



Mini-Circuits

MMIC SURFACE MOUNT

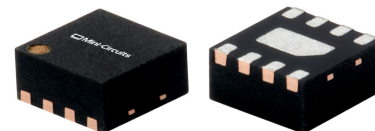
Low Noise Amplifier

TSY-83LNW+

50Ω 30 to 8000 MHz Bypass Mode Feature

THE BIG DEAL

- Low Loss Bypass Mode Feature
- Low Noise Figure, Typ. 1.4 dB
- High OIP3, Typ. +27.1 dBm
- High Gain, Typ. 18.9 dB
- 2×2 mm 8-Lead QFN-Style Package

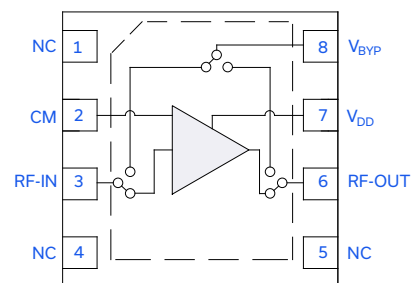


Generic photo used for illustration purposes only

APPLICATIONS

- 5G Sub6, MIMO Wireless Infrastructure Systems
- Test & Measurement Equipment
- Radar, EW, and ECM Defense Systems

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini-Circuits' TSY-83LNW+ is a GaAs pHEMT-based wide band, bypass mode capable, low noise MMIC amplifier with a combination of high OIP3 and flat gain. Operating from 30 to 8000 MHz, this amplifier features 1.4 dB noise figure, 18.9 dB gain, +14.7 dBm P1dB, and +27.1 dBm OIP3. This combination of characteristics makes it ideal for sensitive receiver applications where a gain stage may need to be quickly bypassed in the presence of high-power RF signals. TSY-83LNW+ operates from a single +5 V supply, is well matched to 50Ω, and comes in a tiny, low profile 2×2 mm QFN-style package for ease of integration into dense circuit board layouts.

KEY FEATURES

Features	Advantages
Low Noise Figure, Typ. 1.4 dB at 3000 MHz	Extremely low noise figure provides minimal signal-to-noise degradation in amplification mode.
Bypass Mode Feature	Allows the user to quickly switch to a low loss bypass path while keeping the power supply at constant voltage to reduce gain and protect the system in the presence of high power RF signals.
High OIP3, Typ. +27.1 dBm at 3000 MHz	The combination of low noise figure and high OIP3 makes this MMIC amplifier ideal for use in sensitive low noise receiver front ends.
2×2 mm 8-Lead QFN-Style Package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact with the PCB. Industry standard packaging allows for ease of assembly in high volume manufacturing processes.

REV. A
ECO-029978
TSY-83LNW+
MCL NY
260612





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50Ω 30 to 8000 MHz Bypass Mode Feature

ELECTRICAL SPECIFICATIONS¹ AT +25°C, $V_{DD} = +5\text{ V}$, $Z_0 = 50\Omega$ UNLESS NOTED OTHERWISE

Parameter	Condition (MHz)	Amplifier – LNA			Amplifier – Bypass	Units
		Min.	Typ.	Max.	Typ.	
Frequency Range		30		8000	30 - 8000	MHz
Gain	30	17.3	18.8		-1.5	dB
	200	17.8	19.3		-1.2	
	1000	17.9	19.2		-1.4	
	3000	17.8	18.9		-1.6	
	5000	17.4	18.3		-2.0	
	8000	15.5	17.1		-1.6	
Input Return Loss	30		18		14	dB
	200		20		29	
	1000		18		14	
	3000		13		14	
	5000		13		19	
	8000		9		14	
Output Return Loss	30		10		18	dB
	200		10		26	
	1000		11		14	
	3000		18		15	
	5000		19		21	
	8000		16		15	
Isolation	30-8000		30		2.4	dB
Output Power at 1 dB Compression (P_{1dB})	30		+12.9		+25.1	dBm
	200		+15.1		+15.9	
	1000		+15.4		+22.3	
	3000		+14.7		+22.5	
	5000		+14.4		+22.9	
	8000		+12.5		+20.6	
Output Power at Saturation (P_{SAT}) ²	30		+15.2		-	dBm
	200		+17.4		-	
	1000		+17.7		+21.2	
	3000		+17.6		+20.8	
	5000		+17.4		+21.2	
	8000		+14.7		+18.4	
Output Third-Order Intercept ($P_{OUT} = -5\text{ dBm/Tone}$)	30		+24.5		+37.4	dBm
	200		+27.9		+36.3	
	1000		+28.5		+37.7	
	3000		+27.1		+33.9	
	5000		+26.4		+31.5	
	8000		+24.0		+31.3	
Noise Figure	30		4.0		2.6	dB
	200		1.5		2.4	
	1000		1.2		2.7	
	3000		1.4		1.7	
	5000		1.6		1.6	
	8000		2.3		3.1	
Device Operating Voltage (V_{DD})		+4.75	+5.0	+5.25	+5.0	V
Device Operating Current (I_{DD}) ³			123		1	mA
Enable Voltage (V_{BYP}) ⁴			+5.0		0	V
Enable Current (I_{BYP})			1020		0.99	μA
DC Current Variation vs. Temperature ⁵			153.1		-0.02	μA/°C
DC Current Variation vs. Voltage ⁶			0.06			mA/mV

1. Tested on Mini-Circuits Characterization Test Board TB-TSY-83LNWC+. See Figure 2. Board loss de-embedded to the device.

2. Defined as Output Power at which change is 0.1 dB per 1 dB change in input power.

3. Current at $P_{IN} = -25\text{ dBm}$. In Amplifier-LNA mode, increases to 128 mA at P1dB4. V_{BYP} must be equal to V_{DD} in Amplifier-LNA mode.

5. (Current at +105 °C - Current at -55 °C) / (+105 °C - -55 °C)

6. (Current at +5.25 V - Current at +4.75 V) / (+5.25 V - +4.75 V)

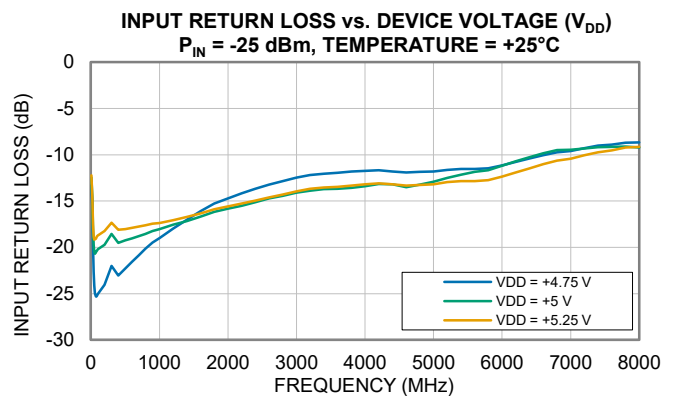
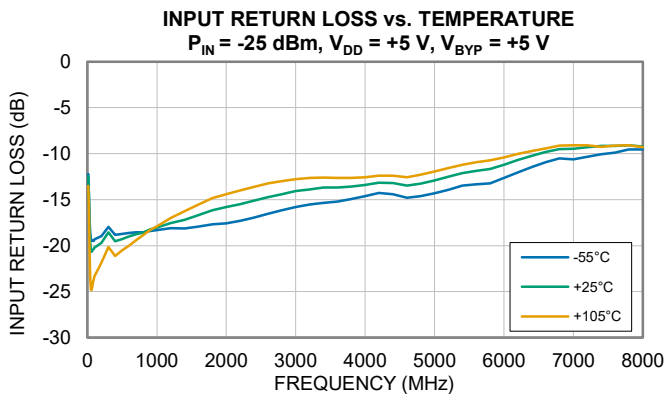
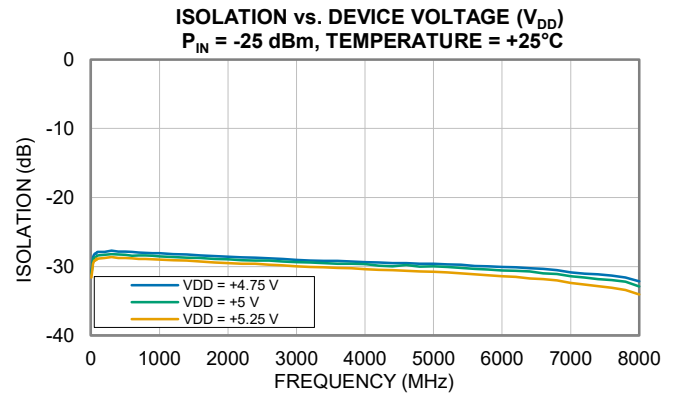
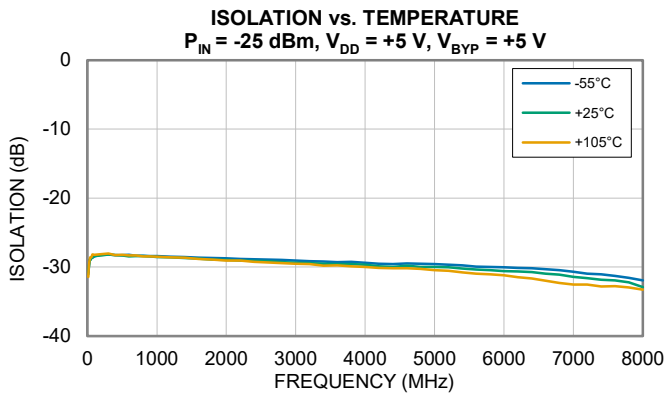
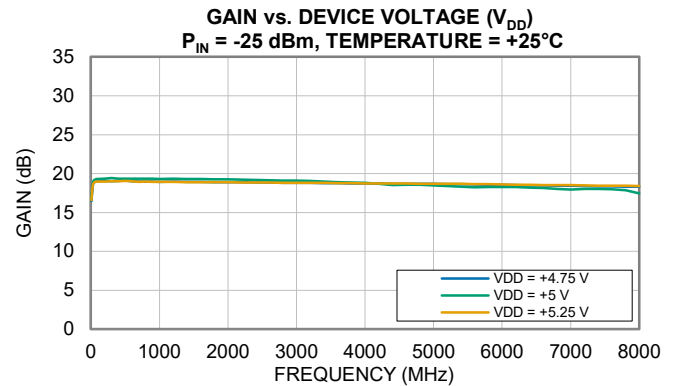
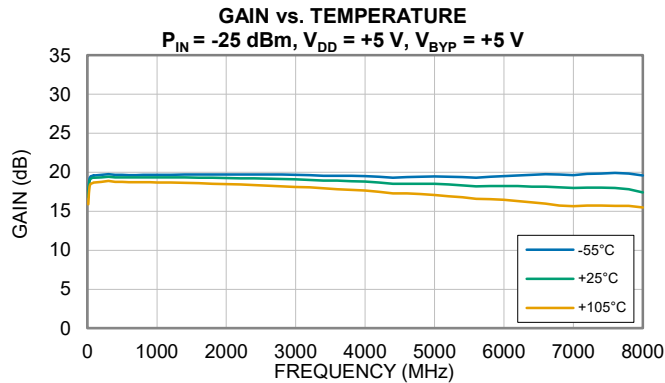




TYPICAL PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSY-83LNWC+ (Figure 2).

All data taken at nominal conditions $V_{BYP} = +5$ V and $V_{DD} = +5$ V unless noted otherwise.





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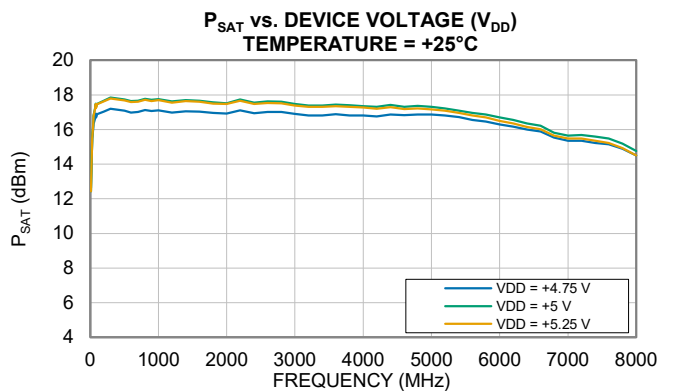
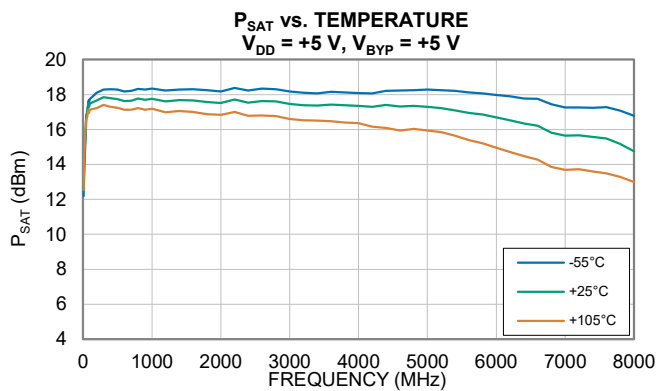
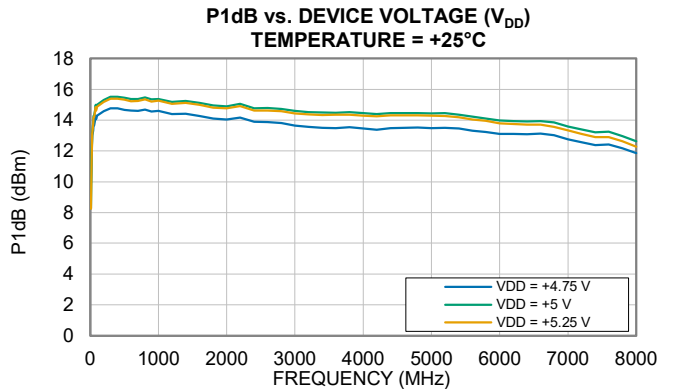
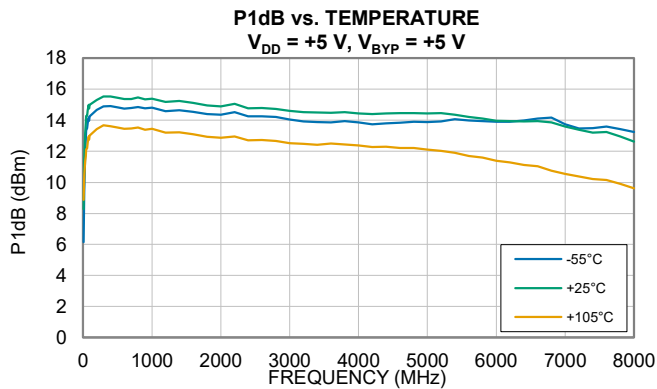
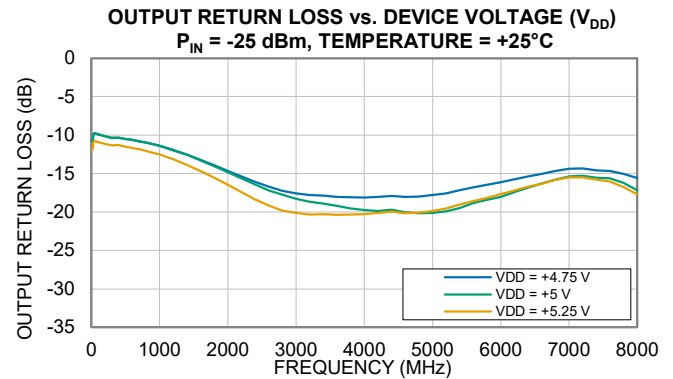
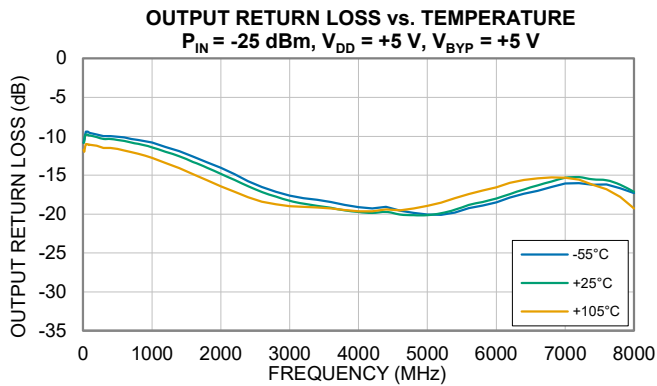
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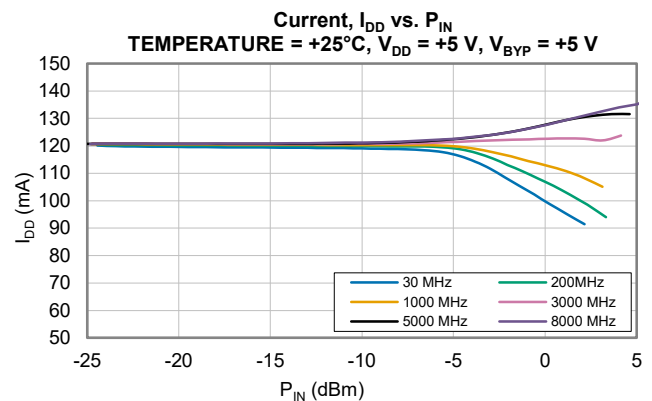
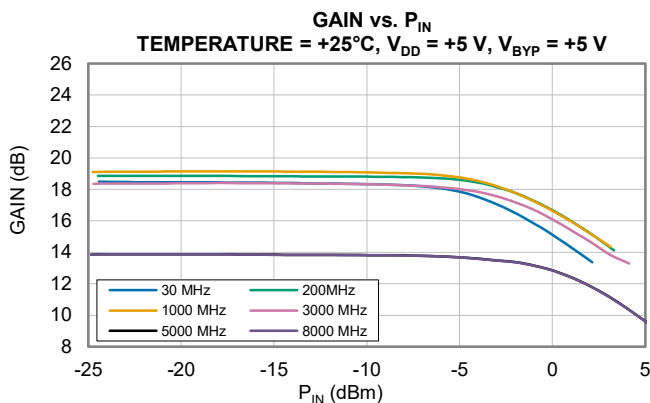
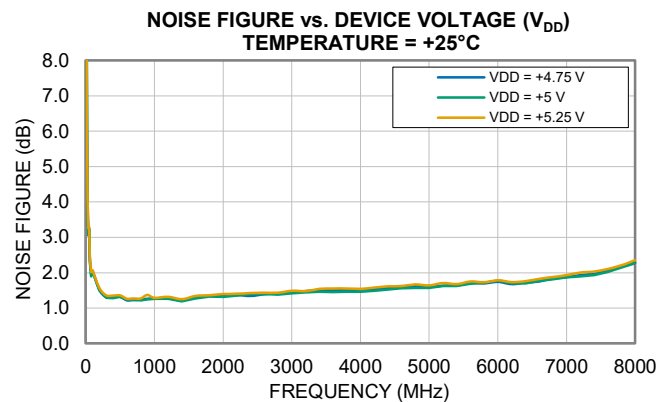
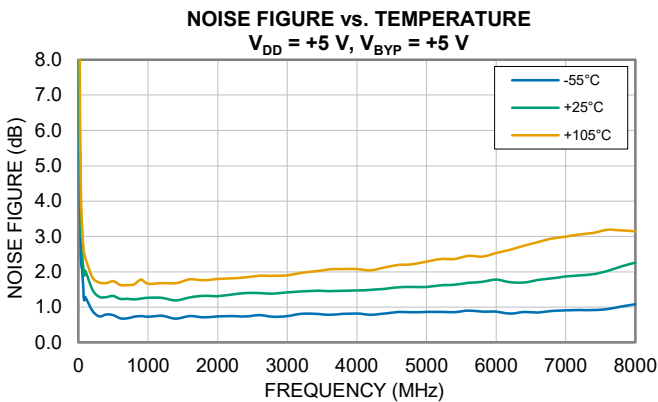
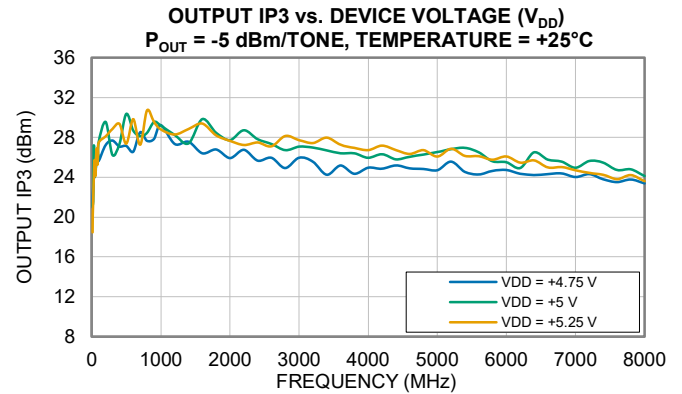
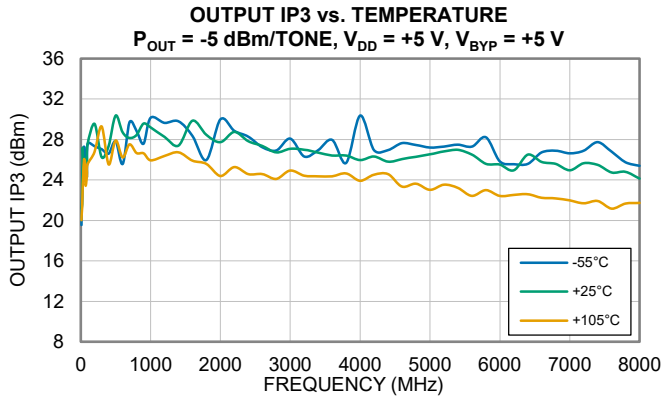
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Low Noise Amplifier

