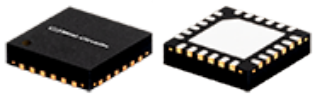
MMIC SURFACE MOUNT

Low Noise Amplifier PMA4-8243LN+

50Ω 8 to 24 GHz Wideband Amplifier

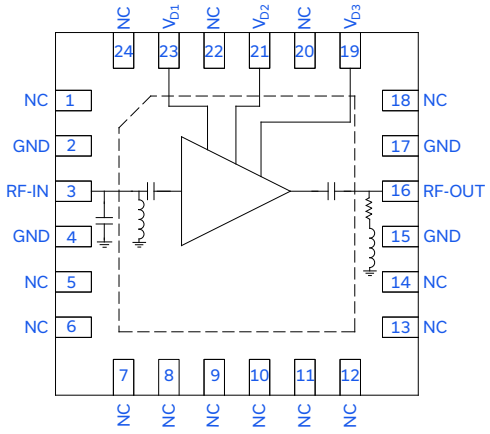
THE BIG DEAL

- Gain, Typ. 23.0 dB
- OIP3, Typ. +23.9 dBm
- Noise Figure, Typ. 2.0 dB
- Self-Biased from +5 V Supply at 72 mA
- Low Power Consumption, 360 mW
- 4x4 mm 24-Lead QFN-Style Package



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM (TOP VIEW)



APPLICATIONS

- Backhaul Radio Systems
- Satellite Communication
- Test & Measurement Equipment
- Radar, EW, and ECM Defense Systems

PRODUCT OVERVIEW

Mini-Circuits' PMA4-8243LN+ is a pHEMT-based low-noise MMIC amplifier with high gain and low power consumption. Operating from 8 to 24 GHz, this amplifier features typical 2.0 dB noise figure, 23.0 dB gain, +12.1 dBm P1dB, and +23.9 dBm OIP3. This device is self-biased, requiring a +5 V supply voltage, is well-matched to 50Ω, and comes in a small 4x4 mm 24-Lead QFN style package for easy integration into dense circuit board layouts.

KEY FEATURES

Feature	Advantages
Noise Figure, Typ. 2.0 dB	A 50Ω matched low noise MMIC device enables low system noise figure performance without the need for complicated discrete-based solutions.
Power Consumption, Typ. +5 V at 72 mA	At only 72 mA, this amplifier is ideal for applications with limited available power or densely packed applications where thermal and power management are critical. Additionally, this model only requires a +5 V supply voltage, eliminating the need for complicated sequencing schemes to accommodate multiple voltages.
4x4 mm 24-Lead QFN-Style Package	Small footprint saves space in dense PCB layouts while providing low inductance, repeatable transitions, and excellent thermal contact with the PCB. Industry standard packaging allows for easy assembly in high volume manufacturing processes.

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ELECTRICAL SPECIFICATIONS[1] AT +25°C, V_D = +5 V, Zo = 50Ω UNLESS NOTED OTHERWISE

Parameter	Condition (GHz)	Min.	Typ.	Max.	Units
Frequency Range		8		24	GHz
Gain	8	22.1	23.6		dB
	10	21.2	22.7		
	15	20.9	23.0		
	20	22.3	24.0		
	24	22.6	24.2		
Input Return Loss	8		16		dB
	10		11		
	15		12		
	20		13		
	24		13		
Output Return Loss	8		10		dB
	10		12		
	15		16		
	20		25		
	24		15		
Isolation	8-24		66		dB
Output Power at 1 dB Compression (P1dB)	8		+11.1		dBm
	10		+11.4		
	15		+12.1		
	20		+12.3		
	24		+11.0		
Output Power at Saturation (P_{SAT})[2]	8		+12.0		dBm
	10		+13.7		
	15		+15.2		
	20		+15.1		
	24		+15.1		
Output Third-Order Intercept (P_{OUT} = -5 dBm/Tone)	8		+21.4		dBm
	10		+23.5		
	15		+23.9		
	20		+23.9		
	24		+23.4		
Noise Figure	8		2.0		dB
	10		2.0		
	15		2.0		
	20		2.2		
	24		2.3		
Device Operating Voltage (V_D)[3]		+4.0	+5.0		V
Device Operating Current (I_{D1})[4]			15.0		mA
Device Operating Current (I_{D2})[4]			20.5		mA
Device Operating Current (I_{D3})[4]			36.4		mA
DC Current Variation vs. Temperature[5]			-19.38		µA/°C
DC Current Variation vs. Voltage[6]			0.019		mA/mV

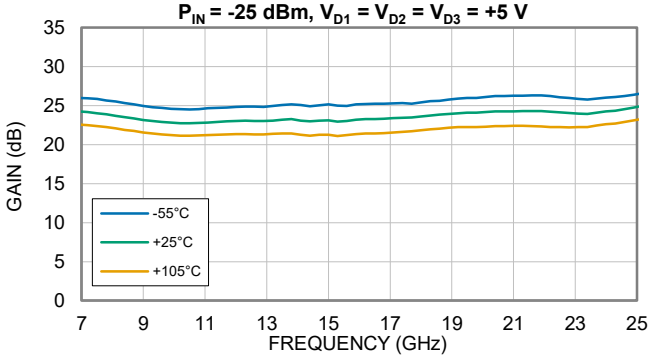
1. Tested on Mini-Circuits Characterization Test Board TB-PMA48243LNC+. See Figure 2. Board loss de-embedded to the device.
2. Defined as Output Power at which change is 0.1 dB per 1 dB change in input power.
3. $V_D = V_{D1} = V_{D2} = V_{D3}$
4. Current at P_{IN} = -25 dBm. Total current ($I_{D1} + I_{D2} + I_{D3}$) increases to 77 mA at P1dB when V_D = +5 V
5. (Current at +105°C - Current at -55°C) / (+105°C - -55°C)
6. (Total Current at +5.0 V – Total Current at +4.0 V) / (+5.0 V - +4.0 V)

Low Noise Amplifier PMA4-8243LN+

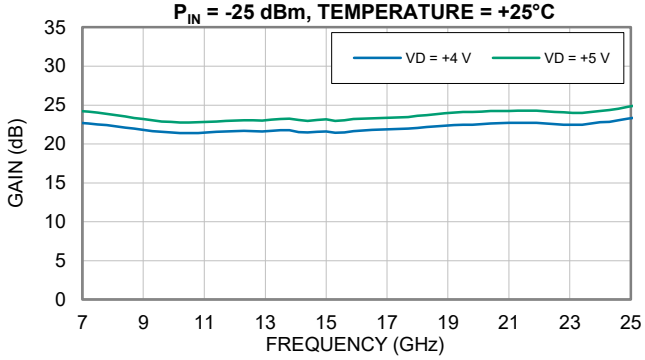
50Ω 8 to 24 GHz Wideband Amplifier

TYPICAL PERFORMANCE GRAPHS

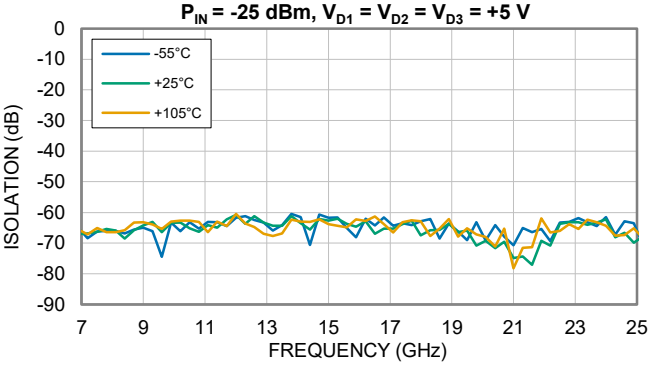
GAIN vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



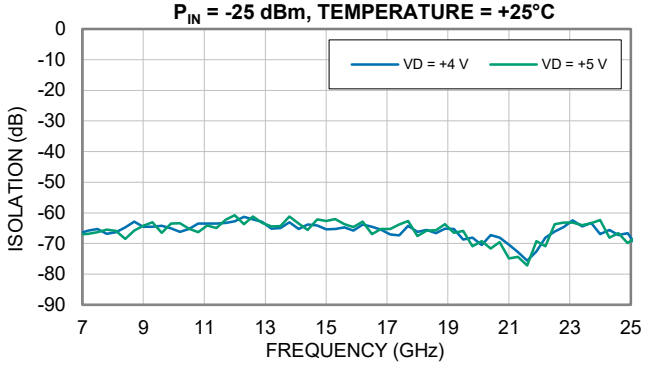
GAIN vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



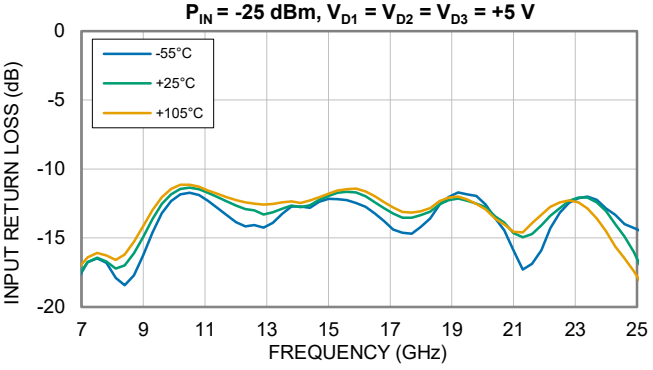
ISOLATION vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



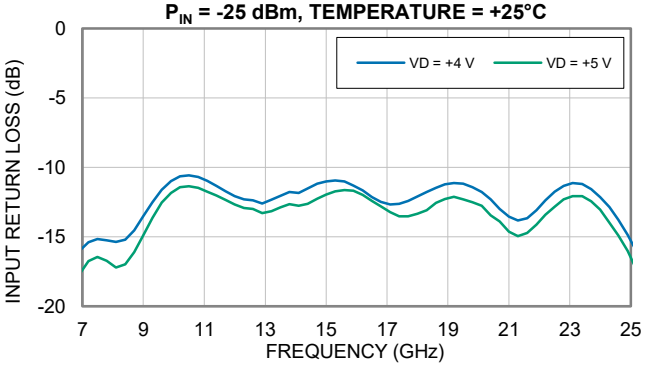
ISOLATION vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



INPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



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



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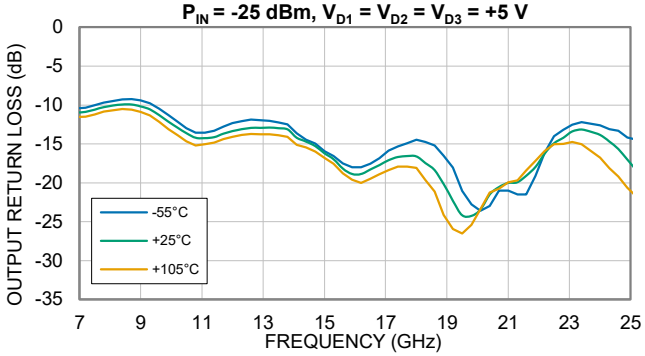
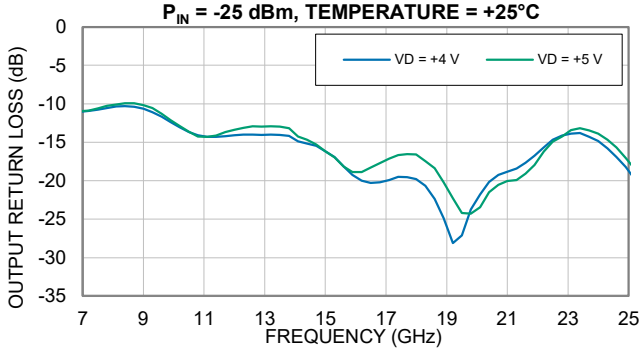
50Ω 8 to 24 GHz Wideband Amplifier

TYPICAL PERFORMANCE GRAPHS

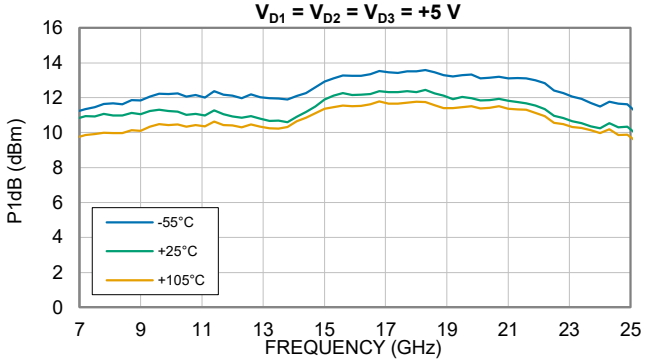
OUTPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



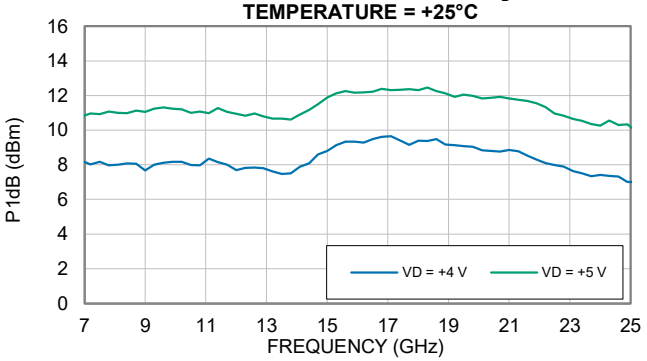
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



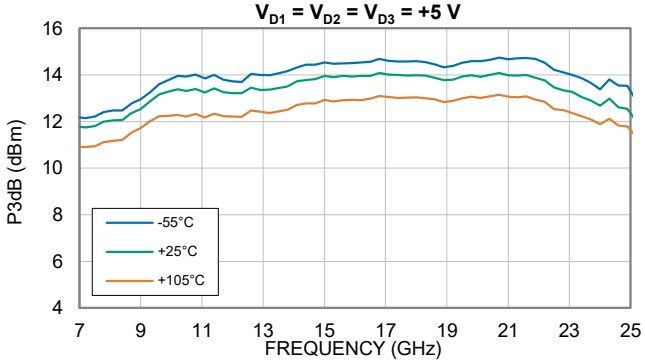
P1dB vs. TEMPERATURE
V_{D1} = V_{D2} = V_{D3} = +5 V



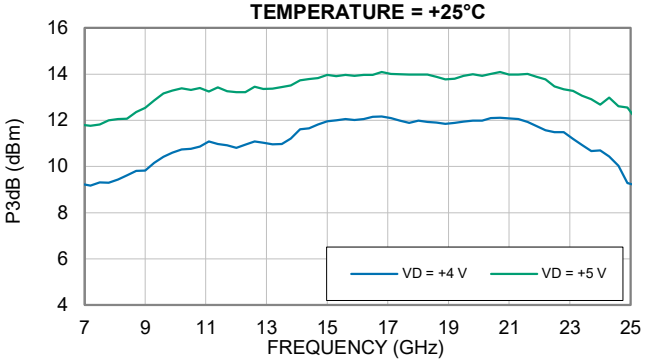
P1dB vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C



