	25.7
1600	21.5	-31.2	-5.6	-5.5	0.9	0.8	17.4	0.3	26.5
1700	21.2	-31.0	-5.8	-5.6	0.9	0.8	17.4	0.4	25.7
1800	20.8	-30.7	-6.0	-5.7	1.0	0.8	17.5	0.4	26.8
1900	20.5	-30.4	-6.2	-5.8	1.0	0.8	17.4	0.4	27.1
2000	20.1	-30.1	-6.5	-5.9	1.0	0.8	17.5	0.4	26.9
2100	19.8	-29.8	-6.6	-6.0	1.0	0.8	17.4	0.4	27.0
2200	19.5	-29.6	-6.8	-6.1	1.1	0.8	17.1	0.5	27.5
2300	19.3	-29.3	-7.0	-6.2	1.1	0.8	17.2	0.5	27.5
2400	19.0	-29.1	-7.1	-6.3	1.1	0.8	17.6	0.4	27.0
2500	18.7	-28.8	-7.2	-6.5	1.1	0.9	17.6	0.4	27.3
2600	18.5	-28.5	-7.4	-6.7	1.1	0.9	17.7	0.4	27.5
2700	18.3	-28.2	-7.5	-6.8	1.1	0.9	17.6	0.5	27.2
2800	18.0	-28.0	-7.5	-7.0	1.2	0.9	17.4	0.5	27.8
2900	17.8	-27.8	-7.6	-7.3	1.2	0.9	17.5	0.5	27.7
3000	17.6	-27.6	-7.6	-7.7	1.2	0.9	17.4	0.6	28.5
3100	17.3	-27.4	-7.6	-8.0	1.2	0.9	17.7	0.6	28.6
3200	17.2	-27.1	-7.6	-8.3	1.2	0.9	17.4	0.6	28.5
3300	17.0	-26.9	-7.5	-8.6	1.2	0.9	17.6	0.6	28.3
3400	16.7	-26.7	-7.4	-9.1	1.2	1.0	17.5	0.6	28.3
3500	16.6	-26.3	-7.2	-9.5	1.2	1.0	17.2	0.7	28.4
3600	16.4	-26.1	-7.2	-9.8	1.2	1.0	17.2	0.8	28.6
3700	16.3	-25.9	-7.1	-10.3	1.2	1.0	16.6	0.6	28.3
3800	16.1	-25.7	-6.9	-10.8	1.2	1.0	16.8	0.7	27.9
3900	15.9	-25.5	-6.8	-11.4	1.2	1.1	16.9	0.6	27.9
4000	15.8	-25.4	-6.6	-12.1	1.2	1.1	16.8	0.6	28.2
4250	15.3	-25.0	-6.2	-14.2	1.2	1.1	16.8	0.7	27.8
4500	14.8	-24.7	-5.8	-16.8	1.2	1.2	16.8	0.8	27.9
4750	14.3	-24.4	-5.5	-19.7	1.2	1.2	16.8	1.0	26.7
5000	13.8	-24.2	-5.2	-21.5	1.2	1.2	16.8	1.0	28.2
5250	13.4	-24.0	-5.1	-20.2	1.2	1.3	16.6	1.1	27.2
5500	12.9	-23.8	-5.0	-17.6	1.3	1.3	16.4	1.2	27.3
5750	12.5	-23.7	-5.0	-15.3	1.3	1.3	16.0	1.4	27.3
6000	12.1	-23.5	-5.1	-13.4	1.3	1.3	16.5	1.5	27.4
7000	10.6	-22.7	-5.4	-9.3	1.3	1.2	16.2	1.8	26.3
7500	10.1	-22.2	-5.7	-8.7	1.3	1.1	15.6	1.9	26.2
8000	10.2	-21.2	-6.0	-9.1	1.3	1.1	15.2	1.9	25.5

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +4.75 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 50 mA, $I_{SHUTDOWN}$ = 0.0127 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.2	-36.9	-3.6	-3.9	0.8	0.7	20.4	0.6	31.9
900	25.7	-36.4	-4.0	-4.1	0.8	0.7	20.9	0.3	32.3
1000	25.1	-35.8	-4.4	-4.2	0.8	0.7	20.8	0.3	32.3
1100	24.7	-35.3	-4.8	-4.3	0.9	0.7	21.0	0.3	31.7
1200	24.2	-34.9	-5.2	-4.4	0.9	0.7	21.2	0.4	32.6
1300	23.8	-34.5	-5.5	-4.5	0.9	0.7	21.2	0.3	32.3
1400	23.3	-34.0	-5.9	-4.6	1.0	0.7	21.1	0.4	32.9
1500	22.9	-33.7	-6.1	-4.7	1.0	0.7	21.6	0.3	32.8
1600	22.5	-33.3	-6.5	-4.8	1.0	0.7	21.4	0.3	33.6
1700	22.1	-32.9	-6.7	-4.9	1.0	0.7	21.5	0.3	32.9
1800	21.7	-32.6	-7.0	-4.9	1.1	0.7	21.5	0.5	34.0
1900	21.4	-32.2	-7.2	-5.0	1.1	0.7	21.4	0.4	34.0
2000	21.0	-32.0	-7.5	-5.1	1.1	0.8	21.6	0.4	34.7
2100	20.7	-31.7	-7.7	-5.1	1.1	0.8	21.4	0.3	34.9
2200	20.4	-31.4	-7.9	-5.2	1.1	0.8	20.9	0.4	35.0
2300	20.1	-31.1	-8.1	-5.3	1.2	0.8	21.0	0.5	35.1
2400	19.8	-30.8	-8.2	-5.4	1.2	0.8	21.6	0.5	34.6
2500	19.5	-30.5	-8.4	-5.5	1.2	0.8	21.6	0.5	34.4
2600	19.3	-30.2	-8.5	-5.6	1.2	0.8	21.7	0.4	35.1
2700	19.1	-30.0	-8.6	-5.7	1.2	0.8	21.4	0.5	34.9
2800	18.8	-29.8	-8.7	-5.9	1.2	0.8	21.3	0.5	35.0
2900	18.6	-29.6	-8.8	-6.1	1.3	0.8	21.4	0.5	34.9
3000	18.4	-29.3	-8.8	-6.4	1.3	0.8	21.4	0.4	33.9
3100	18.2	-28.9	-8.8	-6.7	1.3	0.8	21.7	0.4	34.3
3200	18.0	-28.7	-8.8	-6.8	1.3	0.9	21.3	0.5	34.6
3300	17.8	-28.4	-8.7	-7.1	1.3	0.9	21.5	0.6	35.1
3400	17.6	-28.1	-8.6	-7.4	1.3	0.9	21.3	0.6	36.0
3500	17.4	-27.8	-8.4	-7.7	1.3	0.9	21.1	0.6	35.8
3600	17.3	-27.5	-8.3	-7.9	1.2	0.9	21.0	0.7	36.4
3700	17.2	-27.3	-8.2	-8.3	1.2	0.9	20.3	0.6	36.8
3800	17.0	-27.0	-8.0	-8.7	1.2	1.0	20.4	0.6	36.8
3900	16.9	-26.8	-7.8	-9.1	1.2	1.0	20.5	0.6	36.2
4000	16.7	-26.6	-7.6	-9.6	1.2	1.0	20.4	0.6	36.7
4250	16.3	-26.2	-7.1	-11.0	1.2	1.1	20.2	0.6	37.0
4500	15.9	-25.8	-6.6	-12.7	1.2	1.1	20.5	0.8	37.5
4750	15.4	-25.5	-6.1	-14.5	1.2	1.2	20.4	0.8	37.2
5000	15.0	-25.2	-5.8	-15.7	1.2	1.2	20.4	1.0	38.4
5250	14.5	-25.0	-5.6	-15.8	1.2	1.2	20.2	1.0	37.7
5500	14.1	-24.8	-5.5	-14.7	1.2	1.2	19.9	1.1	37.9
5750	13.7	-24.6	-5.4	-13.2	1.2	1.2	19.5	1.3	38.7
6000	13.3	-24.4	-5.5	-11.7	1.2	1.2	20.2	1.4	39.6
7000	11.6	-23.7	-5.8	-8.0	1.2	1.1	19.6	1.7	41.0
7500	11.1	-23.2	-6.0	-7.4	1.3	1.0	19.2	1.9	40.9
8000	11.3	-22.1	-6.3	-7.6	1.2	1.0	18.7	1.8	39.0

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 53 mA, $I_{SHUTDOWN}$ = 0.0126 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.3	-37.3	-3.7	-3.9	0.8	0.7	21.4	0.4	32.5
900	25.8	-36.7	-4.1	-4.0	0.8	0.7	21.7	0.4	32.9
1000	25.2	-36.1	-4.5	-4.2	0.9	0.7	21.6	0.3	33.1
1100	24.8	-35.6	-4.9	-4.3	0.9	0.7	21.7	0.3	32.4
1200	24.3	-35.1	-5.2	-4.4	0.9	0.7	21.8	0.3	33.0
1300	23.8	-34.7	-5.6	-4.5	1.0	0.7	21.9	0.3	32.8
1400	23.4	-34.2	-5.9	-4.6	1.0	0.7	21.8	0.4	33.5
1500	23.0	-34.0	-6.2	-4.7	1.0	0.7	22.2	0.3	33.4
1600	22.5	-33.5	-6.6	-4.7	1.0	0.7	22.1	0.3	33.8
1700	22.2	-33.1	-6.8	-4.8	1.1	0.7	22.2	0.4	33.1
1800	21.8	-32.9	-7.1	-4.9	1.1	0.7	22.1	0.4	34.0
1900	21.4	-32.5	-7.3	-4.9	1.1	0.7	22.0	0.3	34.5
2000	21.1	-32.2	-7.6	-5.0	1.1	0.7	22.1	0.3	35.0
2100	20.8	-31.9	-7.8	-5.1	1.1	0.7	21.9	0.4	35.0
2200	20.4	-31.6	-8.0	-5.1	1.2	0.7	21.5	0.4	35.1
2300	20.2	-31.3	-8.2	-5.2	1.2	0.8	21.6	0.4	35.1
2400	19.9	-30.9	-8.4	-5.3	1.2	0.8	22.1	0.5	34.4
2500	19.6	-30.7	-8.5	-5.4	1.2	0.8	22.1	0.5	34.6
2600	19.4	-30.5	-8.7	-5.5	1.2	0.8	22.2	0.5	34.8
2700	19.1	-30.2	-8.8	-5.6	1.2	0.8	22.0	0.5	34.5
2800	18.9	-29.9	-8.8	-5.8	1.2	0.8	21.8	0.5	34.4
2900	18.6	-29.7	-8.9	-6.0	1.3	0.8	21.9	0.5	35.0
3000	18.5	-29.4	-9.0	-6.3	1.3	0.8	21.9	0.5	33.7
3100	18.2	-29.1	-8.9	-6.5	1.3	0.8	22.2	0.4	34.0
3200	18.1	-28.8	-8.9	-6.7	1.3	0.8	21.8	0.5	34.8
3300	17.9	-28.6	-8.8	-6.9	1.3	0.9	22.0	0.5	34.9
3400	17.7	-28.4	-8.7	-7.2	1.3	0.9	21.9	0.6	35.1
3500	17.5	-27.9	-8.5	-7.5	1.3	0.9	21.6	0.6	35.1
3600	17.4	-27.6	-8.4	-7.8	1.2	0.9	21.6	0.7	35.6
3700	17.3	-27.4	-8.3	-8.1	1.2	0.9	20.8	0.6	35.8
3800	17.1	-27.2	-8.1	-8.5	1.2	0.9	20.9	0.7	35.8
3900	17.0	-27.0	-7.9	-8.9	1.2	1.0	21.0	0.6	35.9
4000	16.8	-26.8	-7.7	-9.4	1.2	1.0	20.9	0.6	36.2
4250	16.4	-26.3	-7.1	-10.7	1.2	1.1	20.8	0.7	36.6
4500	16.0	-25.9	-6.6	-12.4	1.3	1.1	21.0	0.8	36.6
4750	15.5	-25.6	-6.2	-14.0	1.2	1.2	21.0	0.9	36.2
5000	15.1	-25.3	-5.8	-15.3	1.2	1.2	21.0	0.9	37.7
5250	14.6	-25.1	-5.6	-15.4	1.2	1.2	20.7	0.9	36.7
5500	14.2	-24.9	-5.5	-14.4	1.2	1.2	20.5	1.1	36.8
5750	13.8	-24.7	-5.5	-12.9	1.2	1.2	20.1	1.2	37.3
6000	13.4	-24.5	-5.5	-11.5	1.2	1.2	20.7	1.4	37.8
7000	11.7	-23.8	-5.8	-7.8	1.2	1.1	20.2	1.7	40.0
7500	11.2	-23.2	-6.0	-7.3	1.3	1.0	19.8	1.8	39.0
8000	11.3	-22.2	-6.3	-7.4	1.2	1.0	19.3	1.8	38.0