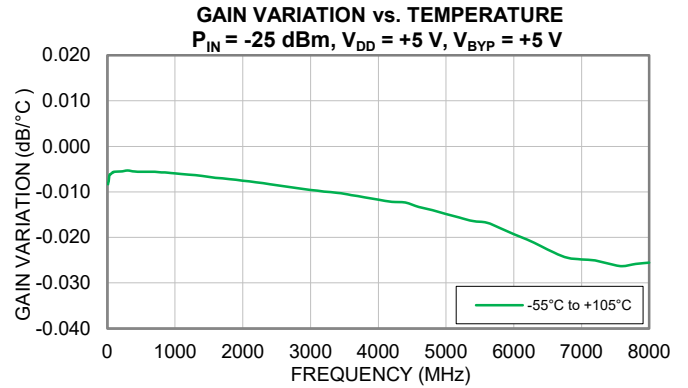
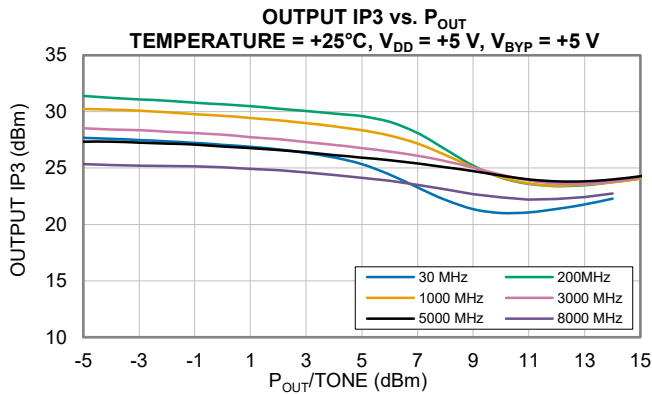
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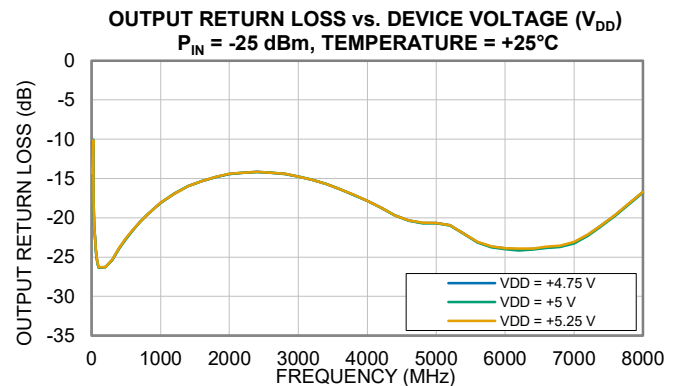
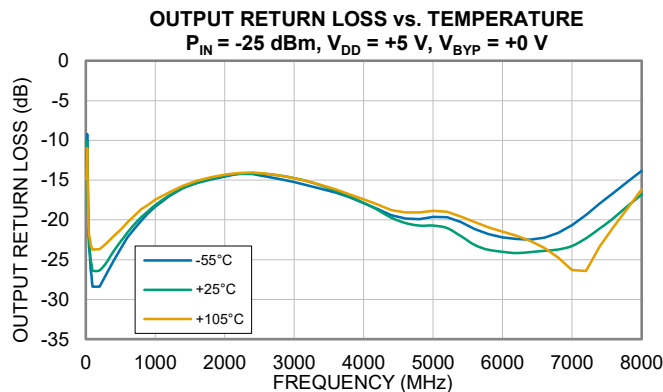
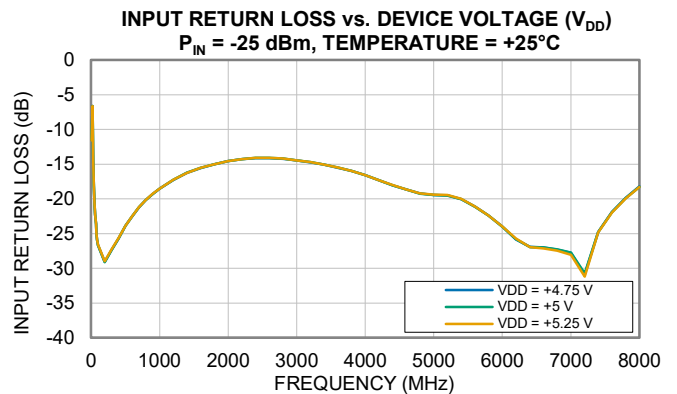
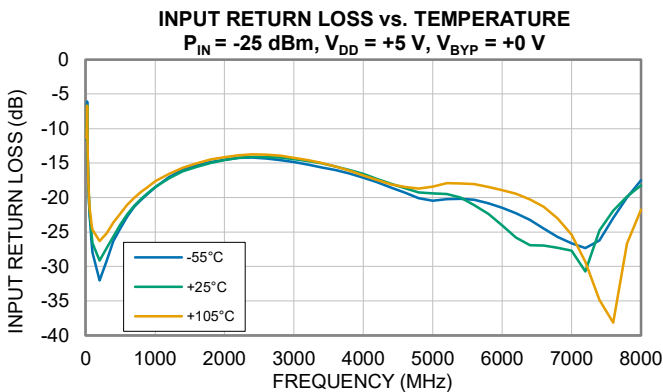
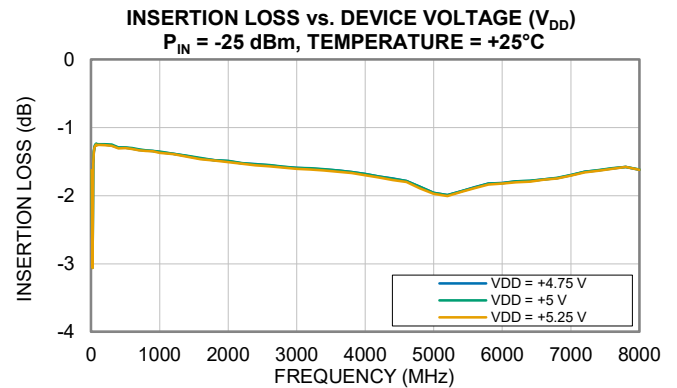
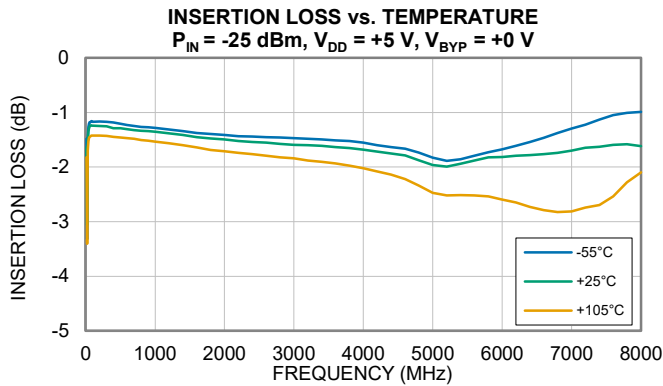




TYPICAL PERFORMANCE GRAPHS

Note: The following data was taken on the Mini-Circuits Characterization Test Board TB-TSY-83LNWC+ (Figure 2).

All data taken at nominal conditions $V_{BYP} = 0$ V and $V_{DD} = +5$ V unless noted otherwise.





MMIC SURFACE MOUNT

Low Noise Amplifier

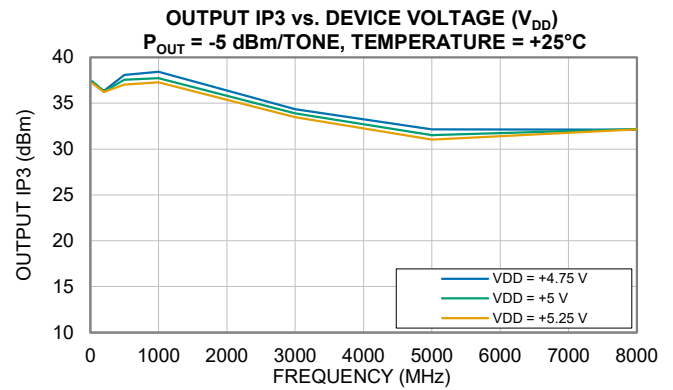
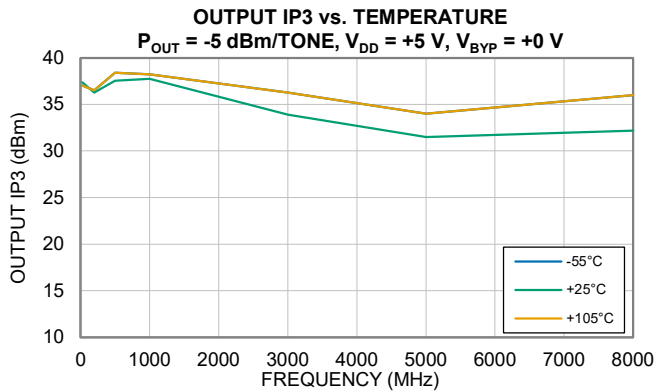
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ABSOLUTE MAXIMUM RATINGS⁷

Parameter	Ratings	
Operating Temperature	-55 °C to +105 °C	
Storage Temperature	-65 °C to +150 °C	
Junction Temperature ⁸	+175 °C	
Total Power Dissipation	0.97 W	
Input Power (CW), $V_{DD} = V_{BYP} = +5$ V	+30 dBm	
DC Voltage on RF-OUT	+5 V	
DC Voltage on RF-IN	+17 V	
DC Voltage on V_{DD}	Amplifier - LNA	+7 V
	Amplifier - Bypass	+11 V
DC Voltage on V_{BYP}	+11 V	
DC Current on I_{DD} , $V_{DD} = +5$ V	Amplifier - LNA	144 mA
	Amplifier - Bypass	75 mA
DC Current on I_{BYP}	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.

SWITCHING SPECIFICATIONS⁹

Parameter		Typ.	Units
Amplifier LNA to Bypass	OFF Time (50% Control to 10% RF)	107	μs
	FALL Time (90% to 10% RF)	96	μs
Amplifier Bypass to LNA	ON Time (50% Control to 90% RF)	61	μs
	RISE Time (10% to 90% RF)	20	μs

9. Tested on Mini-Circuits Characterization Test Board TB-TSY-83LNWC+ at 30 MHz. See Figure 2.

THERMAL RESISTANCE¹⁰

Parameter	Ratings
Thermal Resistance (Θ_{JC}) ¹⁰	72.3 °C/W

10. 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-020D /JEDEC J-STD-033C





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FUNCTIONAL DIAGRAM

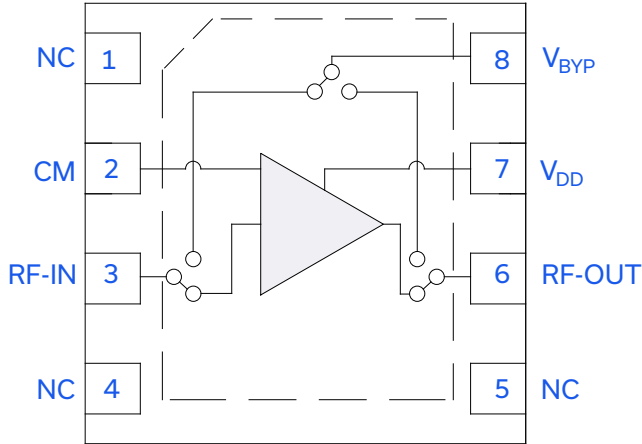


Figure 1. TSY-83LNW+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description (Refer to Fig 2)
RF-IN	3	RF-IN pad connects to RF-Input port.
RF-OUT	6	RF-OUT pad connects to RF-Output port.
CM	2	Current Mirror Pad. Supplies gate voltage to RF-IN via L1. See details in Figure 2
V _{DD}	7	DC Input pad connects to voltage input port, V _{DD} .
V _{BYP}	8	DC Input pad connects to bypass voltage input port, V _{BYP} .
GND	Paddle	Connects to ground.
NC	1, 4, & 5	Not used internally. Connected to ground on test board.

CHARACTERIZATION TEST BOARD

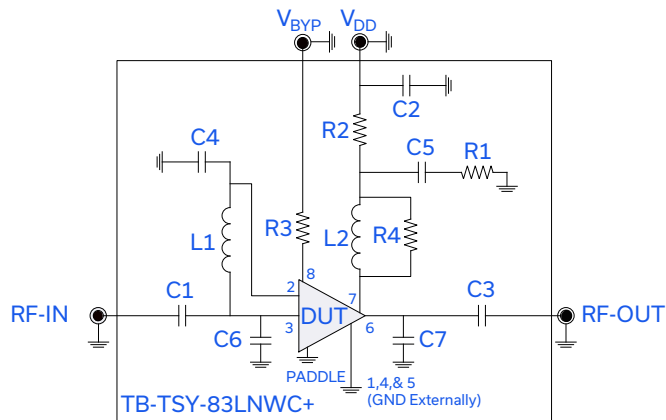


Figure 2. TSY-83LNW+ Characterization and Application Circuit

Electrical Parameters and Conditions

Gain, Return Loss, Output Power at 1dB 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, -5 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 $V_{DD} = +5$ V.
- 2) Set $V_{BYP} = +5$ V for Amplifier-LNA Mode or $V_{BYP} = 0$ V for Bypass Mode.
- 3) Turn on V_{DD} .
- 4) Turn on V_{BYP} .
- 5) Apply RF signal.

Power OFF:

- 1) Turn off RF signal.
- 2) Turn off V_{BYP} .
- 3) Turn off V_{DD} .

Note: V_{DD} and V_{BYP} may be applied simultaneously. V_{BYP} should not be applied before V_{DD} .