P3dB vs. TEMPERATURE
V_{D1} = V_{D2} = V_{D3} = +5 V



P3dB vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C



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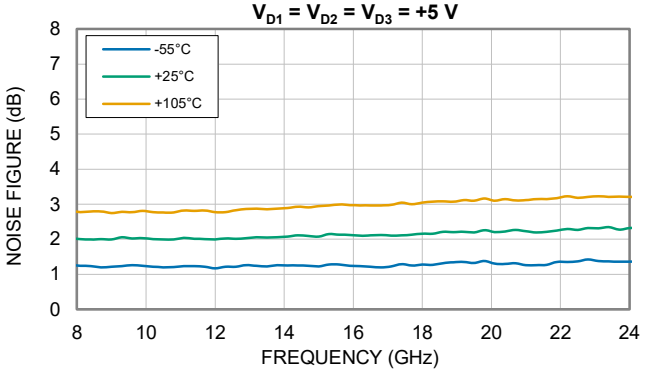
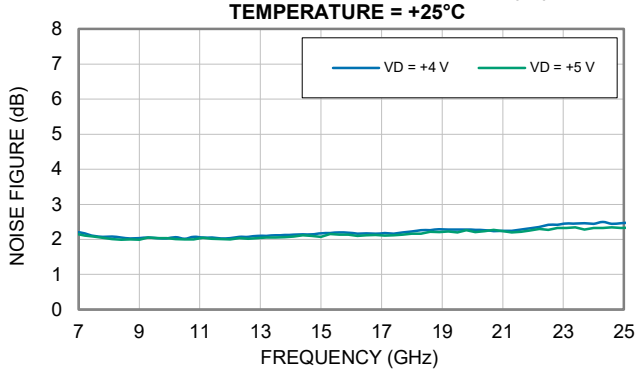
50Ω 8 to 24 GHz Wideband Amplifier

TYPICAL PERFORMANCE GRAPHS

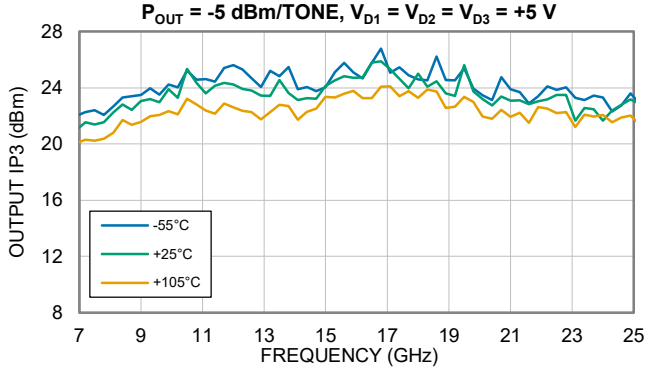
NOISE FIGURE vs. TEMPERATURE
$V_{D1} = V_{D2} = V_{D3} = +5$ V



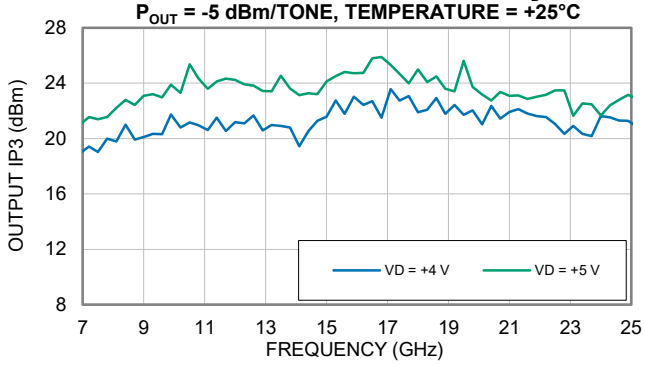
NOISE FIGURE vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C



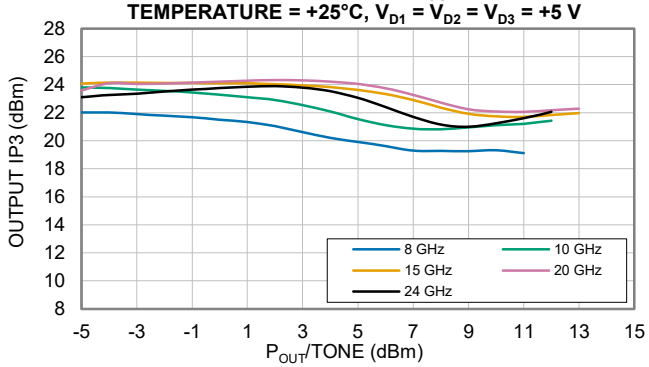
OUTPUT IP3 vs. TEMPERATURE
P_{OUT} = -5 dBm/TONE, $V_{D1} = V_{D2} = V_{D3} = +5$ V



OUTPUT IP3 vs. DEVICE VOLTAGE (V_D)
P_{OUT} = -5 dBm/TONE, TEMPERATURE = +25°C



OUTPUT IP3 vs. P_{OUT}
TEMPERATURE = +25°C, $V_{D1} = V_{D2} = V_{D3} = +5$ V



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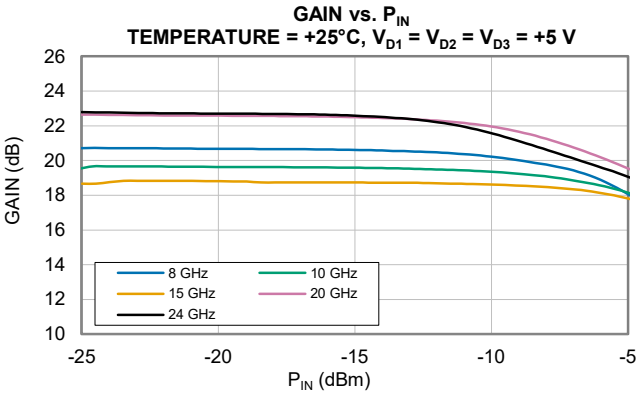

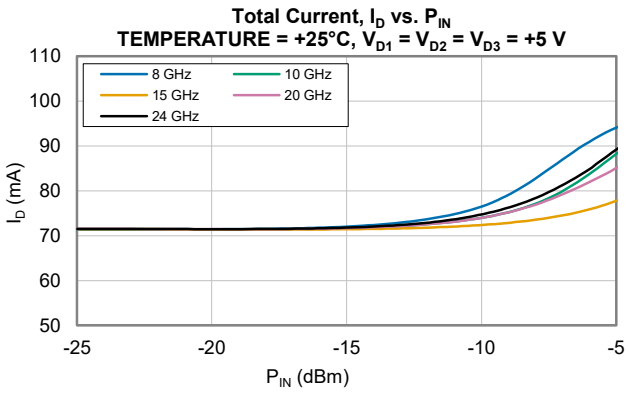

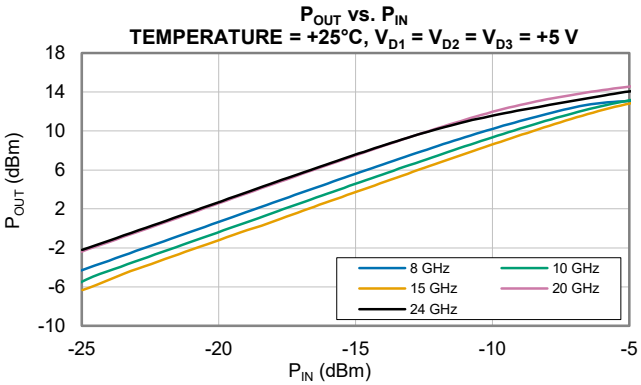

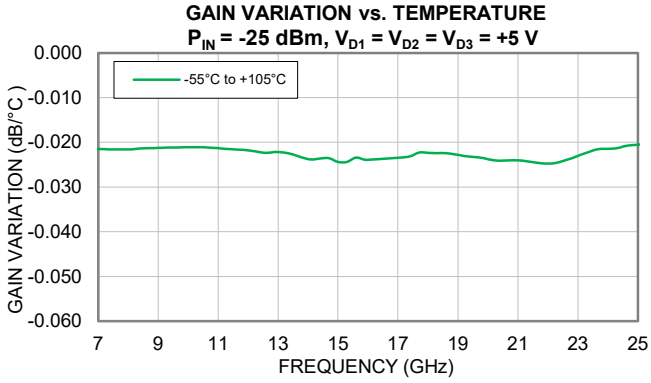

ABSOLUTE MAXIMUM RATINGS[7]

Parameter	Ratings
Operating Temperature	-55°C to +105°C
Storage Temperature	-65°C to +150°C
Junction Temperature[8]	+175°C
Total Power Dissipation	0.66 W
Input Power (CW), V_D = +5 V	+24 dBm
DC Voltage on RF-OUT	+7.3 V
DC Voltage on RF-IN	+2.4 V
DC Drain Voltage on V_D[9]	+13.8 V
DC Drain Current on I_{D1}	106 mA
DC Drain Current on I_{D2}	102 mA
DC Drain Current on I_{D3}	97 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.
9. $V_D = V_{D1} = V_{D2} = V_{D3}$

THERMAL RESISTANCE

Parameter	Ratings
Thermal Resistance (Θ_{JC})[10]	67.7°C/W

10. Θ_{JC} = (Hot Spot Temperature on Die - Temperature at Ground Lead) / Dissipated Power

ESD RATING

	Class	Voltage Range	Reference Standard
HBM	1B	500 V to < 750 V	ANSI/ESDA/JEDEC JS-001-2023
CDM	C2	750 V to < 1000 V	ANSI/ESDA/JEDEC JS-002-2022

ESD HANDLING PRECAUTION: This device is designed to be Class 1B 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: MSL3 in accordance with IPC/JEDEC J-STD-020D /JEDEC J-STD-033C

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FUNCTIONAL DIAGRAM (TOP VIEW)

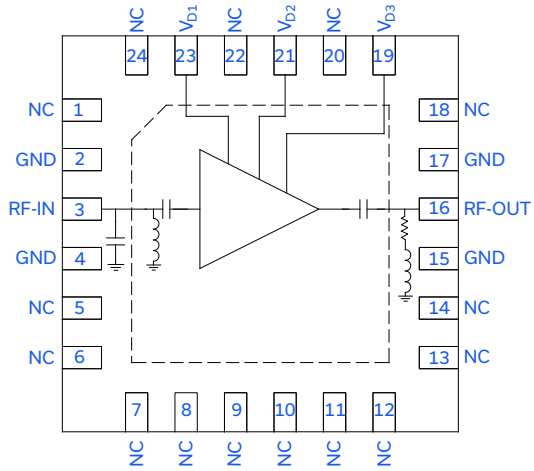

Figure 1. PMA4-8243LN+ Functional Diagram

PAD DESCRIPTION

Function	Pad Number	Description (Refer to Figure 2)
RF-IN	3	RF-IN pad connects to RF-Input port.
RF-OUT	16	RF-OUT pad connects to RF-Output port.
V_{D1}	23	DC Input pad connects to voltage input port, V_{D1}.
V_{D2}	21	DC Input pad connects to voltage input port, V_{D2}.
V_{D3}	19	DC Input pad connects to voltage input port, V_{D3}.
GND	2, 4, 15, 17, & Paddle	Connects to ground.
NC	1, 5-14, 18, 20, 22, & 24	Not used internally. Connected to ground on test board.

CHARACTERIZATION TEST BOARD

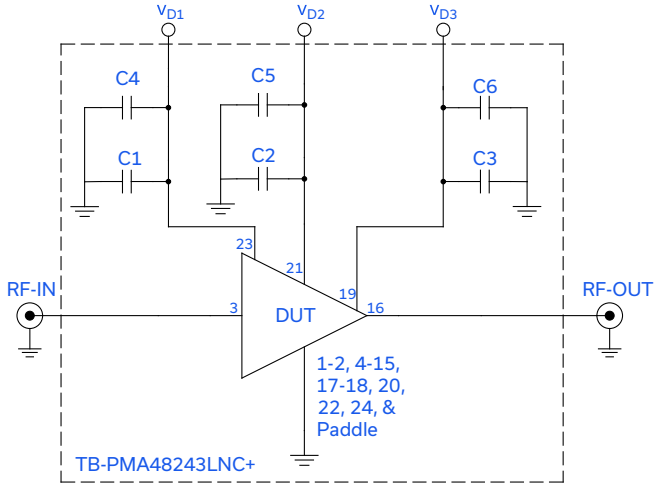

Figure 2. PMA4-8243LN+ Characterization and Application Circuit

Electrical Parameters and Conditions
Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3), and Noise Figure measured using N5247B 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:
PMA4-8243LN+ is not sensitive to power ON/OFF sequence. V_{D1}, V_{D2}, and V_{D3} can be applied in any order. All three voltage lines may be tied together and applied simultaneously.

