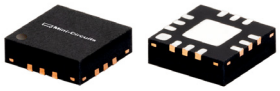
LOW NOISE, WIDEBAND, HIGH IP3

Monolithic Amplifier PMA3-83LNW+

50Ω 0.4 to 8.0 GHz

THE BIG DEAL

- Flat gain over wideband, 0.4 to 8 GHz
- Low noise figure, 1.2 dB at 2 GHz
- High IP3, up to +37 dBm at 2 GHz
- High Pout, P1dB 21.7 dBm typ. at 2 GHz and 6V
- Excellent gain flatness, ±0.6 dB over 0.4 to 7 GHz and 6V



Generic photo used for illustration purposes only

CASE STYLE: DQ1225

+RoHS Compliant

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

APPLICATIONS

- WiFi
- WLAN
- UMTS
- LTE
- WiMAX
- S-band Radar
- C-band Satcom

PRODUCT OVERVIEW

The PMA3-83LNW+ is a PHEMT based wideband, low noise MMIC amplifier with a unique combination of low noise, high IP3, and flat gain over wideband making it ideal for sensitive, high-dynamic-range receiver applications. This design operates on a single 5V or 6V supply, is well matched for 50Ω and comes in a tiny, low profile package (3 x 3 x 0.89mm), accommodating dense circuit board layouts.

KEY FEATURES

Feature	Advantages
Low noise, 1.2 dB at 2 GHz	Enables lower system noise figure performance.
High IP3 • +37 dBm at 2 GHz • +29 dBm at 8 GHz	Combination of low noise and high IP3 makes this MMIC amplifier ideal for use in low noise receiver front end (RFE) as it gives the user advantages of sensitivity and two-tone IM performance at both ends of the dynamic range.
Low operating voltage, 5V/6V.	Achieves high IP3 using low voltage.
3 x 3mm 12-lead MCLP package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.
Wide bandwidth with flat gain • ±0.6 dB over 0.4 to 7 GHz • ±1.5 dB over 0.4 to 8 GHz	Enables a single amplifier to be used in many wideband applications including defense, instrumentation and more.

REV. A
ECO-010881
PMA3-83LNW+
MCL NY
211201

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

Parameter	Condition (GHz)	V_{DD}=6.0			V_{DD}=5.0			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency Range		0.4		8.0	0.4		8.0	GHz
Noise Figure	0.4		2.0			2.0		dB
	2.0		1.2			1.2		
	4.0		1.3			1.4		
	5.0		1.5			1.6		
	8.0		2.2			2.2		
Gain	0.4	19.8	22.0	23.9	18.9	21.1	22.9	dB
	2.0		22.6			21.7		
	4.0	19.5	21.8	23.6	18.8	21.0	22.8	
	5.0		21.3			20.6		
	8.0	16.9	19.0	20.5	16.5	18.6	20	
Input Return Loss	0.4		10			10		dB
	2.0		17			18		
	4.0		12			11		
	5.0		11			10		
	8.0		7			7		
Output Return Loss	0.4		22			22		dB
	2.0		14			16		
	4.0		24			24		
	5.0		19			18		
	8.0		10			9		
Output Power at 1dB Compression	0.4		18.8			16.2		dBm
	2.0		21.7			20.5		
	4.0		20.4			18.9		
	5.0		20.2			18.8		
	8.0		18.1			17.3		
Output IP3	0.4		32.2			28.7		dBm
	2.0		37.0			31.1		
	4.0		34.5			30.1		
	5.0		32.0			28.6		
	8.0		29.0			26.8		
Device Operating Voltage (V_{DD})		5.75	6	6.75	4.75	5	5.25	V
Device Operating Current (I_{DD})			75	94		58		mA
Device Current Variation vs. Temperature[2]			-190			-143		µA/°C
Device Current Variation vs. Voltage			0.017			0.017		mA/mV
Thermal Resistance, junction-to-ground lead			47			47		°C/W

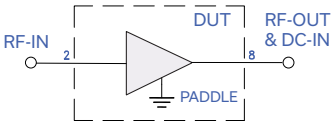
1. Measured on Mini-Circuits Characterization test board TB-PMA3-83LNW+. See Characterization Test Circuit (Fig. 1)
2. (Current at 105°C - Current at -45°C)/130

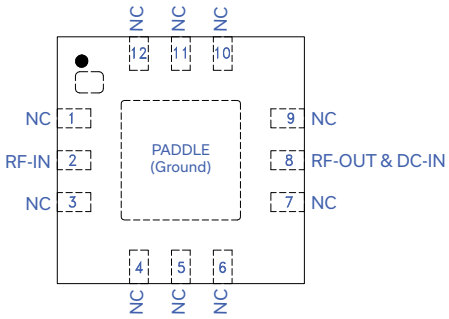
MAXIMUM RATINGS[3]

Parameter	Ratings
Operating Temperature (ground lead)	-40°C to 105°C
Storage Temperature	-65°C to 150°C
Junction Temperature	150°C
Total Power Dissipation	0.95 W
Input Power (CW), Vd=5,6V[4]	+19 dBm (5 minutes max) +9 dBm (continuous, 0.4-0.5 GHz) +16 dBm (continuous, 0.5-8 GHz)
DC Voltage	7 V

3. Permanent damage may occur if any of these limits are exceeded. Electrical maximum ratings are not intended for continuous normal operation.
4. Measured on Mini-Circuits test board, TB-PMA3-83LNW+

SIMPLIFIED SCHEMATIC & PAD DESCRIPTION





Function	Pad Number	Description (Fig. 1)
RF-IN	2	Connects to RF input and to ground via L1 (optional blocking capacitor of 100pF may be used)
RF-OUT & DC-IN	8	Connects to RF out via C3 and V_{DD} via L2
Ground	Paddle	Connects to ground
No Connection	1,3 to 7, 9 to 12	Not used internally. Connected to ground on test board (except 11 and 12)

RECOMMENDED APPLICATION AND CHARACTERIZATION TEST CIRCUIT

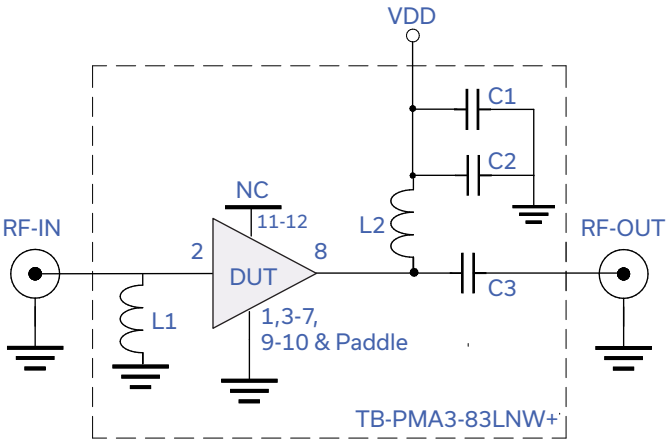
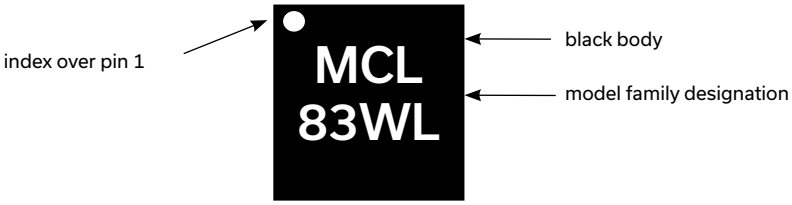


Fig 1. Application and Characterization Circuit
Note: This block diagram is used for characterization. (DUT soldered on Mini-Circuits Characterization test board TB-PMA3-83LNW+)
Gain, Return loss, Output power at 1dB compression (P1 dB), output IP3 (OIP3) and noise figure measured using Agilent's N5242A PNA-X microwave network analyzer.

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

Component	Size	Value	Part Number	Manufacturer
L1	0402	18nH	LQP15MN18NJ02D	Murata
L2	0402	39nH	0402CS-39NXGLW	Coilcraft
C1	0402	0.01uF	GRM155R71E103KA01D	Murata
C2	0402	10pF	GJM1555C1H100JB01D	Murata
C3	0402	100pF	GRM1555C1H101JA01D	Murata

PRODUCT MARKING



Marking may contain other features or characters for internal lot control

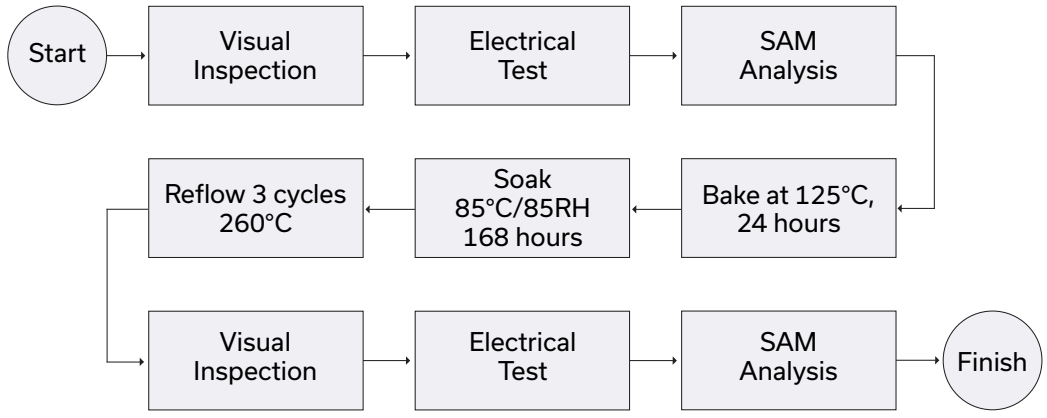
ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD. TO ACCESS CLICK HERE

Performance Data	Data Table graphs, s-parameter data set (.zip file)
Case Style	DQ1225 Plastic package, exposed paddle, lead finish: Matte Tin
Tape & Reel **Standard quantities available on reel**	F66 7" reels with 20, 50, 100, 200, 500, 1K, or 2K devices.
Suggested Layout for PCB Design	PL-628
Evaluation Board	TB-PMA3-83LNW+
Environmental Ratings	ENV08T1

ESD RATING

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

MSL TEST FLOW CHART



NOTES

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

Typical Performance Data

NOTE: Use PDF Bookmarks to view DATA at required conditions

Definitions:

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

TEST CONDITIONS: Vd = 5.00V, Id = 57mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.55	32.15	2.44	5.75	1.30	1.04	26.00	13.07	3.70
400	21.10	27.25	9.51	21.83	1.14	0.87	28.76	15.84	2.03
600	21.83	26.38	17.20	18.28	1.10	0.67	29.60	18.21	1.72
800	21.98	26.16	24.75	14.88	1.09	0.59	30.64	19.71	1.40
1000	22.01	26.09	27.10	13.84	1.09	0.56	30.09	20.42	1.37
1200	21.99	26.06	24.12	13.54	1.09	0.55	32.06	20.45	1.30
1400	21.96	26.08	21.59	13.59	1.09	0.56	31.62	20.42	1.30
1600	21.90	26.13	19.63	13.92	1.09	0.58	31.65	20.36	1.18
1800	21.83	26.16	18.39	14.47	1.09	0.60	30.40	20.32	1.27
2000	21.78	26.17	17.23	15.12	1.10	0.62	30.19	20.37	1.27
2200	21.73	26.21	16.13	15.88	1.10	0.64	30.64	19.97	1.34
2400	21.65	26.27	15.32	16.66	1.10	0.66	30.85	20.02	1.27
2600	21.55	26.34	14.59	17.82	1.11	0.69	30.59	20.00	1.30
2800	21.45	26.43	14.03	19.11	1.12	0.72	30.45	19.58	1.35
3000	21.36	26.49	13.40	20.66	1.12	0.74	29.91	19.54	1.42
3200	21.31	26.52	12.78	21.84	1.12	0.76	29.92	19.08	1.41
3400	21.25	26.54	12.25	22.39	1.12	0.77	28.34	18.51	1.45
3600	21.18	26.60	11.85	22.24	1.12	0.79	28.28	18.71	1.38
3800	21.10	26.66	11.45	21.68	1.12	0.81	29.87	19.06	1.45
4000	21.01	26.73	11.15	20.70	1.12	0.83	29.04	18.64	1.39
4200	20.92	26.80	10.89	19.62	1.12	0.84	28.01	18.49	1.48
4400	20.82	26.86	10.69	18.49	1.12	0.85	28.49	18.41	1.48
4600	20.74	26.96	10.46	17.42	1.13	0.86	27.65	18.22	1.52
4800	20.64	27.00	10.31	16.47	1.13	0.87	28.35	18.41	1.44
5000	20.56	27.07	10.16	15.68	1.13	0.88	28.45	18.79	1.59
5200	20.46	27.16	10.04	14.96	1.14	0.88	26.76	19.04	1.48
5400	20.37	27.21	9.92	14.38	1.14	0.89	28.22	19.29	1.54
5600	20.29	27.27	9.81	13.76	1.14	0.89	28.56	18.72	1.57
5800	20.21	27.36	9.70	13.17	1.14	0.90	27.55	18.72	1.57
6000	20.11	27.41	9.58	12.67	1.15	0.90	28.64	18.79	1.63
6200	20.02	27.53	9.44	12.14	1.15	0.91	27.83	18.80	1.65
6400	19.90	27.60	9.25	11.63	1.15	0.92	27.59	18.12	1.84
6600	19.72	27.75	9.01	11.19	1.15	0.93	26.75	17.98	1.79
6800	19.48	27.92	8.55	11.48	1.17	0.97	26.40	17.99	1.79
7000	19.52	27.85	8.41	11.20	1.15	0.97	27.66	18.04	1.80
7200	19.39	27.92	8.14	10.74	1.14	0.97	27.62	17.83	1.94
7400	19.23	28.00	7.79	10.34	1.13	0.99	26.58	17.61	1.96
7600	19.03	28.13	7.39	10.01	1.13	1.01	25.87	17.36	1.96
7800	18.80	28.26	7.00	9.70	1.12	1.03	26.44	17.51	2.02
8000	18.54	28.35	6.58	9.40	1.11	1.05	26.52	17.27	2.11
8200	18.24	28.50	6.14	9.12	1.11	1.07	26.20	16.71	2.19
8400	17.89	28.63	5.70	8.89	1.10	1.10	25.58	16.79	2.26
8600	17.50	28.81	5.31	8.65	1.11	1.13	25.84	16.93	2.36
8800	17.05	28.99	4.89	8.49	1.11	1.15	25.73	16.40	2.50
9000	16.54	29.19	4.54	8.39	1.14	1.18	24.52	15.86	2.67
10000	13.02	30.79	3.31	6.33	1.40	1.17	22.03	14.82	3.82