Component	Value	Size	Part Number	Manufacturer
C1, C2	470 nF	0402	GRM155R71A474KE01J	MURATA
C3	15 nF	0402	GRM155R71H153KA12D	MURATA
C4, C5	100 pF	0402	GRM1555C1H101JA01D	MURATA
C6	0.2 pF	0402	GJM1555C1HR20WB01D	MURATA
C7	0.3 pF	0402	GJM1555C1HR30WB01D	MURATA
L1, L2	900 nH	0402	0402DF-901XJRU	COILCRAFT
R1, R2, R3	0Ω	0402	RK73Z1ETTP	KOA SPEER
R4	91Ω	0402	RK73H1ETTP91R0F	KOA SPEER





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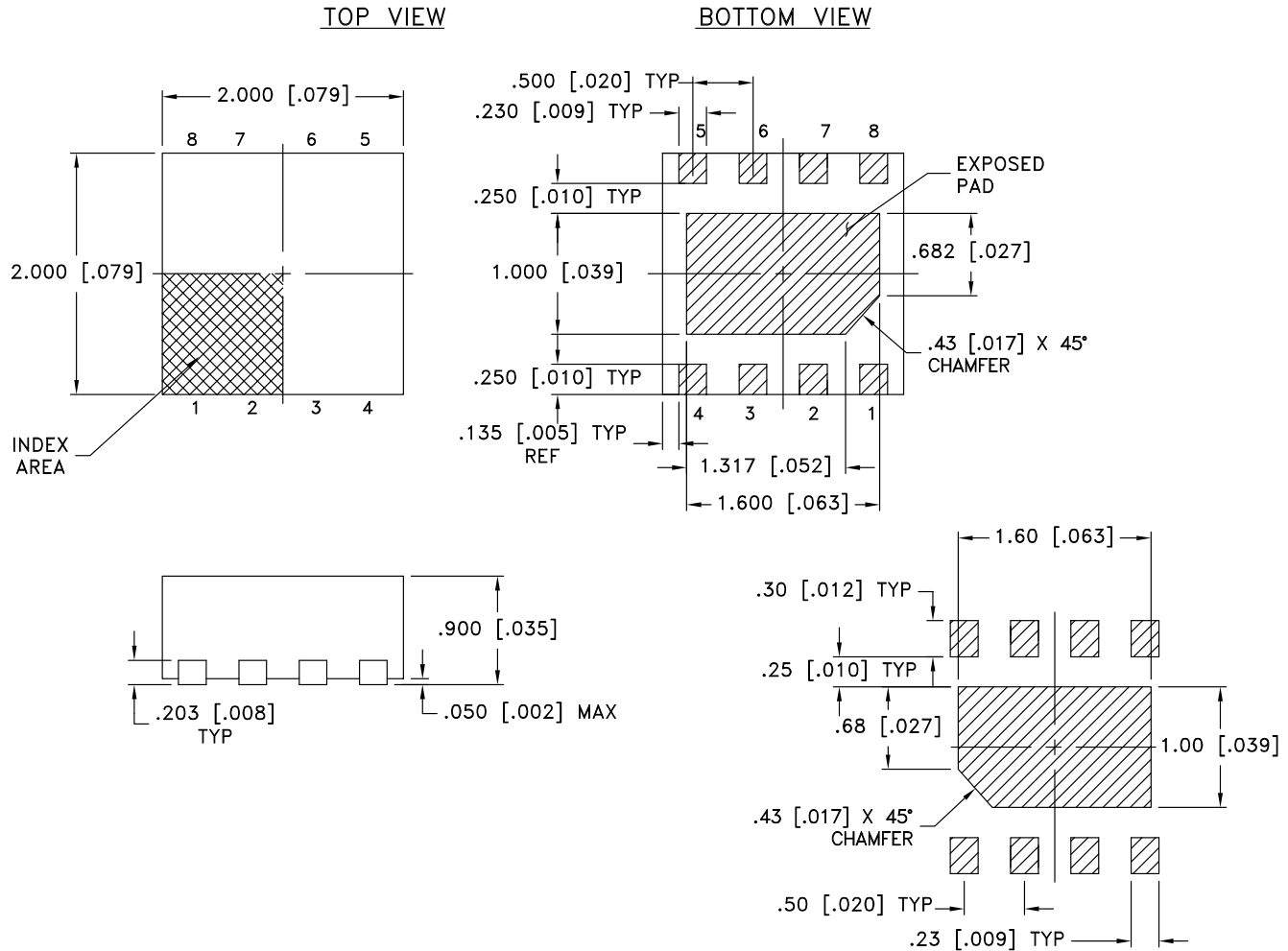
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CASE STYLE DRAWING



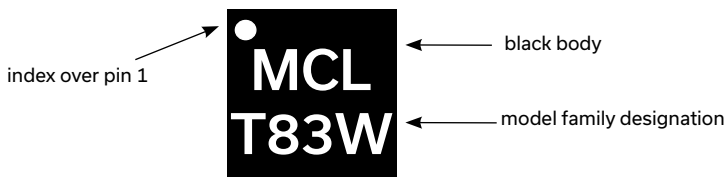
 DENOTES METALLIZATION

Suggested Layout

Weight: .011 grams

Dimensions are in mm [inches]. Tolerances: 2 Pl.±0.254 [0.01]; 3 Pl.±0.127 [0.005] mm [Inches]

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

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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	MC3007 Plastic package, exposed paddle, Lead Finish: Matte-Tin
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-839
Evaluation Board	TB-TSY-83LNWC+
	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-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/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: $V_{DD} = +4.75\text{ V}$, $V_{BYP} = +5\text{ V}$, $I_{DD} = 108\text{ mA}$ @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Power at Saturation Output	Noise Figure	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
10	16.5	-30.8	-13.3	-10.7	2.4	0.9	9.9	12.6	10.6	21.0
20	18.0	-29.6	-15.6	-10.7	1.8	0.9	11.9	14.2	6.1	23.0
30	18.6	-28.7	-19.7	-10.0	1.6	0.8	13.0	15.5	3.9	24.3
40	18.8	-28.4	-22.6	-9.8	1.5	0.8	13.3	16.0	3.2	26.6
50	18.9	-28.3	-24.2	-9.8	1.5	0.8	13.7	16.3	3.2	24.3
60	18.9	-28.1	-25.0	-9.8	1.5	0.8	13.7	16.4	2.4	24.9
70	19.0	-28.1	-25.3	-9.8	1.5	0.8	14.0	16.6	2.2	26.2
80	19.0	-28.1	-25.3	-9.9	1.5	0.8	14.3	16.9	2.0	25.8
90	19.0	-27.9	-25.3	-9.9	1.4	0.8	14.1	16.7	2.0	26.3
100	19.0	-27.9	-25.0	-9.9	1.4	0.8	14.3	16.9	2.1	25.6
200	19.0	-27.9	-24.0	-10.1	1.4	0.8	14.6	17.0	1.5	27.2
300	19.0	-27.7	-22.0	-10.4	1.4	0.8	14.8	17.2	1.3	27.7
400	19.0	-27.9	-23.1	-10.3	1.4	0.8	14.8	17.1	1.3	27.1
500	19.1	-27.9	-22.3	-10.5	1.5	0.8	14.7	17.1	1.3	27.1
600	19.0	-27.9	-21.5	-10.6	1.5	0.8	14.6	17.0	1.2	26.6
700	19.0	-28.0	-20.8	-10.8	1.5	0.8	14.6	17.0	1.2	28.5
800	19.0	-28.0	-20.1	-11.0	1.5	0.8	14.7	17.1	1.2	27.7
900	19.0	-28.1	-19.5	-11.2	1.5	0.8	14.5	17.1	1.3	27.9
1000	18.9	-28.1	-19.0	-11.4	1.5	0.8	14.6	17.1	1.3	29.2
1200	18.9	-28.2	-18.0	-11.9	1.5	0.8	14.4	17.0	1.3	27.3
1400	18.9	-28.3	-17.0	-12.5	1.5	0.9	14.4	17.1	1.2	27.6
1600	18.9	-28.4	-16.1	-13.2	1.6	0.9	14.3	17.0	1.3	26.4
1800	18.9	-28.5	-15.3	-13.9	1.6	0.9	14.1	17.0	1.3	26.8
2000	18.9	-28.6	-14.7	-14.6	1.6	0.9	14.0	16.9	1.4	25.9
2200	18.9	-28.7	-14.2	-15.4	1.6	0.9	14.2	17.1	1.4	26.7
2400	18.8	-28.8	-13.7	-16.1	1.7	0.9	13.9	16.9	1.3	25.7
2600	18.8	-28.8	-13.2	-16.7	1.7	1.0	13.9	17.0	1.4	25.9
2800	18.8	-28.9	-12.9	-17.2	1.7	1.0	13.8	17.0	1.4	24.9
3000	18.8	-29.0	-12.5	-17.6	1.7	1.0	13.6	16.9	1.4	26.0
3200	18.8	-29.1	-12.2	-17.8	1.8	1.0	13.6	16.8	1.5	25.6
3400	18.8	-29.2	-12.1	-17.9	1.8	1.0	13.5	16.8	1.5	24.3
3600	18.8	-29.2	-12.0	-18.1	1.8	1.0	13.5	16.9	1.5	25.2
3800	18.8	-29.3	-11.8	-18.1	1.8	1.0	13.5	16.8	1.5	24.3
4000	18.7	-29.4	-11.7	-18.1	1.9	1.0	13.5	16.8	1.5	25.0
4200	18.7	-29.4	-11.7	-18.0	1.9	1.0	13.4	16.7	1.5	24.8
4400	18.7	-29.5	-11.8	-17.9	1.9	1.0	13.5	16.9	1.6	25.2
4600	18.7	-29.5	-11.9	-18.0	1.9	1.0	13.5	16.8	1.6	24.9
4800	18.7	-29.6	-11.9	-18.0	2.0	1.0	13.5	16.9	1.6	24.8
5000	18.7	-29.6	-11.8	-17.8	2.0	1.0	13.5	16.9	1.6	24.7
5200	18.6	-29.7	-11.6	-17.6	2.0	1.0	13.5	16.8	1.6	25.6
5400	18.6	-29.8	-11.6	-17.2	2.1	1.0	13.5	16.7	1.6	24.6
5600	18.6	-29.9	-11.6	-16.8	2.1	1.0	13.3	16.6	1.7	24.3
5800	18.6	-30.0	-11.5	-16.5	2.1	1.0	13.2	16.4	1.7	24.6
6000	18.5	-30.0	-11.2	-16.1	2.1	1.0	13.1	16.3	1.7	24.7
6200	18.5	-30.1	-10.8	-15.7	2.2	1.0	13.1	16.2	1.7	24.4
6400	18.5	-30.3	-10.4	-15.4	2.2	1.0	13.1	16.0	1.7	24.2
6600	18.5	-30.4	-10.0	-15.1	2.3	1.0	13.1	15.9	1.8	24.3
6800	18.4	-30.6	-9.7	-14.7	2.4	1.0	13.0	15.5	1.8	24.4
7000	18.4	-30.8	-9.6	-14.4	2.5	1.0	12.7	15.3	1.9	24.0
7200	18.4	-31.1	-9.3	-14.3	2.6	1.0	12.6	15.3	1.9	24.3
7400	18.4	-31.2	-9.0	-14.6	2.6	1.1	12.4	15.2	2.0	23.8
7600	18.4	-31.3	-8.9	-14.7	2.8	1.1	12.4	15.2	2.1	23.5
7800	18.3	-31.6	-8.7	-15.1	3.0	1.1	12.2	14.9	2.2	23.8
8000	18.3	-32.2	-8.7	-15.6	3.4	1.1	11.9	14.5	2.3	23.4

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: $V_{DD} = +5\text{ V}$, $V_{BYP} = +5\text{ V}$, $I_{DD} = 123\text{mA}$ @ Temperature = $+25^{\circ}\text{C}$

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Power at Saturation Output	Noise Figure	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
10	16.8	-31.1	-12.5	-10.8	2.4	0.9	8.3	12.4	10.5	21.2
20	18.2	-30.0	-14.7	-10.7	1.9	0.9	11.4	14.1	5.9	21.6
30	18.9	-29.2	-18.1	-10.0	1.6	0.8	13.2	15.5	3.8	27.2
40	19.1	-28.8	-19.7	-9.8	1.5	0.8	13.8	16.3	3.0	24.1
50	19.2	-28.9	-20.4	-9.8	1.6	0.8	14.3	16.8	3.2	24.8
60	19.2	-28.7	-20.7	-9.8	1.5	0.8	14.3	17.0	2.4	24.9
70	19.3	-28.7	-20.5	-9.8	1.5	0.8	14.7	17.2	2.1	26.1
80	19.3	-28.5	-20.4	-9.9	1.5	0.8	15.0	17.5	1.9	25.8
90	19.3	-28.5	-20.4	-9.9	1.5	0.8	14.8	17.3	1.9	25.7
100	19.3	-28.4	-20.2	-9.9	1.5	0.8	15.0	17.5	2.0	27.5
200	19.3	-28.3	-19.7	-10.1	1.5	0.8	15.3	17.7	1.5	29.5
300	19.4	-28.2	-18.6	-10.3	1.5	0.8	15.5	17.8	1.3	26.2
400	19.3	-28.3	-19.5	-10.3	1.5	0.8	15.5	17.8	1.3	27.3
500	19.3	-28.3	-19.3	-10.5	1.5	0.8	15.5	17.7	1.3	30.3
600	19.3	-28.4	-19.0	-10.6	1.5	0.8	15.4	17.6	1.2	28.7
700	19.3	-28.4	-18.8	-10.8	1.5	0.8	15.4	17.7	1.2	28.1
800	19.3	-28.4	-18.6	-11.0	1.5	0.8	15.5	17.8	1.2	28.4
900	19.3	-28.5	-18.2	-11.2	1.5	0.8	15.3	17.7	1.2	29.6
1000	19.3	-28.5	-18.0	-11.4	1.5	0.8	15.4	17.8	1.3	29.2
1200	19.3	-28.6	-17.5	-12.0	1.5	0.8	15.2	17.6	1.3	28.2
1400	19.3	-28.7	-17.2	-12.6	1.6	0.9	15.2	17.7	1.2	27.4
1600	19.3	-28.8	-16.7	-13.3	1.6	0.9	15.1	17.7	1.3	29.8
1800	19.3	-28.9	-16.2	-14.0	1.6	0.9	14.9	17.6	1.3	28.4
2000	19.2	-29.0	-15.8	-14.8	1.6	0.9	14.9	17.5	1.3	27.7
2200	19.2	-29.1	-15.5	-15.6	1.7	0.9	15.1	17.7	1.4	28.7
2400	19.2	-29.2	-15.1	-16.4	1.7	0.9	14.8	17.5	1.4	27.8
2600	19.2	-29.2	-14.7	-17.2	1.7	0.9	14.8	17.6	1.4	27.3
2800	19.1	-29.3	-14.4	-17.8	1.7	0.9	14.7	17.6	1.4	26.7
3000	19.1	-29.4	-14.1	-18.3	1.8	1.0	14.6	17.5	1.4	27.1
3200	19.0	-29.4	-13.9	-18.7	1.8	1.0	14.5	17.4	1.4	27.0
3400	18.9	-29.5	-13.7	-18.9	1.8	1.0	14.5	17.4	1.5	26.7
3600	18.9	-29.6	-13.7	-19.2	1.8	1.0	14.5	17.4	1.5	26.4
3800	18.9	-29.6	-13.6	-19.5	1.9	1.0	14.5	17.4	1.5	26.4
4000	18.8	-29.7	-13.4	-19.7	1.9	1.0	14.5	17.3	1.5	25.9
4200	18.7	-29.9	-13.2	-19.9	1.9	1.0	14.4	17.3	1.5	26.3
4400	18.5	-30.0	-13.2	-19.7	2.0	1.0	14.5	17.4	1.5	25.8
4600	18.5	-29.8	-13.5	-20.1	2.0	1.0	14.5	17.3	1.6	26.1
4800	18.5	-30.0	-13.3	-20.2	2.0	1.0	14.5	17.4	1.6	26.3
5000	18.5	-30.0	-12.9	-20.1	2.0	1.0	14.5	17.3	1.6	26.5
5200	18.4	-30.0	-12.5	-19.9	2.0	1.0	14.5	17.2	1.6	26.8
5400	18.3	-30.2	-12.1	-19.5	2.1	1.0	14.4	17.1	1.6	27.0
5600	18.2	-30.3	-11.9	-18.8	2.2	1.0	14.2	16.9	1.7	26.5
5800	18.2	-30.4	-11.7	-18.4	2.2	1.0	14.1	16.9	1.7	25.6
6000	18.2	-30.6	-11.2	-18.0	2.2	1.0	14.0	16.7	1.8	25.5
6200	18.2	-30.7	-10.7	-17.4	2.2	1.0	13.9	16.5	1.7	24.9
6400	18.2	-30.7	-10.2	-16.8	2.3	1.0	13.9	16.3	1.7	26.5
6600	18.1	-31.0	-9.8	-16.3	2.3	1.0	13.9	16.2	1.8	25.8
6800	18.0	-31.1	-9.5	-15.8	2.4	1.0	13.8	15.8	1.8	25.6
7000	18.0	-31.4	-9.5	-15.4	2.6	1.0	13.6	15.6	1.9	24.9
7200	18.0	-31.6	-9.3	-15.3	2.7	1.1	13.4	15.7	1.9	25.6
7400	18.0	-31.8	-9.2	-15.5	2.8	1.1	13.2	15.6	1.9	25.5
7600	18.0	-32.0	-9.2	-15.6	2.9	1.1	13.2	15.5	2.0	24.7
7800	17.8	-32.2	-9.1	-16.2	3.1	1.1	13.0	15.2	2.2	24.8
8000	17.4	-32.9	-9.2	-17.1	3.6	1.1	12.6	14.8	2.3	24.1

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: $V_{DD} = +5.25\text{ V}$, $V_{BYP} = +5\text{ V}$, $I_{DD} = 139\text{ mA}$ @ Temperature = $+25^\circ\text{C}$