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5.25 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 55 mA, $I_{SHUTDOWN}$ = 0.0129 µA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.4	-37.4	-3.7	-3.8	0.8	0.7	21.9	0.4	33.2
900	25.8	-36.8	-4.2	-4.0	0.8	0.7	22.1	0.3	33.4
1000	25.3	-36.3	-4.6	-4.1	0.9	0.7	22.0	0.3	33.4
1100	24.9	-35.9	-4.9	-4.2	0.9	0.7	22.2	0.3	33.0
1200	24.4	-35.2	-5.3	-4.3	0.9	0.7	22.3	0.3	33.9
1300	23.9	-34.8	-5.7	-4.4	1.0	0.7	22.4	0.3	33.2
1400	23.5	-34.5	-6.0	-4.5	1.0	0.7	22.2	0.4	34.1
1500	23.0	-34.0	-6.3	-4.6	1.0	0.7	22.7	0.3	33.7
1600	22.6	-33.7	-6.7	-4.7	1.1	0.7	22.5	0.4	34.4
1700	22.2	-33.4	-6.9	-4.7	1.1	0.7	22.6	0.3	33.6
1800	21.8	-33.0	-7.2	-4.8	1.1	0.7	22.6	0.4	34.3
1900	21.5	-32.7	-7.4	-4.9	1.1	0.7	22.4	0.3	34.8
2000	21.1	-32.3	-7.7	-4.9	1.1	0.7	22.6	0.4	35.0
2100	20.8	-32.0	-7.9	-5.0	1.1	0.7	22.3	0.4	34.9
2200	20.5	-31.7	-8.1	-5.0	1.2	0.7	21.9	0.4	35.4
2300	20.2	-31.4	-8.3	-5.1	1.2	0.7	22.0	0.5	35.1
2400	19.9	-31.2	-8.5	-5.2	1.2	0.7	22.6	0.5	34.3
2500	19.6	-30.9	-8.6	-5.3	1.2	0.8	22.6	0.5	34.4
2600	19.4	-30.6	-8.8	-5.4	1.2	0.8	22.6	0.4	35.3
2700	19.2	-30.3	-8.9	-5.5	1.2	0.8	22.4	0.5	34.4
2800	18.9	-30.1	-9.0	-5.7	1.2	0.8	22.2	0.5	34.9
2900	18.7	-29.8	-9.0	-5.9	1.3	0.8	22.3	0.6	34.5
3000	18.5	-29.6	-9.1	-6.1	1.3	0.8	22.4	0.6	33.3
3100	18.3	-29.3	-9.0	-6.4	1.3	0.8	22.7	0.5	33.8
3200	18.1	-29.0	-9.0	-6.6	1.3	0.8	22.3	0.5	34.0
3300	17.9	-28.7	-8.9	-6.8	1.3	0.9	22.5	0.5	35.1
3400	17.7	-28.4	-8.8	-7.1	1.3	0.9	22.3	0.5	34.2
3500	17.6	-28.1	-8.6	-7.4	1.3	0.9	22.0	0.6	34.7
3600	17.4	-27.7	-8.5	-7.6	1.2	0.9	22.0	0.7	35.2
3700	17.3	-27.5	-8.3	-7.9	1.2	0.9	21.2	0.5	35.1
3800	17.1	-27.3	-8.2	-8.3	1.2	0.9	21.4	0.6	35.1
3900	17.0	-27.1	-8.0	-8.7	1.2	1.0	21.5	0.6	35.3
4000	16.9	-26.9	-7.8	-9.2	1.2	1.0	21.4	0.6	35.2
4250	16.5	-26.4	-7.2	-10.5	1.3	1.0	21.2	0.6	35.9
4500	16.1	-26.0	-6.7	-12.1	1.3	1.1	21.4	0.8	36.2
4750	15.6	-25.6	-6.2	-13.7	1.2	1.2	21.4	0.8	35.5
5000	15.1	-25.4	-5.9	-14.9	1.2	1.2	21.4	0.9	36.7
5250	14.7	-25.2	-5.7	-15.1	1.2	1.2	21.2	1.0	36.0
5500	14.3	-24.9	-5.5	-14.2	1.2	1.2	21.0	1.1	36.2
5750	13.9	-24.8	-5.5	-12.7	1.2	1.2	20.6	1.3	36.4
6000	13.4	-24.6	-5.6	-11.3	1.2	1.2	21.2	1.5	36.5
7000	11.8	-23.8	-5.8	-7.7	1.2	1.1	20.7	1.6	38.4
7500	11.3	-23.3	-6.0	-7.2	1.3	1.0	20.3	1.9	37.5
8000	11.4	-22.3	-6.3	-7.3	1.2	1.0	19.8	2.0	37.2

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 53 mA, $I_{SHUTDOWN}$ = 0.0164 µA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	27.1	-39.0	-3.9	-4.0	1.0	0.7	20.5	0.2	34.2
900	26.6	-38.4	-4.3	-4.1	1.0	0.7	21.2	0.2	33.9
1000	26.1	-37.6	-4.7	-4.2	1.0	0.7	20.7	0.1	34.2
1100	25.6	-37.2	-5.1	-4.3	1.1	0.7	20.9	0.1	34.6
1200	25.1	-36.6	-5.5	-4.3	1.1	0.7	21.3	0.2	35.2
1300	24.6	-36.2	-5.9	-4.4	1.1	0.7	21.5	0.1	34.1
1400	24.2	-35.8	-6.3	-4.5	1.2	0.7	21.5	0.2	34.5
1500	23.8	-35.1	-6.7	-4.5	1.2	0.7	21.7	0.2	34.2
1600	23.3	-34.9	-7.1	-4.6	1.2	0.7	21.8	0.1	33.3
1700	23.0	-34.6	-7.4	-4.7	1.2	0.7	22.2	0.1	33.3
1800	22.6	-34.0	-7.8	-4.7	1.2	0.7	22.0	0.3	33.1
1900	22.2	-33.8	-8.1	-4.8	1.3	0.7	22.0	0.2	33.2
2000	21.9	-33.3	-8.4	-4.9	1.3	0.7	21.4	0.2	34.2
2100	21.5	-33.2	-8.6	-5.0	1.3	0.7	21.6	0.1	34.1
2200	21.2	-32.7	-8.8	-5.0	1.3	0.7	21.9	0.3	34.1
2300	20.9	-32.4	-9.0	-5.1	1.3	0.7	21.8	0.2	34.6
2400	20.6	-32.1	-9.1	-5.2	1.3	0.7	21.9	0.3	33.8
2500	20.4	-31.8	-9.3	-5.3	1.3	0.7	21.8	0.2	34.4
2600	20.1	-31.4	-9.4	-5.4	1.3	0.7	21.8	0.3	34.9
2700	19.9	-31.1	-9.5	-5.5	1.3	0.7	21.4	0.3	34.9
2800	19.6	-31.0	-9.6	-5.7	1.4	0.8	21.9	0.2	34.5
2900	19.3	-30.6	-9.6	-6.0	1.4	0.8	21.6	0.2	35.6
3000	19.2	-30.4	-9.6	-6.3	1.4	0.8	21.6	0.2	35.1
3100	19.1	-29.9	-9.8	-6.4	1.4	0.8	21.9	0.3	36.4
3200	18.9	-29.6	-9.9	-6.5	1.3	0.8	21.9	0.3	35.2
3300	18.7	-29.4	-9.9	-6.7	1.4	0.8	21.7	0.2	35.5
3400	18.5	-29.1	-9.8	-7.0	1.4	0.8	21.6	0.3	35.1
3500	18.3	-28.7	-9.6	-7.3	1.3	0.9	21.6	0.3	35.5
3600	18.2	-28.3	-9.5	-7.6	1.3	0.9	21.8	0.3	35.0
3700	18.1	-28.1	-9.4	-7.8	1.3	0.9	20.8	0.3	34.7
3800	18.0	-27.9	-9.2	-8.2	1.3	0.9	21.7	0.4	34.5
3900	17.8	-27.6	-8.9	-8.6	1.3	0.9	21.0	0.3	34.7
4000	17.6	-27.4	-8.6	-9.0	1.3	0.9	21.1	0.4	34.3
4250	17.3	-27.0	-7.8	-10.3	1.3	1.0	20.6	0.4	35.2
4500	16.9	-26.4	-7.2	-11.6	1.3	1.1	21.2	0.5	34.3
4750	16.5	-26.1	-6.7	-13.0	1.3	1.1	20.9	0.5	35.2
5000	16.1	-25.7	-6.5	-14.2	1.3	1.1	20.5	0.6	34.5
5250	15.7	-25.5	-6.3	-14.5	1.3	1.2	21.3	0.6	34.7
5500	15.3	-25.2	-6.2	-13.8	1.3	1.2	20.5	0.7	34.6
5750	14.8	-25.1	-6.0	-12.8	1.3	1.2	20.1	0.8	34.1
6000	14.4	-24.9	-5.9	-11.5	1.3	1.2	21.2	0.9	33.7
7000	12.8	-23.9	-6.4	-7.7	1.2	1.0	19.9	1.2	34.3
7500	12.3	-23.5	-6.5	-7.1	1.2	1.0	20.2	1.3	33.5
8000	12.2	-22.5	-6.3	-7.0	1.1	0.9	20.2	1.4	33.5