Typical Performance Data

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

TEST CONDITIONS: Vd = 4.75V, Id = 53mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.17	31.90	2.39	5.70	1.31	1.03	24.86	12.24	3.56
400	20.76	26.99	9.22	21.48	1.14	0.87	27.33	15.13	1.89
600	21.51	26.08	16.66	19.59	1.10	0.67	27.92	17.65	1.62
800	21.67	25.86	24.80	15.73	1.09	0.60	29.08	19.30	1.29
1000	21.71	25.78	30.42	14.57	1.09	0.57	29.01	20.03	1.19
1200	21.70	25.75	25.86	14.24	1.09	0.56	29.87	20.06	1.21
1400	21.66	25.77	22.36	14.28	1.09	0.57	29.64	20.16	1.17
1600	21.60	25.81	19.94	14.64	1.09	0.59	29.68	19.98	1.03
1800	21.53	25.85	18.45	15.22	1.09	0.61	29.07	19.95	1.17
2000	21.49	25.87	17.13	15.92	1.10	0.63	28.43	20.11	1.19
2200	21.43	25.92	15.95	16.77	1.10	0.65	28.89	19.60	1.18
2400	21.35	25.97	15.08	17.61	1.10	0.67	29.31	19.78	1.23
2600	21.25	26.05	14.31	18.89	1.11	0.70	29.02	19.77	1.24
2800	21.15	26.14	13.73	20.30	1.12	0.73	28.66	19.22	1.27
3000	21.06	26.20	13.08	21.92	1.12	0.75	28.67	19.18	1.30
3200	21.01	26.25	12.46	22.98	1.12	0.77	28.57	18.71	1.29
3400	20.95	26.30	11.94	23.11	1.12	0.79	27.42	18.28	1.37
3600	20.88	26.35	11.54	22.47	1.11	0.80	27.43	18.21	1.27
3800	20.80	26.39	11.15	21.51	1.11	0.82	28.61	18.71	1.32
4000	20.72	26.47	10.84	20.30	1.11	0.83	27.76	18.28	1.28
4200	20.62	26.52	10.59	19.12	1.11	0.84	26.78	18.00	1.34
4400	20.54	26.64	10.39	17.96	1.12	0.86	27.29	17.80	1.33
4600	20.45	26.71	10.16	16.89	1.12	0.87	26.58	17.60	1.42
4800	20.36	26.76	10.02	15.95	1.12	0.87	26.84	17.94	1.40
5000	20.28	26.85	9.88	15.19	1.13	0.88	27.15	18.34	1.47
5200	20.19	26.91	9.77	14.50	1.13	0.89	25.76	18.60	1.39
5400	20.10	26.99	9.65	13.94	1.13	0.89	26.85	18.87	1.49
5600	20.03	27.04	9.54	13.36	1.13	0.90	27.46	18.30	1.45
5800	19.95	27.14	9.44	12.80	1.14	0.90	26.12	18.32	1.43
6000	19.86	27.20	9.33	12.32	1.14	0.91	27.33	18.40	1.55
6200	19.77	27.32	9.20	11.82	1.14	0.91	27.06	18.53	1.61
6400	19.65	27.40	9.02	11.33	1.14	0.92	26.26	17.74	1.71
6600	19.48	27.58	8.78	10.92	1.15	0.94	25.67	17.60	1.71
6800	19.25	27.73	8.34	11.23	1.16	0.97	25.23	17.74	1.76
7000	19.30	27.64	8.22	10.96	1.14	0.97	26.16	17.69	1.71
7200	19.17	27.72	7.96	10.51	1.13	0.98	26.80	17.60	1.85
7400	19.01	27.83	7.62	10.13	1.13	0.99	25.95	17.39	1.83
7600	18.81	27.96	7.23	9.82	1.12	1.01	24.83	17.02	1.90
7800	18.59	28.04	6.86	9.52	1.11	1.03	25.48	17.31	1.94
8000	18.34	28.20	6.45	9.24	1.10	1.05	25.51	16.95	2.07
8200	18.04	28.31	6.02	8.97	1.09	1.08	25.45	16.52	2.11
8400	17.69	28.51	5.60	8.76	1.10	1.10	24.79	16.49	2.17
8600	17.31	28.66	5.22	8.53	1.10	1.13	24.90	16.63	2.30
8800	16.86	28.85	4.80	8.37	1.10	1.15	25.14	16.10	2.39
9000	16.35	29.09	4.47	8.28	1.13	1.18	23.92	15.44	2.59
10000	12.83	30.70	3.27	6.25	1.39	1.17	21.44	14.11	3.77

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.25V, Id = 61mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.86	32.40	2.46	5.77	1.30	1.04	26.99	13.70	3.74
400	21.41	27.49	9.64	21.80	1.13	0.86	30.32	16.46	2.01
600	22.11	26.65	17.42	17.62	1.10	0.66	30.94	18.93	1.71
800	22.26	26.44	24.61	14.45	1.09	0.58	32.12	20.14	1.40
1000	22.29	26.37	25.99	13.45	1.09	0.55	31.15	20.71	1.34
1200	22.27	26.34	23.36	13.17	1.08	0.55	32.66	20.74	1.29
1400	22.23	26.36	21.18	13.23	1.09	0.56	33.78	20.83	1.32
1600	22.17	26.37	19.42	13.55	1.09	0.57	33.15	20.65	1.21
1800	22.10	26.41	18.27	14.08	1.09	0.59	31.38	20.60	1.29
2000	22.05	26.46	17.19	14.71	1.10	0.61	31.95	20.65	1.24
2200	22.00	26.48	16.14	15.46	1.10	0.63	32.36	20.25	1.37
2400	21.91	26.54	15.35	16.21	1.10	0.66	31.01	20.30	1.34
2600	21.81	26.60	14.65	17.30	1.11	0.69	31.56	20.28	1.32
2800	21.70	26.67	14.12	18.57	1.12	0.71	32.40	19.98	1.36
3000	21.62	26.73	13.48	20.04	1.12	0.74	31.15	19.83	1.43
3200	21.57	26.73	12.88	21.28	1.12	0.75	32.00	19.48	1.38
3400	21.50	26.77	12.35	21.97	1.12	0.77	29.73	18.92	1.55
3600	21.42	26.81	11.94	22.05	1.12	0.79	30.31	19.12	1.43
3800	21.34	26.88	11.55	21.70	1.12	0.81	31.42	19.46	1.44
4000	21.25	26.95	11.24	20.88	1.12	0.82	30.68	19.04	1.39
4200	21.15	27.00	10.98	19.89	1.12	0.84	30.06	18.90	1.47
4400	21.05	27.07	10.79	18.79	1.13	0.85	29.70	18.82	1.47
4600	20.96	27.15	10.55	17.73	1.13	0.86	29.13	18.62	1.48
4800	20.86	27.20	10.40	16.76	1.13	0.87	29.65	18.80	1.43
5000	20.77	27.29	10.26	15.94	1.14	0.88	29.65	19.04	1.55
5200	20.67	27.34	10.14	15.21	1.14	0.88	28.21	19.28	1.44
5400	20.57	27.42	10.01	14.60	1.14	0.89	29.53	19.53	1.57
5600	20.49	27.49	9.90	13.98	1.15	0.89	30.11	18.96	1.55
5800	20.40	27.57	9.79	13.37	1.15	0.90	28.67	18.84	1.57
6000	20.30	27.62	9.68	12.84	1.15	0.91	29.21	19.01	1.61
6200	20.20	27.69	9.53	12.31	1.15	0.91	29.15	19.02	1.68
6400	20.07	27.81	9.34	11.77	1.15	0.92	28.43	18.34	1.84
6600	19.89	27.96	9.09	11.31	1.16	0.93	28.06	18.19	1.78
6800	19.64	28.10	8.62	11.59	1.18	0.97	27.11	18.19	1.83
7000	19.68	28.01	8.47	11.32	1.15	0.97	28.38	18.12	1.75
7200	19.54	28.07	8.20	10.84	1.15	0.98	28.26	18.03	1.92
7400	19.37	28.17	7.84	10.43	1.14	0.99	28.10	17.80	1.91
7600	19.16	28.29	7.44	10.09	1.14	1.01	26.59	17.54	1.96
7800	18.93	28.37	7.05	9.77	1.13	1.03	27.18	17.69	2.05
8000	18.66	28.49	6.63	9.46	1.12	1.05	27.11	17.45	2.12
8200	18.36	28.63	6.18	9.18	1.11	1.08	26.95	17.00	2.17
8400	18.00	28.75	5.74	8.95	1.11	1.10	26.46	16.96	2.22
8600	17.61	28.92	5.35	8.71	1.11	1.13	26.57	17.09	2.35
8800	17.16	29.08	4.92	8.54	1.11	1.16	26.55	16.57	2.51
9000	16.64	29.28	4.57	8.44	1.14	1.18	25.26	16.04	2.61
10000	13.12	30.82	3.33	6.38	1.40	1.18	22.82	14.98	3.83

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.00V, Id = 66mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.71	30.20	3.23	6.53	1.24	1.03	27.78	13.27	2.77
400	20.45	26.10	14.57	14.03	1.12	0.75	28.93	15.88	1.56
600	20.70	25.70	14.81	9.84	1.09	0.56	29.09	18.81	1.33
800	20.70	25.62	12.78	8.64	1.08	0.50	30.37	19.94	1.09
1000	20.67	25.62	11.95	8.21	1.08	0.47	31.11	20.18	1.03
1200	20.67	25.60	11.64	8.08	1.08	0.46	30.55	20.33	0.99
1400	20.66	25.57	11.64	8.13	1.08	0.46	31.14	20.43	0.99
1600	20.66	25.60	11.80	8.24	1.08	0.47	31.11	20.37	0.85
1800	20.65	25.58	12.06	8.48	1.09	0.48	31.51	20.34	0.95
2000	20.68	25.54	12.35	8.72	1.09	0.49	32.94	20.44	0.86
2200	20.72	25.50	12.74	8.99	1.09	0.50	30.55	20.12	0.99
2400	20.73	25.47	13.20	9.34	1.09	0.51	30.91	20.36	0.95
2600	20.73	25.52	13.66	9.74	1.09	0.53	30.69	20.28	0.92
2800	20.71	25.54	14.27	10.31	1.10	0.55	30.08	20.01	1.00
3000	20.74	25.50	15.17	10.99	1.11	0.56	30.67	19.94	1.01
3200	20.81	25.47	15.82	11.44	1.10	0.57	29.63	19.54	0.98
3400	20.86	25.43	16.34	11.84	1.10	0.57	29.47	19.08	1.04
3600	20.88	25.40	16.76	12.22	1.09	0.58	30.33	19.35	0.98
3800	20.89	25.42	17.25	12.69	1.10	0.59	29.44	19.43	1.01
4000	20.90	25.42	17.74	13.17	1.10	0.60	29.32	18.97	0.93
4200	20.89	25.45	18.25	13.64	1.10	0.61	29.99	18.67	1.00
4400	20.90	25.50	18.78	14.24	1.10	0.63	29.97	18.59	1.02
4600	20.91	25.50	19.29	14.83	1.10	0.63	29.01	18.16	1.08
4800	20.91	25.57	19.63	15.37	1.11	0.65	29.29	18.29	1.01
5000	20.91	25.61	19.79	15.89	1.11	0.66	30.10	18.50	1.10
5200	20.90	25.63	19.98	16.28	1.11	0.66	29.48	18.45	1.01
5400	20.91	25.69	19.93	16.73	1.12	0.67	30.80	19.10	1.08
5600	20.91	25.74	19.83	17.10	1.12	0.68	29.34	18.63	1.05
5800	20.93	25.79	19.67	17.49	1.12	0.68	29.20	18.31	1.11
6000	20.94	25.86	19.17	17.74	1.13	0.69	30.45	18.96	1.20
6200	20.95	25.91	18.90	17.83	1.13	0.69	29.97	18.96	1.16
6400	20.95	26.01	18.36	17.85	1.13	0.70	28.76	18.17	1.28
6600	20.93	26.14	17.74	17.74	1.14	0.72	28.47	17.98	1.30
6800	20.78	26.41	16.58	16.56	1.16	0.75	27.70	17.90	1.27
7000	20.85	26.39	15.47	18.66	1.15	0.76	29.37	18.39	1.26
7200	20.91	26.46	14.99	18.60	1.15	0.76	29.23	18.60	1.41
7400	20.89	26.58	14.13	18.20	1.15	0.77	28.66	18.32	1.36
7600	20.82	26.78	13.05	17.55	1.16	0.80	27.15	17.93	1.38
7800	20.76	26.97	12.08	16.88	1.16	0.82	27.87	18.48	1.44
8000	20.67	27.15	11.02	16.19	1.16	0.85	27.92	18.22	1.54
8200	20.53	27.40	10.00	15.45	1.16	0.89	28.40	17.66	1.56
8400	20.35	27.69	9.03	14.55	1.17	0.93	27.67	17.93	1.62
8600	20.10	27.99	8.06	13.63	1.17	0.97	27.79	18.36	1.74
8800	19.82	28.28	7.16	12.62	1.16	1.01	27.82	17.56	1.78
9000	19.44	28.73	6.38	11.77	1.18	1.06	26.60	16.66	1.90
10000	16.14	31.39	3.75	6.80	1.31	1.13	24.08	15.65	2.90