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Power at Saturation Output	Noise Figure	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
10	16.6	-31.6	-12.3	-11.9	2.6	0.9	8.2	12.4	10.9	18.5
20	18.0	-30.4	-14.6	-11.7	2.0	0.9	11.3	14.1	6.2	21.8
30	18.6	-29.6	-17.5	-11.0	1.8	0.8	13.1	15.5	4.1	24.2
40	18.8	-29.4	-18.9	-10.8	1.7	0.8	13.8	16.2	3.3	25.7
50	18.8	-29.2	-19.2	-10.8	1.6	0.8	14.2	16.8	3.3	24.1
60	18.9	-29.1	-19.2	-10.8	1.6	0.8	14.2	16.9	2.5	25.6
70	18.9	-29.1	-19.1	-10.8	1.6	0.8	14.6	17.2	2.2	26.9
80	18.9	-28.9	-19.0	-10.9	1.6	0.8	14.9	17.5	2.0	25.3
90	18.9	-29.0	-18.9	-10.9	1.6	0.8	14.6	17.3	2.1	26.2
100	19.0	-28.9	-18.7	-10.9	1.6	0.8	14.9	17.4	2.1	27.4
200	19.0	-28.8	-18.3	-11.1	1.6	0.8	15.2	17.6	1.6	28.1
300	19.0	-28.6	-17.3	-11.4	1.5	0.8	15.4	17.8	1.4	28.8
400	19.0	-28.8	-18.1	-11.3	1.6	0.8	15.4	17.7	1.4	29.3
500	19.0	-28.8	-18.0	-11.5	1.6	0.8	15.3	17.7	1.4	27.4
600	19.0	-28.8	-17.9	-11.7	1.6	0.8	15.2	17.6	1.3	29.8
700	18.9	-28.9	-17.8	-11.9	1.6	0.8	15.2	17.6	1.3	27.3
800	18.9	-28.9	-17.6	-12.0	1.6	0.8	15.3	17.7	1.3	30.7
900	18.9	-29.0	-17.4	-12.3	1.6	0.8	15.2	17.6	1.4	29.6
1000	18.9	-29.0	-17.4	-12.5	1.6	0.9	15.3	17.7	1.3	28.8
1200	18.9	-29.1	-17.1	-13.1	1.7	0.9	15.1	17.5	1.3	28.3
1400	18.9	-29.2	-16.7	-13.8	1.7	0.9	15.1	17.6	1.2	28.8
1600	18.9	-29.3	-16.4	-14.7	1.7	0.9	15.0	17.6	1.3	29.4
1800	18.9	-29.4	-15.9	-15.5	1.8	0.9	14.8	17.5	1.4	28.2
2000	18.9	-29.5	-15.6	-16.5	1.8	0.9	14.8	17.5	1.4	27.6
2200	18.9	-29.6	-15.2	-17.4	1.8	0.9	14.9	17.7	1.4	27.2
2400	18.8	-29.6	-15.0	-18.4	1.8	0.9	14.6	17.5	1.4	27.5
2600	18.8	-29.8	-14.6	-19.2	1.9	1.0	14.6	17.5	1.4	27.1
2800	18.8	-29.9	-14.3	-19.8	1.9	1.0	14.6	17.5	1.4	28.1
3000	18.8	-30.0	-14.0	-20.1	1.9	1.0	14.4	17.4	1.5	27.7
3200	18.8	-30.1	-13.7	-20.3	2.0	1.0	14.4	17.3	1.5	27.4
3400	18.8	-30.2	-13.5	-20.3	2.0	1.0	14.3	17.3	1.5	28.0
3600	18.8	-30.2	-13.5	-20.4	2.0	1.0	14.4	17.3	1.6	27.3
3800	18.8	-30.3	-13.3	-20.4	2.0	1.0	14.4	17.3	1.6	26.9
4000	18.8	-30.4	-13.2	-20.3	2.1	1.0	14.3	17.3	1.5	26.7
4200	18.7	-30.5	-13.1	-20.1	2.1	1.0	14.2	17.2	1.6	27.2
4400	18.7	-30.5	-13.2	-20.0	2.2	1.0	14.3	17.3	1.6	26.7
4600	18.7	-30.6	-13.4	-20.1	2.2	1.0	14.3	17.2	1.6	26.3
4800	18.7	-30.7	-13.3	-20.1	2.2	1.0	14.3	17.2	1.7	26.7
5000	18.7	-30.8	-13.2	-19.9	2.3	1.0	14.3	17.2	1.6	26.1
5200	18.7	-30.9	-13.0	-19.6	2.3	1.0	14.3	17.1	1.7	26.9
5400	18.7	-31.0	-12.8	-19.1	2.4	1.0	14.2	17.0	1.7	26.2
5600	18.6	-31.2	-12.8	-18.6	2.5	1.0	14.0	16.8	1.8	26.1
5800	18.6	-31.3	-12.8	-18.2	2.5	1.0	14.0	16.7	1.7	25.8
6000	18.6	-31.4	-12.4	-17.7	2.5	1.0	13.8	16.5	1.8	26.1
6200	18.6	-31.5	-11.9	-17.2	2.6	1.0	13.8	16.4	1.7	25.5
6400	18.5	-31.7	-11.4	-16.7	2.7	1.0	13.7	16.2	1.8	25.7
6600	18.5	-31.8	-11.0	-16.3	2.7	1.0	13.7	16.0	1.8	25.0
6800	18.5	-32.0	-10.6	-15.9	2.9	1.0	13.6	15.6	1.9	25.0
7000	18.5	-32.4	-10.5	-15.5	3.1	1.0	13.3	15.5	1.9	24.7
7200	18.5	-32.6	-10.1	-15.5	3.2	1.0	13.1	15.5	2.0	24.4
7400	18.5	-32.8	-9.8	-15.8	3.3	1.1	12.9	15.3	2.0	24.3
7600	18.4	-33.1	-9.5	-16.0	3.5	1.1	12.9	15.2	2.1	23.8
7800	18.4	-33.4	-9.2	-16.7	3.8	1.1	12.6	14.9	2.2	24.2
8000	18.4	-34.1	-9.1	-17.7	4.4	1.1	12.3	14.5	2.4	23.6

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: $V_{DD} = +5\text{ V}$, $V_{BYP} = +5\text{ V}$, $I_{DD} = 105\text{ mA}$ @ Temperature = -55°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Power at Saturation Output	Noise Figure	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
10	17.2	-30.8	-12.2	-10.8	2.2	0.9	6.2	12.2	9.9	19.5
20	18.6	-29.8	-14.4	-10.4	1.8	0.8	9.4	13.7	5.3	22.2
30	19.2	-28.9	-17.3	-9.8	1.5	0.8	11.9	15.0	3.2	25.1
40	19.4	-28.8	-18.7	-9.4	1.5	0.8	12.9	15.9	2.2	25.5
50	19.5	-28.7	-19.3	-9.4	1.5	0.8	13.4	16.6	2.1	27.3
60	19.5	-28.7	-19.5	-9.4	1.5	0.8	13.5	16.9	1.9	25.0
70	19.6	-28.6	-19.5	-9.4	1.5	0.7	13.8	17.3	1.5	26.3
80	19.6	-28.6	-19.4	-9.5	1.5	0.7	14.2	17.7	1.2	26.2
90	19.6	-28.5	-19.5	-9.5	1.4	0.7	14.0	17.5	1.2	24.3
100	19.6	-28.5	-19.3	-9.5	1.4	0.7	14.2	17.7	1.3	27.5
200	19.6	-28.2	-19.0	-9.8	1.4	0.7	14.7	18.1	0.9	27.3
300	19.7	-28.2	-18.0	-10.0	1.4	0.7	14.9	18.3	0.7	27.0
400	19.6	-28.3	-18.8	-10.0	1.4	0.8	14.9	18.3	0.8	26.6
500	19.6	-28.3	-18.7	-10.1	1.4	0.8	14.8	18.3	0.8	27.8
600	19.6	-28.3	-18.6	-10.2	1.4	0.8	14.7	18.2	0.7	25.6
700	19.6	-28.4	-18.5	-10.3	1.4	0.8	14.8	18.2	0.7	29.7
800	19.6	-28.4	-18.6	-10.5	1.4	0.8	14.9	18.3	0.7	28.8
900	19.6	-28.4	-18.4	-10.6	1.5	0.8	14.8	18.3	0.7	27.6
1000	19.6	-28.4	-18.3	-10.8	1.5	0.8	14.8	18.3	0.7	30.1
1200	19.7	-28.5	-18.1	-11.4	1.5	0.8	14.6	18.2	0.8	29.6
1400	19.7	-28.6	-18.1	-11.9	1.5	0.8	14.6	18.3	0.7	29.8
1600	19.7	-28.7	-17.9	-12.6	1.5	0.8	14.5	18.3	0.7	28.3
1800	19.7	-28.7	-17.7	-13.3	1.5	0.9	14.4	18.2	0.7	25.9
2000	19.7	-28.7	-17.6	-14.0	1.5	0.9	14.4	18.2	0.7	30.0
2200	19.7	-28.8	-17.3	-14.9	1.6	0.9	14.5	18.4	0.7	28.8
2400	19.7	-28.9	-17.0	-15.8	1.6	0.9	14.3	18.2	0.7	28.3
2600	19.7	-28.9	-16.5	-16.5	1.6	0.9	14.2	18.3	0.8	27.2
2800	19.7	-29.0	-16.2	-17.2	1.6	0.9	14.2	18.3	0.7	26.9
3000	19.7	-29.1	-15.8	-17.7	1.6	0.9	14.0	18.2	0.7	28.1
3200	19.6	-29.2	-15.5	-18.0	1.6	0.9	13.9	18.1	0.8	26.3
3400	19.6	-29.2	-15.4	-18.2	1.7	0.9	13.9	18.1	0.8	26.9
3600	19.6	-29.3	-15.2	-18.5	1.7	0.9	13.9	18.2	0.8	28.0
3800	19.5	-29.3	-14.9	-18.8	1.7	0.9	13.9	18.1	0.8	25.7
4000	19.5	-29.4	-14.6	-19.1	1.7	0.9	13.9	18.1	0.8	30.3
4200	19.4	-29.5	-14.3	-19.3	1.7	0.9	13.7	18.1	0.8	27.0
4400	19.3	-29.6	-14.4	-19.1	1.8	0.9	13.8	18.2	0.8	27.0
4600	19.4	-29.5	-14.8	-19.6	1.8	0.9	13.8	18.2	0.9	27.6
4800	19.4	-29.6	-14.6	-19.8	1.8	0.9	13.9	18.2	0.9	27.4
5000	19.5	-29.6	-14.3	-20.1	1.8	0.9	13.9	18.3	0.9	27.2
5200	19.4	-29.7	-13.9	-20.1	1.8	1.0	13.9	18.2	0.9	27.3
5400	19.4	-29.8	-13.5	-19.8	1.8	1.0	14.1	18.2	0.9	27.5
5600	19.3	-29.9	-13.3	-19.2	1.9	1.0	14.0	18.1	0.9	27.3
5800	19.4	-30.0	-13.2	-18.9	1.9	1.0	13.9	18.1	0.9	28.2
6000	19.5	-30.1	-12.7	-18.5	1.9	1.0	13.9	18.0	0.9	25.8
6200	19.6	-30.1	-12.0	-17.9	1.9	1.0	13.9	17.9	0.8	25.5
6400	19.6	-30.2	-11.5	-17.4	1.9	1.0	14.0	17.8	0.9	25.6
6600	19.7	-30.3	-11.0	-17.0	1.9	1.0	14.1	17.7	0.8	26.7
6800	19.7	-30.5	-10.6	-16.5	2.0	1.0	14.2	17.4	0.9	26.9
7000	19.6	-30.7	-10.6	-16.1	2.0	1.0	13.7	17.3	0.9	26.6
7200	19.8	-30.9	-10.3	-16.0	2.1	1.0	13.5	17.3	0.9	26.9
7400	19.8	-31.1	-10.1	-16.2	2.1	1.0	13.5	17.2	0.9	27.7
7600	19.9	-31.3	-9.9	-16.2	2.2	1.0	13.6	17.3	0.9	26.8
7800	19.8	-31.6	-9.5	-16.7	2.3	1.0	13.4	17.1	1.0	25.7
8000	19.6	-31.9	-9.5	-17.3	2.5	1.0	13.2	16.8	1.1	25.4

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_{BYP} = +5 V, I_{DD} = 134mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	Power at Saturation Output	Noise Figure	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
10	15.9	-31.4	-13.5	-11.8	2.8	0.9	8.9	12.5	11.9	20.0
20	17.3	-29.7	-15.9	-12.0	2.0	0.9	10.4	14.4	7.2	21.2
30	18.2	-29.0	-20.5	-11.3	1.8	0.8	11.4	15.7	5.1	23.6
40	18.4	-28.6	-23.5	-11.0	1.7	0.8	11.7	16.2	3.9	25.2
50	18.5	-28.6	-24.8	-11.0	1.6	0.8	12.1	16.6	3.4	26.1
60	18.6	-28.5	-24.8	-11.0	1.6	0.8	12.2	16.7	3.0	25.7
70	18.6	-28.2	-24.4	-11.0	1.6	0.8	12.6	16.9	2.7	23.4
80	18.7	-28.2	-23.9	-11.1	1.6	0.8	12.9	17.2	2.5	23.8
90	18.7	-28.3	-23.7	-11.1	1.6	0.8	12.7	16.9	2.5	24.4
100	18.7	-28.2	-23.4	-11.1	1.6	0.8	13.0	17.1	2.4	25.5
200	18.8	-28.2	-21.9	-11.2	1.6	0.8	13.4	17.2	1.8	26.8
300	18.9	-28.0	-20.2	-11.5	1.5	0.8	13.7	17.4	1.7	29.3
400	18.8	-28.3	-21.1	-11.5	1.6	0.8	13.6	17.3	1.7	25.5
500	18.7	-28.2	-20.5	-11.6	1.6	0.8	13.5	17.2	1.7	27.9
600	18.7	-28.3	-20.0	-11.8	1.6	0.8	13.5	17.1	1.6	26.2
700	18.7	-28.3	-19.4	-12.1	1.6	0.8	13.5	17.1	1.6	27.5
800	18.7	-28.4	-18.9	-12.3	1.6	0.8	13.5	17.2	1.6	26.6
900	18.7	-28.5	-18.3	-12.5	1.6	0.9	13.4	17.1	1.8	26.6
1000	18.7	-28.5	-17.9	-12.8	1.6	0.9	13.4	17.2	1.7	25.9
1200	18.7	-28.6	-17.0	-13.5	1.7	0.9	13.2	17.0	1.7	26.4
1400	18.6	-28.7	-16.3	-14.1	1.7	0.9	13.2	17.1	1.7	26.7
1600	18.6	-28.8	-15.5	-14.9	1.7	0.9	13.1	17.0	1.8	25.9
1800	18.5	-28.9	-14.9	-15.7	1.7	0.9	12.9	16.9	1.8	25.6
2000	18.5	-29.0	-14.4	-16.4	1.8	0.9	12.9	16.8	1.8	24.4
2200	18.4	-29.1	-14.0	-17.2	1.8	1.0	13.0	17.0	1.8	25.3
2400	18.4	-29.3	-13.6	-17.9	1.8	1.0	12.7	16.8	1.8	24.6
2600	18.3	-29.3	-13.2	-18.4	1.9	1.0	12.7	16.8	1.9	24.6
2800	18.2	-29.4	-13.0	-18.7	1.9	1.0	12.7	16.8	1.9	24.1
3000	18.1	-29.5	-12.8	-19.0	2.0	1.0	12.5	16.6	1.9	24.9
3200	18.0	-29.6	-12.7	-19.1	2.0	1.0	12.5	16.5	2.0	24.4
3400	17.9	-29.8	-12.6	-19.2	2.1	1.0	12.4	16.5	2.0	24.4
3600	17.8	-29.8	-12.6	-19.3	2.1	1.0	12.5	16.5	2.1	24.4
3800	17.8	-29.9	-12.7	-19.5	2.1	1.0	12.5	16.4	2.1	24.6
4000	17.6	-30.0	-12.6	-19.6	2.2	1.0	12.4	16.4	2.1	23.9
4200	17.5	-30.1	-12.4	-19.6	2.2	1.0	12.3	16.2	2.0	24.5
4400	17.3	-30.2	-12.4	-19.4	2.3	1.0	12.3	16.1	2.1	24.6
4600	17.3	-30.2	-12.6	-19.5	2.3	1.0	12.2	15.9	2.2	23.3
4800	17.2	-30.3	-12.3	-19.3	2.4	1.0	12.2	16.0	2.2	23.6
5000	17.1	-30.5	-12.0	-19.0	2.4	1.0	12.1	15.9	2.3	23.0
5200	16.9	-30.6	-11.6	-18.5	2.5	1.0	12.0	15.9	2.4	23.5
5400	16.8	-30.8	-11.2	-18.0	2.6	1.0	11.9	15.6	2.4	23.2
5600	16.6	-30.9	-10.9	-17.4	2.7	1.0	11.7	15.4	2.5	22.4
5800	16.5	-31.1	-10.7	-17.0	2.8	1.0	11.6	15.2	2.4	23.0
6000	16.4	-31.2	-10.4	-16.6	2.9	1.0	11.4	15.0	2.5	22.4
6200	16.3	-31.5	-10.0	-16.0	3.0	1.1	11.3	14.7	2.6	22.5
6400	16.1	-31.7	-9.7	-15.6	3.1	1.1	11.1	14.5	2.7	22.6
6600	16.0	-32.0	-9.4	-15.4	3.3	1.1	11.0	14.3	2.8	22.2
6800	15.8	-32.3	-9.1	-15.3	3.6	1.1	10.8	13.9	2.9	22.2
7000	15.7	-32.6	-9.1	-15.3	3.8	1.1	10.5	13.7	3.0	22.0
7200	15.7	-32.5	-9.1	-15.6	3.8	1.1	10.4	13.7	3.1	21.7
7400	15.7	-32.8	-9.3	-16.2	4.0	1.1	10.2	13.6	3.1	21.9
7600	15.7	-32.8	-9.1	-16.8	4.1	1.1	10.1	13.5	3.2	21.2
7800	15.7	-33.0	-9.1	-17.8	4.4	1.1	9.9	13.3	3.2	21.7
8000	15.5	-33.3	-9.3	-19.3	4.8	1.1	9.6	13.0	3.1	21.7

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: $V_{DD} = +4.75\text{ V}$, $V_{BYP} = 0\text{ V}$ @ Temperature = +25°C