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 54 mA, $I_{SHUTDOWN}$ = 0.0091 µA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	25.6	-37.7	-3.5	-4.0	0.9	0.8	19.9	0.5	32.8
900	25.1	-36.8	-3.9	-4.1	0.9	0.8	20.1	0.5	33.0
1000	24.6	-36.2	-4.2	-4.3	1.0	0.8	20.1	0.4	33.0
1100	24.2	-36.0	-4.6	-4.4	1.0	0.8	20.3	0.5	33.4
1200	23.7	-35.2	-5.0	-4.5	1.0	0.8	20.4	0.5	33.7
1300	23.3	-34.9	-5.3	-4.6	1.1	0.8	20.5	0.5	32.7
1400	22.9	-34.6	-5.7	-4.7	1.1	0.8	20.6	0.5	33.8
1500	22.5	-34.1	-6.0	-4.8	1.1	0.8	20.7	0.6	32.9
1600	22.0	-33.7	-6.3	-4.9	1.2	0.8	20.8	0.5	32.6
1700	21.7	-33.4	-6.6	-5.0	1.2	0.8	20.9	0.5	32.6
1800	21.3	-33.0	-6.8	-5.1	1.2	0.8	20.9	0.6	32.9
1900	20.9	-32.8	-7.1	-5.2	1.3	0.8	20.8	0.6	32.7
2000	20.6	-32.5	-7.3	-5.3	1.3	0.8	20.6	0.6	33.8
2100	20.2	-32.2	-7.4	-5.4	1.3	0.8	20.7	0.6	34.6
2200	20.0	-31.8	-7.6	-5.4	1.3	0.8	20.9	0.7	34.3
2300	19.7	-31.5	-7.7	-5.5	1.3	0.8	20.9	0.7	35.2
2400	19.4	-31.4	-7.8	-5.6	1.4	0.8	21.0	0.8	34.7
2500	19.1	-31.0	-8.0	-5.7	1.4	0.8	20.9	0.8	34.3
2600	18.9	-30.7	-8.1	-5.8	1.4	0.8	20.9	0.7	35.2
2700	18.6	-30.5	-8.2	-5.9	1.4	0.8	20.7	0.8	34.8
2800	18.3	-30.2	-8.3	-6.1	1.4	0.8	20.9	0.7	36.4
2900	18.1	-30.1	-8.3	-6.5	1.5	0.9	21.0	0.9	37.6
3000	18.0	-29.7	-8.4	-6.7	1.4	0.9	21.1	0.7	35.2
3100	17.8	-29.3	-8.5	-6.8	1.4	0.9	21.1	0.8	36.2
3200	17.7	-29.0	-8.6	-7.0	1.4	0.9	21.2	0.8	35.9
3300	17.5	-28.8	-8.6	-7.2	1.4	0.9	21.0	0.8	37.2
3400	17.2	-28.5	-8.4	-7.5	1.4	0.9	21.0	1.0	36.0
3500	17.1	-28.2	-8.3	-7.8	1.4	0.9	20.9	0.9	36.0
3600	17.0	-27.9	-8.2	-8.1	1.4	0.9	21.1	1.0	35.5
3700	16.8	-27.7	-8.1	-8.5	1.4	1.0	20.3	1.0	37.0
3800	16.7	-27.5	-7.8	-8.9	1.4	1.0	21.0	0.9	36.3
3900	16.5	-27.2	-7.6	-9.4	1.4	1.0	20.6	0.9	36.6
4000	16.3	-27.1	-7.3	-9.9	1.4	1.0	20.5	1.0	35.3
4250	15.9	-26.6	-6.7	-11.4	1.4	1.1	20.1	1.0	37.5
4500	15.5	-26.2	-6.3	-13.0	1.4	1.1	20.6	1.1	36.5
4750	15.1	-25.9	-6.0	-14.7	1.4	1.2	20.3	1.2	37.5
5000	14.7	-25.6	-5.8	-15.8	1.4	1.2	20.0	1.3	38.2
5250	14.3	-25.3	-5.6	-15.6	1.4	1.2	20.6	1.5	37.2
5500	13.8	-25.2	-5.4	-14.4	1.4	1.2	20.0	1.6	37.6
5750	13.3	-25.1	-5.3	-13.0	1.4	1.2	19.7	1.8	37.5
6000	12.8	-25.0	-5.2	-11.6	1.5	1.2	20.6	2.0	37.4
7000	11.2	-24.1	-5.8	-7.8	1.4	1.1	19.7	2.3	39.8
7500	10.8	-23.5	-6.0	-7.4	1.4	1.0	19.9	2.5	37.1
8000	10.8	-22.5	-5.9	-7.8	1.3	1.0	19.8	2.6	39.4

*Note: Tested with I_{ADJ} = OPEN.

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 35 mA, $I_{SHUTDOWN}$ = 0.0126 µA, RI_{ADJ} = 0Ω @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.0	-36.9	-3.0	-3.5	0.8	0.7	19.9	0.2	28.7
900	25.5	-36.3	-3.4	-3.7	0.8	0.7	20.6	0.1	28.6
1000	25.0	-35.7	-3.8	-3.8	0.8	0.7	20.3	0.2	28.3
1100	24.5	-35.3	-4.1	-4.0	0.8	0.7	20.6	0.3	28.8
1200	24.0	-34.8	-4.5	-4.1	0.9	0.7	20.6	0.3	28.9
1300	23.6	-34.4	-4.8	-4.2	0.9	0.7	20.8	0.2	29.3
1400	23.1	-34.0	-5.2	-4.3	0.9	0.7	20.9	0.3	28.8
1500	22.7	-33.6	-5.5	-4.4	1.0	0.7	21.0	0.3	29.5
1600	22.3	-33.3	-5.7	-4.5	1.0	0.7	21.0	0.2	29.8
1700	21.9	-32.9	-6.0	-4.6	1.0	0.7	20.8	0.3	31.1
1800	21.5	-32.6	-6.3	-4.7	1.0	0.7	21.4	0.3	30.1
1900	21.2	-32.4	-6.5	-4.8	1.1	0.7	21.4	0.3	30.2
2000	20.8	-32.0	-6.8	-4.9	1.1	0.7	21.5	0.2	30.7
2100	20.5	-31.7	-7.0	-4.9	1.1	0.8	21.4	0.3	30.6
2200	20.2	-31.5	-7.2	-5.0	1.1	0.8	21.8	0.3	30.7
2300	19.9	-31.3	-7.4	-5.2	1.2	0.8	21.3	0.3	31.5
2400	19.6	-31.0	-7.5	-5.2	1.2	0.8	21.3	0.2	31.4
2500	19.4	-30.6	-7.7	-5.3	1.2	0.8	21.6	0.4	32.1
2600	19.1	-30.4	-7.8	-5.4	1.2	0.8	21.6	0.4	31.6
2700	18.8	-30.2	-7.9	-5.6	1.2	0.8	21.8	0.4	32.1
2800	18.5	-30.0	-7.9	-5.8	1.2	0.8	21.8	0.5	31.9
2900	18.3	-29.8	-7.9	-6.1	1.3	0.8	21.0	0.4	33.0
3000	18.1	-29.3	-8.0	-6.4	1.2	0.9	21.1	0.5	33.7
3100	17.9	-29.0	-8.1	-6.5	1.2	0.9	21.7	0.4	32.9
3200	17.8	-28.8	-8.0	-6.6	1.2	0.9	21.3	0.4	33.9
3300	17.6	-28.6	-8.0	-6.9	1.3	0.9	21.1	0.4	34.8
3400	17.3	-28.5	-7.9	-7.2	1.3	0.9	21.5	0.5	33.9
3500	17.1	-28.2	-7.7	-7.5	1.3	0.9	21.4	0.5	34.4
3600	17.0	-27.9	-7.5	-7.9	1.3	1.0	21.1	0.5	35.4
3700	16.8	-27.7	-7.3	-8.1	1.3	1.0	21.1	0.5	34.9
3800	16.6	-27.5	-7.1	-8.5	1.3	1.0	21.2	0.5	35.3
3900	16.5	-27.2	-7.0	-8.9	1.3	1.0	21.1	0.5	35.5
4000	16.3	-27.1	-6.8	-9.3	1.3	1.0	20.7	0.5	36.2
4250	15.8	-26.6	-6.3	-10.5	1.3	1.1	20.6	0.6	35.8
4500	15.3	-26.3	-5.8	-11.8	1.3	1.2	20.6	0.7	35.5
4750	14.8	-25.9	-5.4	-12.9	1.2	1.2	21.0	0.8	35.3
5000	14.3	-25.7	-5.1	-13.4	1.3	1.2	19.9	0.9	35.5
5250	13.8	-25.5	-4.9	-13.1	1.3	1.3	19.5	1.0	35.9
5500	13.3	-25.3	-4.8	-12.2	1.3	1.3	20.2	1.2	35.4
5750	12.8	-25.2	-4.8	-11.0	1.2	1.2	19.5	1.1	34.9
6000	12.3	-25.0	-4.8	-9.8	1.2	1.2	19.5	1.3	33.4
7000	10.8	-24.4	-5.3	-7.0	1.3	1.1	19.6	1.8	32.3
7500	10.6	-23.4	-5.6	-6.5	1.2	1.0	19.1	1.7	32.4
8000	10.7	-22.4	-6.4	-6.9	1.2	0.9	18.6	1.7	32.4

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 40 mA, $I_{SHUTDOWN}$ = 0.0126 µA, RI_{ADJ} = 220Ω @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.4	-36.7	-3.1	-3.7	0.8	0.7	19.4	0.5	29.9
900	25.9	-36.1	-3.5	-3.8	0.8	0.7	19.8	0.4	29.5
1000	25.3	-35.5	-3.9	-4.0	0.8	0.7	20.1	0.3	30.2
1100	24.9	-35.1	-4.3	-4.1	0.8	0.7	20.2	0.3	30.9
1200	24.4	-34.7	-4.6	-4.2	0.9	0.7	20.3	0.3	31.1
1300	23.9	-34.4	-5.0	-4.3	0.9	0.7	20.5	0.3	29.7
1400	23.5	-34.0	-5.3	-4.4	1.0	0.7	20.7	0.3	31.3
1500	23.0	-33.6	-5.6	-4.5	1.0	0.7	20.9	0.3	30.4
1600	22.6	-33.3	-5.8	-4.6	1.0	0.7	21.0	0.3	30.6
1700	22.2	-32.9	-6.1	-4.7	1.0	0.7	21.2	0.3	31.1
1800	21.8	-32.6	-6.4	-4.7	1.1	0.7	21.3	0.3	31.1
1900	21.5	-32.3	-6.6	-4.8	1.1	0.8	21.4	0.4	31.1
2000	21.1	-32.0	-6.8	-4.9	1.1	0.8	21.1	0.3	32.0
2100	20.8	-31.7	-7.0	-5.0	1.1	0.8	21.2	0.4	32.6
2200	20.5	-31.4	-7.2	-5.1	1.1	0.8	21.5	0.3	32.8
2300	20.2	-31.1	-7.4	-5.1	1.2	0.8	21.3	0.3	33.5
2400	19.9	-30.9	-7.6	-5.2	1.2	0.8	21.7	0.4	32.4
2500	19.6	-30.5	-7.7	-5.3	1.2	0.8	21.6	0.3	32.7
2600	19.4	-30.4	-7.8	-5.4	1.2	0.8	21.6	0.4	33.0
2700	19.1	-30.1	-7.9	-5.6	1.2	0.8	21.4	0.4	33.6
2800	18.8	-29.9	-8.0	-5.9	1.3	0.8	21.7	0.4	33.1
2900	18.6	-29.5	-8.0	-6.1	1.3	0.8	21.4	0.4	34.1
3000	18.4	-29.3	-8.1	-6.1	1.3	0.8	21.3	0.5	34.1
3100	18.2	-29.1	-8.1	-6.5	1.3	0.9	21.5	0.5	34.4
3200	18.1	-28.7	-8.1	-6.6	1.3	0.9	21.7	0.5	34.1
3300	17.9	-28.5	-8.1	-6.8	1.3	0.9	21.6	0.5	35.0
3400	17.7	-28.2	-8.1	-7.1	1.3	0.9	21.6	0.6	35.1
3500	17.5	-28.0	-8.0	-7.4	1.3	0.9	21.3	0.6	35.6
3600	17.3	-27.7	-7.9	-7.8	1.3	0.9	21.2	0.7	36.0
3700	17.1	-27.5	-7.7	-8.1	1.3	1.0	20.5	0.6	36.4
3800	17.0	-27.2	-7.5	-8.5	1.3	1.0	21.4	0.6	36.0
3900	16.8	-27.2	-7.3	-9.0	1.3	1.0	21.0	0.6	37.2
4000	16.7	-26.8	-7.1	-9.4	1.3	1.0	20.3	0.6	36.8
4250	16.3	-26.3	-6.6	-10.7	1.3	1.1	20.4	0.6	36.8
4500	15.9	-26.0	-6.1	-12.3	1.3	1.1	20.2	0.7	36.6
4750	15.4	-25.6	-5.7	-13.9	1.3	1.2	20.3	0.7	38.4
5000	15.0	-25.5	-5.4	-15.0	1.3	1.2	20.4	0.8	37.3
5250	14.5	-25.2	-5.1	-14.9	1.3	1.2	20.2	1.0	36.4
5500	14.1	-25.0	-5.0	-13.8	1.3	1.3	19.8	1.1	37.9
5750	13.7	-24.8	-4.9	-12.4	1.3	1.3	19.5	1.1	36.9
6000	13.2	-24.7	-5.0	-11.0	1.3	1.2	20.0	1.3	35.8
7000	11.3	-24.1	-5.5	-7.6	1.3	1.1	18.9	1.9	33.7
7500	11.0	-23.4	-5.6	-7.1	1.3	1.0	18.3	1.8	33.7
8000	11.0	-22.4	-6.1	-7.4	1.3	1.0	17.6	1.7	34.1