Typical Performance Data

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

TEST CONDITIONS: Vd = 4.75V, Id = 61mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.42	30.03	3.14	6.53	1.25	1.03	26.56	12.53	2.75
400	20.21	25.89	14.15	14.81	1.12	0.77	28.49	15.14	1.54
600	20.50	25.43	15.42	10.30	1.09	0.57	28.61	18.51	1.37
800	20.51	25.36	13.38	9.03	1.09	0.51	30.84	19.51	1.04
1000	20.49	25.31	12.49	8.56	1.08	0.48	30.89	19.86	1.04
1200	20.48	25.33	12.15	8.42	1.08	0.47	31.93	20.01	1.00
1400	20.48	25.33	12.15	8.47	1.08	0.48	32.40	20.11	0.97
1600	20.47	25.34	12.29	8.59	1.09	0.48	31.45	19.95	0.89
1800	20.46	25.31	12.56	8.84	1.09	0.49	31.76	20.04	0.92
2000	20.49	25.28	12.83	9.09	1.09	0.50	32.75	20.02	0.87
2200	20.52	25.26	13.21	9.38	1.09	0.51	31.09	19.70	1.01
2400	20.54	25.26	13.66	9.74	1.09	0.52	30.75	19.83	0.92
2600	20.53	25.28	14.10	10.16	1.10	0.54	30.48	19.85	0.98
2800	20.51	25.32	14.70	10.76	1.11	0.56	30.14	19.47	1.00
3000	20.53	25.31	15.56	11.47	1.11	0.58	30.77	19.52	1.02
3200	20.60	25.26	16.14	11.94	1.10	0.58	29.34	19.12	0.99
3400	20.64	25.23	16.57	12.37	1.10	0.59	28.47	18.68	1.02
3600	20.67	25.23	16.88	12.75	1.10	0.60	30.22	18.82	0.94
3800	20.68	25.23	17.26	13.23	1.10	0.61	29.42	18.92	1.04
4000	20.68	25.27	17.62	13.72	1.10	0.62	29.94	18.46	0.95
4200	20.68	25.30	18.02	14.17	1.10	0.63	29.24	18.04	1.00
4400	20.68	25.33	18.36	14.76	1.10	0.64	29.30	17.95	1.02
4600	20.69	25.37	18.71	15.31	1.11	0.65	28.63	17.40	1.07
4800	20.70	25.39	18.89	15.81	1.11	0.66	29.25	17.65	1.03
5000	20.69	25.46	18.93	16.26	1.11	0.67	29.46	17.88	1.07
5200	20.68	25.51	19.00	16.56	1.12	0.68	28.10	17.98	1.00
5400	20.69	25.56	18.92	16.93	1.12	0.68	29.53	18.63	1.09
5600	20.70	25.64	18.79	17.17	1.12	0.69	29.23	18.06	1.09
5800	20.72	25.67	18.60	17.41	1.12	0.69	28.28	17.88	1.08
6000	20.73	25.73	18.18	17.52	1.12	0.70	29.40	18.54	1.19
6200	20.75	25.82	17.95	17.49	1.13	0.71	29.65	18.54	1.17
6400	20.75	25.89	17.45	17.39	1.13	0.71	28.18	17.64	1.29
6600	20.73	26.04	16.91	17.18	1.14	0.73	27.62	17.57	1.27
6800	20.57	26.27	15.84	16.06	1.15	0.75	26.31	17.51	1.26
7000	20.65	26.28	14.88	18.04	1.15	0.77	28.41	18.01	1.28
7200	20.71	26.34	14.43	17.82	1.15	0.77	28.70	18.13	1.40
7400	20.69	26.49	13.63	17.40	1.15	0.79	27.64	17.86	1.37
7600	20.63	26.69	12.62	16.82	1.15	0.81	26.36	17.60	1.45
7800	20.57	26.87	11.72	16.23	1.16	0.83	27.06	18.05	1.45
8000	20.48	27.07	10.71	15.62	1.16	0.86	26.89	17.81	1.56
8200	20.35	27.29	9.73	14.99	1.16	0.90	27.41	17.37	1.59
8400	20.17	27.59	8.79	14.18	1.16	0.94	26.56	17.65	1.60
8600	19.92	27.89	7.87	13.34	1.16	0.98	26.50	18.10	1.74
8800	19.64	28.20	7.00	12.40	1.15	1.02	27.22	17.30	1.80
9000	19.26	28.64	6.24	11.59	1.17	1.07	26.06	16.29	1.97
10000	15.96	31.34	3.68	6.76	1.31	1.13	23.41	15.41	2.90

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.25V, Id = 71mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.98	30.33	3.29	6.51	1.23	1.02	28.82	13.91	2.80
400	20.67	26.29	14.88	13.42	1.11	0.74	29.63	16.41	1.58
600	20.90	25.93	14.34	9.47	1.09	0.55	29.36	19.17	1.35
800	20.89	25.88	12.33	8.34	1.08	0.49	30.58	20.30	1.09
1000	20.85	25.86	11.53	7.93	1.08	0.46	31.10	20.64	1.06
1200	20.85	25.84	11.24	7.80	1.08	0.45	30.11	20.81	0.96
1400	20.85	25.83	11.26	7.85	1.08	0.46	30.81	20.91	1.02
1600	20.84	25.82	11.42	7.96	1.08	0.46	30.56	20.86	0.87
1800	20.84	25.81	11.69	8.20	1.08	0.47	30.70	20.83	0.93
2000	20.87	25.77	11.98	8.42	1.08	0.48	31.67	20.93	0.89
2200	20.91	25.74	12.37	8.69	1.08	0.49	29.96	20.73	1.03
2400	20.93	25.70	12.84	9.02	1.09	0.50	30.35	20.84	0.89
2600	20.92	25.72	13.31	9.40	1.09	0.51	30.91	20.76	0.97
2800	20.90	25.73	13.93	9.95	1.10	0.54	30.28	20.49	1.02
3000	20.93	25.71	14.83	10.60	1.10	0.55	30.63	20.42	1.05
3200	21.01	25.62	15.54	11.03	1.10	0.55	29.57	20.01	0.95
3400	21.06	25.58	16.11	11.43	1.09	0.56	29.68	19.54	1.03
3600	21.08	25.59	16.59	11.79	1.09	0.57	30.83	19.81	0.94
3800	21.09	25.59	17.16	12.26	1.09	0.58	29.65	19.88	1.03
4000	21.10	25.58	17.75	12.74	1.09	0.59	29.80	19.42	0.96
4200	21.10	25.63	18.36	13.21	1.10	0.60	30.52	19.11	1.03
4400	21.10	25.64	19.01	13.83	1.10	0.61	30.17	19.03	1.00
4600	21.11	25.66	19.69	14.43	1.10	0.62	30.21	18.60	1.03
4800	21.11	25.68	20.17	15.01	1.10	0.63	30.22	18.84	0.98
5000	21.11	25.71	20.47	15.58	1.11	0.64	30.74	18.92	1.06
5200	21.10	25.76	20.74	16.01	1.11	0.65	30.42	18.98	1.00
5400	21.10	25.82	20.80	16.54	1.12	0.66	31.53	19.50	1.09
5600	21.11	25.87	20.71	17.01	1.12	0.67	30.24	19.14	1.06
5800	21.12	25.88	20.54	17.50	1.12	0.67	29.77	18.81	1.09
6000	21.14	25.97	20.02	17.88	1.12	0.68	30.83	19.35	1.17
6200	21.14	26.03	19.72	18.09	1.13	0.68	31.79	19.44	1.14
6400	21.14	26.12	19.10	18.23	1.13	0.69	29.52	18.53	1.32
6600	21.12	26.23	18.42	18.21	1.14	0.71	29.24	18.46	1.26
6800	20.96	26.50	17.18	17.02	1.16	0.74	28.79	18.37	1.27
7000	21.02	26.50	15.93	19.19	1.15	0.75	30.03	18.84	1.26
7200	21.08	26.53	15.42	19.29	1.15	0.75	29.99	18.92	1.37
7400	21.06	26.68	14.51	18.89	1.15	0.77	29.65	18.63	1.33
7600	20.99	26.88	13.37	18.19	1.16	0.79	27.80	18.34	1.36
7800	20.93	27.06	12.37	17.45	1.16	0.82	28.80	18.76	1.41
8000	20.83	27.25	11.26	16.63	1.16	0.85	28.93	18.50	1.53
8200	20.69	27.49	10.19	15.82	1.17	0.88	28.67	17.92	1.58
8400	20.51	27.78	9.19	14.84	1.17	0.92	28.07	18.16	1.65
8600	20.26	28.05	8.20	13.85	1.17	0.96	27.68	18.58	1.75
8800	19.97	28.37	7.28	12.80	1.16	1.01	28.54	17.78	1.79
9000	19.59	28.78	6.48	11.89	1.18	1.05	27.04	16.87	1.89
10000	16.29	31.38	3.80	6.84	1.30	1.13	24.98	15.87	2.83

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.00V, Id = 44mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	15.38	33.61	1.85	4.74	1.39	0.99	24.37	14.23	4.66
400	20.54	28.09	6.11	12.26	1.16	0.91	26.34	16.29	2.54
600	21.70	26.83	10.25	19.64	1.12	0.74	27.10	18.22	2.12
800	22.03	26.42	13.39	25.35	1.10	0.67	27.90	19.53	1.70
1000	22.12	26.28	14.98	28.32	1.09	0.64	27.38	20.27	1.67
1200	22.10	26.26	14.94	29.55	1.09	0.65	27.83	20.12	1.64
1400	22.03	26.26	14.02	29.72	1.09	0.66	27.78	20.20	1.65
1600	21.91	26.33	12.88	29.10	1.09	0.69	27.94	20.04	1.50
1800	21.78	26.40	11.89	27.29	1.09	0.72	27.52	20.26	1.59
2000	21.65	26.43	11.04	25.46	1.08	0.74	27.23	20.47	1.61
2200	21.50	26.51	10.25	23.57	1.08	0.77	27.68	19.94	1.71
2400	21.34	26.63	9.62	22.01	1.09	0.81	27.54	20.01	1.67
2600	21.15	26.73	9.07	20.59	1.09	0.84	27.78	19.94	1.73
2800	20.96	26.84	8.59	19.20	1.09	0.86	27.41	19.62	1.78
3000	20.78	26.94	8.16	17.85	1.09	0.89	27.55	19.60	1.85
3200	20.62	27.00	7.79	16.64	1.09	0.91	26.98	19.34	1.83
3400	20.47	27.07	7.49	15.66	1.09	0.93	26.30	19.45	1.98
3600	20.30	27.14	7.24	14.78	1.08	0.95	26.42	19.54	1.87
3800	20.13	27.19	7.04	14.00	1.08	0.96	27.80	19.10	1.99
4000	19.96	27.27	6.87	13.30	1.08	0.98	26.88	19.13	1.93
4200	19.79	27.32	6.73	12.69	1.08	0.99	26.13	19.26	2.01
4400	19.61	27.39	6.62	12.10	1.08	1.00	26.30	18.87	2.03
4600	19.45	27.45	6.51	11.57	1.08	1.00	25.90	18.87	2.15
4800	19.27	27.49	6.45	11.08	1.08	1.01	26.06	18.79	2.13
5000	19.10	27.53	6.39	10.62	1.07	1.01	26.17	18.78	2.20
5200	18.93	27.58	6.33	10.22	1.07	1.02	24.91	19.02	2.08
5400	18.75	27.59	6.28	9.83	1.07	1.02	26.19	18.70	2.18
5600	18.58	27.64	6.21	9.45	1.07	1.02	26.46	18.17	2.23
5800	18.40	27.67	6.15	9.08	1.06	1.02	25.33	18.23	2.28
6000	18.21	27.69	6.09	8.75	1.06	1.02	25.84	17.83	2.41
6200	18.01	27.71	6.00	8.45	1.05	1.03	25.72	17.73	2.33
6400	17.78	27.76	5.91	8.17	1.04	1.03	24.61	17.30	2.50
6600	17.51	27.82	5.77	8.17	1.05	1.05	24.17	17.10	2.46
6800	17.40	27.70	5.70	8.12	1.04	1.06	23.71	16.82	2.49
7000	17.23	27.61	5.61	7.83	1.02	1.05	24.23	16.54	2.52
7200	16.99	27.63	5.51	7.59	1.01	1.06	24.34	16.33	2.65
7400	16.72	27.61	5.37	7.42	1.00	1.06	23.76	16.17	2.63
7600	16.42	27.63	5.20	7.27	1.00	1.07	22.97	16.13	2.69
7800	16.09	27.65	5.03	7.16	1.00	1.08	23.17	16.07	2.76
8000	15.73	27.68	4.87	7.07	1.01	1.10	23.15	15.92	2.91
8200	15.32	27.74	4.69	6.99	1.03	1.11	23.02	15.87	2.97
8400	14.87	27.80	4.51	6.94	1.05	1.12	22.49	16.02	3.14
8600	14.37	27.89	4.34	6.93	1.09	1.14	22.34	16.21	3.21
8800	13.81	28.06	4.16	7.02	1.16	1.15	22.44	15.72	3.38
9000	13.15	28.30	4.01	7.19	1.27	1.17	21.55	15.80	3.61
10000	9.51	29.68	3.25	6.13	1.81	1.16	19.04	15.79	4.99