FREQ	Insertion Loss	Input Return Loss	Output Return Loss	Stability		Noise Figure	FREQ	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	K	Measure	(dB)	(MHz)	(dBm)
10	-1.6	-11.5	-14.4	1.0	0.5	13.1	30	37.3
20	-3.1	-6.6	-10.1	1.1	0.7	6.3	200	36.3
30	-1.5	-14.4	-17.7	1.0	0.5	2.6	500	38.1
40	-1.4	-18.1	-21.1	1.0	0.5	4.1	1000	38.4
50	-1.3	-20.6	-22.6	1.0	0.5	5.3	3000	34.3
60	-1.3	-22.3	-24.0	1.0	0.4	4.8	5000	32.2
70	-1.2	-23.6	-24.8	1.0	0.4	2.3	8000	32.1
80	-1.2	-25.0	-25.3	1.0	0.4	1.5		
90	-1.3	-25.9	-25.9	1.0	0.4	1.5		
100	-1.2	-26.6	-26.3	1.0	0.4	1.5		
200	-1.3	-29.1	-26.3	1.0	0.4	2.4		
300	-1.3	-27.3	-25.3	1.0	0.5	3.5		
400	-1.3	-25.7	-23.9	1.0	0.5	2.6		
500	-1.3	-23.9	-22.7	1.0	0.5	1.6		
600	-1.3	-22.5	-21.6	1.0	0.5	1.4		
700	-1.3	-21.2	-20.6	1.0	0.5	1.4		
800	-1.3	-20.2	-19.7	1.0	0.5	1.4		
900	-1.3	-19.3	-18.9	1.1	0.5	2.5		
1000	-1.4	-18.5	-18.1	1.1	0.5	2.6		
1200	-1.4	-17.2	-17.0	1.1	0.5	1.4		
1400	-1.4	-16.3	-16.0	1.1	0.5	1.3		
1600	-1.5	-15.6	-15.3	1.1	0.5	1.7		
1800	-1.5	-15.0	-14.8	1.1	0.5	1.6		
2000	-1.5	-14.6	-14.4	1.1	0.5	2.2		
2200	-1.5	-14.3	-14.2	1.1	0.5	1.9		
2400	-1.5	-14.1	-14.2	1.1	0.6	1.9		
2600	-1.6	-14.2	-14.3	1.1	0.6	2.2		
2800	-1.6	-14.2	-14.4	1.1	0.6	2.0		
3000	-1.6	-14.4	-14.8	1.1	0.6	1.5		
3200	-1.6	-14.7	-15.2	1.1	0.6	1.8		
3400	-1.6	-15.1	-15.7	1.1	0.6	1.7		
3600	-1.6	-15.5	-16.3	1.1	0.6	1.9		
3800	-1.7	-16.0	-17.1	1.1	0.6	1.9		
4000	-1.7	-16.6	-17.8	1.1	0.6	1.2		
4200	-1.7	-17.3	-18.7	1.1	0.7	1.6		
4400	-1.7	-18.0	-19.7	1.1	0.7	1.6		
4600	-1.8	-18.6	-20.3	1.1	0.7	1.7		
4800	-1.9	-19.2	-20.7	1.2	0.7	2.3		
5000	-2.0	-19.4	-20.7	1.2	0.7	1.5		
5200	-2.0	-19.5	-21.0	1.2	0.7	1.6		
5400	-1.9	-20.0	-22.0	1.2	0.7	1.8		
5600	-1.9	-21.1	-23.1	1.2	0.7	1.7		
5800	-1.8	-22.4	-23.7	1.2	0.7	1.8		
6000	-1.8	-24.0	-23.9	1.2	0.7	1.9		
6200	-1.8	-25.8	-24.0	1.2	0.7	1.9		
6400	-1.8	-26.9	-24.0	1.3	0.7	2.3		
6600	-1.8	-27.0	-23.8	1.3	0.8	2.2		
6800	-1.7	-27.3	-23.6	1.3	0.8	2.2		
7000	-1.7	-27.8	-23.1	1.3	0.8	2.0		
7200	-1.6	-30.9	-22.2	1.4	0.8	2.8		
7400	-1.6	-24.8	-21.0	1.4	0.8	2.6		
7600	-1.6	-21.9	-19.6	1.4	0.8	2.9		
7800	-1.6	-19.8	-18.2	1.5	0.8	3.0		
8000	-1.6	-18.2	-16.7	1.5	0.8	3.1		

Typical Performance Data

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

Input Return Loss = S11 (dB)

Gain = S21 (dB)

Isolation = S12 (dB)

Output Return Loss = S22 (dB)

TEST CONDITIONS: $V_{DD} = +5\text{ V}$, $V_{BYP} = 0\text{ V}$, $I_{DD} = 0.99\text{mA}$ @ Temperature = +25°C

FREQ	Insertion Loss	Input Return Loss	Output Return Loss	Stability		Noise Figure	FREQ	IP-3 Output
				K	Measure			
(MHz)	(dB)	(dB)	(dB)			(dB)	(MHz)	(dBm)
10	-1.6	-11.5	-14.4	1.0	0.5	13.1	30	37.4
20	-3.1	-6.6	-10.1	1.1	0.7	6.3	200	36.3
30	-1.5	-14.4	-17.6	1.0	0.5	2.6	500	37.6
40	-1.3	-18.1	-21.1	1.0	0.5	4.0	1000	37.7
50	-1.3	-20.6	-22.7	1.0	0.5	5.0	3000	33.9
60	-1.3	-22.3	-24.0	1.0	0.4	4.6	5000	31.5
70	-1.2	-23.6	-24.9	1.0	0.4	2.3	8000	32.2
80	-1.2	-25.0	-25.5	1.0	0.4	1.6		
90	-1.2	-25.9	-25.9	1.0	0.4	1.5		
100	-1.2	-26.6	-26.4	1.0	0.4	1.5		
200	-1.2	-29.1	-26.3	1.0	0.4	2.4		
300	-1.3	-27.3	-25.3	1.0	0.5	3.8		
400	-1.3	-25.7	-23.9	1.0	0.5	2.5		
500	-1.3	-23.9	-22.8	1.0	0.5	1.6		
600	-1.3	-22.5	-21.6	1.0	0.5	1.4		
700	-1.3	-21.2	-20.6	1.0	0.5	1.4		
800	-1.3	-20.2	-19.7	1.0	0.5	1.4		
900	-1.3	-19.3	-18.9	1.1	0.5	2.6		
1000	-1.4	-18.5	-18.1	1.1	0.5	2.7		
1200	-1.4	-17.2	-16.9	1.1	0.5	1.3		
1400	-1.4	-16.2	-16.0	1.1	0.5	1.3		
1600	-1.4	-15.5	-15.3	1.1	0.5	1.6		
1800	-1.5	-15.0	-14.8	1.1	0.5	1.6		
2000	-1.5	-14.6	-14.4	1.1	0.5	2.2		
2200	-1.5	-14.3	-14.2	1.1	0.5	1.9		
2400	-1.5	-14.1	-14.2	1.1	0.6	1.9		
2600	-1.6	-14.1	-14.2	1.1	0.6	1.9		
2800	-1.6	-14.2	-14.4	1.1	0.6	2.1		
3000	-1.6	-14.4	-14.7	1.1	0.6	1.7		
3200	-1.6	-14.7	-15.2	1.1	0.6	1.7		
3400	-1.6	-15.1	-15.7	1.1	0.6	1.8		
3600	-1.6	-15.5	-16.3	1.1	0.6	1.8		
3800	-1.7	-16.0	-17.1	1.1	0.6	1.7		
4000	-1.7	-16.6	-17.8	1.1	0.6	1.2		
4200	-1.7	-17.3	-18.7	1.1	0.7	1.4		
4400	-1.7	-18.0	-19.7	1.1	0.7	1.6		
4600	-1.8	-18.7	-20.4	1.1	0.7	1.6		
4800	-1.9	-19.3	-20.7	1.2	0.7	2.2		
5000	-2.0	-19.4	-20.7	1.2	0.7	1.6		
5200	-2.0	-19.5	-21.0	1.2	0.7	1.6		
5400	-1.9	-20.0	-22.0	1.2	0.7	1.8		
5600	-1.9	-21.1	-23.2	1.2	0.7	1.9		
5800	-1.8	-22.4	-23.8	1.2	0.7	1.5		
6000	-1.8	-24.0	-24.0	1.2	0.7	2.0		
6200	-1.8	-25.8	-24.1	1.2	0.7	2.2		
6400	-1.8	-26.9	-24.0	1.3	0.7	2.2		
6600	-1.8	-27.0	-23.9	1.3	0.8	2.3		
6800	-1.7	-27.3	-23.7	1.3	0.8	2.1		
7000	-1.7	-27.7	-23.3	1.3	0.8	1.9		
7200	-1.6	-30.7	-22.3	1.4	0.8	2.9		
7400	-1.6	-24.8	-21.1	1.4	0.8	2.7		
7600	-1.6	-21.9	-19.7	1.4	0.8	2.5		
7800	-1.6	-19.9	-18.3	1.5	0.8	3.5		
8000	-1.6	-18.3	-16.8	1.5	0.8	3.1		

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: $V_{DD} = +5.25\text{ V}$, $V_{BYP} = 0\text{ V}$ @ Temperature = +25°C

FREQ	Insertion Loss	Input Return Loss	Output Return Loss	Stability		Noise Figure	FREQ	IP-3 Output
(MHz)	(dB)	(dB)	(dB)	K	Measure	(dB)	(MHz)	(dBm)
10	-1.6	-11.5	-14.4	1.0	0.5	13.1	30	37.2
20	-3.1	-6.6	-10.1	1.1	0.7	6.3	200	36.3
30	-1.5	-14.4	-17.7	1.0	0.5	2.6	500	37.0
40	-1.4	-18.1	-21.1	1.0	0.5	4.0	1000	37.3
50	-1.3	-20.6	-22.6	1.0	0.5	5.0	3000	33.5
60	-1.3	-22.3	-24.0	1.0	0.4	4.7	5000	31.0
70	-1.2	-23.6	-24.7	1.0	0.4	2.3	8000	32.2
80	-1.3	-25.0	-25.2	1.0	0.4	1.5		
90	-1.3	-25.8	-25.8	1.0	0.4	1.4		
100	-1.3	-26.6	-26.3	1.0	0.4	1.4		
200	-1.3	-29.0	-26.3	1.0	0.5	2.5		
300	-1.3	-27.2	-25.3	1.0	0.5	3.9		
400	-1.3	-25.7	-23.8	1.0	0.5	2.6		
500	-1.3	-23.8	-22.6	1.0	0.5	1.6		
600	-1.3	-22.5	-21.5	1.0	0.5	1.3		
700	-1.3	-21.2	-20.6	1.0	0.5	1.4		
800	-1.3	-20.2	-19.7	1.1	0.5	1.5		
900	-1.4	-19.3	-18.9	1.1	0.5	2.5		
1000	-1.4	-18.5	-18.1	1.1	0.5	2.6		
1200	-1.4	-17.2	-17.0	1.1	0.5	1.4		
1400	-1.4	-16.2	-16.0	1.1	0.5	1.2		
1600	-1.5	-15.5	-15.3	1.1	0.5	1.6		
1800	-1.5	-15.0	-14.8	1.1	0.5	1.6		
2000	-1.5	-14.6	-14.4	1.1	0.5	1.8		
2200	-1.5	-14.3	-14.3	1.1	0.5	2.0		
2400	-1.6	-14.1	-14.2	1.1	0.6	2.0		
2600	-1.6	-14.1	-14.2	1.1	0.6	2.1		
2800	-1.6	-14.2	-14.4	1.1	0.6	2.0		
3000	-1.6	-14.4	-14.7	1.1	0.6	1.5		
3200	-1.6	-14.7	-15.2	1.1	0.6	1.7		
3400	-1.6	-15.1	-15.7	1.1	0.6	1.6		
3600	-1.6	-15.5	-16.3	1.1	0.6	1.9		
3800	-1.7	-16.0	-17.0	1.1	0.6	1.8		
4000	-1.7	-16.6	-17.8	1.1	0.6	1.4		
4200	-1.7	-17.3	-18.7	1.1	0.7	1.4		
4400	-1.8	-18.0	-19.7	1.1	0.7	1.6		
4600	-1.8	-18.6	-20.3	1.1	0.7	1.5		
4800	-1.9	-19.2	-20.6	1.2	0.7	2.1		
5000	-2.0	-19.4	-20.7	1.2	0.7	1.4		
5200	-2.0	-19.4	-20.9	1.2	0.7	1.7		
5400	-1.9	-20.0	-22.0	1.2	0.7	1.8		
5600	-1.9	-21.1	-23.1	1.2	0.7	1.7		
5800	-1.8	-22.4	-23.6	1.2	0.7	1.6		
6000	-1.8	-23.9	-23.9	1.2	0.7	1.9		
6200	-1.8	-25.7	-23.9	1.2	0.7	1.9		
6400	-1.8	-26.9	-23.9	1.3	0.8	2.2		
6600	-1.8	-27.1	-23.7	1.3	0.8	2.0		
6800	-1.7	-27.5	-23.6	1.3	0.8	2.0		
7000	-1.7	-28.0	-23.1	1.3	0.8	2.3		
7200	-1.7	-31.2	-22.1	1.4	0.8	2.4		
7400	-1.6	-24.9	-20.9	1.4	0.8	2.9		
7600	-1.6	-22.0	-19.6	1.4	0.8	2.5		
7800	-1.6	-19.9	-18.2	1.5	0.8	3.1		
8000	-1.6	-18.3	-16.7	1.5	0.8	3.1		

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required

Definitions:

Input Return Loss = S11 (dB)

Gain = S21 (dB)

Isolation = S12 (dB)

Output Return Loss = S22 (dB)

TEST CONDITIONS: $V_{DD} = +5\text{ V}$, $V_{BYP} = 0\text{ V}$, $I_{DD} = 1.11\text{ mA}$ @ Temperature = -55°C

FREQ	Insertion Loss	Input Return Loss	Output Return Loss	Stability		Noise Figure	FREQ	IP-3 Output
				K	Measure			
(MHz)	(dB)	(dB)	(dB)			(dB)	(MHz)	(dBm)
10	-1.5	-11.7	-14.2	1.0	0.5	13.0	30	37.0
20	-3.3	-6.1	-9.2	1.1	0.7	6.6	200	36.5
30	-1.5	-14.2	-17.4	1.0	0.5	3.5	500	38.4
40	-1.3	-18.2	-21.0	1.0	0.4	3.3	1000	38.2
50	-1.2	-20.8	-23.4	1.0	0.4	3.7	3000	36.3
60	-1.2	-22.8	-24.7	1.0	0.4	3.1	5000	34.0
70	-1.2	-24.4	-26.2	1.0	0.4	2.8	8000	36.0
80	-1.2	-26.0	-27.1	1.0	0.4	1.9		
90	-1.2	-27.1	-27.7	1.0	0.4	1.9		
100	-1.2	-28.0	-28.4	1.0	0.4	3.5		
200	-1.2	-32.0	-28.4	1.0	0.4	2.2		
300	-1.2	-29.2	-26.7	1.0	0.4	1.6		
400	-1.2	-26.3	-25.1	1.0	0.4	2.5		
500	-1.2	-24.5	-23.6	1.0	0.4	2.1		
600	-1.2	-22.8	-22.2	1.0	0.4	1.6		
700	-1.2	-21.4	-21.1	1.0	0.4	1.9		
800	-1.3	-20.3	-20.1	1.0	0.5	1.9		
900	-1.3	-19.4	-19.1	1.0	0.5	2.3		
1000	-1.3	-18.5	-18.3	1.0	0.5	1.6		
1200	-1.3	-17.1	-17.0	1.0	0.5	1.7		
1400	-1.3	-16.0	-16.0	1.0	0.5	1.8		
1600	-1.4	-15.3	-15.3	1.1	0.5	2.3		
1800	-1.4	-14.9	-14.9	1.1	0.5	2.2		
2000	-1.4	-14.5	-14.5	1.1	0.5	2.3		
2200	-1.4	-14.3	-14.2	1.1	0.5	2.4		
2400	-1.4	-14.2	-14.2	1.1	0.5	2.2		
2600	-1.5	-14.3	-14.5	1.1	0.5	2.5		
2800	-1.5	-14.6	-14.9	1.1	0.5	2.2		
3000	-1.5	-14.9	-15.2	1.1	0.5	1.8		
3200	-1.5	-15.2	-15.7	1.1	0.6	2.6		
3400	-1.5	-15.6	-16.1	1.1	0.6	2.4		
3600	-1.5	-16.0	-16.5	1.1	0.6	2.3		
3800	-1.5	-16.5	-17.2	1.1	0.6	2.6		
4000	-1.6	-17.1	-17.9	1.1	0.6	2.0		
4200	-1.6	-17.8	-18.6	1.1	0.6	2.0		
4400	-1.6	-18.6	-19.4	1.1	0.6	1.8		
4600	-1.7	-19.3	-19.8	1.1	0.6	2.2		
4800	-1.7	-20.1	-19.9	1.1	0.6	2.8		
5000	-1.8	-20.5	-19.6	1.1	0.7	2.9		
5200	-1.9	-20.2	-19.6	1.2	0.7	2.4		
5400	-1.9	-20.2	-20.3	1.2	0.7	2.4		
5600	-1.8	-20.3	-21.2	1.2	0.7	2.5		
5800	-1.7	-20.9	-21.8	1.2	0.7	2.3		
6000	-1.7	-21.5	-22.2	1.2	0.7	2.6		
6200	-1.6	-22.3	-22.4	1.2	0.7	2.9		
6400	-1.5	-23.2	-22.5	1.2	0.7	2.8		
6600	-1.5	-24.5	-22.2	1.2	0.7	3.3		
6800	-1.4	-25.7	-21.6	1.2	0.7	3.5		
7000	-1.3	-26.6	-20.6	1.2	0.7	3.4		
7200	-1.2	-27.3	-19.4	1.2	0.7	3.9		
7400	-1.1	-26.2	-17.9	1.2	0.7	4.0		
7600	-1.1	-23.0	-16.5	1.3	0.7	3.7		
7800	-1.0	-20.0	-15.2	1.3	0.7	4.1		
8000	-1.0	-17.5	-13.8	1.3	0.8	4.1		

Typical Performance Data

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

Input Return Loss = S11 (dB)

Gain = S21 (dB)

Isolation = S12 (dB)

Output Return Loss = S22 (dB)

TEST CONDITIONS: $V_{DD} = +5V$, $V_{BYP} = 0V$, $I_{DD} = 0.87\text{ mA}$ @ Temperature = $+105^{\circ}\text{C}$