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 50 mA, $I_{SHUTDOWN}$ = 0.0126 µA, RI_{ADJ} = OPEN @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	26.9	-36.9	-3.4	-3.8	0.8	0.7	21.2	0.6	31.9
900	26.3	-36.4	-3.8	-4.0	0.8	0.7	21.4	0.3	32.3
1000	25.8	-35.9	-4.2	-4.1	0.9	0.7	21.3	0.3	32.6
1100	25.3	-35.6	-4.6	-4.3	0.9	0.7	21.5	0.3	33.0
1200	24.8	-35.0	-5.0	-4.4	0.9	0.7	21.5	0.3	34.3
1300	24.3	-34.6	-5.3	-4.5	1.0	0.7	21.8	0.3	32.9
1400	23.9	-34.1	-5.7	-4.6	1.0	0.7	21.6	0.3	34.1
1500	23.4	-33.7	-6.0	-4.6	1.0	0.7	21.9	0.3	33.3
1600	23.0	-33.4	-6.2	-4.7	1.0	0.7	21.8	0.3	33.5
1700	22.6	-33.1	-6.5	-4.8	1.1	0.7	21.9	0.3	33.1
1800	22.2	-32.8	-6.7	-4.8	1.1	0.7	21.9	0.3	33.5
1900	21.8	-32.3	-7.0	-4.9	1.1	0.7	21.9	0.3	33.4
2000	21.5	-32.2	-7.2	-5.0	1.1	0.7	21.6	0.4	35.1
2100	21.1	-31.9	-7.4	-5.1	1.2	0.8	21.6	0.3	35.8
2200	20.8	-31.6	-7.6	-5.1	1.2	0.8	21.9	0.3	35.0
2300	20.5	-31.3	-7.8	-5.2	1.2	0.8	21.7	0.3	36.0
2400	20.2	-31.0	-8.0	-5.3	1.2	0.8	22.0	0.4	33.7
2500	19.9	-30.7	-8.1	-5.4	1.2	0.8	21.9	0.4	35.0
2600	19.7	-30.4	-8.3	-5.5	1.2	0.8	21.9	0.4	36.2
2700	19.4	-30.2	-8.3	-5.6	1.2	0.8	21.7	0.4	34.7
2800	19.1	-29.9	-8.4	-5.9	1.3	0.8	21.8	0.4	34.9
2900	18.9	-29.6	-8.4	-6.1	1.3	0.8	21.6	0.4	35.0
3000	18.7	-29.3	-8.5	-6.3	1.3	0.8	21.5	0.5	35.1
3100	18.5	-29.1	-8.5	-6.5	1.3	0.8	21.7	0.5	36.6
3200	18.3	-28.8	-8.5	-6.7	1.3	0.8	21.9	0.5	35.5
3300	18.1	-28.5	-8.5	-6.8	1.3	0.9	21.8	0.5	36.0
3400	17.9	-28.3	-8.5	-7.1	1.3	0.9	21.8	0.6	36.3
3500	17.7	-28.1	-8.4	-7.4	1.3	0.9	21.4	0.6	35.7
3600	17.5	-27.8	-8.2	-7.8	1.3	0.9	21.4	0.6	35.7
3700	17.4	-27.5	-8.0	-8.2	1.3	0.9	20.7	0.7	36.1
3800	17.3	-27.3	-7.8	-8.5	1.3	1.0	21.5	0.5	37.3
3900	17.1	-27.1	-7.6	-9.1	1.3	1.0	21.3	0.5	38.5
4000	16.9	-26.8	-7.4	-9.5	1.3	1.0	20.6	0.7	35.4
4250	16.6	-26.3	-6.9	-10.8	1.3	1.1	20.7	0.5	36.3
4500	16.2	-26.0	-6.3	-12.4	1.3	1.1	20.6	0.7	37.3
4750	15.7	-25.6	-5.9	-14.1	1.3	1.2	20.7	0.8	36.9
5000	15.2	-25.4	-5.5	-15.3	1.3	1.2	20.8	0.9	38.4
5250	14.8	-25.1	-5.3	-15.3	1.3	1.2	20.6	1.0	36.4
5500	14.4	-24.9	-5.1	-14.3	1.2	1.2	20.4	1.1	38.0
5750	14.0	-24.8	-5.1	-12.8	1.3	1.2	20.3	1.2	37.6
6000	13.5	-24.6	-5.1	-11.3	1.2	1.2	20.7	1.3	37.2
7000	11.6	-23.9	-5.7	-7.8	1.3	1.1	19.8	1.8	46.2
7500	11.3	-23.3	-5.7	-7.2	1.3	1.0	19.3	1.8	39.2
8000	11.3	-22.3	-6.3	-7.4	1.3	1.0	18.7	1.7	38.4

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

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

TEST CONDITIONS: V_{DD} = +5 V, $V_{SHUTDOWN}$ = 0 V, I_{DD} = 53 mA, $I_{SHUTDOWN}$ = 0.0126 µA @ Temperature = +25°C

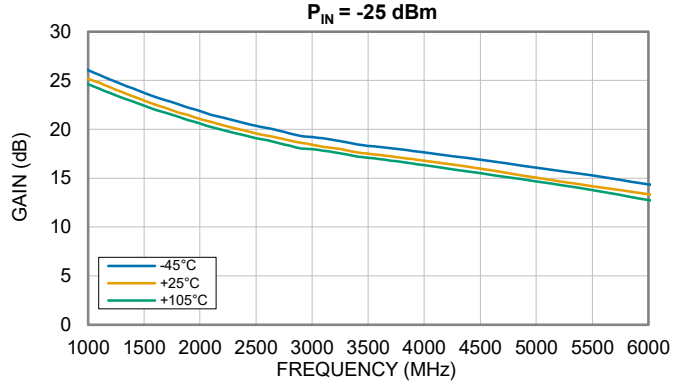
FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Noise Figure	IP-3 Output P_{OUT} = +4 dBm/Tone
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dB)	(dBm)
800	-24.5	-65.4	-0.1	-0.6	55.5	0.3	-14.8	10.5	2.5
900	-21.4	-72.3	-0.1	-0.6	78.8	0.2	-11.3	4.7	4.5
1000	-18.4	-69.5	-0.1	-0.6	40.2	0.3	-8.9	4.4	5.9
1100	-15.7	-69.0	-0.2	-0.6	42.9	0.3	-4.4	12.6	7.5
1200	-13.1	-70.1	-0.2	-0.6	43.3	0.3	-2.0	6.3	8.5
1300	-10.7	-66.1	-0.2	-0.7	28.1	0.3	-0.5	6.6	8.9
1400	-8.5	-65.0	-0.3	-0.7	23.6	0.3	-0.2	5.7	11.5
1500	-6.4	-62.4	-0.3	-0.7	15.1	0.3	1.9	4.3	13.1
1600	-4.4	-61.2	-0.3	-0.7	12.2	0.3	3.2	4.4	12.9
1700	-2.5	-58.8	-0.4	-0.8	9.2	0.3	5.3	4.4	12.6
1800	-0.6	-54.8	-0.5	-0.8	5.9	0.3	6.5	2.8	14.7
1900	1.2	-52.7	-0.5	-0.9	4.7	0.3	7.8	3.0	17.2
2000	3.0	-50.4	-0.7	-0.9	4.0	0.4	9.0	2.3	19.6
2100	4.8	-48.5	-0.8	-1.0	3.5	0.4	10.0	2.1	23.0
2200	6.6	-45.2	-1.0	-1.1	2.7	0.4	10.7	1.9	25.3
2300	8.4	-43.5	-1.1	-1.2	2.4	0.4	11.7	1.2	28.8
2400	10.2	-40.4	-1.5	-1.4	2.0	0.4	12.5	5.3	31.6
2500	12.0	-38.4	-1.9	-1.6	1.8	0.4	13.1	1.4	37.9
2600	13.7	-36.3	-2.4	-2.0	1.7	0.5	13.7	1.0	35.9
2700	15.2	-34.3	-3.2	-2.6	1.7	0.5	14.4	1.1	36.7
2800	16.5	-32.3	-4.2	-3.3	1.6	0.6	14.7	0.9	34.6
2900	17.6	-30.8	-5.5	-4.4	1.5	0.6	15.3	0.9	36.4
3000	18.4	-29.5	-7.1	-6.0	1.5	0.7	15.5	0.8	38.0
3100	18.9	-28.5	-8.5	-7.5	1.4	0.7	16.0	0.8	42.3
3200	19.2	-27.7	-10.0	-9.8	1.4	0.8	16.3	0.7	44.1
3300	19.3	-27.2	-10.9	-12.7	1.4	0.8	16.8	0.7	41.5
3400	19.2	-26.8	-11.3	-16.3	1.4	0.9	17.2	0.6	37.5
3500	19.0	-26.5	-10.9	-20.9	1.4	0.9	17.0	0.6	37.6
3600	18.9	-26.2	-10.7	-28.9	1.3	0.9	16.9	0.6	37.8
3700	18.6	-26.1	-10.3	-36.8	1.3	0.9	18.2	0.6	37.1
3800	18.4	-26.0	-9.9	-26.6	1.3	1.0	17.3	0.6	37.5
3900	18.1	-25.9	-9.4	-22.9	1.3	1.0	17.9	0.6	35.9
4000	17.8	-25.9	-8.8	-21.5	1.3	1.0	18.3	0.6	36.1
4250	17.0	-25.8	-7.4	-21.4	1.3	1.1	18.6	0.7	34.4
4500	16.2	-25.8	-6.3	-25.1	1.3	1.1	18.6	0.9	35.3
4750	15.6	-25.5	-5.7	-32.5	1.4	1.2	18.3	0.9	36.5
5000	15.2	-25.3	-5.4	-28.7	1.4	1.2	17.9	0.9	37.4
5250	14.8	-25.0	-5.2	-21.0	1.4	1.2	18.0	0.1	37.3
5500	14.3	-24.9	-4.9	-16.1	1.4	1.2	17.3	1.0	36.5
5750	13.7	-25.0	-4.5	-13.0	1.4	1.2	17.0	1.2	37.0
6000	13.0	-25.2	-4.2	-11.2	1.4	1.2	16.5	1.5	36.6
7000	11.1	-24.5	-6.2	-6.9	1.4	1.0	16.2	1.8	37.7
7500	10.1	-24.3	-7.6	-4.9	1.4	0.8	15.9	1.7	38.3
8000	9.7	-23.8	-7.7	-4.4	1.3	0.8	16.9	1.9	37.9

*Note: Tested with I_{ADJ} = OPEN on 3400-3800 MHz Application Circuit.