Component	Value	Size	Part Number	Manufacturer
C1, C2, C3	100 pF	0402	GRM1555C1H101JA01D	Murata
C4, C5, C6	0.1 µF	0603	GCM188R71E104JA57D	Murata

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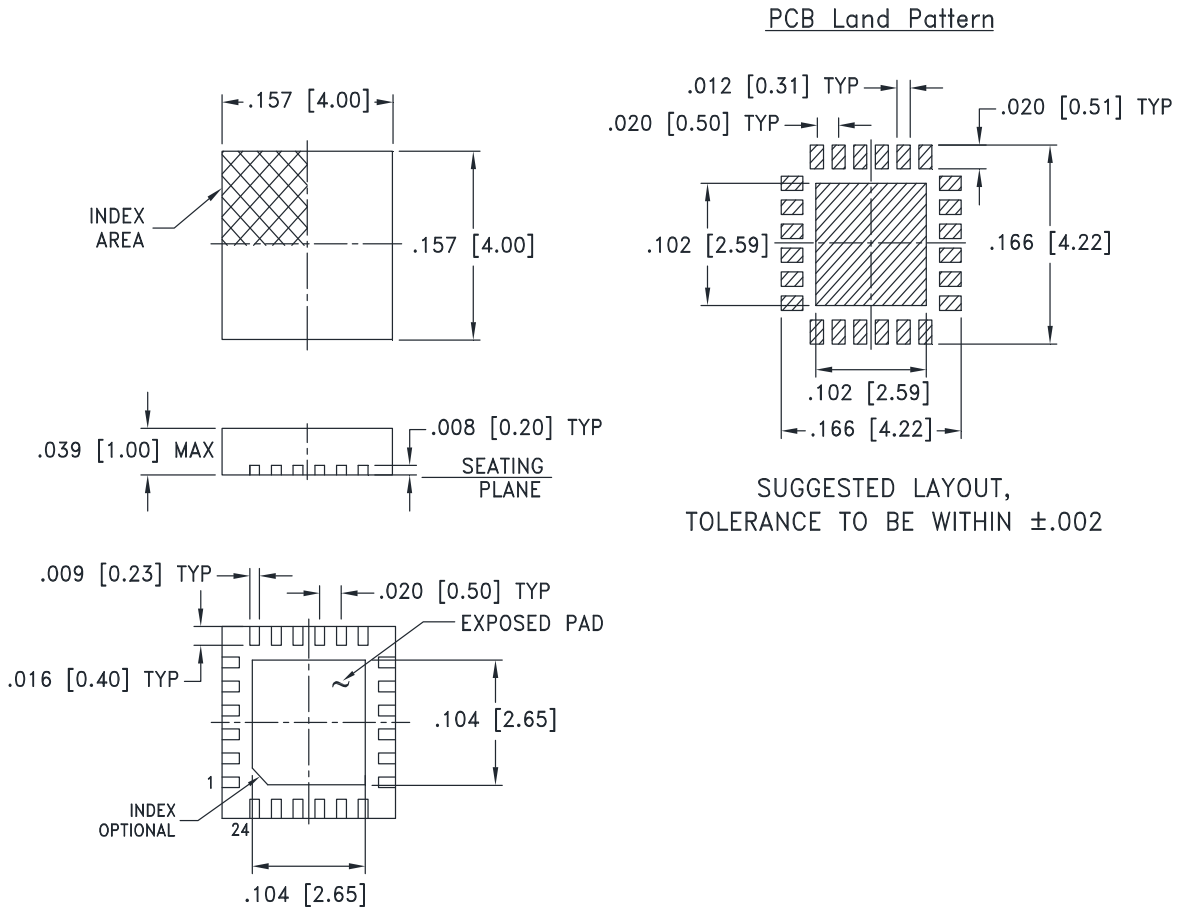
50Ω 8 to 24 GHz Wideband Amplifier

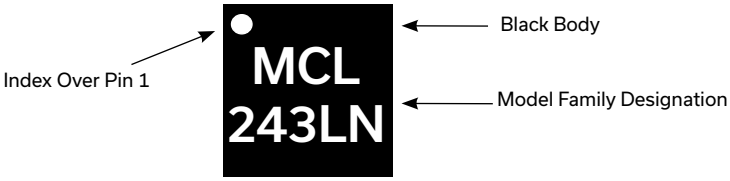
CASE STYLE DRAWING



Weight: .04 Grams

Dimensions are in inches [mm]. Tolerances in inches: 2 Pl. ± .01; 3 Pl. ± .005 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	DG1847 Plastic package, exposed paddle, Lead Finish: Matte-Tin
RoHS Status	Compliant
Tape & Reel **Standard Quantities Available on Reel**	F68 7" Reels with 20, 50, 100, 200, 500, or 1000 devices 13" Reels with 2000, 3000, or 4000 devices
Suggested Layout for PCB Design	PL-832
Evaluation Board	TB-PMA48243LNC+ 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: $V_{D1} = V_{D2} = V_{D3} = +4$ V, $I_{D1} = 11.1$mA, $I_{D2} = 14.7$mA, $I_{D3} = 26.8$mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	3dB Comp. Output	Noise Figure	IP-3 Output
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
6.0	22.5	-68.5	-16.5	-10.3	101.1	0.9	7.9	9.3	2.4	18.4
6.3	22.6	-66.5	-17.0	-10.7	77.8	0.9	7.9	9.2	2.3	18.2
6.6	22.7	-68.6	-16.7	-11.0	104.3	0.9	8.1	9.3	2.2	18.4
6.9	22.7	-66.7	-16.0	-11.0	78.5	0.9	8.2	9.2	2.2	18.9
7.2	22.6	-65.9	-15.4	-11.0	71.3	0.9	8.0	9.2	2.2	19.4
7.5	22.5	-65.3	-15.2	-10.7	68.0	0.9	8.2	9.3	2.1	19.0
7.8	22.4	-66.8	-15.2	-10.5	88.9	0.9	8.0	9.3	2.1	20.0
8.1	22.3	-66.3	-15.4	-10.3	79.0	0.9	8.0	9.4	2.1	19.8
8.4	22.1	-64.7	-15.2	-10.3	66.6	0.9	8.1	9.6	2.1	21.0
8.7	22.0	-62.9	-14.5	-10.4	54.3	0.9	8.1	9.8	2.0	19.9
9.0	21.8	-64.5	-13.5	-10.6	68.3	1.0	7.7	9.8	2.0	20.1
9.3	21.7	-64.6	-12.5	-11.1	68.7	1.0	8.0	10.2	2.1	20.3
9.6	21.5	-64.2	-11.6	-11.7	66.9	1.0	8.1	10.4	2.0	20.3
9.9	21.5	-65.0	-11.0	-12.4	74.3	1.0	8.2	10.6	2.0	21.7
10.2	21.4	-66.2	-10.6	-13.1	91.6	1.0	8.2	10.7	2.1	20.8
10.5	21.4	-65.3	-10.6	-13.7	78.1	1.0	8.0	10.8	2.0	21.2
10.8	21.4	-63.4	-10.7	-14.1	65.0	1.0	8.0	10.9	2.1	20.9
11.1	21.5	-63.6	-11.0	-14.3	64.3	1.0	8.4	11.1	2.1	20.6
11.4	21.5	-63.6	-11.3	-14.3	64.6	1.0	8.2	11.0	2.1	21.5
11.7	21.6	-63.3	-11.7	-14.2	62.2	1.0	8.0	10.9	2.0	20.5
12.0	21.7	-62.8	-12.0	-14.1	59.0	1.0	7.7	10.8	2.0	21.2
12.3	21.7	-61.3	-12.3	-14.0	49.4	1.0	7.8	10.9	2.1	21.1
12.6	21.7	-62.1	-12.4	-14.0	54.3	1.0	7.9	11.1	2.1	21.7
12.9	21.6	-63.0	-12.6	-14.0	61.0	1.0	7.8	11.0	2.1	20.6
13.2	21.7	-65.1	-12.3	-14.0	78.1	1.0	7.6	11.0	2.1	21.0
13.5	21.8	-65.0	-12.0	-14.1	76.5	1.0	7.5	11.0	2.1	20.9
13.8	21.8	-63.0	-11.8	-14.1	60.4	1.0	7.5	11.2	2.1	20.8
14.1	21.5	-65.2	-11.9	-14.9	81.7	1.0	7.9	11.6	2.1	19.5
14.4	21.5	-63.8	-11.5	-15.2	68.6	1.0	8.1	11.7	2.1	20.5
14.7	21.5	-64.1	-11.2	-15.5	71.3	1.0	8.6	11.8	2.1	21.3
15.0	21.6	-65.3	-11.0	-16.2	80.8	1.1	8.8	11.9	2.2	21.6
15.3	21.4	-65.2	-10.9	-16.9	83.2	1.1	9.1	12.0	2.2	22.8
15.6	21.5	-64.8	-11.0	-18.2	79.6	1.1	9.3	12.0	2.2	21.8
15.9	21.7	-65.8	-11.3	-19.2	86.7	1.1	9.3	12.0	2.2	23.0
16.2	21.7	-63.8	-11.7	-20.0	69.7	1.1	9.3	12.1	2.2	22.4
16.5	21.8	-64.5	-12.1	-20.3	75.0	1.1	9.5	12.1	2.2	22.7
16.8	21.8	-65.4	-12.5	-20.2	83.9	1.0	9.6	12.2	2.2	21.5
17.1	21.9	-67.0	-12.7	-19.9	103.4	1.0	9.7	12.1	2.2	23.6
17.4	21.9	-67.4	-12.6	-19.5	106.1	1.0	9.4	12.0	2.2	22.7
17.7	22.0	-64.2	-12.4	-19.6	76.3	1.0	9.2	11.9	2.2	23.1
18.0	22.1	-66.2	-12.1	-19.8	95.9	1.0	9.4	12.0	2.2	21.9
18.3	22.2	-65.5	-11.8	-20.6	81.2	1.1	9.4	11.9	2.3	22.1
18.6	22.3	-66.6	-11.5	-22.4	98.3	1.1	9.5	11.9	2.3	22.9
18.9	22.3	-65.2	-11.2	-24.9	77.0	1.1	9.2	11.8	2.3	21.8
19.2	22.4	-65.2	-11.1	-28.1	76.5	1.1	9.1	11.9	2.3	22.4
19.5	22.5	-68.6	-11.2	-27.1	116.7	1.1	9.1	11.9	2.3	21.7
19.8	22.5	-68.1	-11.4	-23.8	105.9	1.1	9.0	12.0	2.3	22.0
20.1	22.6	-70.5	-11.8	-21.8	141.7	1.1	8.8	12.0	2.3	21.0
20.4	22.6	-67.2	-12.3	-20.2	98.3	1.0	8.8	12.1	2.3	22.4
20.7	22.7	-68.2	-13.0	-19.3	113.3	1.0	8.8	12.1	2.2	21.4
21.0	22.7	-70.4	-13.5	-18.9	145.7	1.0	8.9	12.1	2.2	21.9
21.3	22.7	-72.8	-13.8	-18.4	201.3	1.0	8.8	12.1	2.2	22.1
21.6	22.7	-75.6	-13.7	-17.7	260.0	1.0	8.5	11.9	2.3	21.8
21.9	22.7	-72.5	-13.1	-16.7	182.7	1.0	8.3	11.8	2.3	21.6
22.2	22.6	-68.1	-12.4	-15.7	107.2	1.0	8.1	11.6	2.4	21.6
22.5	22.6	-66.1	-11.8	-14.7	85.0	1.0	8.0	11.5	2.4	21.1
22.8	22.5	-64.7	-11.3	-14.1	76.2	1.0	7.9	11.5	2.4	20.3
23.1	22.5	-62.5	-11.1	-13.9	55.1	1.0	7.6	11.2	2.5	20.9
23.4	22.5	-64.4	-11.2	-13.8	69.9	1.0	7.5	10.9	2.4	20.3
23.7	22.6	-63.3	-11.6	-14.3	62.0	1.0	7.3	10.7	2.5	20.2
24.0	22.8	-67.0	-12.1	-14.9	93.2	1.0	7.4	10.7	2.4	21.6
24.3	22.9	-65.5	-12.9	-15.8	78.0	1.0	7.4	10.4	2.5	21.5
24.6	23.0	-67.2	-13.8	-16.9	95.7	1.0	7.3	10.0	2.4	21.3
24.9	23.3	-66.7	-14.8	-18.2	89.9	1.0	7.0	9.3	2.5	21.3
25.2	23.4	-71.0	-16.1	-19.8	149.8	1.0	7.0	9.2	2.5	20.9
25.5	23.6	-70.3	-17.4	-21.9	157.7	1.0	6.8	8.9	2.5	20.5
25.8	23.7	-70.0	-18.9	-25.0	145.1	1.0	6.5	8.4	2.5	19.6
26.1	23.8	-70.8	-20.3	-28.8	166.6	1.0	6.4	8.2	2.5	20.4
26.4	23.8	-68.8	-21.0	-30.6	121.6	1.0	6.2	7.8	2.5	20.3
26.7	23.8	-62.3	-21.2	-28.7	55.7	1.0	6.2	7.6	2.6	19.2
27.0	23.7	-65.1	-20.8	-26.3	91.2	1.0	5.8	7.1	2.6	19.1