Typical Performance Data

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

TEST CONDITIONS: Vd = 4.75V, Id = 41mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	14.98	33.32	1.83	4.69	1.39	0.98	23.69	13.97	4.70
400	20.16	27.81	5.97	11.85	1.16	0.91	25.85	16.19	2.55
600	21.34	26.53	9.98	18.57	1.12	0.74	26.20	18.30	2.17
800	21.68	26.13	12.97	23.55	1.10	0.67	27.14	19.47	1.76
1000	21.77	26.00	14.47	26.41	1.10	0.65	26.45	20.08	1.69
1200	21.76	25.95	14.47	27.70	1.09	0.65	26.99	20.06	1.67
1400	21.69	25.98	13.63	27.81	1.09	0.67	27.18	20.14	1.67
1600	21.58	26.04	12.57	26.95	1.09	0.69	26.71	19.86	1.47
1800	21.44	26.11	11.62	25.36	1.09	0.72	26.49	20.22	1.61
2000	21.32	26.18	10.80	23.73	1.09	0.75	26.50	20.29	1.58
2200	21.17	26.26	10.05	22.16	1.09	0.78	26.59	19.89	1.77
2400	21.01	26.33	9.43	20.81	1.09	0.81	27.05	19.83	1.70
2600	20.82	26.44	8.90	19.57	1.09	0.84	26.56	19.77	1.73
2800	20.63	26.57	8.43	18.33	1.09	0.87	26.48	19.45	1.85
3000	20.46	26.63	8.00	17.13	1.09	0.89	26.56	19.42	1.89
3200	20.30	26.72	7.64	16.02	1.09	0.91	26.24	19.15	1.83
3400	20.15	26.80	7.35	15.11	1.08	0.93	25.62	19.29	2.01
3600	19.99	26.85	7.11	14.29	1.08	0.95	25.49	19.37	1.96
3800	19.83	26.93	6.90	13.57	1.08	0.96	26.50	18.79	1.95
4000	19.66	26.99	6.74	12.90	1.07	0.97	25.99	18.94	1.95
4200	19.49	27.06	6.61	12.33	1.07	0.99	25.18	19.08	2.05
4400	19.32	27.14	6.50	11.78	1.07	0.99	25.52	18.69	2.08
4600	19.16	27.21	6.40	11.27	1.07	1.00	24.89	18.70	2.13
4800	18.98	27.24	6.33	10.80	1.07	1.01	25.04	18.50	2.09
5000	18.82	27.30	6.27	10.37	1.07	1.01	25.20	18.61	2.22
5200	18.65	27.32	6.22	9.99	1.06	1.02	24.22	18.87	2.11
5400	18.48	27.35	6.16	9.62	1.06	1.02	24.99	18.42	2.23
5600	18.31	27.39	6.10	9.25	1.06	1.02	25.67	17.89	2.26
5800	18.14	27.43	6.04	8.89	1.05	1.02	24.56	18.08	2.29
6000	17.96	27.43	5.98	8.57	1.04	1.02	25.17	17.69	2.45
6200	17.76	27.46	5.90	8.28	1.04	1.02	24.82	17.59	2.39
6400	17.54	27.51	5.81	8.02	1.03	1.03	24.14	17.05	2.52
6600	17.27	27.58	5.67	8.02	1.04	1.05	23.47	16.98	2.55
6800	17.16	27.47	5.60	7.98	1.02	1.06	23.17	16.84	2.54
7000	17.00	27.40	5.52	7.70	1.01	1.05	23.63	16.44	2.56
7200	16.77	27.39	5.42	7.47	1.00	1.05	23.78	16.09	2.68
7400	16.50	27.39	5.29	7.30	0.99	1.06	23.09	16.08	2.73
7600	16.20	27.41	5.13	7.17	0.99	1.07	22.22	16.04	2.76
7800	15.89	27.43	4.97	7.06	0.99	1.08	22.51	15.98	2.82
8000	15.52	27.47	4.80	6.97	1.00	1.09	22.45	15.71	2.95
8200	15.12	27.54	4.62	6.89	1.02	1.10	22.49	15.65	3.05
8400	14.67	27.62	4.45	6.85	1.04	1.12	21.90	15.81	3.10
8600	14.18	27.72	4.29	6.84	1.08	1.13	21.87	15.86	3.26
8800	13.62	27.90	4.11	6.93	1.15	1.15	22.08	15.50	3.47
9000	12.96	28.16	3.97	7.10	1.27	1.17	21.08	15.45	3.62
10000	9.33	29.55	3.23	6.05	1.80	1.15	18.70	15.73	5.07

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.25V, Id = 47mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	15.75	33.78	1.88	4.81	1.37	0.99	25.06	14.58	4.62
400	20.90	28.29	6.24	12.67	1.15	0.91	26.99	16.76	2.54
600	22.03	27.09	10.51	20.87	1.11	0.74	27.84	18.52	2.10
800	22.35	26.69	13.80	27.42	1.10	0.66	28.51	19.55	1.70
1000	22.44	26.57	15.50	29.80	1.09	0.64	28.17	20.28	1.63
1200	22.42	26.52	15.42	30.40	1.09	0.64	28.80	20.26	1.60
1400	22.34	26.54	14.40	30.82	1.09	0.66	28.79	20.34	1.64
1600	22.22	26.59	13.19	30.84	1.09	0.69	28.80	20.18	1.49
1800	22.09	26.66	12.15	29.37	1.09	0.71	28.18	20.39	1.54
2000	21.96	26.72	11.26	27.29	1.09	0.74	27.85	20.47	1.60
2200	21.80	26.80	10.45	25.13	1.09	0.77	28.38	20.07	1.73
2400	21.64	26.90	9.81	23.32	1.09	0.80	28.14	20.14	1.68
2600	21.44	26.99	9.25	21.69	1.09	0.83	27.93	20.07	1.78
2800	21.25	27.12	8.76	20.11	1.10	0.86	28.16	19.74	1.76
3000	21.07	27.17	8.31	18.63	1.09	0.89	27.92	19.73	1.86
3200	20.91	27.25	7.93	17.29	1.09	0.91	28.09	19.47	1.82
3400	20.75	27.32	7.63	16.22	1.09	0.93	27.37	19.56	1.97
3600	20.59	27.38	7.38	15.28	1.09	0.95	27.26	19.65	1.85
3800	20.41	27.42	7.17	14.45	1.08	0.96	28.49	19.36	1.97
4000	20.23	27.48	6.99	13.70	1.08	0.97	27.60	19.37	1.90
4200	20.06	27.56	6.86	13.05	1.08	0.99	26.92	19.50	1.96
4400	19.88	27.61	6.75	12.42	1.08	1.00	27.42	19.10	2.05
4600	19.71	27.69	6.64	11.86	1.08	1.00	26.85	19.10	2.12
4800	19.53	27.69	6.57	11.35	1.08	1.01	26.81	19.02	2.06
5000	19.36	27.75	6.51	10.87	1.08	1.01	26.74	19.11	2.13
5200	19.18	27.80	6.45	10.45	1.08	1.02	25.75	19.22	2.08
5400	19.00	27.81	6.40	10.05	1.08	1.02	27.00	18.90	2.15
5600	18.82	27.89	6.33	9.66	1.08	1.02	27.24	18.38	2.22
5800	18.64	27.83	6.27	9.27	1.07	1.02	25.90	18.43	2.24
6000	18.44	27.88	6.20	8.93	1.06	1.03	26.67	18.03	2.38
6200	18.24	27.87	6.12	8.61	1.06	1.03	26.21	17.91	2.28
6400	18.00	27.95	6.02	8.32	1.05	1.03	25.40	17.48	2.48
6600	17.73	28.00	5.88	8.31	1.06	1.05	24.86	17.39	2.46
6800	17.61	27.88	5.80	8.26	1.05	1.06	24.35	16.99	2.51
7000	17.43	27.81	5.71	7.95	1.03	1.06	24.96	16.71	2.51
7200	17.19	27.79	5.60	7.71	1.02	1.06	25.02	16.49	2.61
7400	16.91	27.82	5.46	7.53	1.02	1.07	24.22	16.34	2.58
7600	16.60	27.82	5.28	7.38	1.02	1.08	23.35	16.29	2.72
7800	16.28	27.81	5.11	7.26	1.01	1.09	23.63	16.35	2.77
8000	15.91	27.82	4.94	7.17	1.02	1.10	23.41	16.21	2.92
8200	15.50	27.91	4.75	7.08	1.04	1.11	23.47	16.15	3.02
8400	15.04	27.96	4.56	7.03	1.06	1.12	23.02	16.16	3.11
8600	14.54	28.03	4.39	7.02	1.10	1.14	22.86	16.34	3.18
8800	13.98	28.18	4.21	7.11	1.17	1.16	22.91	15.86	3.42
9000	13.32	28.42	4.05	7.28	1.28	1.18	21.99	15.80	3.52
10000	9.69	29.72	3.28	6.20	1.80	1.16	19.54	15.77	5.06

Typical Performance Data

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

TEST CONDITIONS: Vd = 6.00V, Id = 74mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.56	32.85	2.54	5.84	1.28	1.04	29.39	15.74	3.73
400	22.06	28.04	10.15	21.30	1.13	0.85	33.36	18.61	2.05
600	22.72	27.26	18.19	15.99	1.10	0.65	34.15	20.63	1.71
800	22.85	27.06	23.26	13.36	1.09	0.57	36.70	21.50	1.39
1000	22.86	26.99	22.76	12.51	1.08	0.54	36.80	21.78	1.36
1200	22.84	26.97	21.13	12.27	1.08	0.54	39.74	21.91	1.34
1400	22.79	26.98	19.78	12.33	1.08	0.54	39.96	21.88	1.28
1600	22.72	27.01	18.68	12.59	1.09	0.56	40.63	21.70	1.20
1800	22.66	27.03	17.82	13.05	1.09	0.58	36.48	21.63	1.28
2000	22.60	27.04	17.01	13.57	1.09	0.60	38.48	21.68	1.21
2200	22.54	27.06	16.23	14.24	1.10	0.62	37.24	21.29	1.34
2400	22.46	27.11	15.56	14.94	1.10	0.64	45.85	21.33	1.36
2600	22.36	27.15	14.98	15.96	1.11	0.67	35.84	21.31	1.32
2800	22.25	27.24	14.51	17.16	1.12	0.70	40.59	21.01	1.37
3000	22.16	27.25	13.95	18.54	1.12	0.72	38.01	20.88	1.36
3200	22.10	27.26	13.33	19.84	1.12	0.74	39.17	20.52	1.41
3400	22.03	27.30	12.83	20.69	1.12	0.76	34.02	20.23	1.49
3600	21.95	27.34	12.41	21.29	1.12	0.78	37.29	20.55	1.40
3800	21.86	27.38	12.03	21.49	1.12	0.80	36.60	20.49	1.42
4000	21.76	27.44	11.73	21.25	1.13	0.81	35.73	20.20	1.40
4200	21.66	27.50	11.46	20.53	1.13	0.83	35.80	20.19	1.45
4400	21.55	27.56	11.29	19.62	1.14	0.84	37.92	20.09	1.44
4600	21.45	27.58	11.04	18.61	1.14	0.85	35.20	19.88	1.48
4800	21.34	27.64	10.87	17.69	1.14	0.86	34.99	20.03	1.48
5000	21.24	27.72	10.72	16.85	1.15	0.87	35.67	19.99	1.58
5200	21.13	27.78	10.56	16.06	1.15	0.88	32.79	20.23	1.46
5400	21.02	27.83	10.42	15.36	1.16	0.88	36.91	20.33	1.57
5600	20.93	27.92	10.27	14.67	1.16	0.89	34.97	19.75	1.54
5800	20.83	27.97	10.14	14.03	1.17	0.90	32.60	19.61	1.58
6000	20.72	28.01	10.02	13.48	1.17	0.90	36.82	19.76	1.70
6200	20.60	28.07	9.86	12.90	1.17	0.91	34.67	19.75	1.67
6400	20.47	28.17	9.64	12.35	1.17	0.92	33.00	19.07	1.80
6600	20.26	28.33	9.37	11.91	1.19	0.94	31.66	18.90	1.80
6800	20.07	28.39	8.90	12.30	1.19	0.97	31.48	18.77	1.80
7000	20.06	28.35	8.74	11.85	1.17	0.97	32.35	18.79	1.79
7200	19.91	28.43	8.44	11.33	1.17	0.98	32.04	18.58	1.93
7400	19.72	28.49	8.07	10.92	1.16	0.99	31.18	18.33	1.91
7600	19.50	28.58	7.63	10.56	1.16	1.01	29.53	17.94	1.93
7800	19.26	28.69	7.21	10.20	1.15	1.03	30.02	18.07	2.00
8000	18.98	28.78	6.78	9.90	1.14	1.06	29.97	17.83	2.13
8200	18.67	28.88	6.31	9.59	1.13	1.08	29.49	17.36	2.19
8400	18.31	29.00	5.86	9.34	1.13	1.11	28.79	17.30	2.22
8600	17.91	29.13	5.45	9.09	1.13	1.13	28.79	17.43	2.43
8800	17.46	29.28	5.03	8.88	1.13	1.16	28.50	17.05	2.53
9000	16.93	29.48	4.66	8.81	1.16	1.19	26.97	16.37	2.65
10000	13.47	30.87	3.39	6.67	1.39	1.19	24.26	15.15	3.91