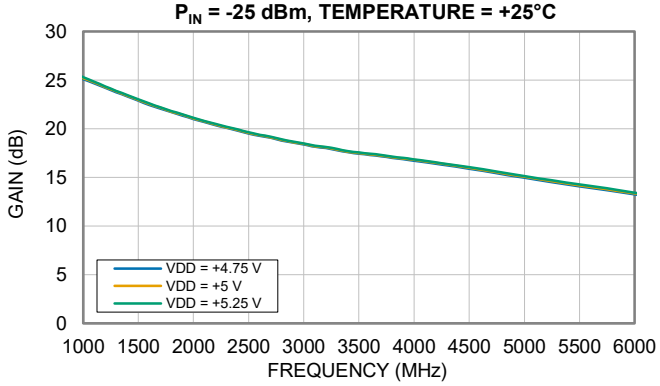
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

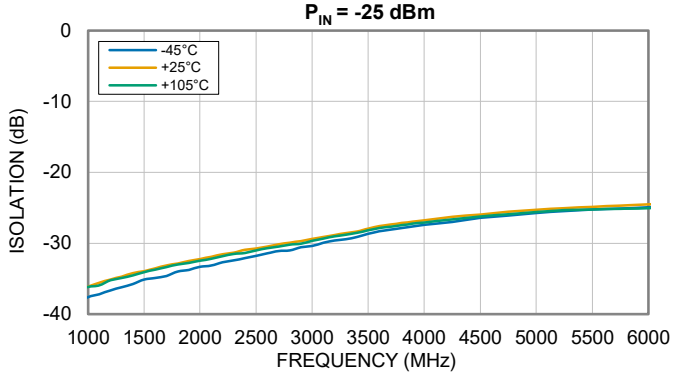
GAIN vs. TEMPERATURE
P_{IN} = -25 dBm



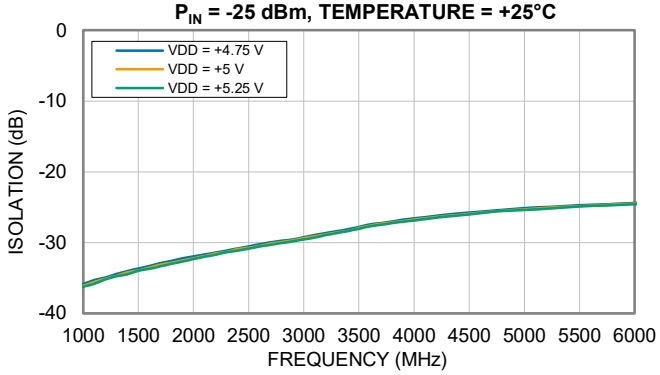
GAIN vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



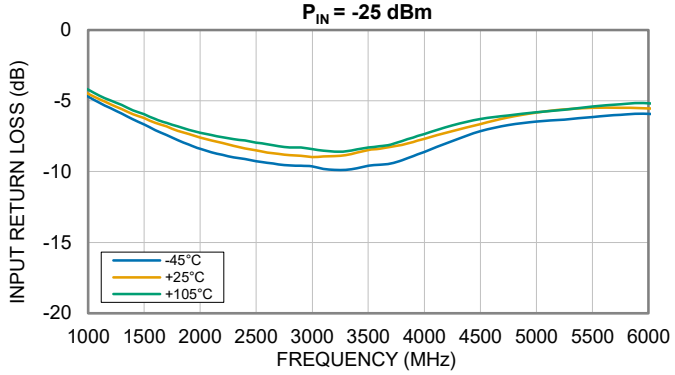
ISOLATION vs. TEMPERATURE
P_{IN} = -25 dBm



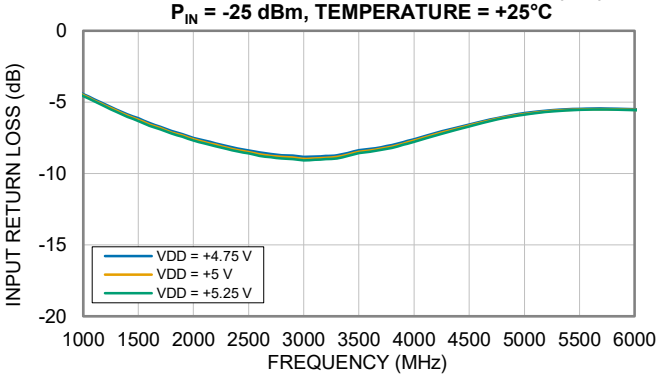
ISOLATION vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



INPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm



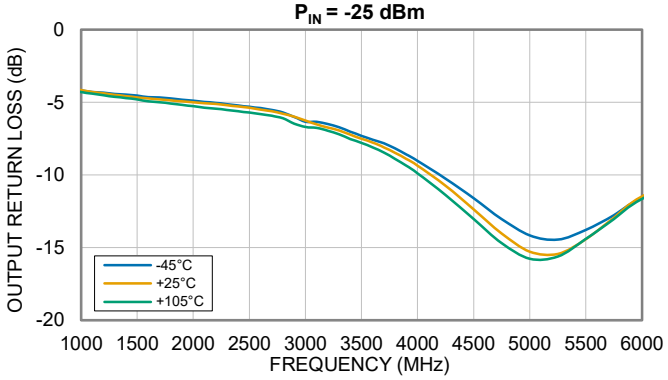
INPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



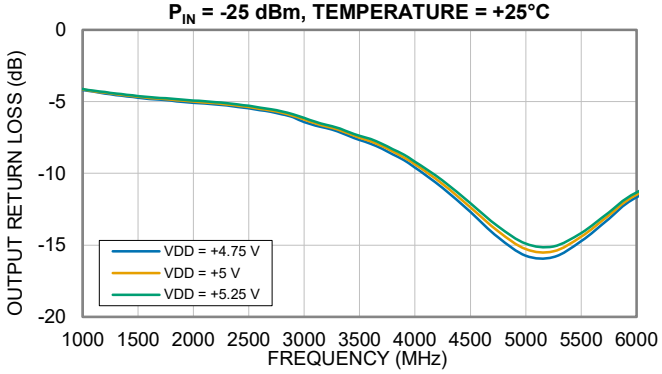
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

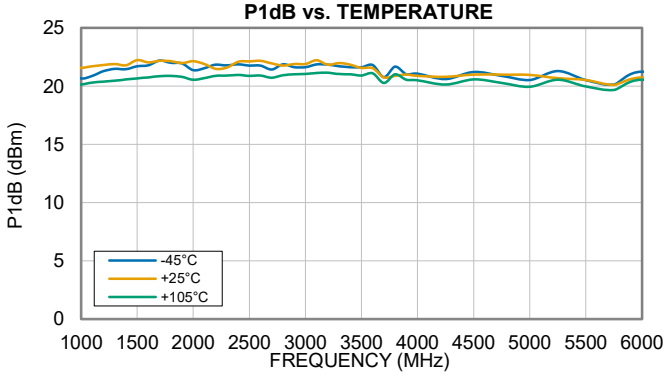
OUTPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm



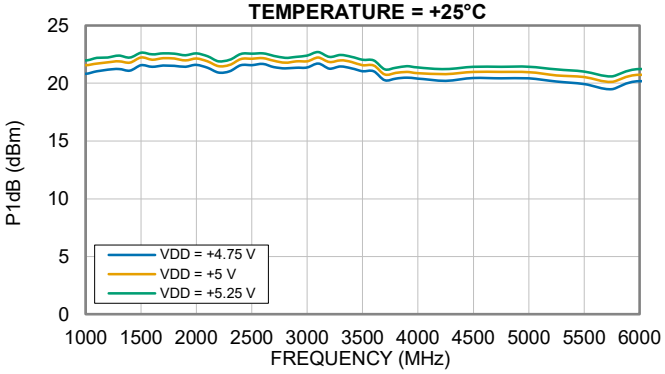
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



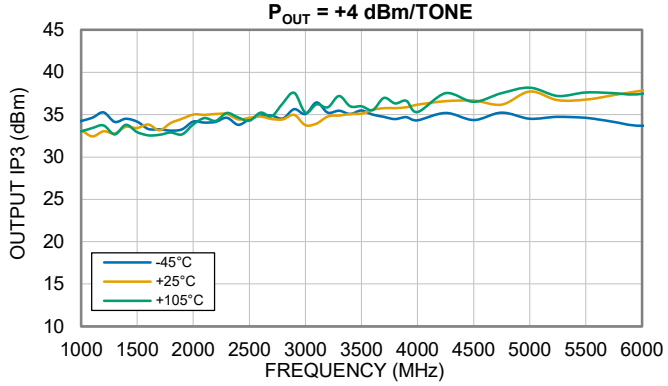
P1dB vs. TEMPERATURE



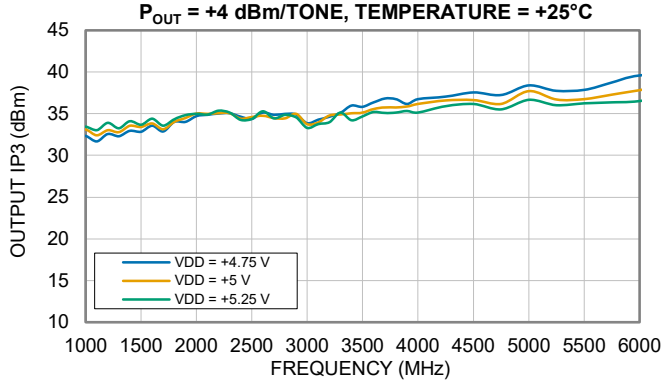
P1dB vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



OUTPUT IP3 vs. TEMPERATURE
P_{OUT} = +4 dBm/TONE



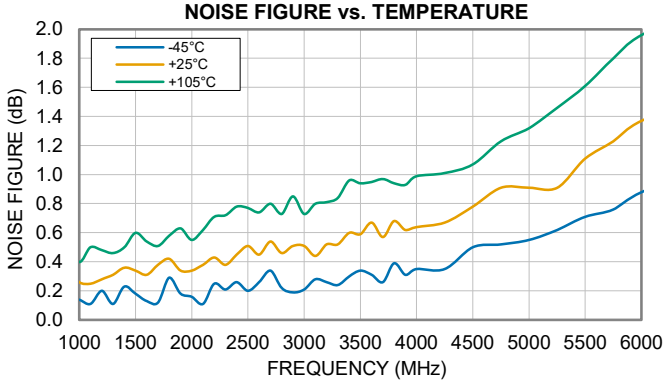
OUTPUT IP3 vs. DEVICE VOLTAGE (V_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



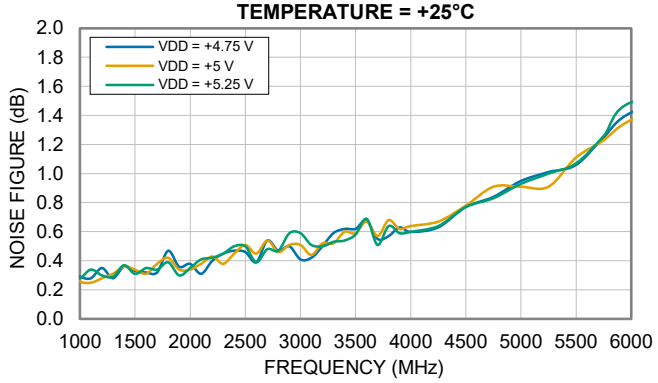
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

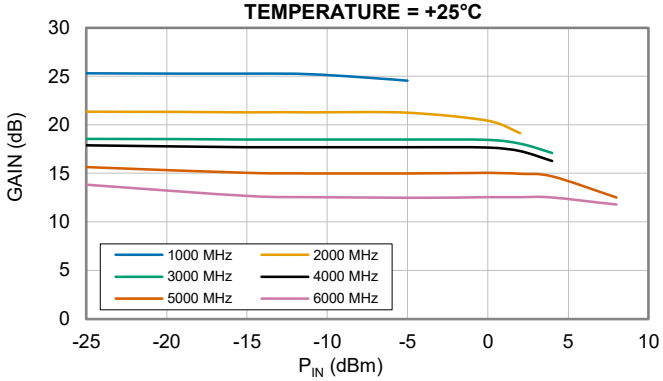
NOISE FIGURE vs. TEMPERATURE



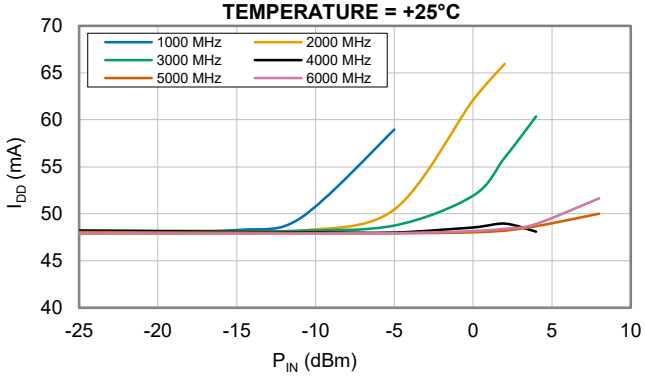
NOISE FIGURE vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