FREQ	Insertion Loss	Input Return Loss	Output Return Loss	Stability		Noise Figure	FREQ	IP-3 Output
				K	Measure			
(MHz)	(dB)	(dB)	(dB)			(dB)	(MHz)	(dBm)
10	-1.8	-11.4	-14.8	1.1	0.6	13.1	30	36.4
20	-3.4	-6.7	-10.9	1.1	0.8	6.2	200	35.6
30	-1.7	-14.3	-18.1	1.1	0.5	2.7	500	34.4
40	-1.5	-17.8	-20.6	1.1	0.5	3.5	1000	36.3
50	-1.5	-20.1	-21.9	1.1	0.5	4.1	3000	31.5
60	-1.4	-21.6	-22.5	1.0	0.5	3.1	5000	28.9
70	-1.4	-22.7	-23.1	1.0	0.5	2.3	8000	29.7
80	-1.4	-23.6	-23.5	1.0	0.5	1.3		
90	-1.4	-24.3	-23.5	1.0	0.5	1.2		
100	-1.4	-24.7	-23.7	1.0	0.5	1.9		
200	-1.4	-26.3	-23.7	1.1	0.5	1.9		
300	-1.4	-25.2	-22.9	1.1	0.5	2.3		
400	-1.4	-23.6	-22.0	1.1	0.5	2.6		
500	-1.5	-22.3	-21.2	1.1	0.5	1.5		
600	-1.5	-21.1	-20.3	1.1	0.5	1.1		
700	-1.5	-20.1	-19.5	1.1	0.5	1.2		
800	-1.5	-19.2	-18.7	1.1	0.5	1.2		
900	-1.5	-18.4	-18.1	1.1	0.5	1.7		
1000	-1.5	-17.7	-17.5	1.1	0.5	1.5		
1200	-1.6	-16.6	-16.5	1.1	0.5	1.2		
1400	-1.6	-15.7	-15.7	1.1	0.6	1.0		
1600	-1.6	-15.0	-15.1	1.1	0.6	1.3		
1800	-1.7	-14.5	-14.7	1.1	0.6	1.3		
2000	-1.7	-14.1	-14.3	1.1	0.6	1.6		
2200	-1.7	-13.9	-14.1	1.1	0.6	1.4		
2400	-1.8	-13.8	-14.0	1.1	0.6	1.5		
2600	-1.8	-13.8	-14.2	1.1	0.6	1.6		
2800	-1.8	-14.0	-14.4	1.1	0.6	1.6		
3000	-1.8	-14.2	-14.7	1.1	0.6	1.1		
3200	-1.9	-14.6	-15.1	1.1	0.7	1.1		
3400	-1.9	-15.0	-15.6	1.1	0.7	1.7		
3600	-1.9	-15.5	-16.1	1.1	0.7	1.3		
3800	-2.0	-16.1	-16.8	1.1	0.7	1.3		
4000	-2.0	-16.8	-17.4	1.2	0.7	1.1		
4200	-2.1	-17.5	-18.1	1.2	0.7	1.0		
4400	-2.1	-18.1	-18.8	1.2	0.7	1.5		
4600	-2.2	-18.5	-19.1	1.2	0.7	1.3		
4800	-2.3	-18.7	-19.1	1.2	0.8	1.9		
5000	-2.5	-18.4	-18.8	1.3	0.8	1.3		
5200	-2.5	-17.9	-18.9	1.3	0.8	1.1		
5400	-2.5	-17.9	-19.6	1.3	0.8	1.3		
5600	-2.5	-18.1	-20.3	1.3	0.8	1.7		
5800	-2.5	-18.5	-20.9	1.3	0.8	1.3		
6000	-2.6	-18.9	-21.4	1.4	0.8	1.4		
6200	-2.7	-19.5	-22.0	1.4	0.8	1.7		
6400	-2.7	-20.3	-22.6	1.5	0.9	1.4		
6600	-2.8	-21.4	-23.5	1.5	0.9	1.6		
6800	-2.8	-23.0	-24.8	1.6	0.9	1.4		
7000	-2.8	-25.4	-26.3	1.6	0.9	1.4		
7200	-2.7	-29.3	-26.4	1.7	0.9	1.9		
7400	-2.7	-34.8	-23.3	1.7	0.9	1.9		
7600	-2.5	-38.1	-20.8	1.7	0.9	1.8		
7800	-2.3	-26.7	-18.5	1.7	0.9	2.6		
8000	-2.1	-21.8	-16.1	1.7	0.9	2.1		

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: $V_{DD} = +5\text{ V}$, $V_{BYP} = +5\text{ V}$ @ Temperature = $+25^{\circ}\text{C}$

P_{IN}	Gain	P_{IN}	Gain	P_{IN}	Gain	P_{IN}	Gain	P_{IN}	Gain	P_{IN}	Gain
dBm	dB	dBm	dB	dBm	dB	dBm	dB	dBm	dB	dBm	dB
30MHz		200MHz		1000MHz		3000MHz		5000MHz		8000MHz	
-24.4	18.5	-24.5	18.9	-24.8	19.1	-24.7	18.4	-25.1	17.3	-24.8	13.9
-23.4	18.5	-23.5	18.9	-23.8	19.1	-23.7	18.4	-24.1	17.4	-23.9	13.9
-22.5	18.5	-22.5	18.9	-22.8	19.1	-22.8	18.4	-23.1	17.4	-22.9	13.9
-21.5	18.5	-21.5	18.9	-21.8	19.1	-21.8	18.4	-22.1	17.4	-21.9	13.9
-20.5	18.4	-20.5	18.9	-20.8	19.1	-20.8	18.4	-21.1	17.4	-20.9	13.9
-19.5	18.4	-19.5	18.9	-19.8	19.1	-19.8	18.4	-20.1	17.4	-19.9	13.9
-18.5	18.4	-18.5	18.9	-18.8	19.1	-18.8	18.4	-19.1	17.4	-18.9	13.9
-17.5	18.4	-17.5	18.9	-17.8	19.1	-17.8	18.4	-18.1	17.4	-17.9	13.9
-16.5	18.4	-16.6	18.8	-16.8	19.1	-16.8	18.4	-17.1	17.4	-16.9	13.9
-15.4	18.4	-15.5	18.8	-15.8	19.1	-15.8	18.4	-16.1	17.4	-15.9	13.9
-14.4	18.4	-14.5	18.8	-14.8	19.1	-14.8	18.4	-15.1	17.4	-14.9	13.8
-13.5	18.4	-13.5	18.8	-13.9	19.1	-13.8	18.4	-14.1	17.3	-13.9	13.8
-12.5	18.4	-12.5	18.8	-12.9	19.1	-12.8	18.4	-13.2	17.3	-12.9	13.8
-11.5	18.4	-11.5	18.8	-11.9	19.1	-11.8	18.4	-12.2	17.3	-11.9	13.8
-10.5	18.3	-10.5	18.8	-10.9	19.1	-10.8	18.3	-11.2	17.3	-10.9	13.8
-9.5	18.3	-9.6	18.8	-9.9	19.1	-9.8	18.3	-10.2	17.3	-9.9	13.8
-8.5	18.3	-8.6	18.8	-8.8	19.1	-8.8	18.3	-9.2	17.3	-8.9	13.8
-7.6	18.2	-7.6	18.8	-7.8	19.0	-7.8	18.3	-8.2	17.3	-7.9	13.8
-6.6	18.2	-6.6	18.7	-6.8	19.0	-6.8	18.2	-7.2	17.2	-6.9	13.8
-5.6	18.0	-5.6	18.7	-5.9	18.9	-5.8	18.1	-6.2	17.1	-5.9	13.7
-4.7	17.8	-4.6	18.6	-4.9	18.7	-4.8	18.0	-5.2	17.1	-4.9	13.7
-3.8	17.4	-3.7	18.4	-3.9	18.5	-3.8	17.8	-4.2	16.9	-3.9	13.6
-3.0	17.0	-2.8	18.1	-2.9	18.2	-2.8	17.5	-3.2	16.8	-2.9	13.5
-2.2	16.6	-2.1	17.8	-1.9	17.7	-1.8	17.1	-2.2	16.6	-2.0	13.4
-1.4	16.1	-1.2	17.4	-0.9	17.2	-0.9	16.6	-1.3	16.2	-1.0	13.2
-0.6	15.6	-0.4	16.9	0.1	16.6	0.1	16.0	-0.3	15.8	0.0	12.8
0.2	14.9	0.5	16.4	1.1	15.9	1.1	15.3	0.7	15.3	1.1	12.4
1.2	14.2	1.4	15.7	2.1	15.1	2.1	14.6	1.7	14.7	2.0	11.8
2.1	13.4	2.3	15.0	3.1	14.3	3.1	13.8	2.7	14.0	3.0	11.2
		3.3	14.1			4.1	13.3	3.6	13.3	4.0	10.4
								4.6	12.5	5.0	9.6
										6.0	8.9

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_{BYP} = +5V @ Temperature = +25°C

P _{IN}	I _{DD}	P _{IN}	I _{DD}	P _{IN}	I _{DD}	P _{IN}	I _{DD}	P _{IN}	I _{DD}	P _{IN}	I _{DD}
dBm	mA	dBm	mA	dBm	mA	dBm	mA	dBm	mA	dBm	mA
30MHz		200MHz		1000MHz		3000MHz		5000MHz		8000MHz	
-24.4	120.1	-24.5	120.4	-24.8	120.7	-24.7	120.9	-25.1	120.7	-24.8	120.6
-23.4	119.9	-23.5	120.3	-23.8	120.6	-23.7	120.9	-24.1	120.7	-23.9	120.7
-22.5	119.8	-22.5	120.3	-22.8	120.6	-22.8	120.8	-23.1	120.7	-22.9	120.7
-21.5	119.7	-21.5	120.2	-21.8	120.5	-21.8	120.8	-22.1	120.7	-21.9	120.7
-20.5	119.6	-20.5	120.2	-20.8	120.5	-20.8	120.7	-21.1	120.7	-20.9	120.7
-19.5	119.6	-19.5	120.1	-19.8	120.5	-19.8	120.7	-20.1	120.7	-19.9	120.7
-18.5	119.5	-18.5	120.1	-18.8	120.5	-18.8	120.7	-19.1	120.7	-18.9	120.8
-17.5	119.5	-17.5	120.1	-17.8	120.4	-17.8	120.7	-18.1	120.7	-17.9	120.8
-16.5	119.4	-16.6	120.1	-16.8	120.4	-16.8	120.7	-17.1	120.7	-16.9	120.8
-15.4	119.4	-15.5	120.0	-15.8	120.4	-15.8	120.6	-16.1	120.7	-15.9	120.8
-14.4	119.4	-14.5	120.0	-14.8	120.4	-14.8	120.6	-15.1	120.7	-14.9	120.8
-13.5	119.3	-13.5	120.0	-13.9	120.3	-13.8	120.6	-14.1	120.7	-13.9	120.9
-12.5	119.2	-12.5	120.0	-12.9	120.3	-12.8	120.6	-13.2	120.7	-12.9	120.9
-11.5	119.2	-11.5	119.9	-11.9	120.3	-11.8	120.6	-12.2	120.8	-11.9	121.0
-10.5	119.1	-10.5	119.9	-10.9	120.3	-10.8	120.7	-11.2	120.9	-10.9	121.1
-9.5	119.0	-9.6	119.9	-9.9	120.3	-9.8	120.7	-10.2	120.9	-9.9	121.2
-8.5	118.9	-8.6	119.8	-8.8	120.3	-8.8	120.7	-9.2	121.0	-8.9	121.4
-7.6	118.7	-7.6	119.8	-7.8	120.3	-7.8	120.8	-8.2	121.2	-7.9	121.6
-6.6	118.4	-6.6	119.7	-6.8	120.3	-6.8	121.0	-7.2	121.5	-6.9	121.8
-5.6	117.7	-5.6	119.5	-5.9	120.2	-5.8	121.2	-6.2	121.8	-5.9	122.2
-4.7	116.3	-4.6	118.7	-4.9	119.8	-4.8	121.5	-5.2	122.3	-4.9	122.6
-3.8	114.2	-3.7	117.3	-3.9	119.0	-3.8	121.8	-4.2	122.9	-3.9	123.2
-2.2	108.6	-2.8	115.4	-2.9	117.7	-2.8	122.0	-3.2	123.7	-2.9	124.0
-1.4	105.5	-1.2	110.6	-0.9	114.5	-1.8	122.2	-2.2	124.6	-2.0	125.0
-0.6	102.3	-0.4	108.1	0.1	112.8	-0.9	122.4	-1.3	125.8	-1.0	126.2
0.2	98.8	0.5	105.4	1.1	110.8	0.1	122.6	-0.3	127.2	0.0	127.6
1.2	95.2	1.4	102.2	2.1	108.3	1.1	122.7	0.7	128.7	1.1	129.2
2.1	91.4	2.3	98.5	3.1	105.0	2.1	122.6	1.7	130.0	2.0	130.9
		3.3	94.1			3.1	122.0	2.7	131.0	3.0	132.5
						4.1	123.7	3.6	131.6	4.0	134.0
								4.6	131.6	5.0	135.2
										6.0	138.8

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

Definitions:

Input Return Loss = S11 (dB)

Gain = S21 (dB)

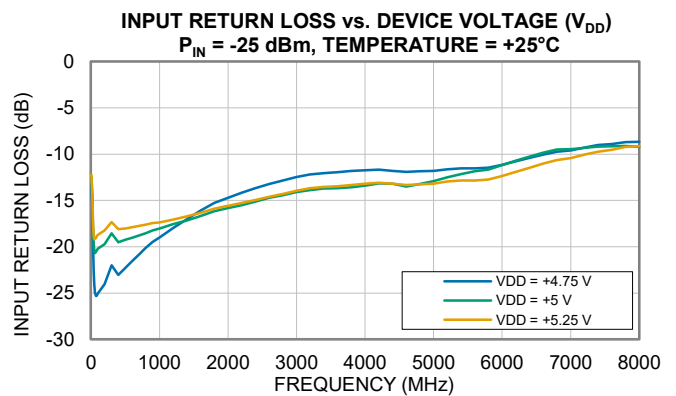
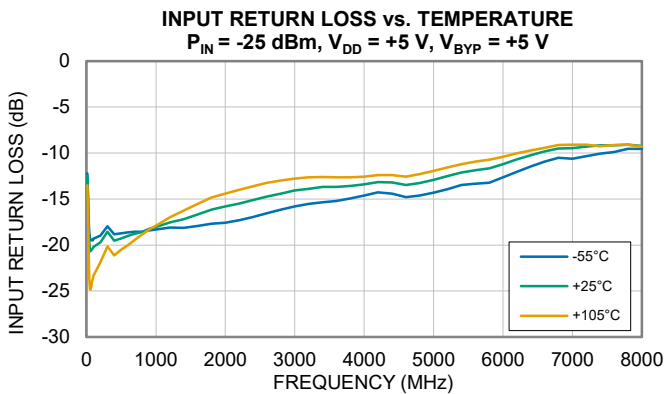
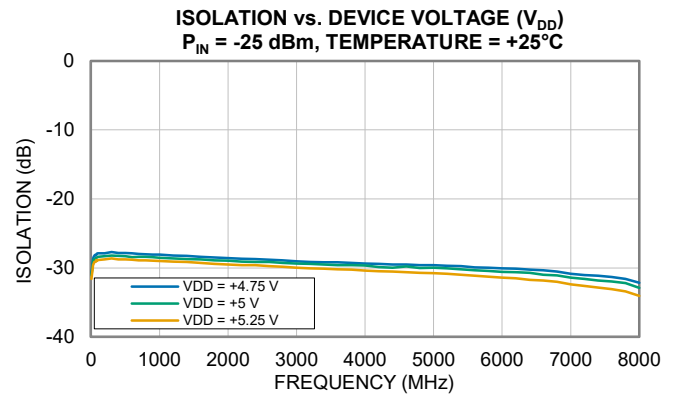
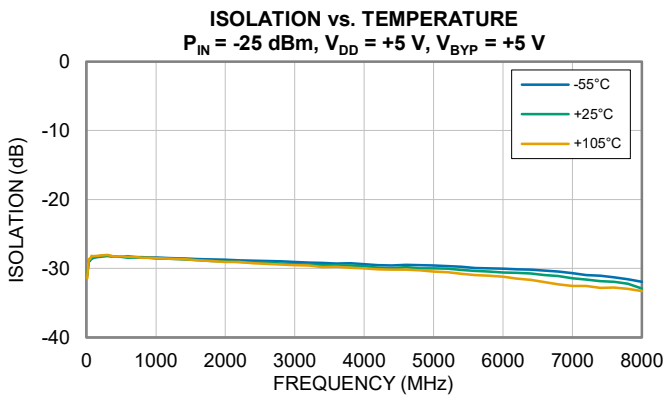
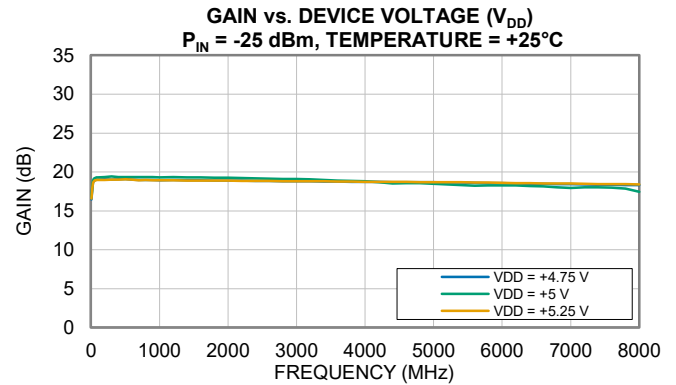
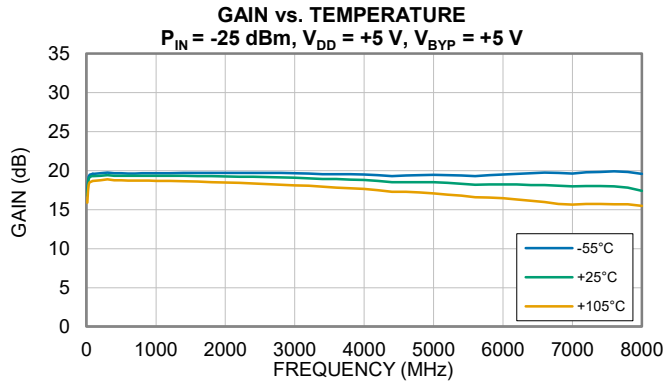
Isolation = S12 (dB)

Output Return Loss = S22 (dB)