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.75V, Id = 70mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.35	32.73	2.52	5.79	1.29	1.04	28.77	14.96	3.75
400	21.87	27.87	9.99	21.54	1.13	0.85	31.22	18.08	1.99
600	22.54	27.08	17.97	16.46	1.10	0.65	32.01	20.25	1.71
800	22.68	26.87	23.76	13.66	1.09	0.57	35.96	21.15	1.37
1000	22.70	26.81	23.62	12.77	1.08	0.54	34.44	21.56	1.36
1200	22.68	26.78	21.75	12.52	1.08	0.54	35.88	21.57	1.26
1400	22.63	26.78	20.23	12.57	1.08	0.55	37.28	21.66	1.29
1600	22.57	26.82	18.92	12.88	1.09	0.56	35.83	21.48	1.21
1800	22.50	26.83	18.04	13.38	1.09	0.58	33.88	21.42	1.27
2000	22.45	26.83	17.14	13.96	1.09	0.60	34.45	21.47	1.20
2200	22.39	26.88	16.23	14.65	1.10	0.62	35.21	20.96	1.22
2400	22.31	26.94	15.52	15.35	1.10	0.65	35.26	21.13	1.25
2600	22.21	26.99	14.88	16.37	1.11	0.68	34.20	21.10	1.29
2800	22.10	27.03	14.39	17.55	1.12	0.70	33.31	20.69	1.33
3000	22.01	27.10	13.80	18.92	1.12	0.73	32.99	20.67	1.39
3200	21.95	27.15	13.20	20.18	1.12	0.75	34.08	20.31	1.37
3400	21.88	27.16	12.68	21.03	1.12	0.76	31.94	19.90	1.45
3600	21.80	27.20	12.27	21.50	1.12	0.78	31.57	20.23	1.41
3800	21.71	27.22	11.86	21.59	1.12	0.80	33.07	20.18	1.44
4000	21.62	27.29	11.56	21.18	1.12	0.82	32.75	19.88	1.37
4200	21.52	27.31	11.30	20.39	1.12	0.83	30.83	19.87	1.42
4400	21.41	27.42	11.09	19.42	1.13	0.84	31.54	19.78	1.46
4600	21.32	27.47	10.85	18.37	1.13	0.85	31.40	19.45	1.54
4800	21.21	27.54	10.71	17.39	1.14	0.86	30.95	19.61	1.51
5000	21.11	27.58	10.55	16.54	1.14	0.87	31.10	19.70	1.56
5200	21.01	27.65	10.43	15.78	1.15	0.88	29.79	19.94	1.47
5400	20.91	27.71	10.30	15.14	1.15	0.89	31.11	20.05	1.53
5600	20.81	27.79	10.18	14.47	1.16	0.89	31.36	19.48	1.55
5800	20.72	27.87	10.06	13.82	1.16	0.90	29.96	19.46	1.55
6000	20.60	27.88	9.94	13.26	1.16	0.90	31.09	19.51	1.62
6200	20.50	27.97	9.78	12.68	1.16	0.91	30.64	19.51	1.69
6400	20.36	28.07	9.58	12.11	1.16	0.92	29.34	18.82	1.83
6600	20.17	28.21	9.33	11.62	1.17	0.93	29.03	18.66	1.76
6800	19.92	28.37	8.82	11.89	1.19	0.97	28.72	18.65	1.85
7000	19.94	28.26	8.66	11.60	1.17	0.97	29.54	18.68	1.84
7200	19.80	28.32	8.38	11.09	1.16	0.97	29.88	18.47	1.93
7400	19.62	28.43	8.01	10.66	1.16	0.99	28.66	18.23	1.94
7600	19.40	28.51	7.59	10.29	1.15	1.01	27.85	17.85	1.99
7800	19.16	28.58	7.19	9.96	1.14	1.03	28.65	18.00	2.03
8000	18.89	28.69	6.75	9.63	1.13	1.05	27.93	17.75	2.17
8200	18.58	28.83	6.30	9.33	1.12	1.08	28.03	17.29	2.18
8400	18.22	28.94	5.84	9.09	1.12	1.10	27.54	17.24	2.28
8600	17.82	29.08	5.44	8.84	1.12	1.13	27.63	17.37	2.38
8800	17.37	29.24	5.00	8.67	1.12	1.16	27.69	16.98	2.52
9000	16.85	29.43	4.65	8.57	1.15	1.18	26.59	16.31	2.64
10000	13.33	30.92	3.38	6.48	1.40	1.18	23.58	15.10	3.80

Typical Performance Data

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

TEST CONDITIONS: Vd = 6.25V, Id = 79mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.76	33.14	2.53	5.79	1.29	1.03	30.29	16.25	3.75
400	22.28	28.27	10.11	21.16	1.13	0.85	33.90	19.12	2.02
600	22.94	27.42	18.12	16.05	1.09	0.65	32.69	21.11	1.72
800	23.07	27.25	23.49	13.36	1.08	0.57	36.21	21.85	1.39
1000	23.09	27.17	23.03	12.51	1.08	0.54	34.43	22.12	1.34
1200	23.06	27.15	21.31	12.25	1.08	0.53	37.99	22.13	1.31
1400	23.01	27.14	19.92	12.32	1.08	0.54	40.42	22.21	1.30
1600	22.95	27.19	18.70	12.62	1.09	0.56	38.69	22.03	1.15
1800	22.87	27.22	17.87	13.12	1.09	0.58	41.07	21.96	1.25
2000	22.82	27.22	17.01	13.68	1.09	0.60	35.15	22.01	1.20
2200	22.75	27.21	16.14	14.35	1.09	0.62	37.24	21.61	1.37
2400	22.67	27.26	15.46	15.05	1.10	0.64	38.82	21.66	1.28
2600	22.56	27.32	14.85	16.06	1.11	0.67	36.80	21.63	1.27
2800	22.44	27.39	14.37	17.21	1.12	0.70	36.90	21.33	1.41
3000	22.35	27.44	13.78	18.56	1.12	0.72	37.21	21.31	1.34
3200	22.29	27.46	13.19	19.86	1.12	0.74	35.33	20.84	1.39
3400	22.21	27.48	12.68	20.79	1.12	0.76	34.34	20.55	1.48
3600	22.12	27.49	12.28	21.40	1.12	0.78	34.03	20.87	1.39
3800	22.02	27.56	11.88	21.66	1.12	0.80	36.73	20.91	1.42
4000	21.92	27.58	11.56	21.44	1.12	0.81	33.66	20.51	1.37
4200	21.81	27.66	11.31	20.71	1.13	0.83	32.40	20.50	1.44
4400	21.70	27.69	11.11	19.79	1.13	0.84	33.60	20.40	1.45
4600	21.59	27.78	10.87	18.73	1.14	0.86	32.47	20.18	1.51
4800	21.48	27.82	10.72	17.72	1.14	0.86	32.00	20.32	1.43
5000	21.37	27.88	10.58	16.86	1.15	0.87	32.52	20.39	1.56
5200	21.26	27.94	10.46	16.05	1.15	0.88	31.36	20.62	1.42
5400	21.15	28.00	10.32	15.39	1.16	0.89	31.99	20.59	1.52
5600	21.05	28.07	10.21	14.68	1.16	0.89	32.58	20.13	1.53
5800	20.94	28.13	10.08	14.01	1.17	0.90	31.56	19.87	1.54
6000	20.82	28.14	9.96	13.43	1.17	0.91	31.84	20.01	1.60
6200	20.70	28.24	9.81	12.83	1.17	0.91	31.96	20.00	1.67
6400	20.56	28.32	9.60	12.23	1.17	0.92	31.48	19.31	1.79
6600	20.36	28.45	9.34	11.73	1.18	0.94	30.61	19.13	1.78
6800	20.09	28.60	8.84	11.99	1.20	0.97	29.54	18.99	1.76
7000	20.11	28.48	8.67	11.70	1.17	0.97	30.84	18.89	1.85
7200	19.96	28.53	8.39	11.17	1.17	0.98	31.19	18.78	1.91
7400	19.77	28.60	8.02	10.72	1.16	0.99	29.88	18.53	1.91
7600	19.54	28.69	7.59	10.34	1.15	1.01	29.04	18.13	1.94
7800	19.29	28.74	7.20	10.00	1.14	1.03	29.77	18.26	2.06
8000	19.02	28.84	6.76	9.67	1.13	1.05	29.36	18.01	2.12
8200	18.69	28.95	6.31	9.37	1.12	1.08	29.23	17.54	2.18
8400	18.33	29.07	5.85	9.13	1.12	1.11	28.40	17.48	2.29
8600	17.92	29.17	5.45	8.87	1.12	1.13	28.41	17.59	2.37
8800	17.46	29.33	5.02	8.71	1.12	1.16	28.65	17.09	2.48
9000	16.94	29.52	4.66	8.62	1.15	1.19	27.48	16.53	2.59
10000	13.41	30.95	3.40	6.55	1.40	1.19	24.88	15.30	3.82

Typical Performance Data

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

TEST CONDITIONS: Vd = 6.00V, Id = 86mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.61	30.87	3.39	6.43	1.23	1.01	33.90	15.66	2.80
400	21.26	26.83	15.27	12.68	1.11	0.73	29.16	19.38	1.54
600	21.45	26.54	13.65	9.00	1.09	0.54	29.48	21.68	1.34
800	21.42	26.47	11.71	7.94	1.08	0.47	29.61	22.28	1.07
1000	21.38	26.46	10.98	7.56	1.08	0.45	30.25	22.39	1.04
1200	21.37	26.45	10.72	7.44	1.07	0.44	29.76	22.55	1.00
1400	21.37	26.43	10.76	7.49	1.08	0.44	30.00	22.65	0.98
1600	21.36	26.43	10.93	7.60	1.08	0.45	29.88	22.70	0.84
1800	21.36	26.41	11.21	7.83	1.08	0.46	29.70	22.66	0.91
2000	21.39	26.36	11.51	8.04	1.08	0.47	30.95	22.64	0.88
2200	21.42	26.27	11.90	8.29	1.08	0.47	29.59	22.48	0.87
2400	21.44	26.27	12.38	8.61	1.08	0.48	30.37	22.57	0.89
2600	21.44	26.23	12.85	8.98	1.09	0.50	30.80	22.49	0.97
2800	21.42	26.24	13.49	9.52	1.10	0.52	30.08	22.21	0.97
3000	21.45	26.21	14.39	10.14	1.10	0.54	30.26	22.13	1.03
3200	21.53	26.13	15.15	10.55	1.09	0.54	29.24	21.72	0.96
3400	21.57	26.08	15.78	10.95	1.09	0.54	31.46	21.25	1.06
3600	21.59	26.06	16.32	11.32	1.09	0.55	31.86	21.40	0.96
3800	21.60	26.06	16.98	11.80	1.09	0.56	30.10	21.56	1.01
4000	21.60	26.04	17.66	12.29	1.09	0.57	30.42	21.00	0.92
4200	21.59	26.01	18.35	12.80	1.09	0.58	31.23	20.80	1.02
4400	21.59	26.07	19.16	13.44	1.10	0.60	30.24	20.73	1.00
4600	21.60	26.08	20.00	14.11	1.10	0.61	30.73	20.29	1.06
4800	21.59	26.10	20.64	14.74	1.10	0.62	31.56	20.40	0.98
5000	21.58	26.13	21.09	15.39	1.11	0.63	31.75	20.35	1.06
5200	21.57	26.15	21.51	15.93	1.11	0.64	34.71	20.38	0.98
5400	21.56	26.19	21.64	16.58	1.12	0.65	32.31	20.76	1.10
5600	21.56	26.22	21.59	17.21	1.12	0.65	31.22	20.40	1.05
5800	21.56	26.28	21.41	17.89	1.12	0.66	31.05	20.03	1.08
6000	21.57	26.32	20.82	18.44	1.12	0.67	32.61	20.57	1.17
6200	21.56	26.39	20.46	18.81	1.13	0.68	32.98	20.52	1.16
6400	21.55	26.47	19.75	19.10	1.13	0.69	30.88	19.58	1.32
6600	21.52	26.57	18.99	19.15	1.14	0.70	31.40	19.37	1.29
6800	21.33	26.87	17.64	17.81	1.16	0.74	32.11	19.12	1.28
7000	21.39	26.82	16.25	20.21	1.16	0.74	31.32	19.70	1.25
7200	21.44	26.89	15.69	20.35	1.15	0.75	31.44	19.76	1.40
7400	21.40	27.02	14.73	19.75	1.16	0.77	32.35	19.32	1.36
7600	21.32	27.19	13.54	18.80	1.16	0.79	31.25	18.60	1.42
7800	21.24	27.38	12.49	17.85	1.17	0.82	33.03	19.03	1.49
8000	21.13	27.56	11.36	16.85	1.17	0.85	31.48	18.76	1.55
8200	20.98	27.81	10.26	15.93	1.17	0.88	30.54	18.12	1.59
8400	20.77	28.09	9.25	14.88	1.18	0.92	30.22	18.05	1.63
8600	20.51	28.40	8.24	13.84	1.18	0.97	31.63	18.49	1.74
8800	20.21	28.65	7.32	12.78	1.17	1.01	30.19	17.95	1.82
9000	19.82	29.05	6.52	11.88	1.18	1.06	29.20	16.62	1.95
10000	16.49	31.53	3.84	6.89	1.29	1.13	27.67	15.61	2.90