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: $V_{D1} = V_{D2} = V_{D3}$ = +5 V, I_{D1} = 23.5mA, I_{D2} = 17.3mA, I_{D3} = 39.4mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	3dB Comp. Output	Noise Figure	IP-3 Output
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
6.0	24.1	-64.9	-20.0	-10.1	53.5	0.9	10.6	12.1	2.2	20.1
6.3	24.2	-63.9	-20.1	-10.6	47.9	0.9	10.6	12.0	2.2	20.8
6.6	24.2	-65.7	-19.1	-10.9	58.9	0.9	10.8	12.0	2.2	20.8
6.9	24.2	-67.1	-17.7	-11.0	70.1	0.9	10.8	11.8	2.2	21.0
7.2	24.2	-66.9	-16.8	-10.9	67.3	0.9	11.0	11.8	2.1	21.6
7.5	24.0	-66.3	-16.4	-10.6	63.4	0.9	10.9	11.8	2.1	21.4
7.8	23.9	-65.5	-16.7	-10.3	58.5	0.9	11.1	12.0	2.0	21.6
8.1	23.7	-65.9	-17.2	-10.1	63.3	0.9	11.0	12.1	2.0	22.2
8.4	23.5	-68.5	-17.0	-9.9	89.4	0.9	11.0	12.1	2.0	22.8
8.7	23.3	-65.8	-16.1	-9.9	65.9	0.9	11.1	12.4	2.0	22.4
9.0	23.2	-64.2	-14.9	-10.2	54.8	0.9	11.1	12.5	2.0	23.1
9.3	23.0	-63.1	-13.6	-10.6	51.6	1.0	11.2	12.9	2.1	23.2
9.6	22.9	-66.5	-12.5	-11.3	74.1	1.0	11.3	13.2	2.0	23.0
9.9	22.8	-63.5	-11.8	-12.1	53.3	1.0	11.2	13.3	2.0	23.9
10.2	22.8	-63.4	-11.4	-12.9	53.0	1.0	11.2	13.4	2.0	23.3
10.5	22.7	-65.2	-11.3	-13.6	66.9	1.0	11.0	13.3	2.0	25.4
10.8	22.8	-66.3	-11.5	-14.2	75.2	1.0	11.1	13.4	2.0	24.3
11.1	22.8	-64.1	-11.7	-14.3	59.2	1.0	11.0	13.3	2.0	23.6
11.4	22.9	-64.9	-12.0	-14.1	64.7	1.0	11.3	13.4	2.0	24.1
11.7	23.0	-62.2	-12.4	-13.7	46.9	1.0	11.1	13.3	2.0	24.3
12.0	23.0	-60.8	-12.7	-13.4	40.1	1.0	10.9	13.2	2.0	24.2
12.3	23.0	-63.7	-12.9	-13.1	57.2	1.0	10.8	13.2	2.0	23.9
12.6	23.0	-61.2	-13.0	-12.9	41.5	1.0	11.0	13.4	2.0	23.8
12.9	23.0	-63.2	-13.3	-13.0	53.7	1.0	10.8	13.4	2.0	23.4
13.2	23.1	-64.4	-13.1	-12.9	61.0	1.0	10.7	13.4	2.1	23.4
13.5	23.2	-64.3	-12.9	-13.0	58.2	1.0	10.7	13.4	2.1	24.5
13.8	23.3	-61.2	-12.6	-13.2	40.6	1.0	10.6	13.5	2.1	23.6
14.1	23.1	-63.6	-12.8	-14.2	55.4	1.0	10.9	13.7	2.1	23.1
14.4	23.0	-65.7	-12.6	-14.7	71.7	1.0	11.2	13.8	2.1	23.3
14.7	23.1	-62.1	-12.2	-15.3	47.1	1.0	11.5	13.8	2.1	23.2
15.0	23.1	-62.7	-11.9	-16.2	49.9	1.0	11.9	14.0	2.1	24.1
15.3	23.0	-62.0	-11.7	-17.0	48.4	1.0	12.1	13.9	2.2	24.5
15.6	23.0	-63.7	-11.6	-18.2	57.7	1.1	12.3	14.0	2.1	24.8
15.9	23.2	-64.6	-11.7	-18.9	63.1	1.1	12.2	13.9	2.1	24.7
16.2	23.3	-62.9	-12.0	-18.9	52.5	1.0	12.2	14.0	2.1	24.7
16.5	23.3	-67.0	-12.4	-18.3	83.5	1.0	12.2	14.0	2.1	25.8
16.8	23.3	-65.3	-12.8	-17.7	67.9	1.0	12.4	14.1	2.1	25.9
17.1	23.4	-65.3	-13.2	-17.1	70.5	1.0	12.3	14.0	2.1	25.3
17.4	23.4	-63.8	-13.5	-16.7	57.4	1.0	12.3	14.0	2.1	24.7
17.7	23.5	-62.7	-13.5	-16.6	51.5	1.0	12.4	14.0	2.1	24.0
18.0	23.6	-67.5	-13.3	-16.6	100.3	1.0	12.3	14.0	2.2	25.0
18.3	23.7	-65.9	-13.1	-17.5	73.1	1.0	12.5	14.0	2.2	24.1
18.6	23.8	-65.7	-12.5	-18.4	70.9	1.0	12.3	13.9	2.2	24.5
18.9	23.9	-63.8	-12.3	-20.2	62.3	1.0	12.1	13.8	2.2	23.6
19.2	24.0	-66.5	-12.1	-22.3	96.2	1.1	11.9	13.8	2.2	23.4
19.5	24.1	-65.9	-12.3	-24.2	69.1	1.1	12.0	13.9	2.2	25.6
19.8	24.1	-70.8	-12.5	-24.3	124.1	1.1	12.0	14.0	2.3	23.7
20.1	24.2	-69.2	-12.8	-23.5	101.7	1.0	11.8	13.9	2.2	23.2
20.4	24.2	-71.6	-13.4	-21.5	132.6	1.0	11.9	14.0	2.2	22.7
20.7	24.3	-69.6	-13.9	-20.5	107.8	1.0	11.9	14.1	2.3	23.4
21.0	24.3	-74.9	-14.6	-20.0	210.7	1.0	11.8	14.0	2.2	23.1
21.3	24.3	-74.4	-14.9	-19.9	246.1	1.0	11.8	14.0	2.2	23.1
21.6	24.3	-77.1	-14.7	-19.1	295.2	1.0	11.7	14.0	2.2	22.9
21.9	24.3	-69.2	-14.1	-17.9	103.6	1.0	11.6	13.9	2.3	23.0
22.2	24.2	-70.8	-13.4	-16.2	130.7	1.0	11.3	13.8	2.3	23.2
22.5	24.1	-63.7	-12.8	-14.9	57.2	1.0	11.0	13.5	2.3	23.5
22.8	24.0	-63.2	-12.3	-14.2	51.5	1.0	10.8	13.3	2.3	23.5
23.1	24.0	-63.2	-12.1	-13.4	50.5	1.0	10.7	13.3	2.3	21.6
23.4	24.0	-64.0	-12.1	-13.2	59.7	1.0	10.5	13.1	2.3	22.5
23.7	24.1	-63.4	-12.4	-13.4	51.5	1.0	10.4	12.9	2.3	22.5
24.0	24.2	-62.3	-13.0	-13.9	45.8	1.0	10.3	12.7	2.3	21.7
24.3	24.4	-68.2	-14.0	-14.7	89.9	1.0	10.6	13.0	2.3	22.4
24.6	24.5	-66.7	-14.9	-15.7	87.1	1.0	10.3	12.6	2.3	22.8
24.9	24.8	-69.9	-16.0	-17.1	117.7	1.0	10.3	12.6	2.3	23.2
25.2	25.0	-67.8	-17.4	-18.5	84.3	1.0	9.9	12.0	2.3	22.9
25.5	25.2	-69.8	-18.9	-20.3	135.4	1.0	9.6	11.6	2.3	22.4
25.8	25.4	-77.7	-20.5	-21.5	268.9	1.0	9.7	11.6	2.3	23.7
26.1	25.6	-72.2	-21.9	-23.3	137.0	1.0	9.4	11.2	2.3	23.9
26.4	25.6	-72.9	-22.9	-25.2	201.2	1.0	9.5	11.3	2.4	23.8
26.7	25.8	-61.1	-22.9	-26.8	37.4	1.0	8.9	10.6	2.3	23.1
27.0	25.9	-65.1	-22.7	-27.4	62.6	1.0	9.4	11.0	2.5	23.2

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: $V_{D1} = V_{D2} = V_{D3} = +5$ V, $I_{D1} = 21.1$mA, $I_{D2} = 15.3$mA, $I_{D3} = 36.2$mA @ Temperature = -55°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	3dB Comp. Output	Noise Figure	IP-3 Output
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
6.0	25.9	-64.5	-22.8	-9.8	41.0	0.9	10.9	12.5	1.4	20.8
6.3	26.0	-69.2	-22.0	-10.2	78.2	0.9	11.0	12.4	1.5	21.4
6.6	26.0	-67.2	-19.9	-10.5	55.6	0.9	11.2	12.4	1.4	21.2
6.9	26.0	-65.2	-17.9	-10.5	43.9	0.9	11.2	12.2	1.4	22.0
7.2	25.9	-68.3	-16.8	-10.3	62.9	0.9	11.4	12.1	1.3	22.3
7.5	25.8	-66.2	-16.5	-10.1	49.8	0.9	11.5	12.2	1.3	22.4
7.8	25.7	-66.1	-16.8	-9.7	49.3	0.9	11.6	12.4	1.3	22.1
8.1	25.5	-66.0	-17.9	-9.5	50.5	0.9	11.7	12.5	1.2	22.7
8.4	25.3	-66.9	-18.4	-9.3	57.3	0.9	11.6	12.5	1.2	23.3
8.7	25.1	-65.7	-17.7	-9.3	51.4	0.9	11.9	12.8	1.2	23.4
9.0	25.0	-64.9	-16.2	-9.4	47.5	0.9	11.9	13.0	1.2	23.5
9.3	24.8	-66.1	-14.6	-9.8	54.9	0.9	12.1	13.3	1.2	24.0
9.6	24.7	-74.5	-13.2	-10.5	238.5	1.0	12.2	13.6	1.3	23.5
9.9	24.6	-63.3	-12.3	-11.3	41.7	1.0	12.2	13.8	1.2	24.2
10.2	24.5	-66.1	-11.8	-12.2	58.1	1.0	12.3	14.0	1.2	24.0
10.5	24.5	-63.2	-11.7	-13.0	41.6	1.0	12.1	13.9	1.2	25.2
10.8	24.6	-65.3	-11.9	-13.6	53.5	1.0	12.2	14.0	1.2	24.6
11.1	24.6	-63.1	-12.3	-13.6	42.6	1.0	12.0	13.9	1.2	24.6
11.4	24.7	-63.2	-12.8	-13.3	42.5	1.0	12.4	14.0	1.2	24.5
11.7	24.8	-64.5	-13.4	-12.8	49.0	1.0	12.2	13.8	1.2	25.4
12.0	24.8	-61.7	-13.9	-12.4	35.2	1.0	12.1	13.7	1.2	25.6
12.3	24.9	-61.2	-14.1	-12.1	32.7	1.0	12.0	13.7	1.2	25.3
12.6	24.9	-62.5	-14.1	-11.9	38.7	1.0	12.2	14.0	1.2	24.7
12.9	24.9	-63.2	-14.2	-12.0	42.0	1.0	12.0	14.0	1.3	24.1
13.2	25.0	-65.9	-13.9	-12.0	56.8	1.0	12.0	14.0	1.2	25.2
13.5	25.1	-64.2	-13.3	-12.2	45.8	1.0	11.9	14.1	1.2	24.8
13.8	25.2	-60.5	-12.7	-12.5	28.9	1.0	11.9	14.2	1.3	25.5
14.1	25.1	-61.6	-12.7	-13.6	34.0	1.0	12.1	14.3	1.3	23.9
14.4	24.9	-70.6	-12.8	-14.5	98.5	1.0	12.3	14.4	1.3	24.0
14.7	25.0	-60.7	-12.4	-15.0	31.4	1.0	12.6	14.4	1.2	23.8
15.0	25.2	-61.8	-12.2	-16.0	34.9	1.0	12.9	14.5	1.2	24.0
15.3	25.0	-61.7	-12.2	-16.5	35.2	1.0	13.1	14.5	1.3	25.1
15.6	24.9	-65.1	-12.3	-17.5	56.4	1.0	13.3	14.5	1.3	25.8
15.9	25.2	-68.1	-12.5	-18.0	76.1	1.0	13.3	14.5	1.2	25.1
16.2	25.2	-62.1	-12.7	-18.0	37.8	1.0	13.2	14.5	1.2	24.7
16.5	25.2	-64.2	-13.2	-17.5	47.3	1.0	13.4	14.6	1.2	25.8
16.8	25.3	-61.7	-13.8	-16.9	37.2	1.0	13.5	14.7	1.2	26.8
17.1	25.3	-64.4	-14.4	-15.9	51.1	1.0	13.5	14.6	1.2	25.1
17.4	25.3	-63.6	-14.6	-15.4	44.2	1.0	13.4	14.6	1.3	25.5
17.7	25.3	-64.1	-14.7	-15.0	47.5	1.0	13.5	14.6	1.3	24.9
18.0	25.4	-62.9	-14.2	-14.4	39.5	1.0	13.5	14.6	1.3	24.6
18.3	25.5	-62.1	-13.6	-14.8	36.1	1.0	13.6	14.5	1.3	24.5
18.6	25.6	-68.5	-12.6	-15.2	72.7	1.0	13.4	14.4	1.3	26.2
18.9	25.8	-63.6	-12.0	-16.5	41.6	1.0	13.3	14.3	1.3	24.6
19.2	25.9	-66.2	-11.7	-18.0	56.3	1.0	13.2	14.4	1.4	24.5
19.5	26.0	-69.1	-11.8	-21.0	81.9	1.1	13.3	14.5	1.3	25.4
19.8	26.0	-63.2	-12.0	-22.8	38.9	1.1	13.3	14.6	1.4	23.9
20.1	26.1	-69.1	-12.6	-23.6	77.8	1.0	13.1	14.6	1.3	23.5
20.4	26.2	-64.1	-13.6	-23.0	43.4	1.0	13.1	14.6	1.3	23.1
20.7	26.2	-67.9	-14.4	-21.0	67.2	1.0	13.2	14.7	1.3	24.8
21.0	26.2	-70.8	-15.9	-21.0	103.1	1.0	13.1	14.7	1.3	23.9
21.3	26.3	-65.1	-17.3	-21.5	50.6	1.0	13.1	14.7	1.3	23.7
21.6	26.3	-66.5	-16.9	-21.5	58.4	1.0	13.1	14.7	1.3	22.9
21.9	26.3	-65.4	-15.9	-19.1	52.6	1.0	13.0	14.7	1.4	23.4
22.2	26.2	-69.4	-14.3	-16.1	84.9	1.0	12.8	14.5	1.4	24.1
22.5	26.1	-63.3	-13.2	-14.0	43.2	1.0	12.4	14.2	1.4	23.8
22.8	26.0	-63.1	-12.4	-13.2	38.2	1.0	12.3	14.1	1.4	24.0
23.1	25.9	-61.8	-12.1	-12.5	33.0	1.0	12.1	14.0	1.4	23.3
23.4	25.8	-63.2	-12.0	-12.2	38.6	1.0	11.9	13.9	1.4	23.1
23.7	25.9	-64.5	-12.2	-12.4	44.6	1.0	11.7	13.7	1.4	23.4
24.0	26.0	-61.5	-12.8	-12.6	31.8	1.0	11.5	13.4	1.4	23.3
24.3	26.1	-67.2	-13.3	-13.1	62.1	1.0	11.8	13.8	1.4	22.3
24.6	26.2	-62.9	-14.0	-13.3	38.3	1.0	11.6	13.6	1.4	22.7
24.9	26.4	-63.5	-14.3	-14.2	41.0	1.0	11.6	13.5	1.4	23.6
25.2	26.6	-70.6	-14.6	-14.5	89.0	1.0	11.2	12.9	1.4	22.9
25.5	26.8	-82.0	-15.5	-15.0	607.5	1.0	10.8	12.4	1.4	24.0
25.8	27.1	-66.8	-17.6	-16.1	57.1	1.0	10.9	12.4	1.4	24.2
26.1	27.3	-71.7	-20.5	-18.8	98.3	1.0	10.6	12.0	1.3	24.2
26.4	27.5	-77.5	-22.7	-21.4	281.7	1.0	10.9	12.3	1.3	23.6
26.7	27.7	-66.2	-25.4	-23.9	51.9	1.0	10.2	11.6	1.3	23.8
27.0	27.9	-72.4	-28.1	-24.9	204.3	1.0	10.9	12.1	1.4	22.5