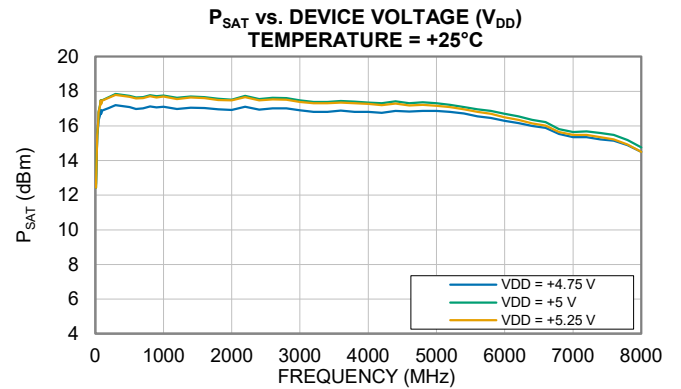
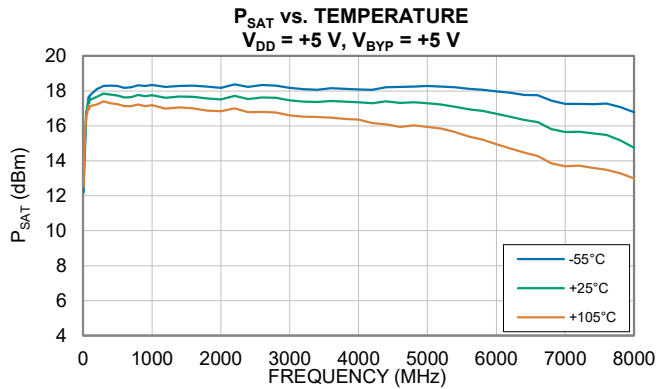
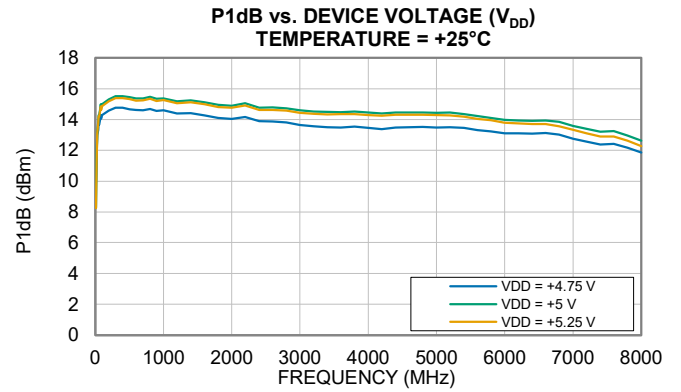
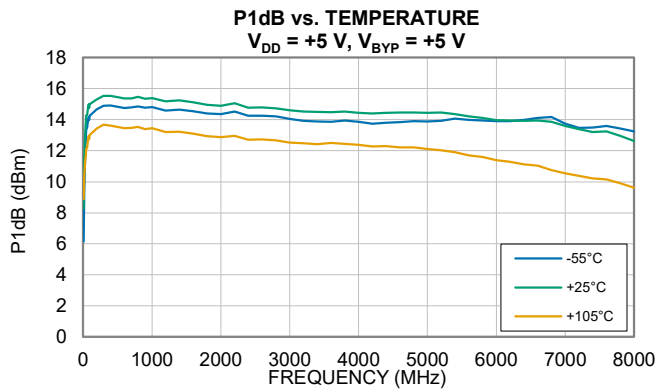
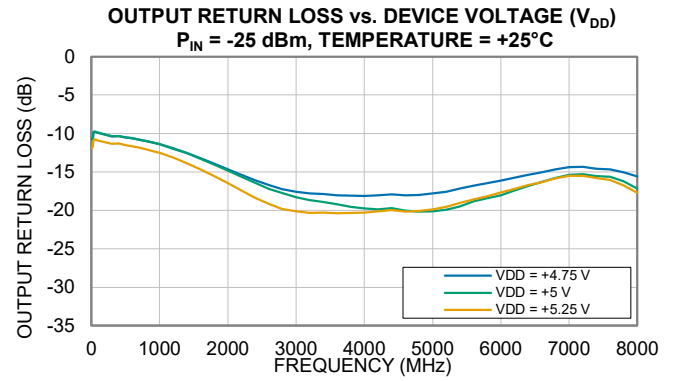
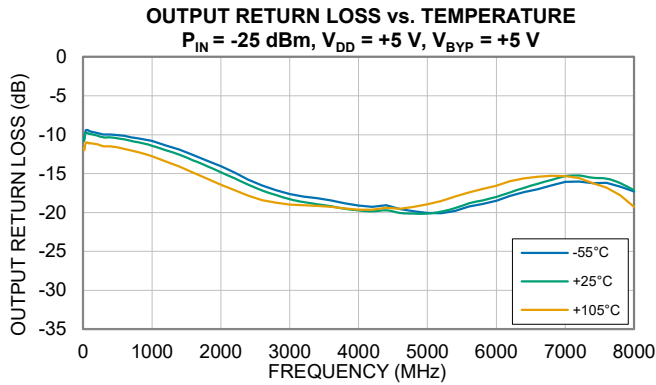
TEST CONDITIONS: V_{DD} = +5 V, V_{BYP} = +5V @ Temperature = +25°C

P _{OUT}	Output IP3	P _{OUT}	Output IP3	P _{OUT}	Output IP3	P _{OUT}	Output IP3	P _{OUT}	Output IP3	P _{OUT}	Output IP3
dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
30MHz		200MHz		1000MHz		3000MHz		5000MHz		8000MHz	
-5.0	27.7	-5.0	31.4	-5.0	30.2	-5.0	28.5	-5.0	27.3	-5.0	25.3
-4.0	27.6	-4.0	31.2	-4.0	30.2	-4.0	28.4	-4.0	27.4	-4.0	25.3
-3.0	27.5	-3.0	31.1	-3.0	30.1	-3.0	28.4	-3.0	27.3	-3.0	25.2
-2.0	27.4	-2.0	31.0	-2.0	30.0	-2.0	28.2	-2.0	27.2	-2.0	25.2
-1.0	27.2	-1.0	30.8	-1.0	29.8	-1.0	28.1	-1.0	27.1	-1.0	25.2
0.0	27.1	0.0	30.6	0.0	29.6	0.0	28.0	0.0	26.9	0.0	25.1
1.0	26.9	1.0	30.5	1.0	29.4	1.0	27.7	1.0	26.8	1.0	24.9
2.0	26.7	2.0	30.3	2.0	29.2	2.0	27.6	2.0	26.6	2.0	24.8
3.0	26.3	3.0	30.1	3.0	29.0	3.0	27.3	3.0	26.4	3.0	24.6
4.0	25.9	4.0	29.8	4.0	28.7	4.0	27.1	4.0	26.2	4.0	24.4
5.0	25.3	5.0	29.6	5.0	28.3	5.0	26.8	5.0	25.9	5.0	24.1
6.0	24.4	6.0	29.1	6.0	27.9	6.0	26.5	6.0	25.7	6.0	23.9
7.0	23.3	7.0	28.1	7.0	27.2	7.0	26.1	7.0	25.4	7.0	23.5
8.0	22.2	8.0	26.7	8.0	26.2	8.0	25.6	8.0	25.1	8.0	23.1
9.0	21.4	9.0	25.2	9.0	25.1	9.0	25.0	9.0	24.7	9.0	22.7
10.0	21.0	10.0	24.2	10.0	24.2	10.0	24.4	10.0	24.3	10.0	22.4
11.0	21.1	11.0	23.6	11.0	23.6	11.0	23.9	11.0	24.0	11.0	22.2
12.0	21.4	12.0	23.4	12.0	23.4	12.0	23.6	12.0	23.8	12.0	22.2
13.0	21.8	13.0	23.5	13.0	23.5	13.0	23.6	13.0	23.8	13.0	22.4
14.0	22.3	14.0	23.8	14.0	23.7	14.0	23.8	14.0	24.0	14.0	22.7
		15.0	24.1	15.0	24.1	15.0	24.2	15.0	24.3		
		16.0	24.6	16.0	24.6	16.0	24.8	16.0	24.8		

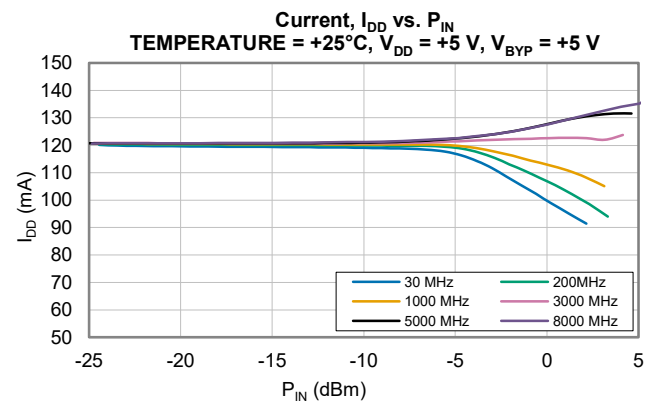
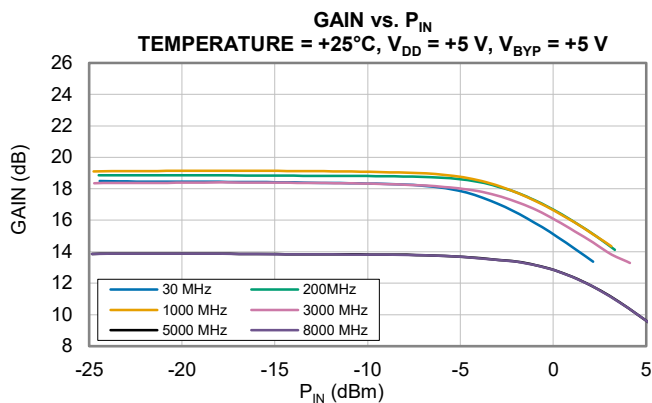
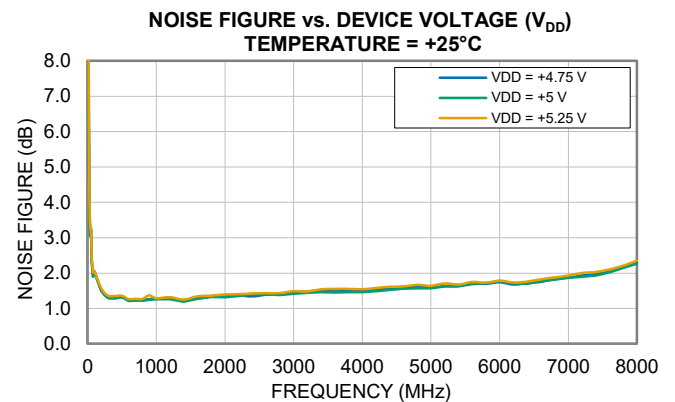
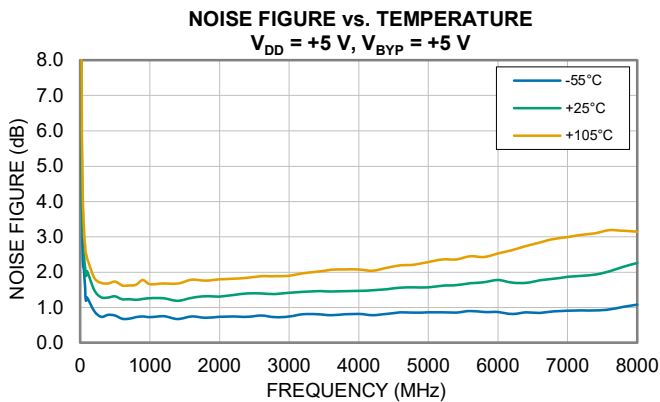
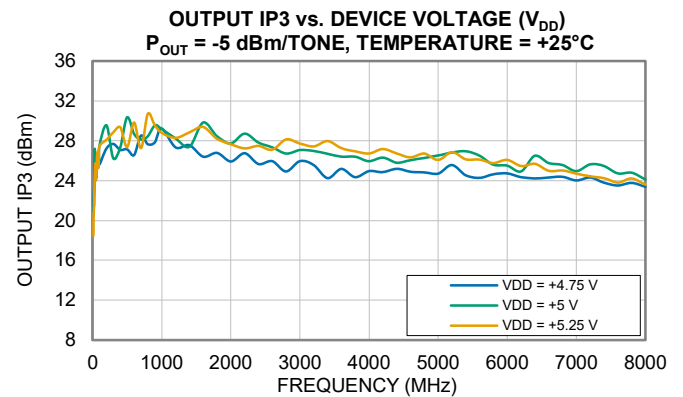
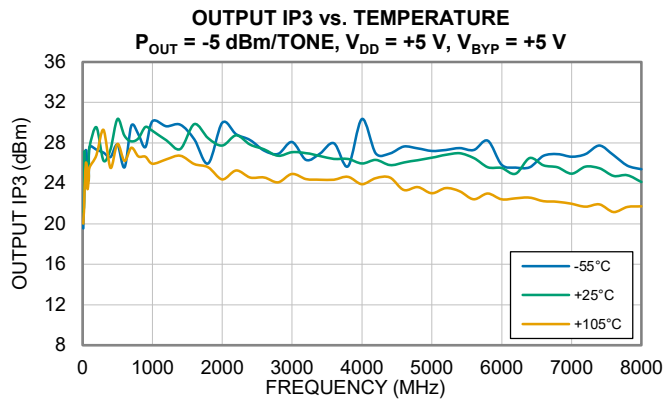
Typical Performance Curves



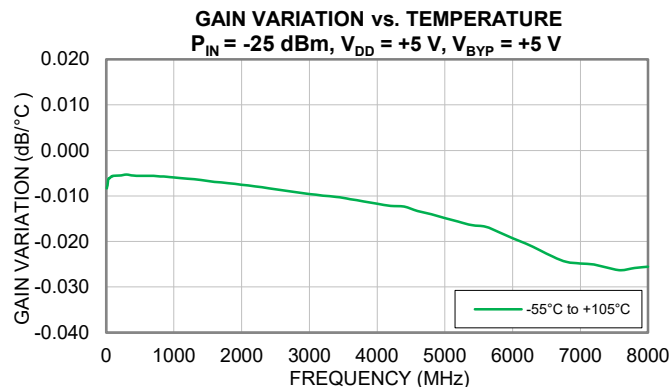
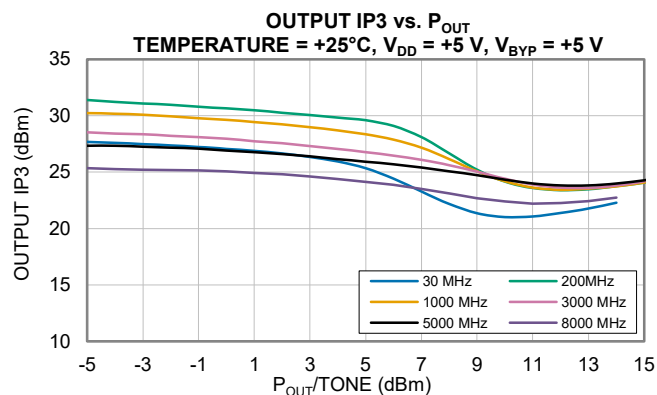
Typical Performance Curves



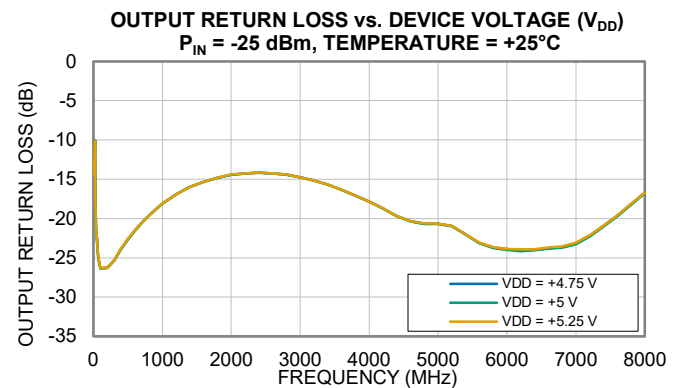
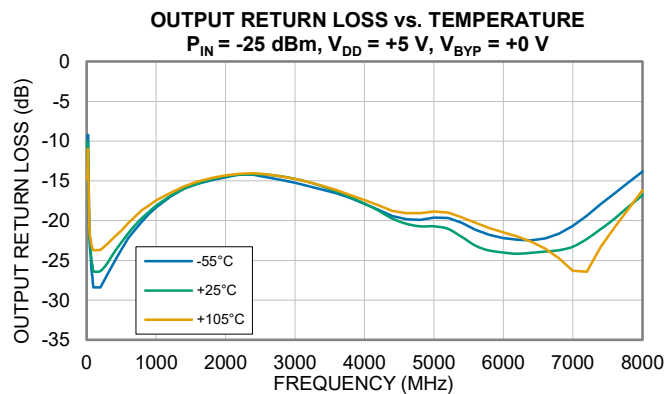
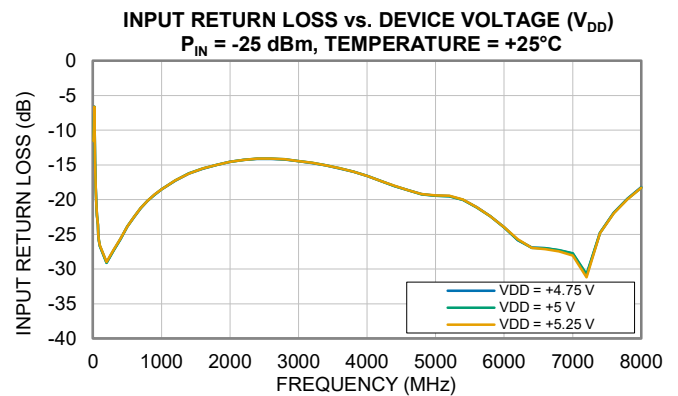
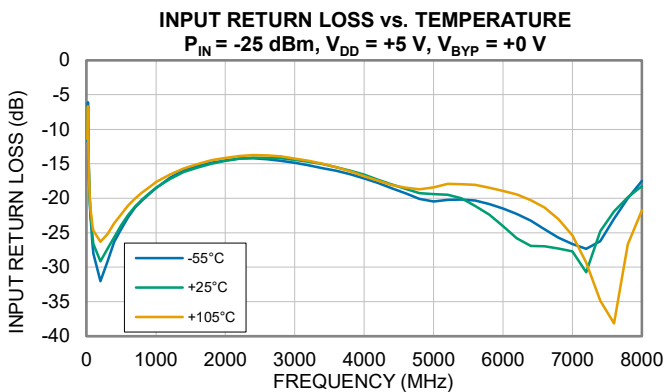
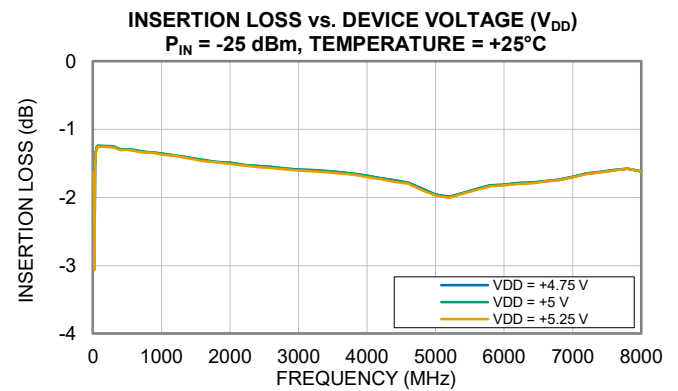
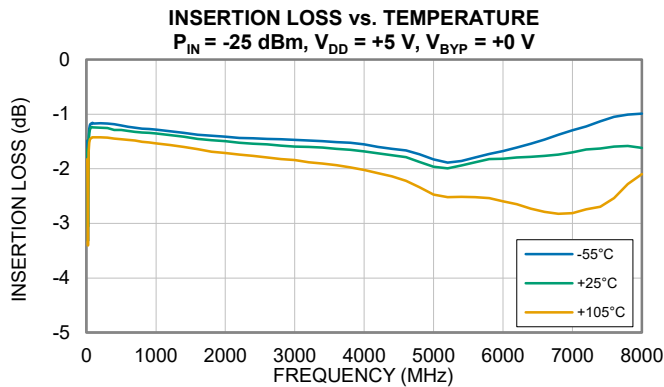
Typical Performance Curves