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.75V, Id = 81mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.41	30.63	3.39	6.47	1.23	1.01	31.12	15.02	2.74
400	21.04	26.68	15.31	12.59	1.11	0.73	29.78	18.19	1.56
600	21.23	26.34	13.63	8.95	1.09	0.54	29.53	20.93	1.34
800	21.20	26.30	11.68	7.90	1.08	0.48	29.99	21.61	1.09
1000	21.16	26.27	10.94	7.52	1.08	0.45	29.98	21.82	1.05
1200	21.16	26.25	10.68	7.41	1.07	0.44	29.48	21.99	1.04
1400	21.15	26.24	10.72	7.45	1.08	0.44	30.10	22.18	1.00
1600	21.15	26.22	10.88	7.57	1.08	0.45	29.68	22.14	0.85
1800	21.14	26.20	11.16	7.78	1.08	0.46	29.98	22.10	0.93
2000	21.18	26.15	11.45	8.00	1.08	0.46	32.06	22.17	0.92
2200	21.22	26.10	11.85	8.24	1.08	0.47	29.02	21.90	1.00
2400	21.24	26.06	12.31	8.55	1.08	0.48	29.92	21.99	0.99
2600	21.24	26.06	12.79	8.92	1.09	0.50	29.99	21.91	0.94
2800	21.22	26.07	13.42	9.45	1.10	0.52	29.73	21.63	1.04
3000	21.26	26.05	14.32	10.06	1.10	0.54	30.19	21.55	1.03
3200	21.34	25.94	15.09	10.46	1.09	0.53	29.85	21.14	0.98
3400	21.39	25.89	15.73	10.84	1.09	0.54	30.25	20.66	1.06
3600	21.41	25.88	16.28	11.19	1.09	0.55	31.55	20.93	1.00
3800	21.42	25.85	16.97	11.66	1.09	0.56	30.04	20.99	1.03
4000	21.43	25.86	17.68	12.13	1.09	0.57	30.60	20.53	0.95
4200	21.43	25.84	18.42	12.62	1.09	0.58	31.05	20.22	1.00
4400	21.43	25.88	19.29	13.23	1.10	0.59	30.65	20.15	1.04
4600	21.44	25.89	20.18	13.87	1.10	0.60	31.65	19.71	1.06
4800	21.44	25.91	20.92	14.48	1.10	0.61	30.69	19.82	1.04
5000	21.44	25.93	21.47	15.10	1.10	0.62	30.68	19.89	1.12
5200	21.42	25.97	21.97	15.61	1.11	0.63	32.96	19.93	1.00
5400	21.43	26.04	22.16	16.24	1.11	0.64	31.89	20.32	1.06
5600	21.43	26.07	22.17	16.86	1.12	0.65	30.81	19.97	1.08
5800	21.44	26.08	22.00	17.52	1.12	0.65	30.49	19.60	1.10
6000	21.45	26.13	21.41	18.10	1.12	0.66	31.81	20.15	1.16
6200	21.45	26.19	21.07	18.50	1.12	0.67	31.36	20.22	1.17
6400	21.44	26.28	20.31	18.86	1.13	0.68	30.47	19.29	1.29
6600	21.42	26.39	19.52	19.02	1.14	0.69	30.60	19.09	1.25
6800	21.25	26.67	18.12	17.80	1.16	0.73	29.98	18.85	1.24
7000	21.31	26.65	16.65	20.14	1.15	0.73	31.21	19.43	1.27
7200	21.37	26.70	16.08	20.55	1.15	0.74	31.49	19.49	1.38
7400	21.34	26.85	15.10	20.15	1.15	0.76	30.24	19.07	1.36
7600	21.26	27.00	13.85	19.29	1.16	0.78	29.31	18.50	1.41
7800	21.19	27.21	12.77	18.35	1.16	0.81	29.63	19.04	1.41
8000	21.09	27.42	11.59	17.33	1.17	0.84	29.15	18.66	1.51
8200	20.95	27.62	10.47	16.36	1.17	0.87	29.26	18.15	1.56
8400	20.76	27.92	9.42	15.24	1.17	0.91	29.08	18.10	1.63
8600	20.50	28.21	8.39	14.14	1.17	0.96	28.69	18.54	1.72
8800	20.22	28.51	7.44	13.01	1.17	1.00	29.41	17.98	1.73
9000	19.83	28.91	6.62	12.04	1.18	1.05	27.92	16.81	1.94
10000	16.52	31.54	3.86	6.87	1.31	1.13	25.97	15.68	2.85

Typical Performance Data

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

TEST CONDITIONS: Vd = 6.25V, Id = 90mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	17.80	31.08	3.38	6.39	1.23	1.01	32.78	16.29	2.82
400	21.46	27.07	15.23	12.71	1.11	0.73	28.71	20.04	1.54
600	21.66	26.70	13.71	9.03	1.08	0.54	29.21	22.17	1.35
800	21.63	26.66	11.77	7.96	1.08	0.47	29.70	22.67	1.10
1000	21.59	26.66	11.03	7.58	1.08	0.45	29.97	22.84	1.03
1200	21.58	26.63	10.78	7.46	1.07	0.44	29.79	22.99	0.99
1400	21.58	26.61	10.82	7.51	1.07	0.44	29.54	23.10	1.01
1600	21.57	26.59	10.99	7.62	1.08	0.45	29.56	23.06	0.87
1800	21.56	26.58	11.27	7.85	1.08	0.46	30.33	23.02	0.97
2000	21.59	26.52	11.57	8.07	1.08	0.46	30.72	23.07	0.91
2200	21.62	26.46	11.97	8.33	1.08	0.47	29.71	22.94	1.01
2400	21.64	26.41	12.44	8.65	1.08	0.48	29.75	22.93	0.91
2600	21.63	26.42	12.92	9.02	1.09	0.50	30.46	22.94	0.98
2800	21.61	26.43	13.55	9.56	1.10	0.52	29.76	22.67	1.02
3000	21.64	26.37	14.47	10.20	1.10	0.54	30.30	22.59	0.99
3200	21.71	26.28	15.21	10.62	1.09	0.54	29.77	22.18	0.98
3400	21.75	26.23	15.83	11.03	1.09	0.54	30.48	21.59	1.06
3600	21.76	26.20	16.36	11.41	1.09	0.55	30.94	21.85	0.96
3800	21.77	26.21	17.00	11.91	1.09	0.56	30.43	22.01	1.06
4000	21.77	26.19	17.64	12.42	1.09	0.57	31.01	21.45	0.96
4200	21.75	26.23	18.32	12.95	1.10	0.59	30.63	21.24	1.01
4400	21.75	26.22	19.03	13.62	1.10	0.60	30.99	21.18	1.01
4600	21.75	26.24	19.80	14.30	1.10	0.61	32.43	20.73	1.05
4800	21.74	26.27	20.34	14.96	1.11	0.62	32.40	20.83	1.03
5000	21.72	26.27	20.71	15.64	1.11	0.63	31.74	20.89	1.07
5200	21.70	26.31	21.04	16.20	1.11	0.64	34.17	20.80	0.99
5400	21.69	26.37	21.10	16.87	1.12	0.65	31.88	21.18	1.07
5600	21.68	26.42	21.02	17.52	1.12	0.66	31.79	20.81	1.06
5800	21.68	26.42	20.82	18.19	1.12	0.67	32.66	20.43	1.07
6000	21.68	26.50	20.23	18.75	1.13	0.68	33.21	20.97	1.18
6200	21.67	26.52	19.91	19.08	1.13	0.68	34.17	20.92	1.16
6400	21.64	26.63	19.20	19.30	1.14	0.70	31.31	19.97	1.30
6600	21.61	26.73	18.48	19.26	1.14	0.71	32.28	19.75	1.28
6800	21.41	27.02	17.18	17.82	1.16	0.75	32.49	19.37	1.23
7000	21.47	27.03	15.86	20.26	1.16	0.75	32.08	19.94	1.24
7200	21.51	27.05	15.30	20.14	1.16	0.76	33.20	19.99	1.39
7400	21.46	27.18	14.38	19.44	1.16	0.78	31.62	19.43	1.35
7600	21.37	27.35	13.24	18.41	1.17	0.80	30.48	18.81	1.40
7800	21.28	27.53	12.22	17.46	1.17	0.83	31.01	19.23	1.43
8000	21.16	27.74	11.13	16.48	1.17	0.86	31.11	18.96	1.54
8200	21.00	27.97	10.07	15.58	1.17	0.89	30.16	18.30	1.56
8400	20.79	28.24	9.08	14.58	1.18	0.93	30.66	18.10	1.60
8600	20.52	28.47	8.11	13.62	1.17	0.98	29.98	18.55	1.69
8800	20.21	28.76	7.20	12.60	1.16	1.02	30.68	18.00	1.82
9000	19.81	29.19	6.43	11.74	1.18	1.07	29.28	16.79	1.88
10000	16.47	31.57	3.82	6.91	1.29	1.14	27.13	15.79	2.90

Typical Performance Data

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

TEST CONDITIONS: Vd = 6.00V, Id = 59mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.70	34.40	1.94	4.95	1.36	1.01	27.57	15.68	4.61
400	21.80	28.98	6.59	13.81	1.15	0.91	30.01	17.82	2.48
600	22.89	27.80	11.23	25.08	1.11	0.73	30.25	19.23	2.04
800	23.18	27.41	14.97	31.53	1.09	0.65	31.31	20.10	1.66
1000	23.25	27.28	16.95	27.97	1.09	0.63	31.12	20.65	1.64
1200	23.21	27.25	16.72	27.01	1.09	0.63	32.08	20.76	1.59
1400	23.13	27.27	15.40	27.47	1.08	0.65	31.47	20.82	1.57
1600	23.00	27.34	13.96	28.85	1.09	0.68	32.15	20.67	1.47
1800	22.86	27.40	12.80	30.53	1.09	0.71	32.28	20.71	1.55
2000	22.72	27.42	11.82	30.95	1.09	0.73	30.02	20.80	1.57
2200	22.56	27.53	10.95	29.48	1.09	0.77	31.52	20.52	1.72
2400	22.38	27.58	10.26	27.19	1.09	0.80	31.34	20.59	1.64
2600	22.18	27.67	9.67	24.96	1.10	0.83	31.96	20.63	1.73
2800	21.98	27.78	9.16	22.79	1.10	0.86	32.00	20.44	1.78
3000	21.79	27.84	8.70	20.83	1.10	0.88	32.28	20.32	1.83
3200	21.62	27.89	8.31	19.13	1.10	0.91	31.80	20.18	1.79
3400	21.45	27.97	8.00	17.80	1.10	0.93	30.00	20.10	1.91
3600	21.27	27.99	7.74	16.63	1.10	0.94	30.30	20.18	1.84
3800	21.08	28.07	7.52	15.65	1.10	0.96	31.95	20.18	1.92
4000	20.89	28.09	7.34	14.76	1.10	0.97	30.97	20.06	1.87
4200	20.70	28.13	7.21	14.01	1.10	0.99	30.04	20.04	1.99
4400	20.51	28.25	7.08	13.30	1.11	1.00	30.73	19.76	2.00
4600	20.33	28.24	6.98	12.65	1.10	1.00	29.67	19.73	2.05
4800	20.14	28.26	6.90	12.07	1.10	1.01	29.97	19.63	2.03
5000	19.95	28.31	6.85	11.54	1.11	1.02	30.01	19.57	2.16
5200	19.76	28.36	6.78	11.07	1.11	1.02	28.40	19.51	2.05
5400	19.57	28.36	6.73	10.62	1.11	1.02	29.62	19.21	2.13
5600	19.38	28.40	6.66	10.19	1.11	1.03	29.57	18.83	2.19
5800	19.18	28.38	6.59	9.77	1.10	1.03	28.03	18.71	2.22
6000	18.97	28.41	6.52	9.39	1.10	1.03	28.91	18.43	2.37
6200	18.76	28.39	6.43	9.04	1.09	1.03	28.16	18.31	2.27
6400	18.51	28.46	6.33	8.72	1.09	1.04	27.57	17.84	2.44
6600	18.22	28.48	6.18	8.68	1.10	1.06	26.50	17.62	2.43
6800	18.08	28.33	6.09	8.62	1.08	1.06	26.20	17.32	2.47
7000	17.90	28.28	5.99	8.30	1.07	1.06	26.55	17.04	2.50
7200	17.64	28.27	5.87	8.04	1.06	1.06	26.58	16.83	2.60
7400	17.35	28.23	5.71	7.83	1.05	1.07	25.85	16.78	2.61
7600	17.04	28.20	5.52	7.67	1.05	1.08	24.72	16.58	2.71
7800	16.70	28.21	5.34	7.53	1.05	1.09	25.23	16.38	2.77
8000	16.32	28.20	5.15	7.43	1.05	1.10	24.65	16.36	2.91
8200	15.91	28.26	4.95	7.33	1.07	1.11	24.76	16.15	2.95
8400	15.45	28.30	4.74	7.28	1.09	1.13	24.40	15.99	3.03
8600	14.94	28.39	4.55	7.26	1.13	1.14	24.16	16.02	3.16
8800	14.37	28.50	4.35	7.35	1.20	1.16	24.28	15.82	3.35
9000	13.71	28.73	4.18	7.52	1.31	1.18	23.33	15.61	3.51
10000	10.10	29.92	3.35	6.41	1.80	1.17	20.51	14.69	5.01

Typical Performance Data

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

TEST CONDITIONS: Vd = 5.75V, Id = 55mA @ Temperature = +105°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.42	34.19	1.92	4.91	1.36	1.00	26.44	15.38	4.61
400	21.53	28.77	6.48	13.47	1.15	0.91	28.71	17.40	2.48
600	22.63	27.57	11.02	23.64	1.11	0.73	29.57	18.84	2.08
800	22.93	27.18	14.62	31.14	1.10	0.66	30.56	19.84	1.64
1000	23.00	27.06	16.51	29.18	1.09	0.63	30.03	20.54	1.61
1200	22.97	27.03	16.33	28.38	1.09	0.64	30.73	20.52	1.55
1400	22.89	27.05	15.11	28.86	1.08	0.65	30.38	20.59	1.58
1600	22.77	27.07	13.73	30.17	1.08	0.68	30.39	20.56	1.46
1800	22.62	27.17	12.61	31.23	1.09	0.71	29.90	20.62	1.58
2000	22.49	27.21	11.66	30.43	1.09	0.74	29.05	20.58	1.53
2200	22.33	27.29	10.82	28.33	1.09	0.77	30.03	20.30	1.73
2400	22.16	27.37	10.13	26.02	1.09	0.80	30.09	20.50	1.64
2600	21.96	27.48	9.55	23.95	1.10	0.83	29.87	20.42	1.70
2800	21.76	27.58	9.05	21.98	1.10	0.86	30.37	20.10	1.77
3000	21.58	27.63	8.59	20.15	1.10	0.89	29.98	20.10	1.84
3200	21.41	27.67	8.20	18.56	1.10	0.91	30.05	19.96	1.77
3400	21.24	27.77	7.90	17.32	1.10	0.93	28.66	19.89	1.93
3600	21.07	27.79	7.63	16.23	1.09	0.94	28.94	19.98	1.83
3800	20.89	27.86	7.42	15.29	1.09	0.96	29.74	19.85	1.89
4000	20.70	27.90	7.24	14.44	1.09	0.97	29.25	19.73	1.88
4200	20.51	27.98	7.10	13.73	1.10	0.99	28.42	19.84	2.00
4400	20.33	28.03	6.99	13.03	1.10	1.00	28.81	19.56	1.99
4600	20.15	28.09	6.88	12.41	1.10	1.01	28.23	19.54	2.07
4800	19.96	28.10	6.81	11.86	1.10	1.01	28.30	19.45	2.04
5000	19.78	28.16	6.75	11.34	1.10	1.02	28.38	19.40	2.14
5200	19.59	28.16	6.69	10.89	1.10	1.02	27.62	19.35	2.02
5400	19.40	28.20	6.63	10.45	1.10	1.02	28.33	19.17	2.08
5600	19.22	28.20	6.56	10.03	1.09	1.02	28.73	18.78	2.17
5800	19.03	28.26	6.50	9.61	1.09	1.03	27.24	18.68	2.19
6000	18.82	28.25	6.43	9.25	1.09	1.03	27.87	18.40	2.35
6200	18.61	28.26	6.34	8.91	1.08	1.03	27.76	18.28	2.29
6400	18.36	28.30	6.24	8.60	1.08	1.04	26.73	17.83	2.45
6600	18.08	28.35	6.09	8.57	1.09	1.05	26.14	17.49	2.45
6800	17.95	28.22	6.00	8.51	1.07	1.06	25.61	17.20	2.42
7000	17.76	28.15	5.91	8.20	1.06	1.06	25.97	17.04	2.45
7200	17.51	28.12	5.79	7.93	1.05	1.06	26.12	16.83	2.59
7400	17.23	28.12	5.63	7.74	1.04	1.07	25.33	16.66	2.57
7600	16.91	28.09	5.45	7.58	1.04	1.08	24.36	16.47	2.72
7800	16.58	28.11	5.27	7.45	1.04	1.09	24.66	16.40	2.76
8000	16.20	28.14	5.08	7.35	1.05	1.10	24.57	16.38	2.91
8200	15.79	28.15	4.89	7.26	1.06	1.11	24.44	16.17	2.95
8400	15.33	28.22	4.69	7.20	1.08	1.13	23.96	16.16	3.02
8600	14.83	28.26	4.50	7.19	1.12	1.14	23.73	16.20	3.16
8800	14.26	28.43	4.31	7.27	1.19	1.16	23.86	15.99	3.32
9000	13.60	28.65	4.14	7.45	1.30	1.18	22.76	15.79	3.53
10000	9.98	29.87	3.33	6.35	1.80	1.17	20.30	15.04	4.99