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: $V_{D1} = V_{D2} = V_{D3} = +5$ V, $I_{D1} = 19.5$mA, $I_{D2} = 14.7$mA, $I_{D3} = 35.3$mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		1dB Comp. Output	3dB Comp. Output	Noise Figure	IP-3 Output
(GHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)	(dBm)
6.0	22.4	-66.8	-18.3	-10.5	104.1	0.9	9.4	11.2	3.0	18.9
6.3	22.5	-68.1	-18.6	-11.1	90.1	0.9	9.5	11.1	3.0	19.4
6.6	22.6	-67.6	-18.2	-11.5	74.0	0.9	9.7	11.1	2.9	19.2
6.9	22.6	-65.6	-17.2	-11.6	86.4	0.9	9.7	10.9	2.9	20.0
7.2	22.5	-67.1	-16.4	-11.5	69.1	0.9	9.9	10.9	2.8	20.3
7.5	22.4	-65.1	-16.1	-11.2	81.9	0.9	9.9	10.9	2.8	20.2
7.8	22.2	-66.5	-16.3	-10.9	86.5	0.9	10.0	11.1	2.8	20.4
8.1	22.1	-66.4	-16.6	-10.7	79.7	0.9	10.0	11.2	2.8	20.8
8.4	21.9	-65.9	-16.2	-10.5	60.3	0.9	10.0	11.2	2.8	21.7
8.7	21.7	-63.3	-15.3	-10.6	60.6	0.9	10.1	11.5	2.8	21.4
9.0	21.6	-63.1	-14.1	-10.9	69.8	1.0	10.1	11.7	2.8	21.6
9.3	21.4	-63.9	-13.0	-11.4	80.2	1.0	10.3	12.0	2.8	22.0
9.6	21.3	-65.4	-12.0	-12.2	62.8	1.0	10.5	12.2	2.8	22.1
9.9	21.2	-63.0	-11.4	-13.1	59.8	1.0	10.4	12.2	2.8	22.3
10.2	21.2	-62.7	-11.1	-13.9	60.7	1.0	10.5	12.3	2.8	22.1
10.5	21.1	-62.7	-11.1	-14.7	65.1	1.0	10.3	12.2	2.8	23.2
10.8	21.2	-63.1	-11.3	-15.2	95.7	1.0	10.4	12.3	2.8	22.8
11.1	21.2	-66.5	-11.6	-15.0	63.6	1.0	10.4	12.2	2.8	22.4
11.4	21.3	-63.0	-11.8	-14.9	77.1	1.0	10.6	12.3	2.8	22.2
11.7	21.3	-64.5	-12.0	-14.4	47.6	1.0	10.4	12.2	2.8	22.9
12.0	21.3	-60.5	-12.3	-14.1	68.3	1.0	10.4	12.2	2.8	22.6
12.3	21.3	-63.6	-12.4	-13.9	78.3	1.0	10.3	12.2	2.8	22.4
12.6	21.3	-64.8	-12.5	-13.7	104.1	1.0	10.5	12.5	2.8	22.3
12.9	21.3	-66.9	-12.6	-13.8	112.6	1.0	10.3	12.4	2.9	21.8
13.2	21.4	-67.7	-12.5	-13.8	100.1	1.0	10.3	12.4	2.9	22.3
13.5	21.4	-66.9	-12.4	-13.9	64.5	1.0	10.2	12.4	2.9	22.8
13.8	21.4	-62.4	-12.3	-14.1	65.2	1.0	10.3	12.5	2.9	22.7
14.1	21.3	-63.0	-12.5	-15.1	66.3	1.0	10.6	12.7	2.9	21.7
14.4	21.2	-63.0	-12.3	-15.4	60.3	1.0	10.8	12.8	2.9	22.3
14.7	21.3	-62.3	-12.0	-16.0	72.0	1.0	11.1	12.8	2.9	22.5
15.0	21.3	-63.8	-11.8	-16.8	77.8	1.0	11.4	12.9	2.9	23.4
15.3	21.1	-64.3	-11.6	-17.6	84.1	1.1	11.5	12.9	3.0	23.3
15.6	21.2	-64.9	-11.4	-18.8	60.9	1.1	11.6	12.9	3.0	23.6
15.9	21.4	-62.3	-11.4	-19.6	64.7	1.1	11.5	12.9	3.0	23.8
16.2	21.4	-62.8	-11.6	-20.0	54.4	1.1	11.5	12.9	3.0	23.3
16.5	21.5	-61.3	-12.0	-19.5	73.1	1.1	11.6	13.0	3.0	23.3
16.8	21.5	-63.8	-12.4	-18.9	102.1	1.0	11.8	13.1	3.0	24.1
17.1	21.6	-66.6	-12.8	-18.4	66.9	1.0	11.7	13.1	3.0	24.1
17.4	21.6	-63.1	-13.1	-17.9	70.1	1.0	11.7	13.0	3.0	23.4
17.7	21.7	-62.6	-13.2	-17.9	64.8	1.0	11.7	13.0	3.0	23.8
18.0	21.8	-62.9	-13.1	-18.1	138.9	1.0	11.8	13.0	3.0	23.3
18.3	22.0	-67.7	-12.8	-19.6	82.9	1.0	11.7	13.0	3.1	23.9
18.6	22.1	-65.3	-12.3	-21.2	57.4	1.0	11.6	13.0	3.1	23.8
18.9	22.1	-62.1	-12.1	-24.2	121.2	1.1	11.4	12.8	3.1	22.6
19.2	22.2	-67.9	-12.0	-26.0	82.0	1.1	11.4	12.9	3.1	22.7
19.5	22.3	-65.2	-12.2	-26.5	124.3	1.1	11.5	13.0	3.1	23.3
19.8	22.3	-67.2	-12.5	-25.4	117.2	1.1	11.5	13.1	3.2	23.0
20.1	22.3	-68.0	-12.9	-23.4	167.1	1.0	11.4	13.0	3.1	22.0
20.4	22.4	-71.2	-13.6	-21.3	81.9	1.0	11.4	13.1	3.1	21.8
20.7	22.4	-65.3	-14.0	-20.8	1140.1	1.0	11.5	13.1	3.1	22.4
21.0	22.4	-78.3	-14.6	-19.9	203.2	1.0	11.4	13.1	3.1	21.9
21.3	22.4	-71.6	-14.6	-19.7	278.0	1.0	11.3	13.0	3.2	22.2
21.6	22.4	-71.3	-13.9	-18.4	55.4	1.0	11.3	13.1	3.1	21.5
21.9	22.4	-61.9	-13.3	-17.2	117.6	1.0	11.1	12.9	3.2	22.6
22.2	22.3	-66.6	-12.7	-15.9	88.7	1.0	11.0	12.8	3.2	22.5
22.5	22.2	-66.0	-12.4	-15.0	77.5	1.0	10.6	12.5	3.2	22.2
22.8	22.2	-63.8	-12.3	-15.0	86.1	1.0	10.5	12.5	3.2	22.3
23.1	22.2	-65.5	-12.4	-14.8	59.1	1.0	10.3	12.4	3.2	21.2
23.4	22.3	-62.5	-12.8	-15.0	68.5	1.0	10.3	12.2	3.2	22.1
23.7	22.4	-63.1	-13.6	-15.9	73.5	1.0	10.1	12.1	3.2	22.0
24.0	22.6	-64.3	-14.5	-16.8	107.4	1.0	10.0	11.9	3.2	22.1
24.3	22.7	-67.7	-15.6	-18.1	107.7	1.0	10.2	12.1	3.2	21.5
24.6	22.9	-67.3	-16.5	-19.2	79.6	1.0	9.9	11.8	3.3	21.9
24.9	23.1	-65.2	-17.4	-20.6	117.2	1.0	9.9	11.8	3.2	22.0
25.2	23.3	-68.5	-18.5	-21.8	113.8	1.0	9.5	11.3	3.3	21.4
25.5	23.5	-68.5	-19.6	-23.8	79.1	1.0	9.3	11.0	3.3	22.1
25.8	23.6	-65.0	-21.1	-25.4	87.8	1.0	9.3	11.0	3.3	22.4
26.1	23.7	-66.3	-22.2	-28.3	82.0	1.0	9.0	10.6	3.3	22.6
26.4	23.7	-65.0	-22.8	-29.8	54.1	1.0	9.0	10.6	3.4	22.3
26.7	23.8	-61.9	-22.6	-27.5	34.2	1.0	8.4	9.9	3.4	22.7
27.0	23.8	-58.0	-21.9	-25.2		1.0	8.6	10.2	3.4	21.3

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: $V_{D1} = V_{D2} = V_{D3}$ = +5 V @ Temperature = +25°C

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
8GHz		10GHz		15GHz		20GHz		24GHz	
-25.0	20.7	-25.1	19.5	-25.0	18.7	-25.0	22.6	-25.0	22.8
-24.5	20.7	-24.6	19.7	-24.5	18.7	-24.5	22.6	-24.5	22.8
-24.0	20.7	-24.1	19.7	-24.0	18.7	-24.0	22.6	-24.0	22.8
-23.5	20.7	-23.6	19.7	-23.5	18.8	-23.5	22.6	-23.5	22.8
-23.0	20.7	-23.1	19.7	-23.0	18.8	-23.0	22.6	-22.9	22.7
-22.5	20.7	-22.6	19.7	-22.5	18.8	-22.5	22.6	-22.4	22.7
-22.0	20.7	-22.1	19.7	-22.0	18.8	-22.0	22.6	-21.9	22.7
-21.5	20.7	-21.6	19.6	-21.5	18.8	-21.5	22.6	-21.4	22.7
-21.0	20.7	-21.1	19.6	-21.0	18.8	-21.0	22.6	-20.9	22.7
-20.5	20.7	-20.6	19.6	-20.5	18.8	-20.5	22.6	-20.4	22.7
-20.0	20.7	-20.1	19.6	-20.0	18.8	-20.0	22.6	-19.9	22.7
-19.5	20.7	-19.6	19.6	-19.5	18.8	-19.5	22.6	-19.4	22.7
-19.0	20.7	-19.1	19.6	-19.0	18.8	-19.0	22.6	-18.9	22.7
-18.5	20.7	-18.5	19.6	-18.4	18.7	-18.5	22.6	-18.4	22.7
-18.0	20.7	-18.0	19.6	-17.9	18.7	-18.0	22.6	-17.9	22.7
-17.6	20.7	-17.6	19.6	-17.5	18.7	-17.6	22.6	-17.5	22.7
-17.2	20.7	-17.2	19.6	-17.1	18.7	-17.2	22.6	-17.1	22.7
-16.8	20.6	-16.8	19.6	-16.7	18.7	-16.8	22.5	-16.7	22.7
-16.4	20.6	-16.4	19.6	-16.3	18.7	-16.4	22.5	-16.3	22.6
-16.0	20.6	-16.0	19.6	-15.9	18.7	-16.0	22.5	-15.9	22.6
-15.6	20.6	-15.6	19.6	-15.5	18.7	-15.6	22.5	-15.5	22.6
-15.2	20.6	-15.2	19.6	-15.1	18.7	-15.2	22.5	-15.1	22.6
-14.8	20.6	-14.8	19.6	-14.7	18.7	-14.8	22.5	-14.7	22.6
-14.4	20.6	-14.4	19.6	-14.3	18.7	-14.4	22.5	-14.3	22.5
-14.0	20.6	-14.0	19.6	-13.9	18.7	-14.0	22.4	-13.9	22.5
-13.6	20.6	-13.6	19.6	-13.5	18.7	-13.6	22.4	-13.5	22.5
-13.2	20.5	-13.2	19.5	-13.1	18.7	-13.2	22.4	-13.1	22.4
-12.8	20.5	-12.8	19.5	-12.7	18.7	-12.8	22.4	-12.7	22.3
-12.4	20.5	-12.4	19.5	-12.3	18.7	-12.4	22.3	-12.3	22.3
-12.0	20.5	-12.0	19.5	-11.9	18.7	-12.0	22.3	-11.9	22.2
-11.6	20.4	-11.6	19.5	-11.5	18.7	-11.6	22.2	-11.5	22.1
-11.2	20.4	-11.2	19.4	-11.1	18.7	-11.2	22.2	-11.1	22.0
-10.8	20.3	-10.8	19.4	-10.7	18.6	-10.8	22.1	-10.7	21.9
-10.4	20.3	-10.4	19.4	-10.3	18.6	-10.4	22.1	-10.3	21.7
-10.0	20.2	-10.0	19.4	-9.9	18.6	-10.0	22.0	-9.9	21.5
-9.6	20.1	-9.6	19.3	-9.5	18.6	-9.6	21.9	-9.5	21.4
-9.2	20.1	-9.2	19.3	-9.1	18.6	-9.2	21.7	-9.1	21.2
-8.8	20.0	-8.8	19.2	-8.7	18.5	-8.8	21.6	-8.7	21.0
-8.4	19.9	-8.5	19.2	-8.3	18.5	-8.4	21.4	-8.3	20.8
-8.0	19.8	-8.1	19.1	-7.9	18.5	-8.0	21.2	-7.9	20.6
-7.6	19.6	-7.7	19.0	-7.5	18.4	-7.6	21.1	-7.5	20.4
-7.2	19.5	-7.3	18.9	-7.1	18.4	-7.2	20.8	-7.1	20.2
-6.8	19.3	-6.9	18.8	-6.7	18.3	-6.8	20.6	-6.7	20.0
-6.4	19.1	-6.5	18.7	-6.3	18.2	-6.4	20.4	-6.3	19.8
-6.0	18.9	-6.1	18.6	-5.9	18.1	-6.0	20.2	-5.9	19.6
-5.6	18.6	-5.7	18.4	-5.5	18.0	-5.6	19.9	-5.6	19.4
-5.2	18.2	-5.2	18.3	-5.1	17.9	-5.2	19.7	-5.2	19.2
-4.8	17.9	-4.8	18.1	-4.7	17.7	-4.8	19.4	-4.8	18.9
-4.4	17.5	-4.4	17.9	-4.3	17.5	-4.4	19.1	-4.4	18.7
-4.0	17.0	-4.0	17.6	-3.9	17.3	-4.0	18.8	-4.0	18.4
-3.6	16.6	-3.6	17.4	-3.5	17.1	-3.6	18.5	-3.6	18.6
-3.2	16.2	-3.2	17.1	-3.1	16.9	-3.2	18.7	-3.2	18.3
-2.8	16.2	-2.8	16.8	-2.7	16.7	-2.8	18.4	-2.8	18.0
-2.4	15.8	-2.4	16.5	-2.3	16.4	-2.4	18.1	-2.4	17.7
		-2.0	16.2	-1.9	16.2				
		-1.6	15.9	-1.5	15.9				
		-1.3	15.5	-1.1	15.7				
		-0.9	15.2	-0.7	15.4				
		-0.5	14.8	-0.3	15.0				

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: $V_{D1} = V_{D2} = V_{D3}$ = +5 V @ Temperature = +25°C