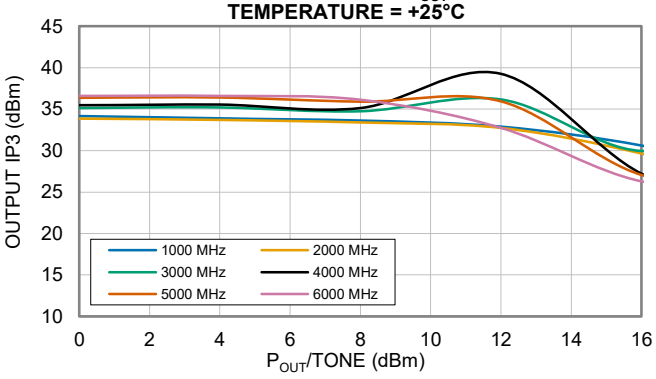
GAIN vs. P_{IN}
TEMPERATURE = +25°C



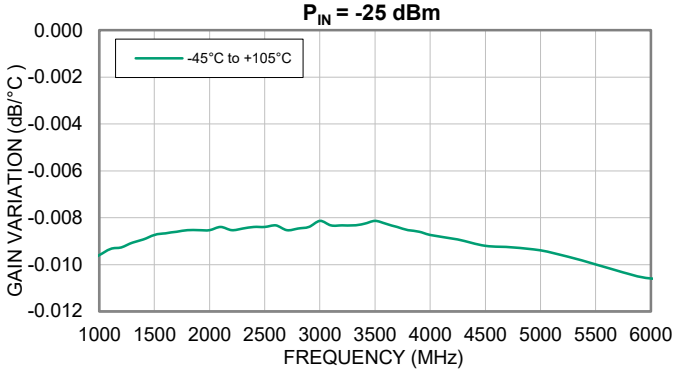
I_{DD} vs. P_{IN}
TEMPERATURE = +25°C



OUTPUT IP3 vs. P_{OUT}
TEMPERATURE = +25°C



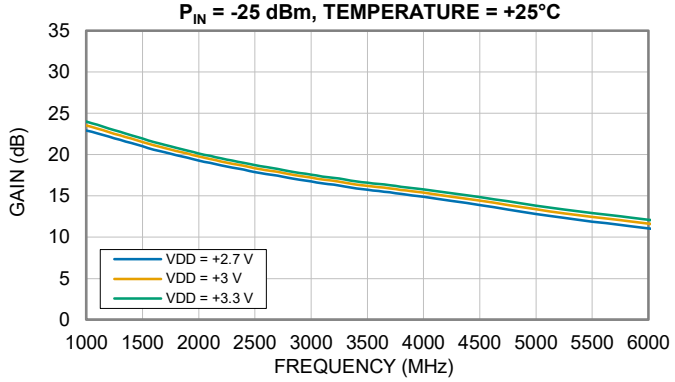
GAIN VARIATION vs. TEMPERATURE
P_{IN} = -25 dBm



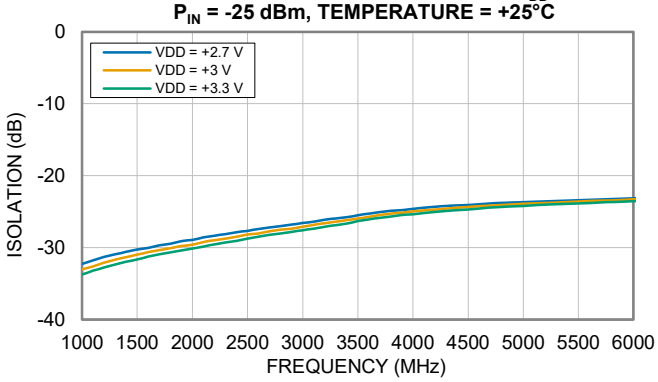
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

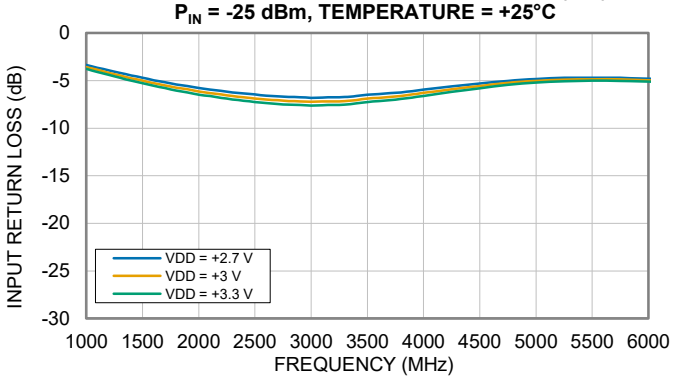
GAIN vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



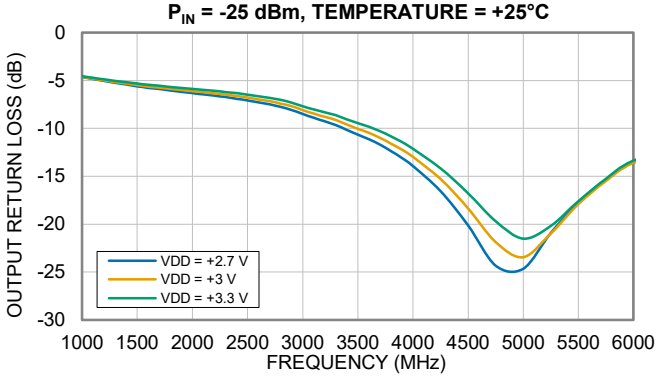
ISOLATION vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



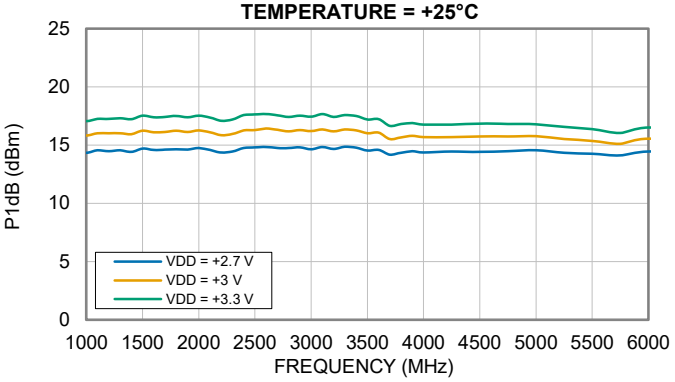
INPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



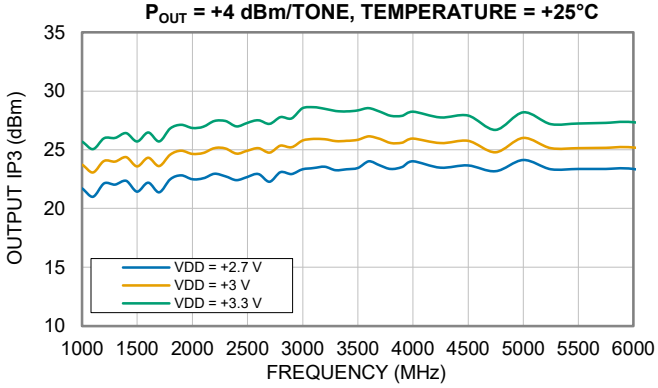
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



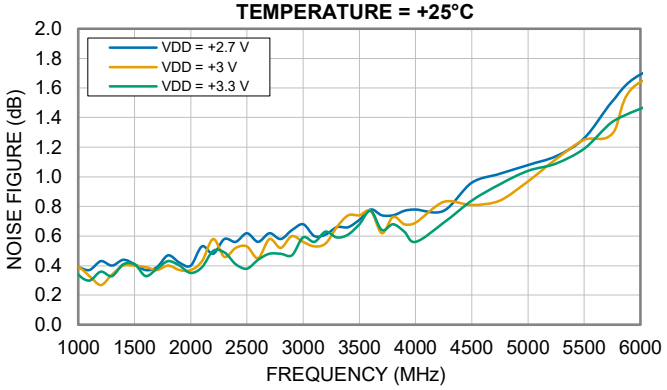
OUTPUT IP3 vs. DEVICE VOLTAGE (V_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ (Figure 2). All data taken at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

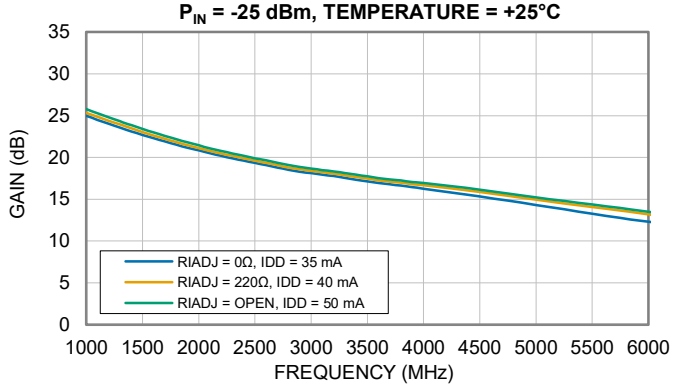
NOISE FIGURE vs. DEVICE VOLTAGE (V_{DD})
TEMPERATURE = +25°C



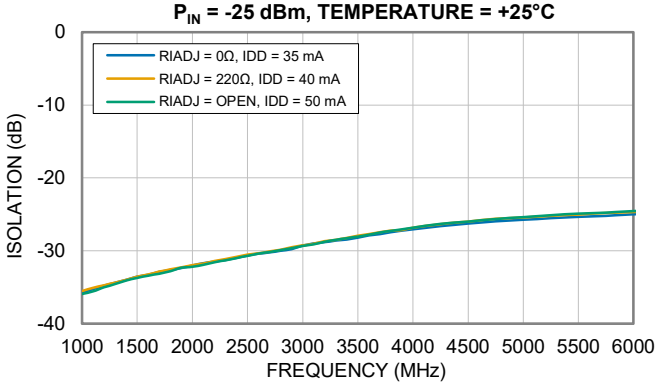
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ by varying R_{IADJ} (Figure 3). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

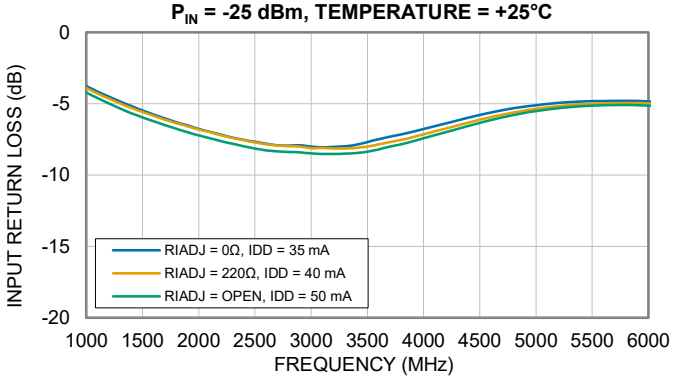
GAIN vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



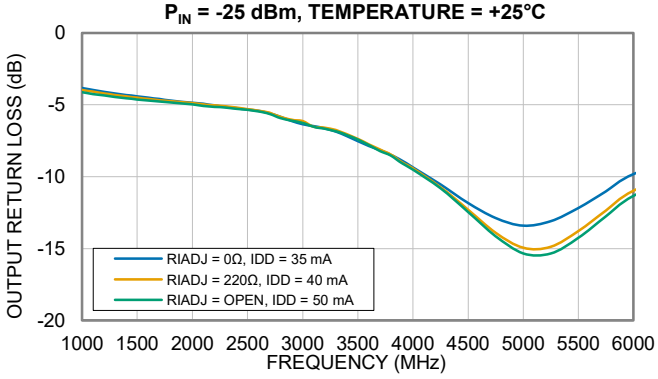
ISOLATION vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