Typical Performance Data

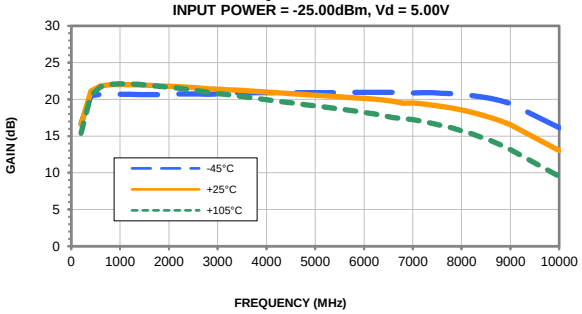
Definitions:
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 6.25V, Id = 63mA @ Temperature = +105°C

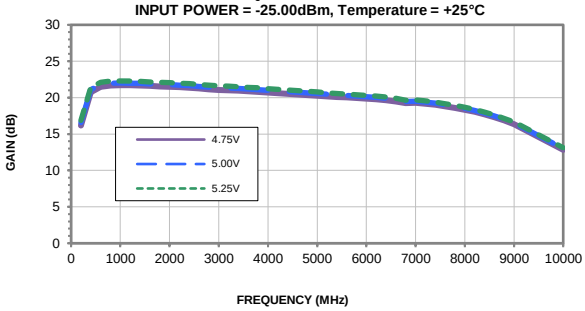
FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
200	16.96	34.60	1.96	4.99	1.36	1.01	27.71	15.96	4.59
400	22.05	29.17	6.67	14.11	1.15	0.91	29.33	18.22	2.50
600	23.12	28.00	11.40	26.57	1.11	0.73	30.65	19.61	2.05
800	23.40	27.63	15.26	30.94	1.09	0.65	31.58	20.46	1.68
1000	23.46	27.51	17.32	26.75	1.09	0.63	31.73	20.87	1.61
1200	23.43	27.45	17.03	25.82	1.08	0.63	31.27	20.98	1.53
1400	23.34	27.48	15.62	26.23	1.08	0.65	31.59	21.04	1.56
1600	23.21	27.53	14.13	27.54	1.09	0.68	32.13	21.02	1.45
1800	23.06	27.57	12.93	29.40	1.09	0.70	31.04	20.92	1.52
2000	22.92	27.63	11.93	30.74	1.09	0.73	30.79	21.01	1.51
2200	22.76	27.69	11.05	30.25	1.09	0.76	31.51	20.73	1.69
2400	22.58	27.80	10.36	28.19	1.09	0.80	31.25	20.93	1.66
2600	22.37	27.86	9.76	25.92	1.10	0.83	31.48	20.84	1.66
2800	22.17	27.94	9.25	23.58	1.10	0.86	31.61	20.52	1.75
3000	21.98	28.03	8.78	21.47	1.11	0.88	31.91	20.65	1.82
3200	21.80	28.08	8.40	19.65	1.10	0.91	31.46	20.51	1.74
3400	21.63	28.11	8.08	18.24	1.10	0.93	30.05	20.42	1.91
3600	21.45	28.17	7.82	17.03	1.10	0.95	30.05	20.49	1.86
3800	21.26	28.23	7.60	15.99	1.10	0.96	31.96	20.39	1.89
4000	21.06	28.26	7.42	15.06	1.10	0.98	30.32	20.25	1.90
4200	20.87	28.34	7.29	14.29	1.11	0.99	30.41	20.22	1.98
4400	20.67	28.37	7.16	13.54	1.11	1.00	30.93	20.06	1.97
4600	20.49	28.38	7.05	12.87	1.11	1.01	29.43	19.90	2.02
4800	20.29	28.43	6.98	12.27	1.11	1.01	29.78	19.79	1.97
5000	20.10	28.48	6.93	11.72	1.11	1.02	30.24	19.73	2.09
5200	19.90	28.50	6.86	11.24	1.11	1.02	28.80	19.52	2.04
5400	19.71	28.51	6.81	10.78	1.11	1.02	29.40	19.48	2.14
5600	19.51	28.52	6.74	10.34	1.11	1.03	29.95	19.09	2.19
5800	19.31	28.54	6.67	9.90	1.11	1.03	28.62	18.84	2.19
6000	19.10	28.56	6.60	9.51	1.11	1.03	29.19	18.57	2.35
6200	18.88	28.53	6.51	9.16	1.10	1.03	28.78	18.44	2.30
6400	18.63	28.56	6.41	8.83	1.10	1.04	27.61	17.96	2.41
6600	18.34	28.62	6.25	8.79	1.11	1.06	27.19	17.73	2.41
6800	18.20	28.48	6.16	8.72	1.09	1.06	26.58	17.32	2.48
7000	18.01	28.40	6.06	8.39	1.08	1.06	27.06	17.28	2.44
7200	17.75	28.36	5.93	8.12	1.07	1.06	27.18	16.94	2.60
7400	17.45	28.36	5.77	7.91	1.06	1.07	26.38	16.76	2.57
7600	17.14	28.36	5.58	7.75	1.06	1.08	25.32	16.55	2.64
7800	16.80	28.32	5.39	7.61	1.06	1.09	25.63	16.48	2.74
8000	16.42	28.32	5.20	7.50	1.07	1.10	25.17	16.33	2.88
8200	16.00	28.33	4.99	7.40	1.08	1.12	25.32	16.11	2.92
8400	15.54	28.39	4.78	7.34	1.10	1.13	24.80	16.07	3.04
8600	15.03	28.45	4.59	7.33	1.14	1.14	24.77	15.97	3.15
8800	14.47	28.59	4.39	7.42	1.20	1.16	24.61	15.77	3.29
9000	13.80	28.82	4.21	7.59	1.32	1.18	23.61	15.54	3.56
10000	10.20	29.95	3.37	6.47	1.80	1.18	20.94	14.34	4.98

Typical Performance Curves

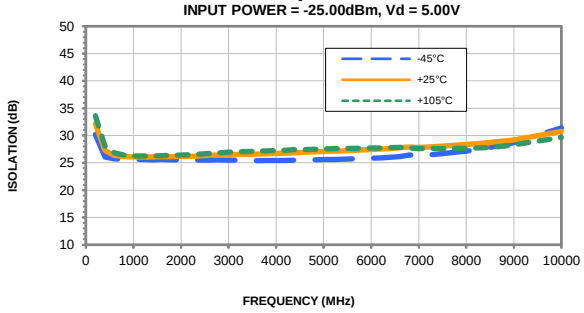
GAIN vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



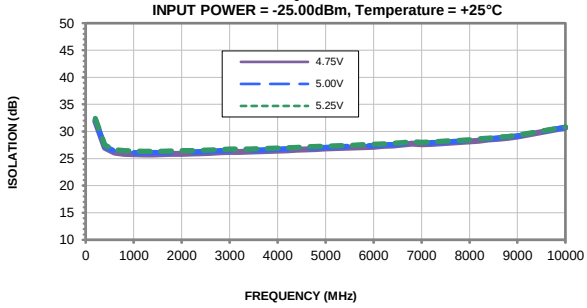
GAIN vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



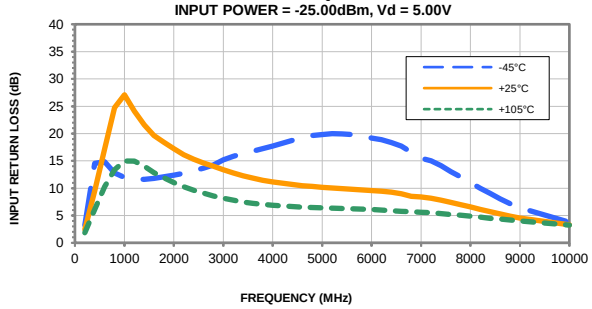
ISOLATION vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



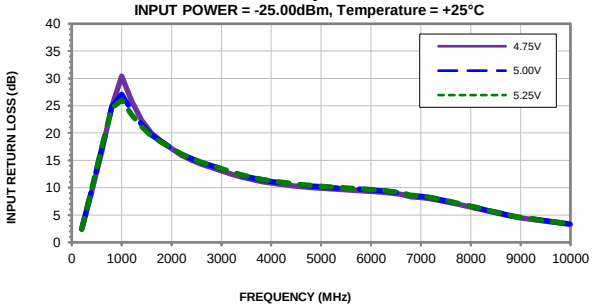
ISOLATION vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



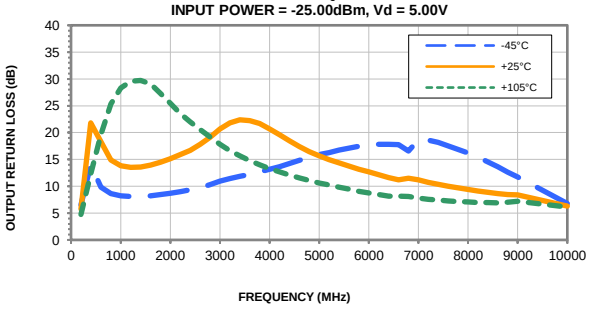
INPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



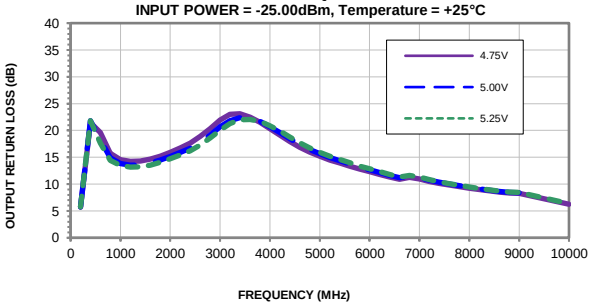
INPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



OUTPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V

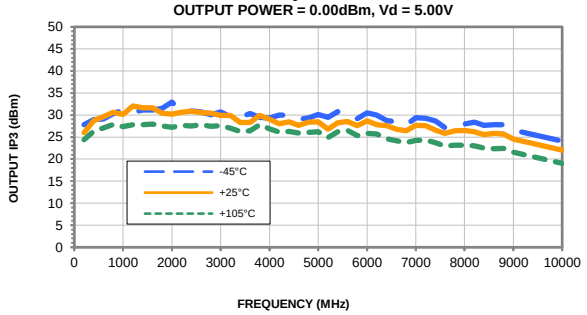


OUTPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C

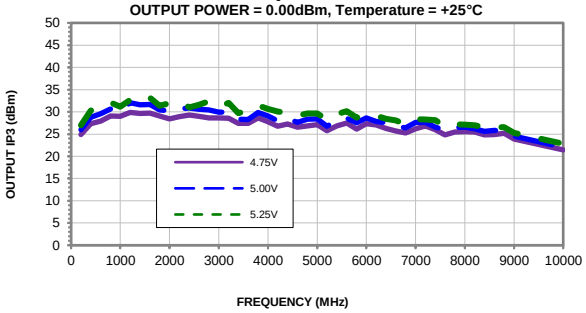


Typical Performance Curves

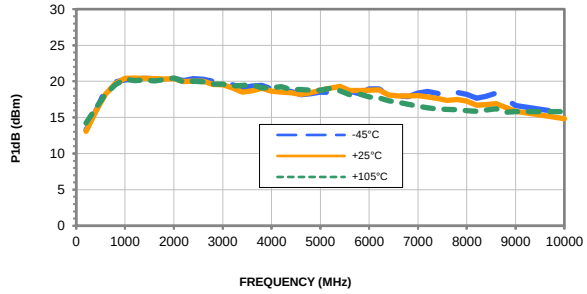
OUTPUT IP3 vs. FREQUENCY & TEMPERATURE
OUTPUT POWER = 0.00dBm, Vd = 5.00V



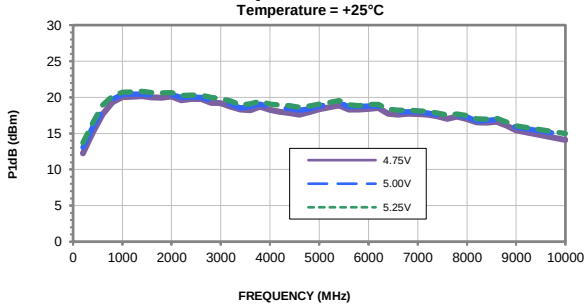
OUTPUT IP3 vs. FREQUENCY & DEVICE VOLTAGE
OUTPUT POWER = 0.00dBm, Temperature = +25°C