P_{IN}	Total I_{DD}	P_{IN}	Total I_{DD}	P_{IN}	Total I_{DD}	P_{IN}	Total I_{DD}	P_{IN}	Total I_{DD}
dBm	mA	dBm	mA	dBm	mA	dBm	mA	dBm	mA
8GHz		10GHz		15GHz		20GHz		24GHz	
-25.0	71.4	-25.1	71.4	-25.0	71.4	-25.0	71.5	-25.0	71.5
-24.5	71.4	-24.6	71.4	-24.5	71.4	-24.5	71.5	-24.5	71.5
-24.0	71.4	-24.1	71.4	-24.0	71.4	-24.0	71.5	-24.0	71.5
-23.5	71.4	-23.6	71.4	-23.5	71.4	-23.5	71.5	-23.5	71.5
-23.0	71.4	-23.1	71.4	-23.0	71.4	-23.0	71.5	-22.9	71.5
-22.5	71.4	-22.6	71.4	-22.5	71.4	-22.5	71.5	-22.4	71.5
-22.0	71.4	-22.1	71.4	-22.0	71.4	-22.0	71.5	-21.9	71.5
-21.5	71.4	-21.6	71.4	-21.5	71.4	-21.5	71.5	-21.4	71.5
-21.0	71.4	-21.1	71.4	-21.0	71.4	-21.0	71.5	-20.9	71.5
-20.5	71.4	-20.6	71.4	-20.5	71.4	-20.5	71.4	-20.4	71.5
-20.0	71.4	-20.1	71.4	-20.0	71.4	-20.0	71.5	-19.9	71.5
-19.5	71.4	-19.6	71.4	-19.5	71.4	-19.5	71.4	-19.4	71.5
-19.0	71.5	-19.1	71.4	-19.0	71.4	-19.0	71.4	-18.9	71.5
-18.5	71.5	-18.5	71.4	-18.4	71.4	-18.5	71.5	-18.4	71.5
-18.0	71.5	-18.0	71.4	-17.9	71.4	-18.0	71.5	-17.9	71.5
-17.6	71.5	-17.6	71.5	-17.5	71.4	-17.6	71.5	-17.5	71.5
-17.2	71.6	-17.2	71.5	-17.1	71.4	-17.2	71.5	-17.1	71.6
-16.8	71.6	-16.8	71.5	-16.7	71.4	-16.8	71.5	-16.7	71.6
-16.4	71.7	-16.4	71.5	-16.3	71.4	-16.4	71.5	-16.3	71.6
-16.0	71.8	-16.0	71.6	-15.9	71.4	-16.0	71.6	-15.9	71.7
-15.6	71.9	-15.6	71.6	-15.5	71.4	-15.6	71.6	-15.5	71.7
-15.2	72.0	-15.2	71.7	-15.1	71.4	-15.2	71.7	-15.1	71.8
-14.8	72.1	-14.8	71.7	-14.7	71.5	-14.8	71.7	-14.7	71.9
-14.4	72.2	-14.4	71.8	-14.3	71.5	-14.4	71.8	-14.3	72.0
-14.0	72.4	-14.0	71.9	-13.9	71.5	-14.0	71.9	-13.9	72.1
-13.6	72.6	-13.6	72.0	-13.5	71.6	-13.6	72.0	-13.5	72.2
-13.2	72.8	-13.2	72.1	-13.1	71.6	-13.2	72.1	-13.1	72.4
-12.8	73.1	-12.8	72.2	-12.7	71.7	-12.8	72.2	-12.7	72.5
-12.4	73.3	-12.4	72.4	-12.3	71.7	-12.4	72.4	-12.3	72.7
-12.0	73.7	-12.0	72.6	-11.9	71.8	-12.0	72.5	-11.9	73.0
-11.6	74.1	-11.6	72.8	-11.5	71.9	-11.6	72.8	-11.5	73.2
-11.2	74.6	-11.2	73.0	-11.1	72.0	-11.2	73.0	-11.1	73.5
-10.8	75.1	-10.8	73.3	-10.7	72.1	-10.8	73.3	-10.7	73.9
-10.4	75.7	-10.4	73.6	-10.3	72.3	-10.4	73.6	-10.3	74.3
-10.0	76.5	-10.0	74.0	-9.9	72.4	-10.0	74.0	-9.9	74.8
-9.6	77.4	-9.6	74.4	-9.5	72.6	-9.6	74.4	-9.5	75.4
-9.2	78.5	-9.2	74.9	-9.1	72.8	-9.2	74.9	-9.1	76.0
-8.8	79.8	-8.8	75.5	-8.7	73.0	-8.8	75.5	-8.7	76.8
-8.4	81.2	-8.5	76.2	-8.3	73.3	-8.4	76.2	-8.3	77.6
-8.0	82.7	-8.1	77.0	-7.9	73.6	-8.0	76.9	-7.9	78.6
-7.6	84.4	-7.7	78.0	-7.5	74.0	-7.6	77.8	-7.5	79.7
-7.2	86.1	-7.3	79.1	-7.1	74.4	-7.2	78.7	-7.1	80.9
-6.8	87.8	-6.9	80.4	-6.7	74.8	-6.8	79.8	-6.7	82.2
-6.4	89.4	-6.5	81.9	-6.3	75.4	-6.4	80.9	-6.3	83.7
-6.0	90.9	-6.1	83.5	-5.9	76.0	-6.0	82.0	-5.9	85.2
-5.6	92.3	-5.7	85.3	-5.5	76.7	-5.6	83.2	-5.6	86.8
-5.2	93.5	-5.2	87.1	-5.1	77.5	-5.2	84.5	-5.2	88.5
-4.8	94.6	-4.8	89.0	-4.7	78.4	-4.8	85.7	-4.8	90.2
-4.4	95.4	-4.4	90.9	-4.3	79.5	-4.4	87.0	-4.4	91.9
-4.0	96.0	-4.0	92.9	-3.9	80.7	-4.0	88.1	-4.0	93.5
-3.6	96.5	-3.6	94.8	-3.5	82.0	-3.6	89.3	-3.6	94.8
-3.2	96.9	-3.2	96.6	-3.1	83.4	-3.2	91.1	-3.2	96.5
-2.8	99.6	-2.8	98.5	-2.7	84.9	-2.8	92.4	-2.8	98.1
-2.4	100.0	-2.4	100.3	-2.3	86.5	-2.4	93.5	-2.4	99.6
		-2.0	102.0	-1.9	88.1				
		-1.6	103.6	-1.5	89.8				
		-1.3	105.0	-1.1	91.4				
		-0.9	106.3	-0.7	93.1				
		-0.5	107.5	-0.3	94.8				

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: $V_{D1} = V_{D2} = V_{D3} = +5$ V @ Temperature = +25°C

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
8GHz		10GHz		15GHz		20GHz		24GHz	
-5.0	22.0	-5.0	23.8	-5.0	24.1	-5.0	23.6	-5.0	23.1
-4.0	22.0	-4.0	23.8	-4.0	24.2	-4.0	24.1	-4.0	23.3
-3.0	21.9	-3.0	23.6	-3.0	24.1	-3.0	24.1	-3.0	23.4
-2.0	21.8	-2.0	23.6	-2.0	24.1	-2.0	24.1	-2.0	23.5
-1.0	21.7	-1.0	23.4	-1.0	24.1	-1.0	24.2	-1.0	23.6
0.0	21.5	0.0	23.3	0.0	24.1	0.0	24.2	0.0	23.8
1.0	21.3	1.0	23.1	1.0	24.1	1.0	24.3	1.0	23.9
2.0	21.0	2.0	22.9	2.0	24.0	2.0	24.3	2.0	23.9
3.0	20.6	3.0	22.6	3.0	24.0	3.0	24.3	3.0	23.8
4.0	20.2	4.0	22.1	4.0	23.8	4.0	24.2	4.0	23.5
5.0	19.9	5.0	21.5	5.0	23.6	5.0	24.1	5.0	23.1
6.0	19.6	6.0	21.1	6.0	23.3	6.0	23.8	6.0	22.4
7.0	19.3	7.0	20.9	7.0	22.9	7.0	23.3	7.0	21.7
8.0	19.3	8.0	20.8	8.0	22.4	8.0	22.7	8.0	21.2
9.0	19.3	9.0	21.0	9.0	21.9	9.0	22.2	9.0	21.0
10.0	19.3	10.0	21.1	10.0	21.7	10.0	22.1	10.0	21.3
11.0	19.1	11.0	21.2	11.0	21.7	11.0	22.1	11.0	21.6
		12.0	21.4	12.0	21.8	12.0	22.2	12.0	22.1
				13.0	22.0	13.0	22.3		

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

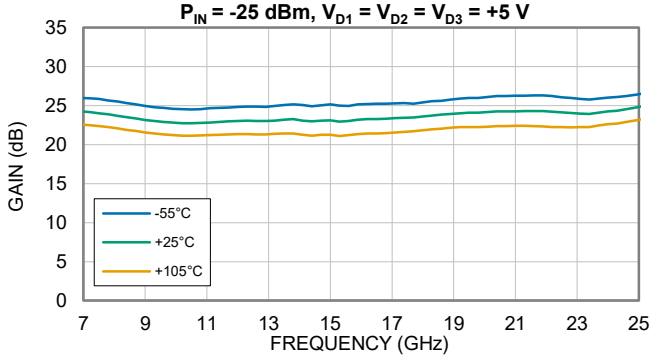
Definitions:
Input Return Loss = S11 (dB)
Gain = S21 (dB)
Isolation = S12 (dB)
Output Return Loss = S22 (dB)

TEST CONDITIONS: $V_{D1} = V_{D2} = V_{D3}$ = +5 V @ Temperature = +25°C

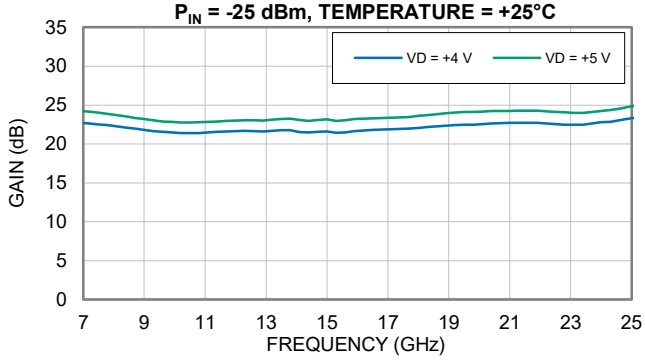
P_{IN}	P_{OUT}	P_{IN}	P_{OUT}	P_{IN}	P_{OUT}	P_{IN}	P_{OUT}	P_{IN}	P_{OUT}
dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
8GHz		10GHz		15GHz		20GHz		24GHz	
-25.0	-4.3	-25.1	-5.6	-25.0	-6.3	-25.0	-2.4	-25.0	-2.2
-24.5	-3.8	-24.6	-4.9	-24.5	-5.8	-24.5	-1.9	-24.5	-1.7
-24.0	-3.3	-24.1	-4.4	-24.0	-5.2	-24.0	-1.4	-24.0	-1.2
-23.5	-2.8	-23.6	-3.9	-23.5	-4.6	-23.5	-0.9	-23.5	-0.7
-23.0	-2.3	-23.1	-3.4	-23.0	-4.1	-23.0	-0.4	-22.9	-0.2
-22.5	-1.8	-22.6	-2.9	-22.5	-3.6	-22.5	0.1	-22.4	0.3
-22.0	-1.3	-22.1	-2.4	-22.0	-3.1	-22.0	0.6	-21.9	0.8
-21.5	-0.8	-21.6	-1.9	-21.5	-2.6	-21.5	1.1	-21.4	1.3
-21.0	-0.3	-21.1	-1.4	-21.0	-2.1	-21.0	1.6	-20.9	1.8
-20.5	0.2	-20.6	-0.9	-20.5	-1.6	-20.5	2.1	-20.4	2.3
-20.0	0.7	-20.1	-0.4	-20.0	-1.1	-20.0	2.6	-19.9	2.8
-19.5	1.2	-19.6	0.1	-19.5	-0.7	-19.5	3.1	-19.4	3.3
-19.0	1.7	-19.1	0.5	-19.0	-0.2	-19.0	3.6	-18.9	3.8
-18.5	2.2	-18.5	1.1	-18.4	0.3	-18.5	4.1	-18.4	4.3
-18.0	2.6	-18.0	1.6	-17.9	0.8	-18.0	4.6	-17.9	4.8
-17.6	3.0	-17.6	2.0	-17.5	1.2	-17.6	5.0	-17.5	5.2
-17.2	3.4	-17.2	2.4	-17.1	1.6	-17.2	5.4	-17.1	5.6
-16.8	3.8	-16.8	2.8	-16.7	2.0	-16.8	5.8	-16.7	6.0
-16.4	4.2	-16.4	3.2	-16.3	2.4	-16.4	6.2	-16.3	6.4
-16.0	4.6	-16.0	3.6	-15.9	2.8	-16.0	6.6	-15.9	6.7
-15.6	5.0	-15.6	4.0	-15.5	3.2	-15.6	7.0	-15.5	7.1
-15.2	5.4	-15.2	4.4	-15.1	3.6	-15.2	7.3	-15.1	7.5
-14.8	5.8	-14.8	4.8	-14.7	4.0	-14.8	7.7	-14.7	7.9
-14.4	6.2	-14.4	5.2	-14.3	4.4	-14.4	8.1	-14.3	8.2
-14.0	6.6	-14.0	5.5	-13.9	4.8	-14.0	8.5	-13.9	8.6
-13.6	6.9	-13.6	5.9	-13.5	5.2	-13.6	8.9	-13.5	9.0
-13.2	7.3	-13.2	6.3	-13.1	5.6	-13.2	9.2	-13.1	9.3
-12.8	7.7	-12.8	6.7	-12.7	6.0	-12.8	9.6	-12.7	9.6
-12.4	8.1	-12.4	7.1	-12.3	6.4	-12.4	9.9	-12.3	9.9
-12.0	8.5	-12.0	7.5	-11.9	6.8	-12.0	10.3	-11.9	10.3
-11.6	8.8	-11.6	7.9	-11.5	7.2	-11.6	10.6	-11.5	10.6
-11.2	9.2	-11.2	8.2	-11.1	7.6	-11.2	11.0	-11.1	10.9
-10.8	9.5	-10.8	8.6	-10.7	7.9	-10.8	11.3	-10.7	11.1
-10.4	9.9	-10.4	9.0	-10.3	8.3	-10.4	11.7	-10.3	11.4
-10.0	10.2	-10.0	9.3	-9.9	8.7	-10.0	12.0	-9.9	11.6
-9.6	10.5	-9.6	9.7	-9.5	9.1	-9.6	12.3	-9.5	11.8
-9.2	10.9	-9.2	10.1	-9.1	9.5	-9.2	12.5	-9.1	12.1
-8.8	11.2	-8.8	10.4	-8.7	9.8	-8.8	12.8	-8.7	12.3
-8.4	11.5	-8.5	10.7	-8.3	10.2	-8.4	13.0	-8.3	12.5
-8.0	11.8	-8.1	11.0	-7.9	10.5	-8.0	13.3	-7.9	12.7
-7.6	12.0	-7.7	11.4	-7.5	10.9	-7.6	13.5	-7.5	12.9
-7.2	12.3	-7.3	11.7	-7.1	11.2	-7.2	13.7	-7.1	13.1
-6.8	12.5	-6.9	12.0	-6.7	11.6	-6.8	13.9	-6.7	13.3
-6.4	12.7	-6.5	12.3	-6.3	11.9	-6.4	14.0	-6.3	13.5
-6.0	12.9	-6.1	12.5	-5.9	12.2	-6.0	14.2	-5.9	13.6
-5.6	13.0	-5.7	12.8	-5.5	12.5	-5.6	14.3	-5.6	13.8
-5.2	13.0	-5.2	13.0	-5.1	12.7	-5.2	14.5	-5.2	14.0
-4.8	13.1	-4.8	13.2	-4.7	13.0	-4.8	14.6	-4.8	14.2
-4.4	13.1	-4.4	13.4	-4.3	13.2	-4.4	14.7	-4.4	14.3
-4.0	13.0	-4.0	13.6	-3.9	13.4	-4.0	14.8	-4.0	14.4
-3.6	13.0	-3.6	13.7	-3.5	13.6	-3.6	14.9	-3.6	15.0
-3.2	13.0	-3.2	13.8	-3.1	13.8	-3.2	15.5	-3.2	15.2
-2.8	13.4	-2.8	14.0	-2.7	14.0	-2.8	15.6	-2.8	15.3
-2.4	13.4	-2.4	14.1	-2.3	14.1	-2.4	15.6	-2.4	15.4
		-2.0	14.2	-1.9	14.3				
		-1.6	14.2	-1.5	14.4				
		-1.3	14.3	-1.1	14.5				
		-0.9	14.3	-0.7	14.6				
		-0.5	14.3	-0.3	14.7				