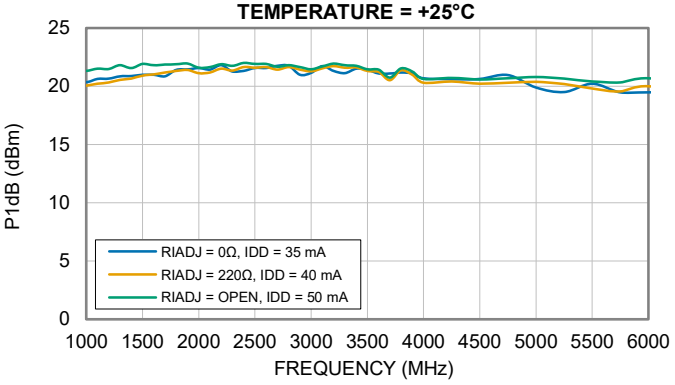
INPUT RETURN LOSS vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



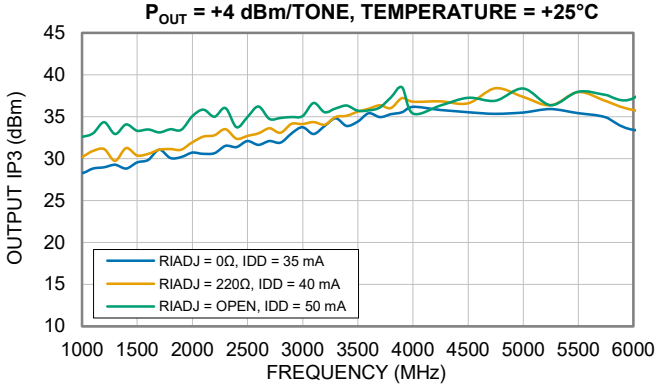
OUTPUT RETURN LOSS vs. DEVICE CURRENT (I_{DD})
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. DEVICE CURRENT (I_{DD})
TEMPERATURE = +25°C



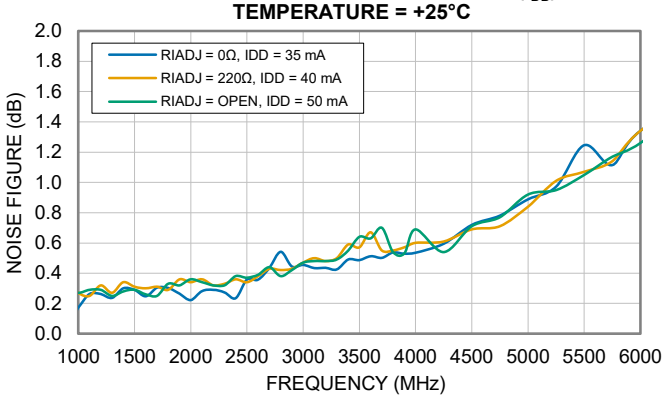
OUTPUT IP3 vs. DEVICE CURRENT (I_{DD})
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



Typical Performance Curves

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSS1-63ULNC+ by varying R_{IADJ} (Figure 3). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

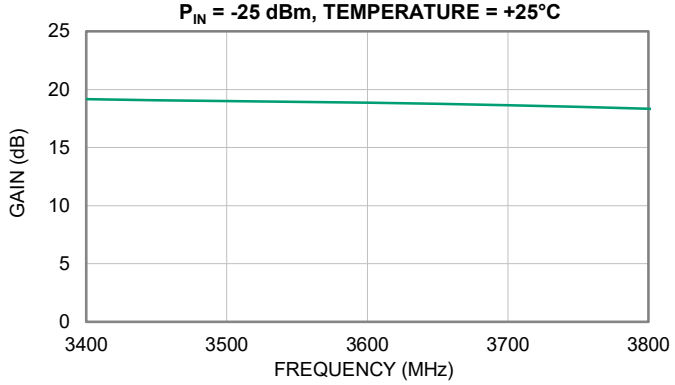
NOISE FIGURE vs. DEVICE CURRENT (I_{DD})
TEMPERATURE = +25°C



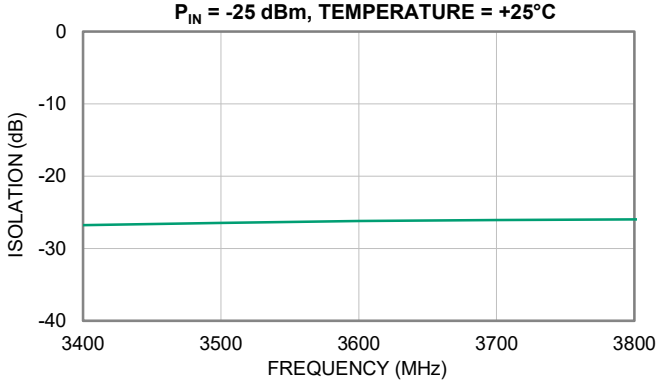
Typical Performance Curves

Note: The following data was taken on the Mini-Circuits 3400-3800 MHz Matched Characterization Test Board (Figure 4). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

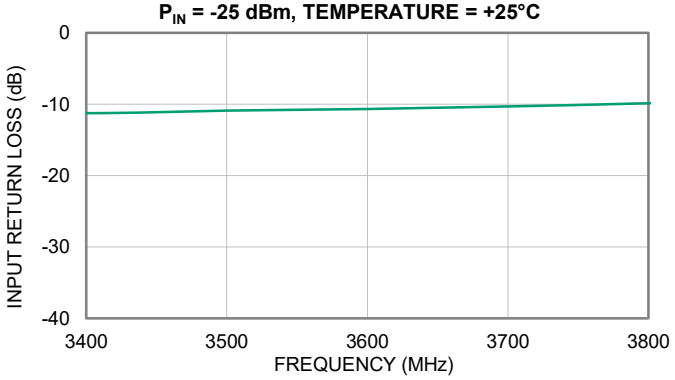
GAIN vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



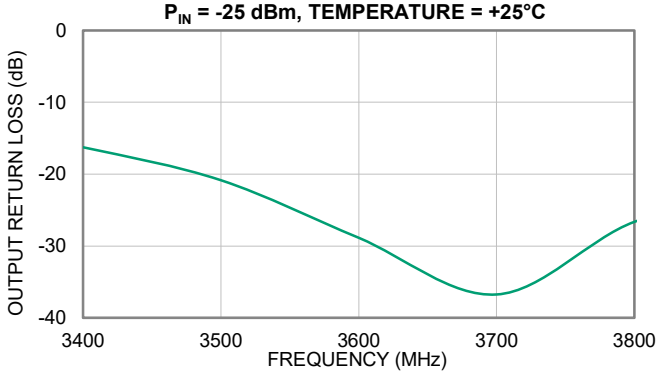
ISOLATION vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



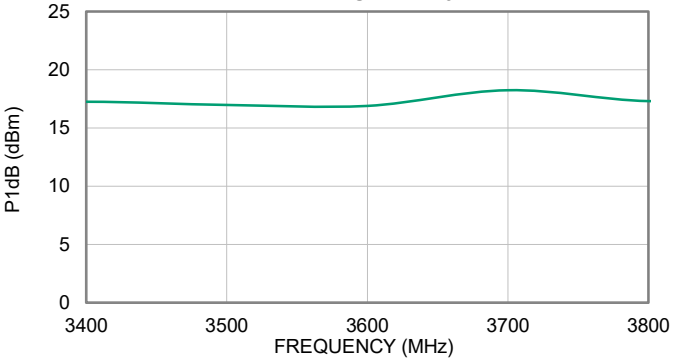
INPUT RETURN LOSS vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



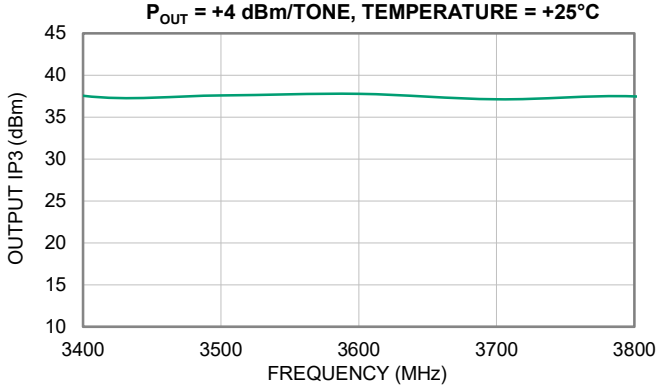
OUTPUT RETURN LOSS vs. FREQUENCY
P_{IN} = -25 dBm, TEMPERATURE = +25°C



P1dB vs. FREQUENCY
TEMPERATURE = +25°C



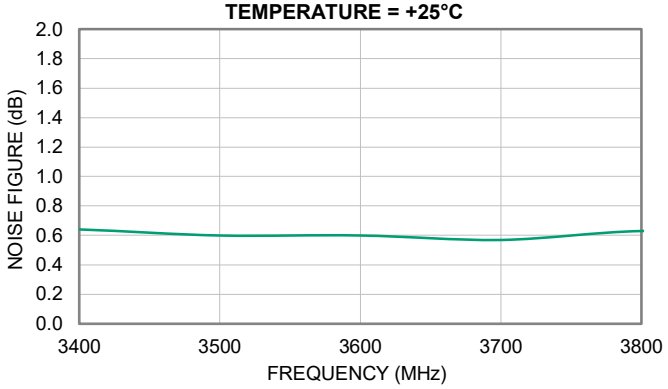
OUTPUT IP3 vs. FREQUENCY
P_{OUT} = +4 dBm/TONE, TEMPERATURE = +25°C



Typical Performance Curves

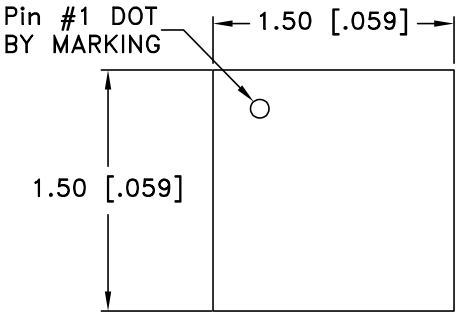
Note: The following data was taken on the Mini-Circuits 3400-3800 MHz Matched Characterization Test Board (Figure 4). All data taken at nominal condition of V_{DD} = +5 V and at $V_{SHUTDOWN}$ = 0 V unless noted otherwise.

NOISE FIGURE vs. FREQUENCY
TEMPERATURE = +25°C

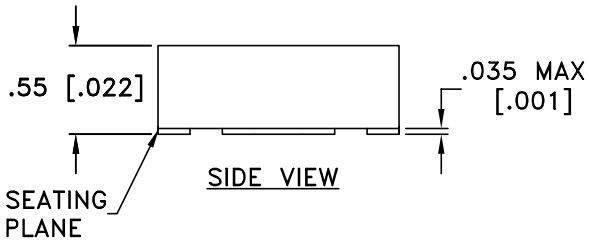


Case Style KC

Outline Dimensions KC3011

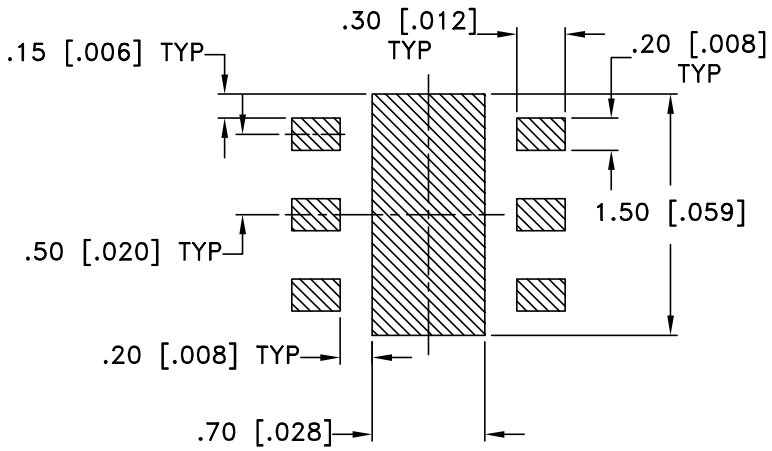


TOP VIEW

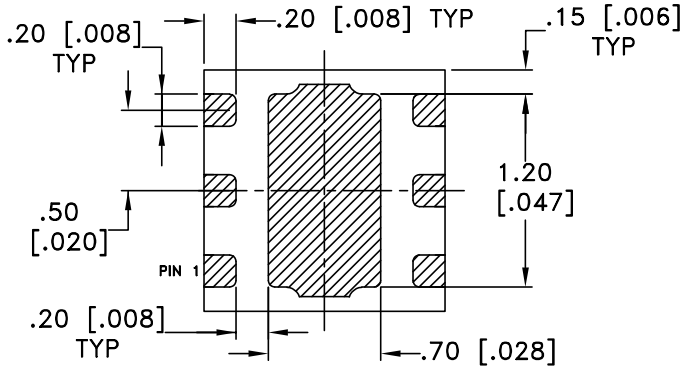


SIDE VIEW

PCB Land Pattern



Suggested Layout,
Tolerance to be within ±0.050 mm



BOTTOM VIEW

NOTES:

1. ▨ DENOTES METALLIZATION

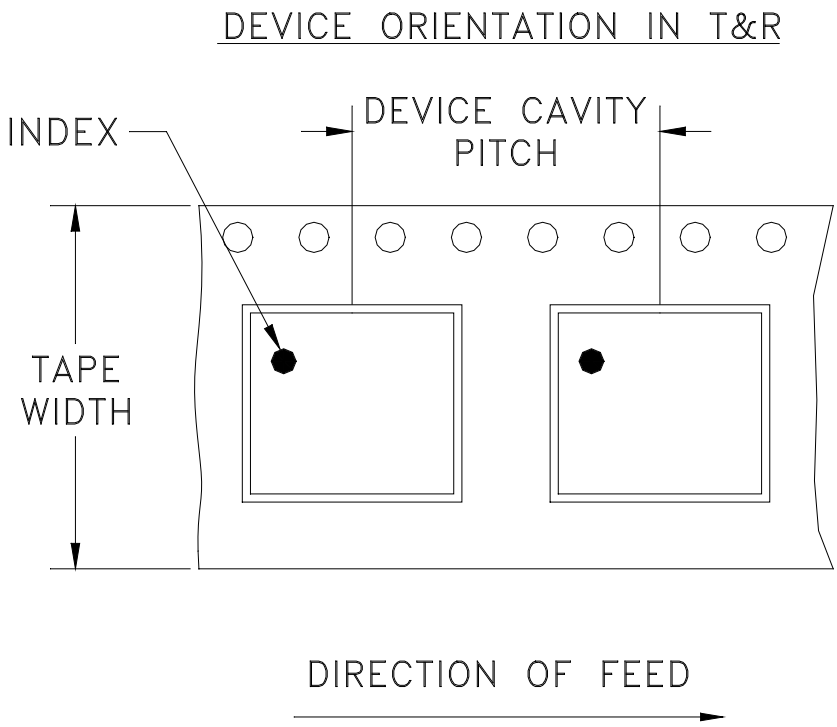
Weight: .0036 grams

Dimensions are in mm [inches]. Tolerances: 2 Pl.± 0.05 mm

Notes:

1. Case material: Plastic.
2. Termination finish: NiPdAu (3µm/0.080µm/0.080µm) .

Tape & Reel Packaging TR-F66



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
8	4	7	Small quantity standard	20
				50
				100
				200
				500
		7	Standard	1000, 2000, 3000

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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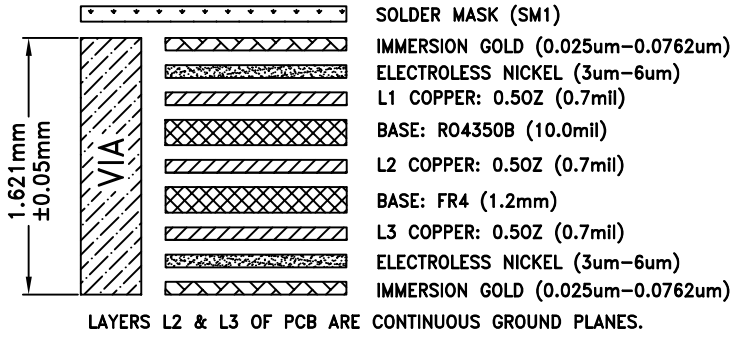
THIRD ANGLE PROJECTION

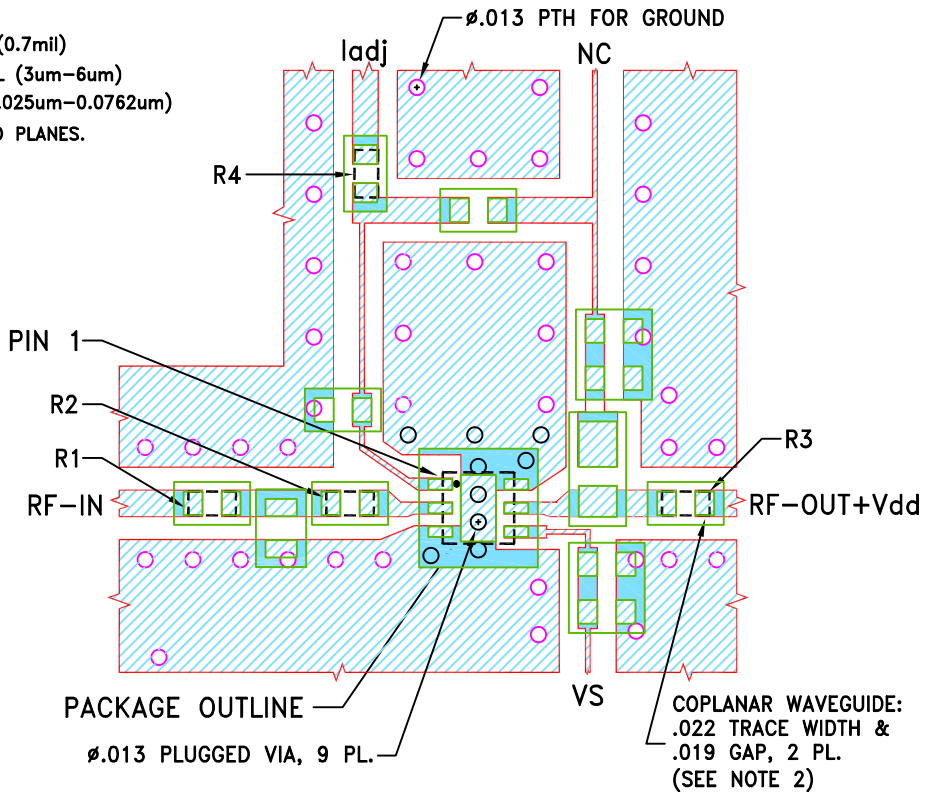
REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-029191	NEW RELEASE	04/16/26	ITG	IL

SUGGESTED MOUNTING CONFIGURATION FOR KC3011 CASE STYLE

3 LAYER STACKUP DETAIL



LAYERS L2 & L3 OF PCB ARE CONTINUOUS GROUND PLANES.



COMPONENT	SIZE
R1,R2,R3,R4	0402

NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010", COPPER: .5 OZ. EACH LAYER. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
3. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-TSS1-XXULNC+, WHERE XX=23, 43 & 63.

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	04/16/26
TOLERANCES ON:	CHECKED	NP	04/16/26
2 PL DECIMALS ±	APPROVED	IL	04/16/26
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

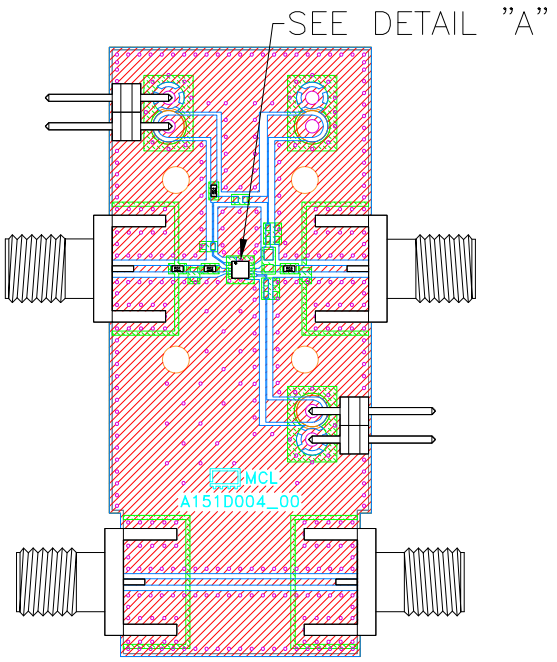
ASHEETA1.DWG REV:A DATE:01/12/95

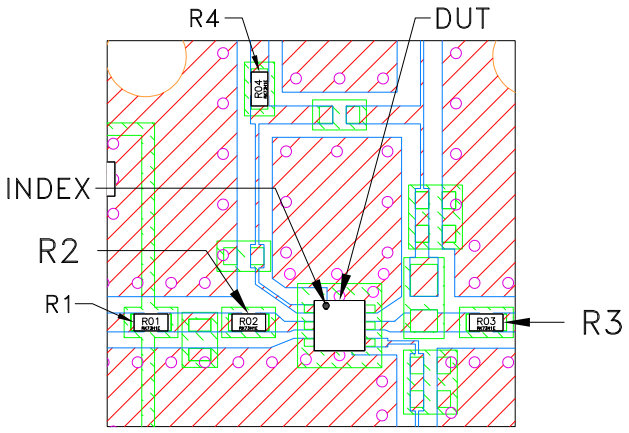
Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

PL, KC3011, TB-TSS1-XXULNC+

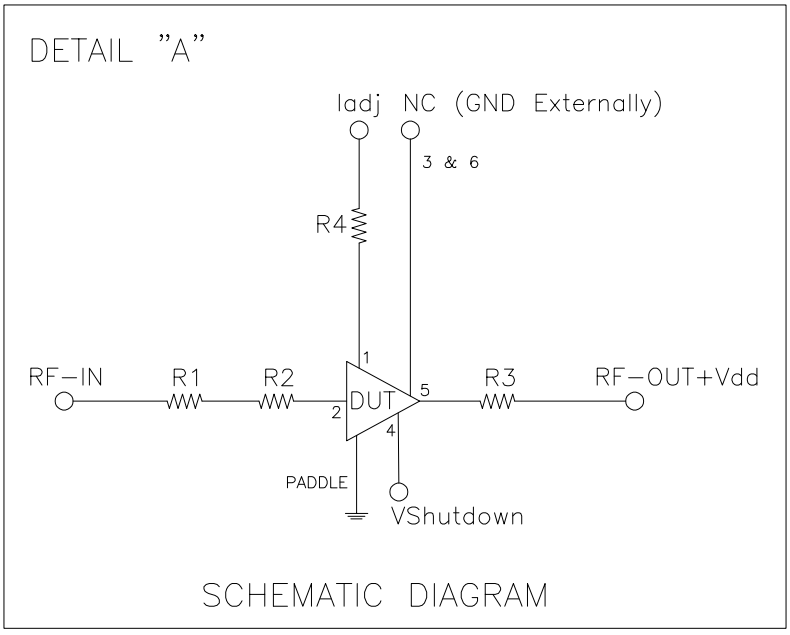
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-862	OR
FILE: 98PL862	SCALE: 6:1	SHEET: 1 OF 1	

Evaluation Board and Circuit





DETAIL "A"
LOCATION OF COMPONENTS
ON THE PCB
(SCALE 3:1)



SCHEMATIC DIAGRAM

Component	Size	Value	Part Number	Manufacturer
R1,R2,R3,R4	0402	0Ohm	RK73Z1ETTP	KOA Speer

NOTES:

1. 50 Ohm SMA Female Connectors.
2. PCB Material: Roger RO4350B or equivalent, Dielectric constant=3.5, Thickness=0.010 inch

Mini-Circuits®

Mini-Circuits

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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C or -65° to 150° 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 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 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; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215