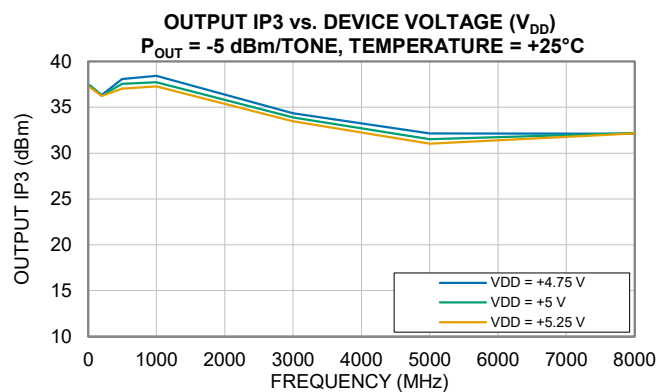
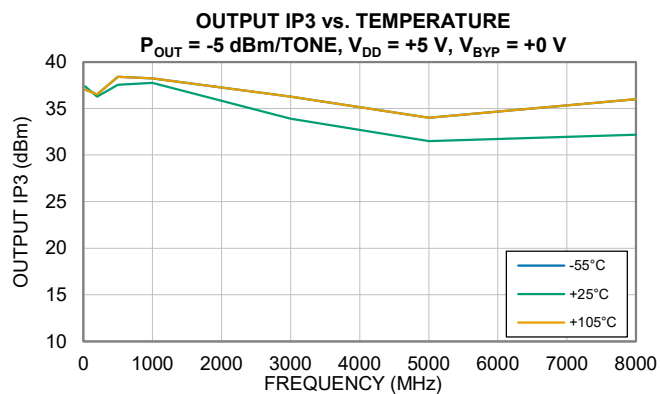
Typical Performance Curves



Typical Performance Curves



Typical Performance Curves

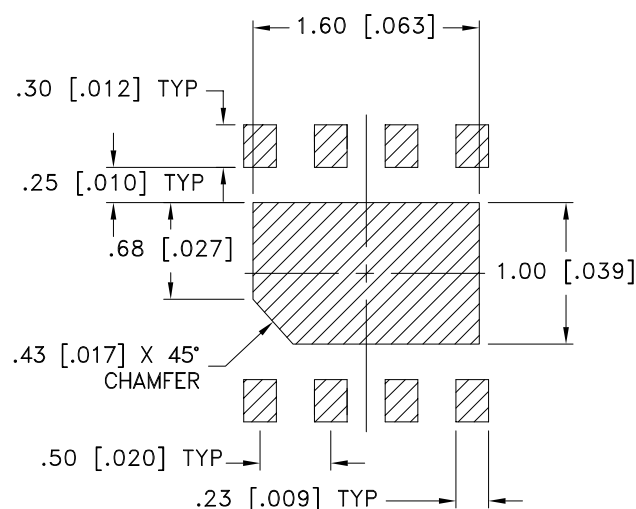
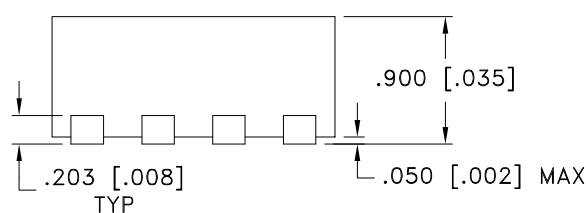
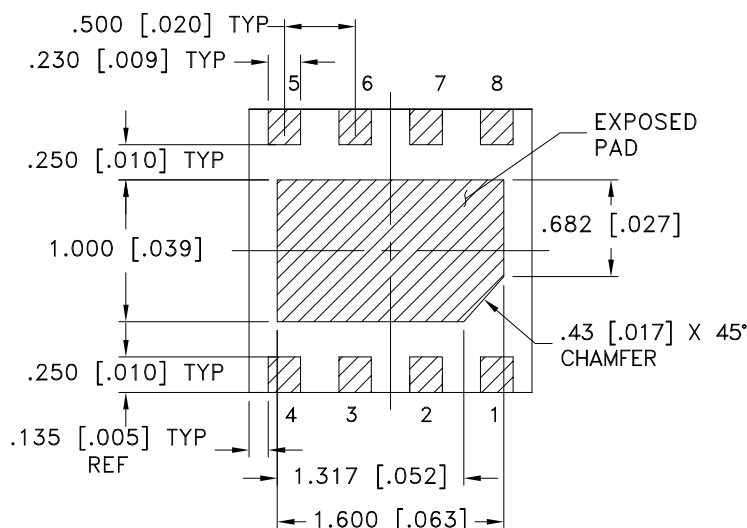
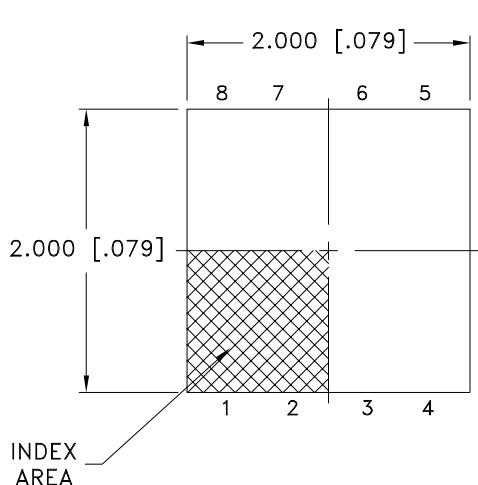


Outline Dimensions

MC3007

TOP VIEW

BOTTOM VIEW



 DENOTES METALLIZATION

Suggested Layout

Weight: .011 grams

Dimensions are in mm [inches]. Tolerances: 3 Pl. ± 0.050 [0.002] mm [Inches]

Notes:

1. Case material: Plastic.
2. Termination finish:

For RoHS Case Styles: Tin-Silver over Nickel plated or Matte-Tin plated (See Data sheet).

All models, (+) suffix.

3. Lead #1 identifier shall be located in the cross-hatched area shown.
Identifier may be either a molded or marked feature.

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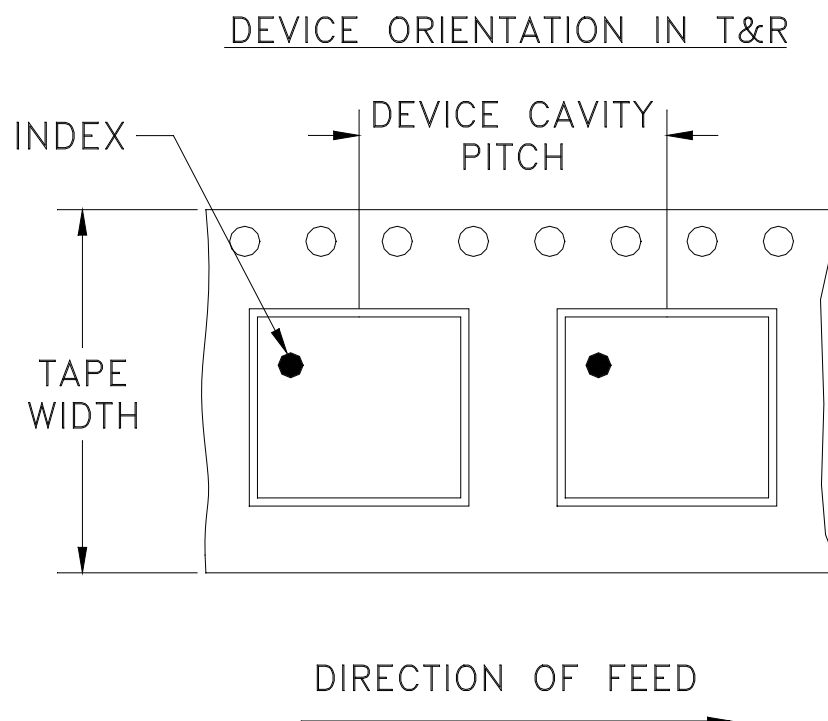
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



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RF/IF MICROWAVE COMPONENTS

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.

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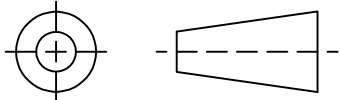
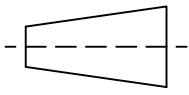


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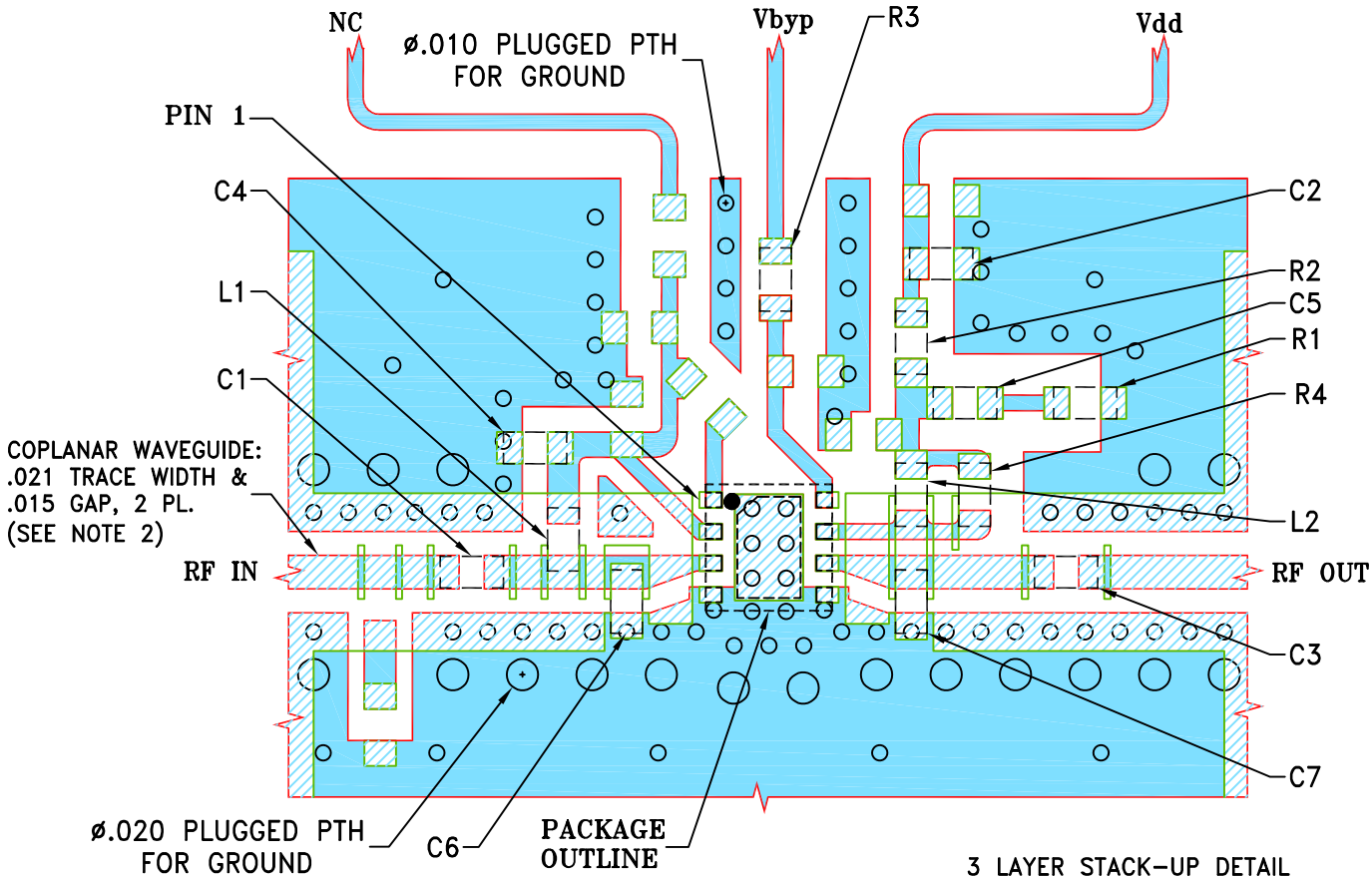
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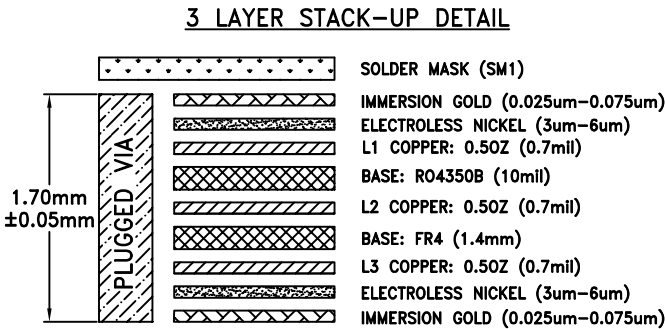
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THIRD ANGLE PROJECTION		REVISIONS				
		REV	ECN No.	DESCRIPTION	DATE	DR
		OR	ECO-027023	NEW RELEASE	09/19/25	ITG

SUGGESTED MOUNTING CONFIGURATION FOR
MC3007 CASE STYLE



COMPONENT	SIZE
C1-C7	0402
L1,L2	0402
R1-R4	0402



- NOTES:**
- PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
 - TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010"; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 - CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-TSY-83LNWC+.
 - COPPER LAYERS L2 & L3 OF THE PCB ARE CONTINUOUS GROUND PLANES.

-  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	09/19/25
TOLERANCES ON:	CHECKED	GF	09/19/25
2 PL DECIMALS ±	APPROVED	IL	09/19/25
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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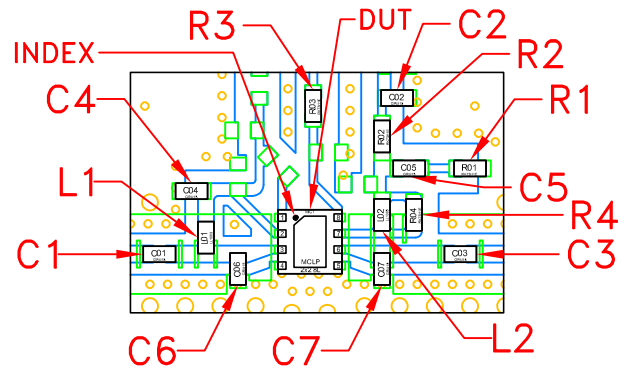
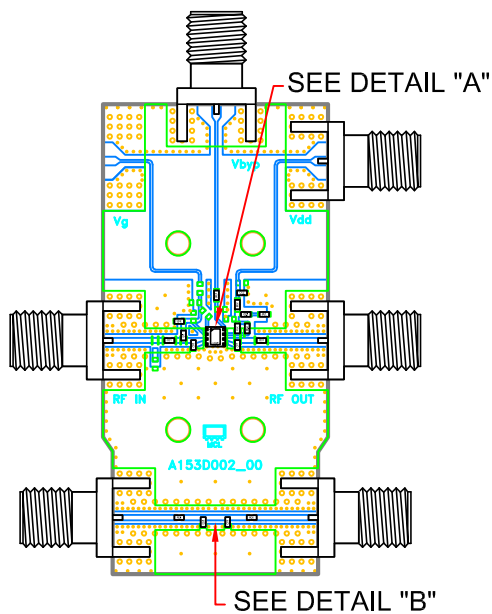
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Brooklyn NY 11235

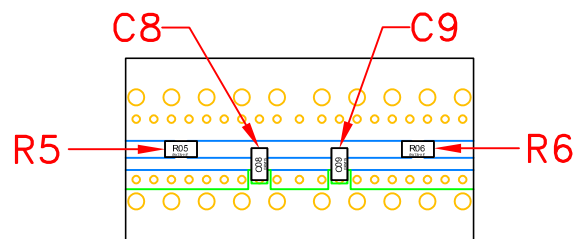
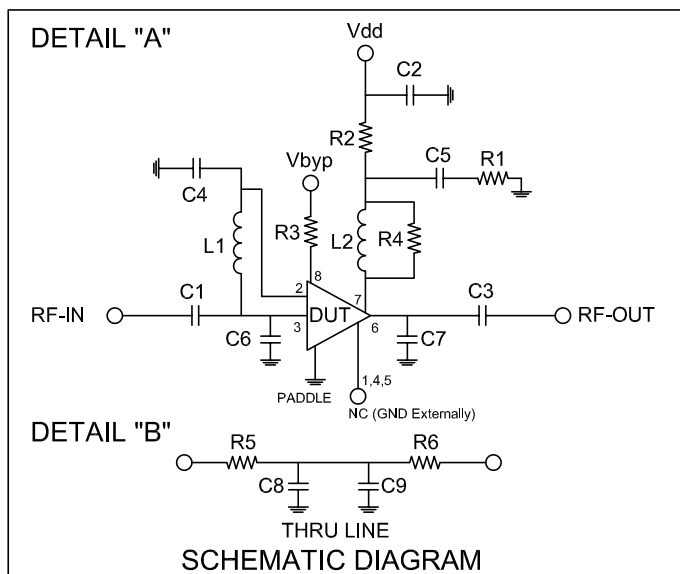
PL, MC3007, TB-TSY-83LNWC+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-839	OR
FILE:	98PL839	SCALE:	8:1
		SHEET:	1 OF 1

Evaluation Board and Circuit



DETAIL "A"
LOCATION OF INTERCONNECTOR
AND UNITS COMPONENTS
(SCALE 3:1)



DETAIL "B"
LOCATION OF INTERCONNECTOR
AND UNITS COMPONENTS
(SCALE 3:1)

COMPONENTS	SIZE	VALUE	MANUFACTURER	PART NUMBER
C1,C2	0402	470 nF	Murata	GRM155R71A474KE01J
C3		15 nF		GRM155R71H153KA12D
C4,C5		100 pF		GRM1555C1H101JA01D
C6,C8		0.2 pF		GJM1555C1HR20WB01D
C7,C9		0.3 pF		GJM1555C1HR30WB01D
L1,L2		900 nH	Coilcraft	0402DF-901XJRU
R1,R2,R3,R5,R6		0 Ω	KOA Speer	RK73Z1ETTP
R4		91 Ω	KOA Speer	RK73H1ETTP91R0F

NOTES:

- 50 Ohm SMA Female Connectors.
- PCB Material: Roger R04350B or equivalent, Dielectric constant=3.5, Thickness=0.010 inch

 **Mini-Circuits®**



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



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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