Typical Performance Curves

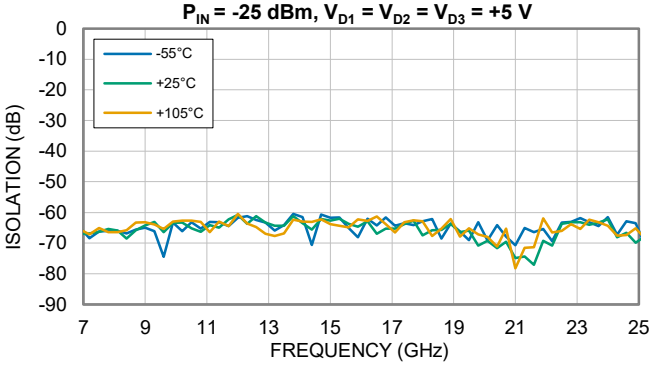
GAIN vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



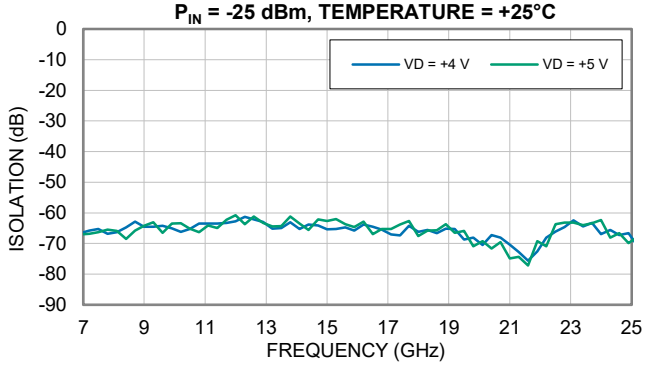
GAIN vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



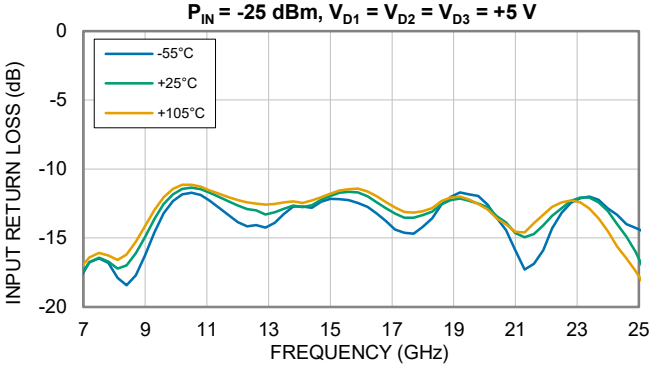
ISOLATION vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



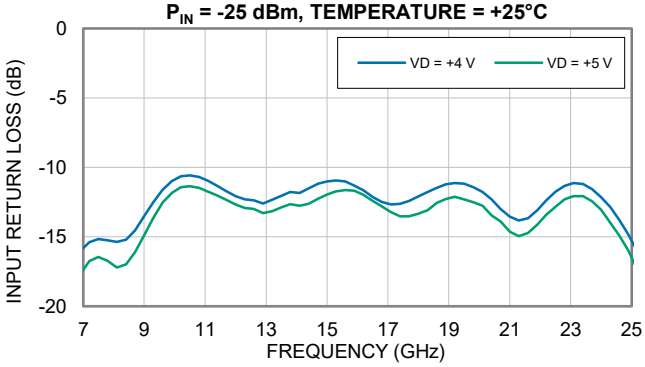
ISOLATION vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



INPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V

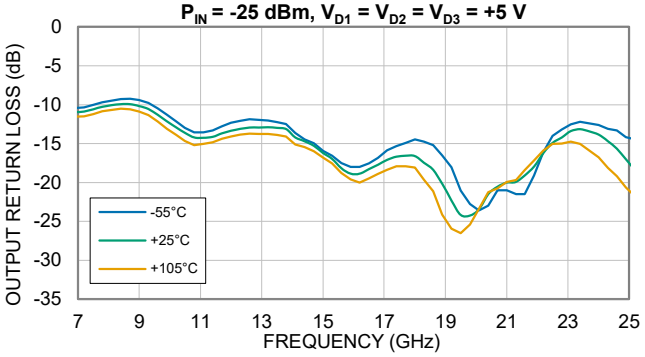


INPUT RETURN LOSS vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C

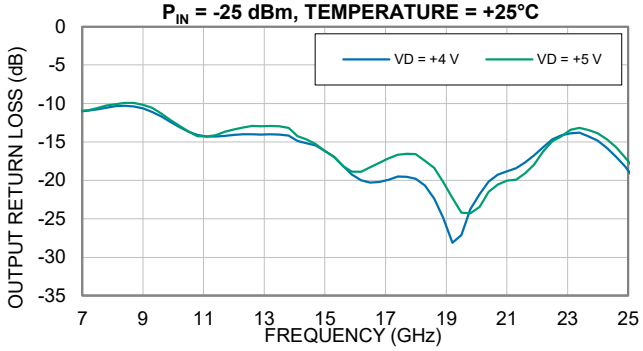


Typical Performance Curves

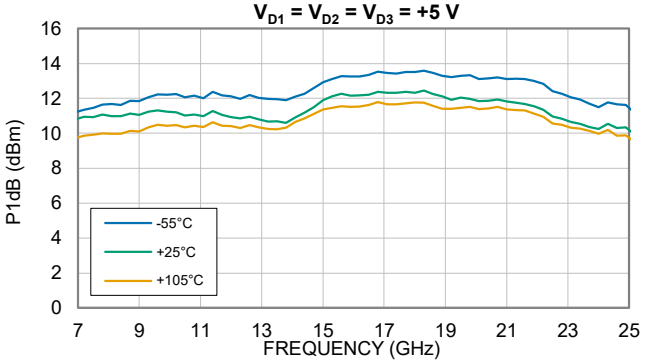
OUTPUT RETURN LOSS vs. TEMPERATURE
P_{IN} = -25 dBm, V_{D1} = V_{D2} = V_{D3} = +5 V



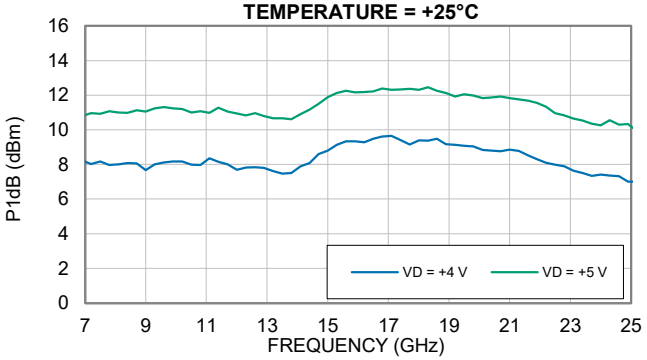
OUTPUT RETURN LOSS vs. DEVICE VOLTAGE (V_D)
P_{IN} = -25 dBm, TEMPERATURE = +25°C



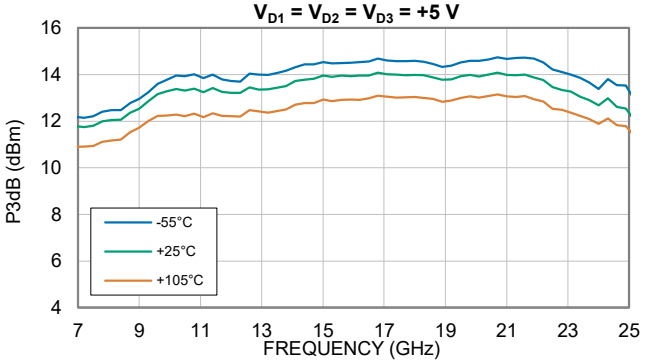
P1dB vs. TEMPERATURE
V_{D1} = V_{D2} = V_{D3} = +5 V



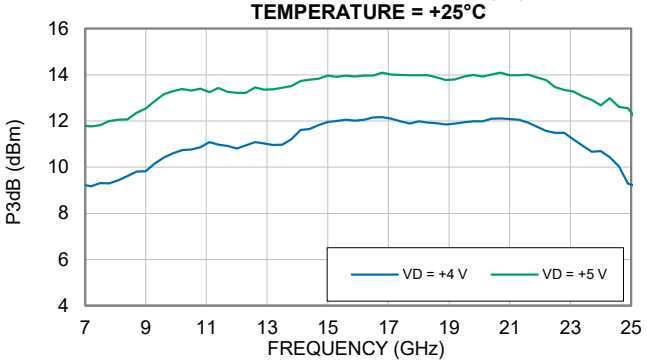
P1dB vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C



P3dB vs. TEMPERATURE
V_{D1} = V_{D2} = V_{D3} = +5 V

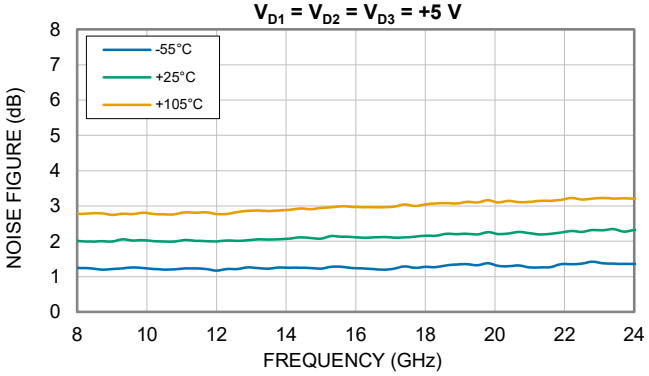


P3dB vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C

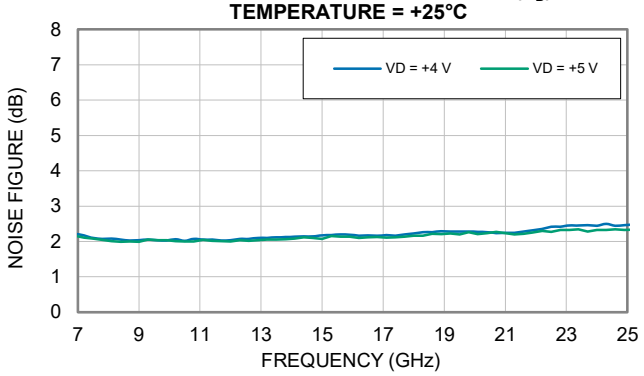


Typical Performance Curves

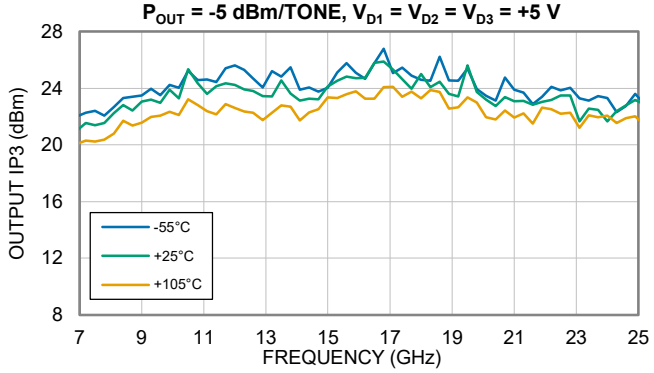
NOISE FIGURE vs. TEMPERATURE
$V_{D1} = V_{D2} = V_{D3} = +5$ V



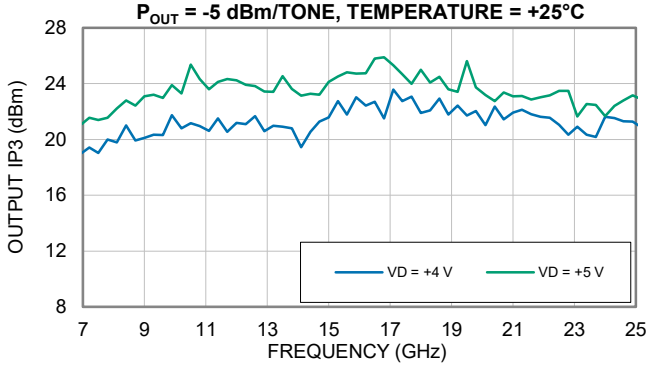
NOISE FIGURE vs. DEVICE VOLTAGE (V_D)
TEMPERATURE = +25°C



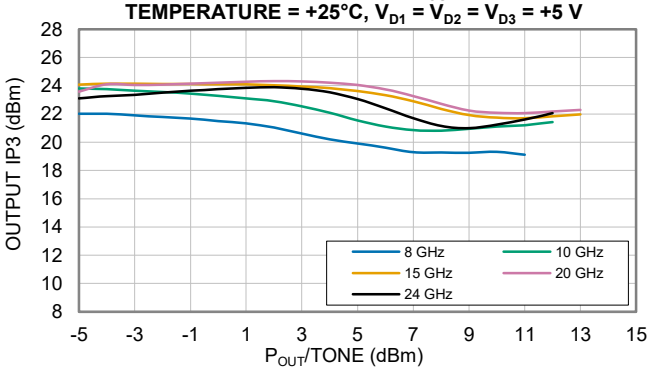
OUTPUT IP3 vs. TEMPERATURE
P_{OUT} = -5 dBm/TONE, $V_{D1} = V_{D2} = V_{D3} = +5$ V



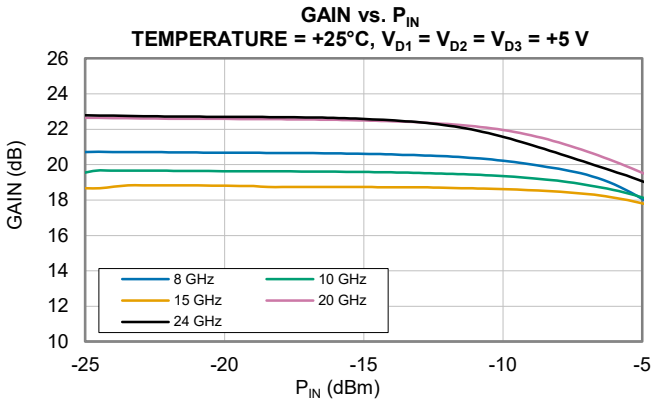
OUTPUT IP3 vs. DEVICE VOLTAGE (V_D)
P_{OUT} = -5 dBm/TONE, TEMPERATURE = +25°C

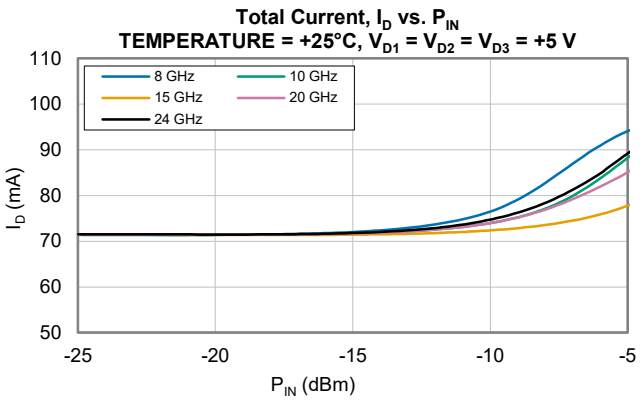


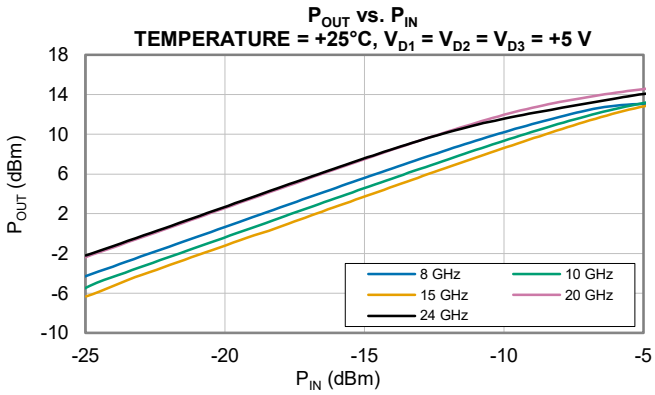
OUTPUT IP3 vs. P_{OUT}
TEMPERATURE = +25°C, $V_{D1} = V_{D2} = V_{D3} = +5$ V

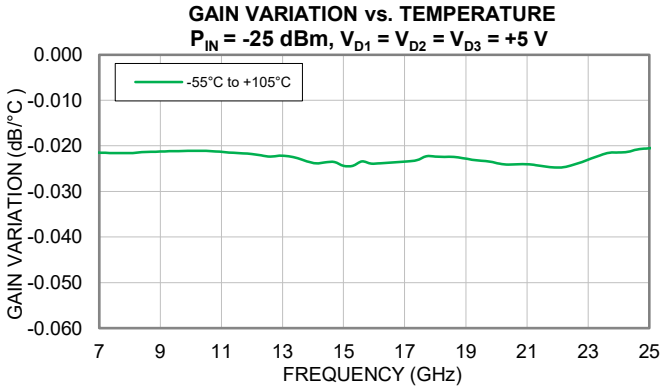


Typical Performance Curves





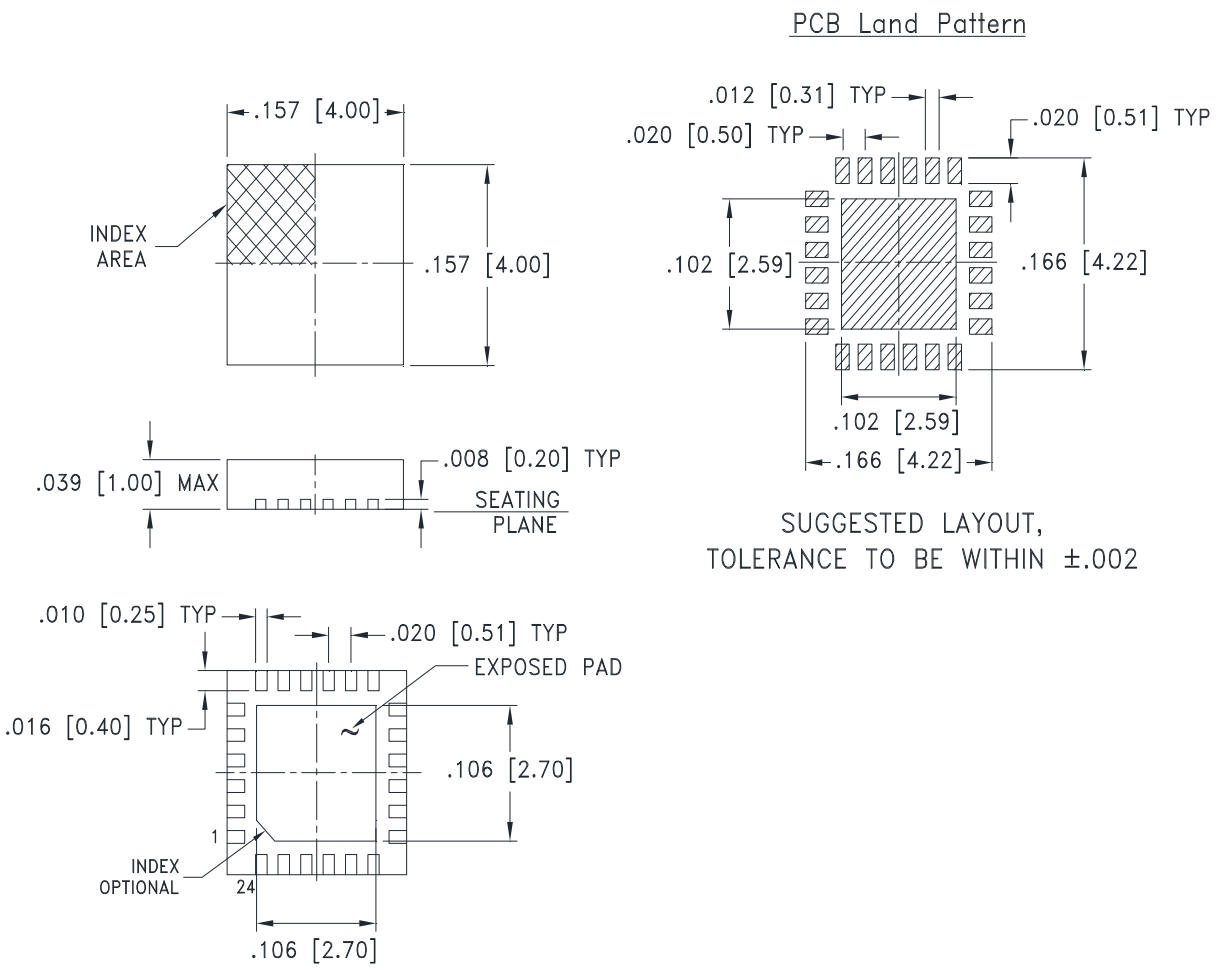




Case Style DG

DG1847

Outline Dimensions



Weight: .04 Grams

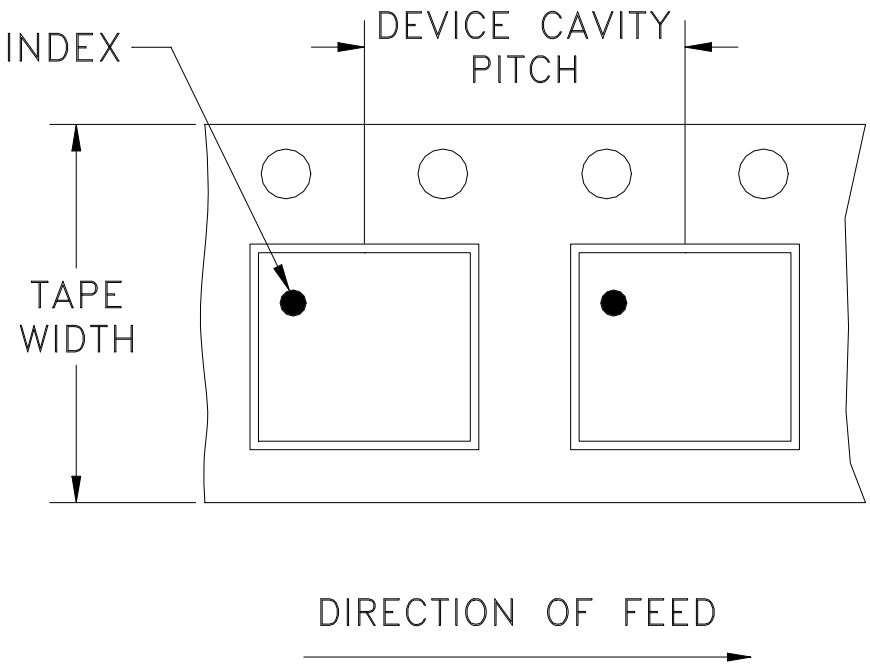
Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin-Silver alloy plate over Nickel barrier or Matte-Tin. All models, (+) suffix. See model Data sheet.
   For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Tape & Reel Packaging TR-F68

DEVICE ORIENTATION IN T&R



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel see note	
12	8	7	Small quantity standard	20
				50
				100
				200
				500
		7	Standard	1000
		13	Standard	2000
				3000
				4000

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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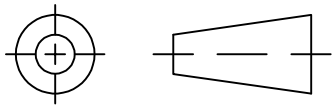
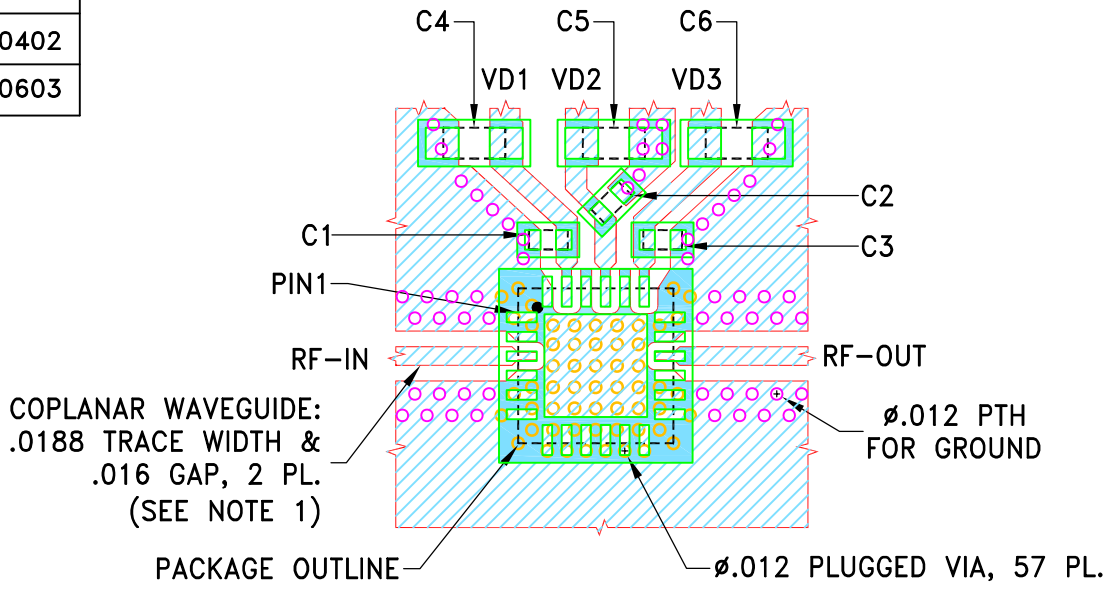
THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	ECO-026493	NEW RELEASE	08/08/25	ITG	IL

SUGGESTED MOUNTING CONFIGURATION FOR DG1847 CASE STYLE

COMPONENT	SIZE
C1–C3	0402
C4–C6	0603



NOTES:

1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B, DIELECTRIC THICKNESS: .010"; COPPER: 1 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-PMA48243LVC+ OR TB-PMA48243LNC+.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	ITG	08/08/25
TOLERANCES ON:	CHECKED	GF	08/08/25
2 PL DECIMALS ±	APPROVED	IL	08/08/25
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

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

Mini-Circuits®

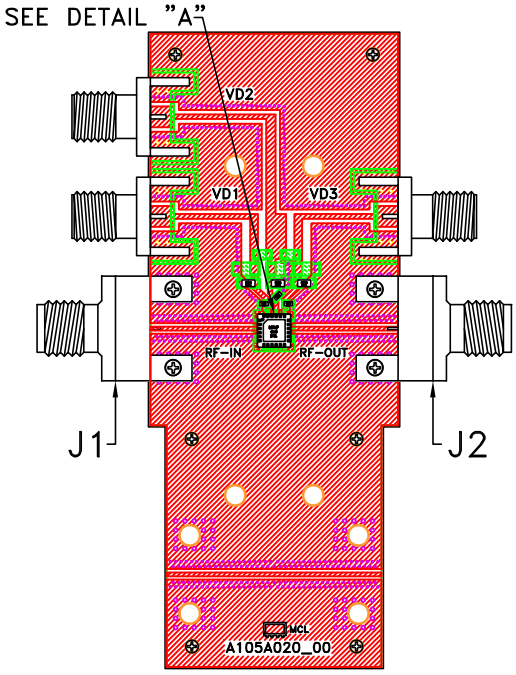
13 Neptune Avenue
Brooklyn NY 11235

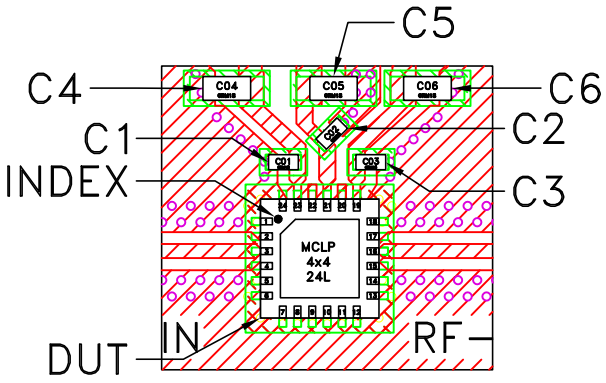
PL, DG1847, TB-PMA48243LN(V)C+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-832	OR

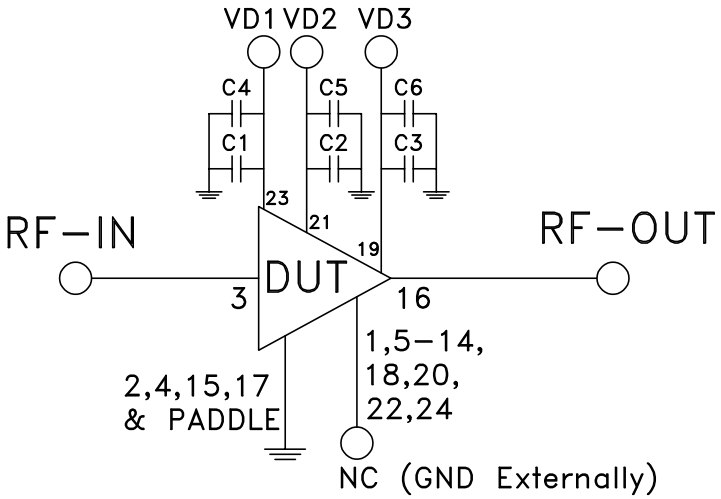
FILE:	SCALE:	SHEET:
98PL832	5:1	1 OF 1

Evaluation Board and Circuit





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



SCHEMATIC DIAGRAM

Component	Size	Value	Part Number	Manufacturer
C1,C2,C3	0402	100pF	GRM1555C1H101JA01D	Murata
C4,C5,C6	0603	0.1uF	GCM188R71E104JA57D	Murata
J1,J2	N/A	N/A	1492-04A-6	Southwest

Notes:

1. 2.4mm Female Connectors.
2. PCB Material: Roger RO4350B or equivalent, Dielectric constant=3.5, Thickness=0.010 inch

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Environmental Specifications **ENV08T1**

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

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85° C or -45° to 85° C or -55° to 105° C or -40° to 105° C or -40° to 95° C 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