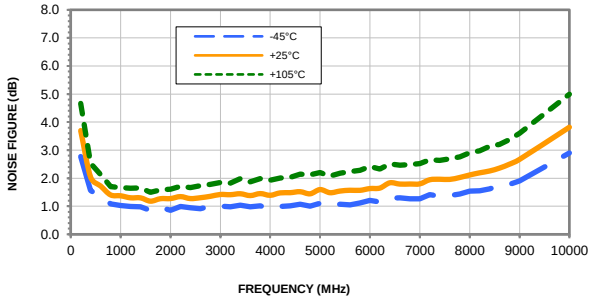
P1dB vs. FREQUENCY & TEMPERATURE
Vd = 5.00V



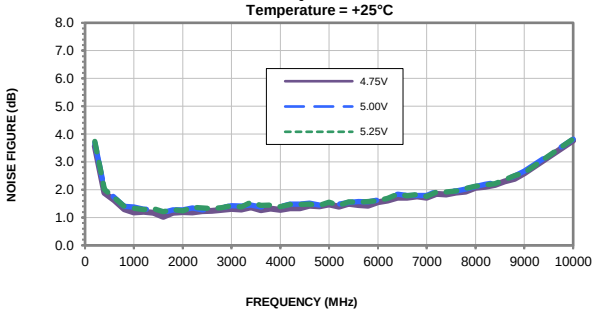
P1dB vs. FREQUENCY & DEVICE VOLTAGE
Temperature = +25°C



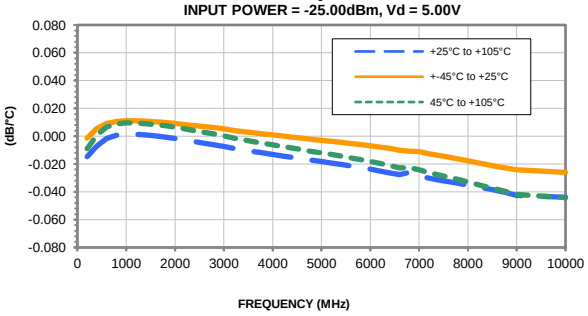
NOISE FIGURE vs. FREQUENCY & TEMPERATURE
Vd = 5.00V



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

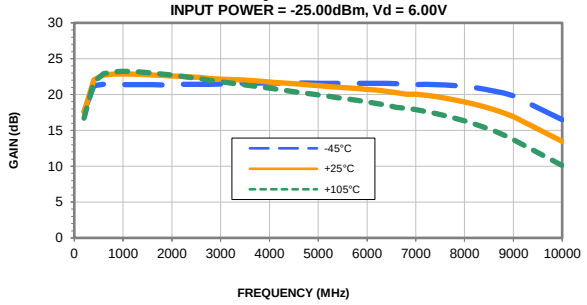


GAIN VARIANTS VS FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V

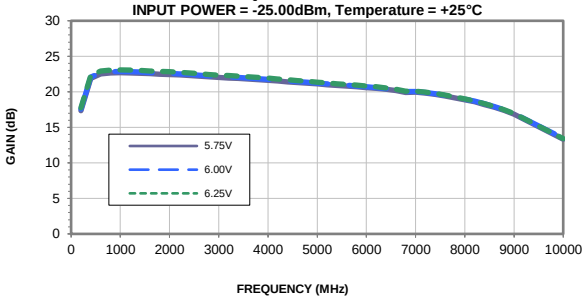


Typical Performance Curves

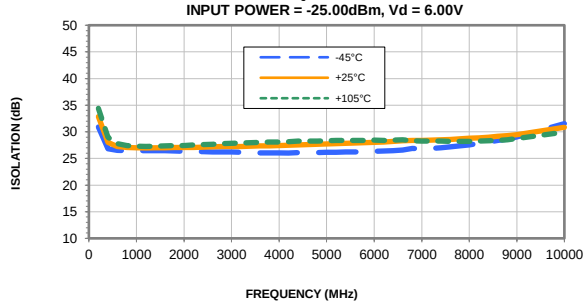
GAIN vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 6.00V



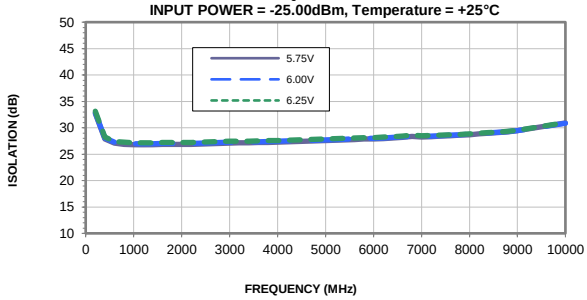
GAIN vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



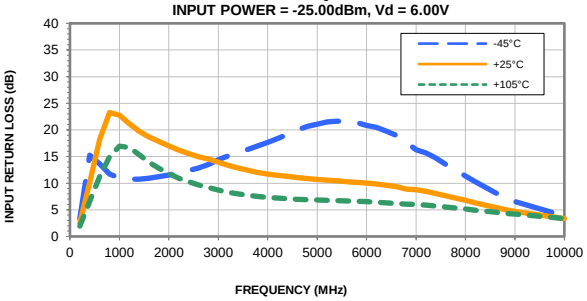
ISOLATION vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 6.00V



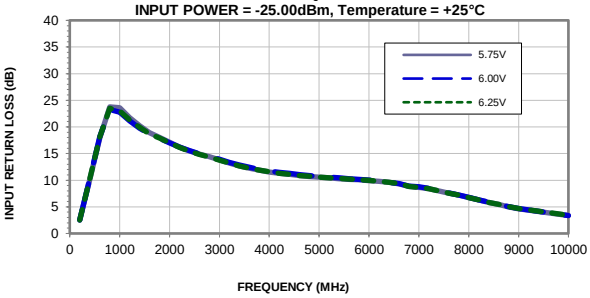
ISOLATION vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



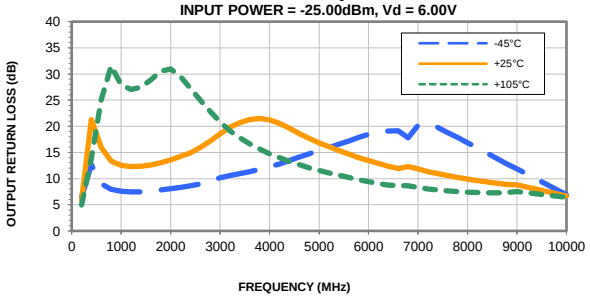
INPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 6.00V



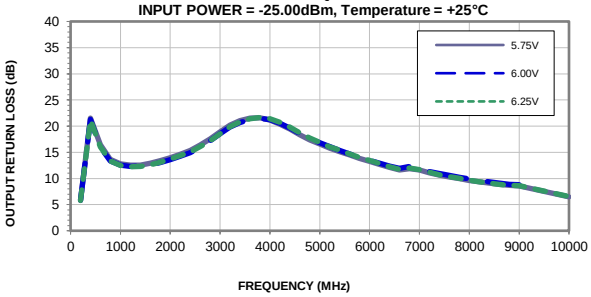
INPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



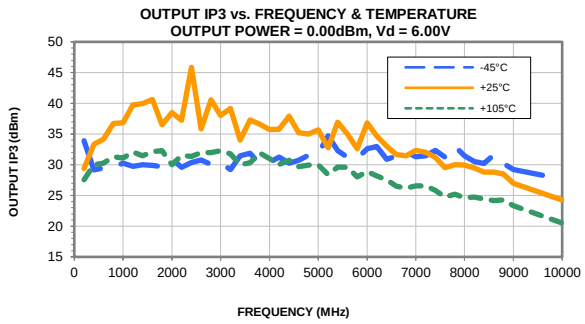
OUTPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 6.00V

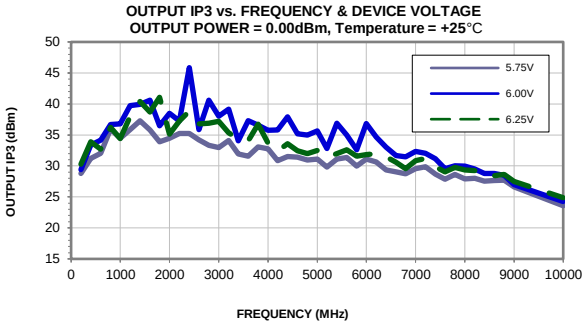


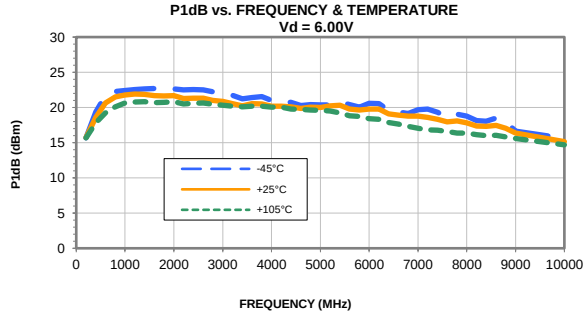
OUTPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C

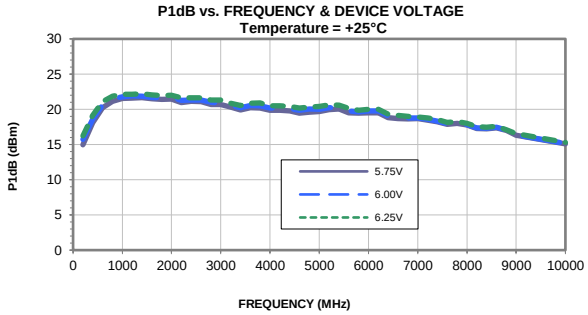


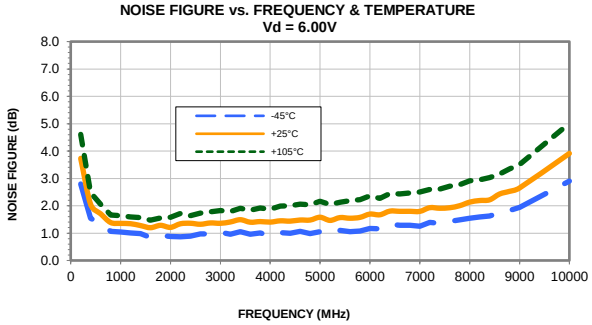
Typical Performance Curves

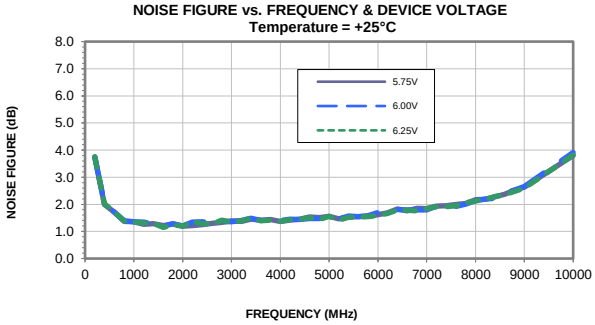


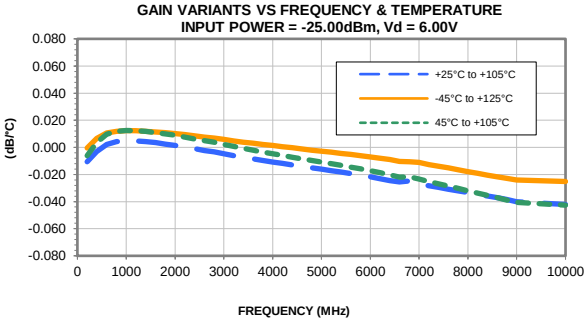








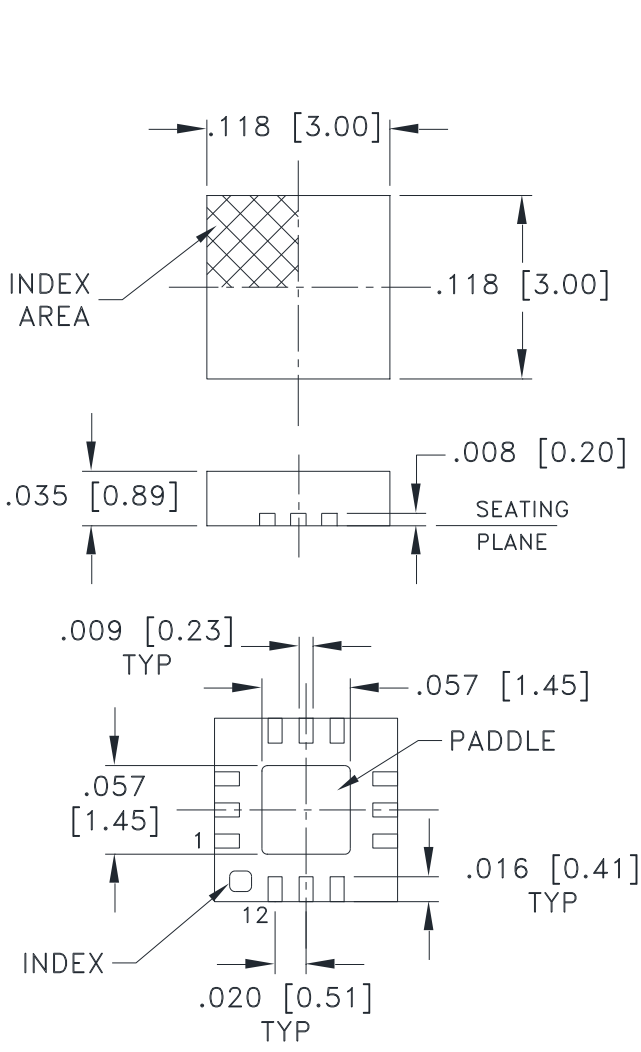




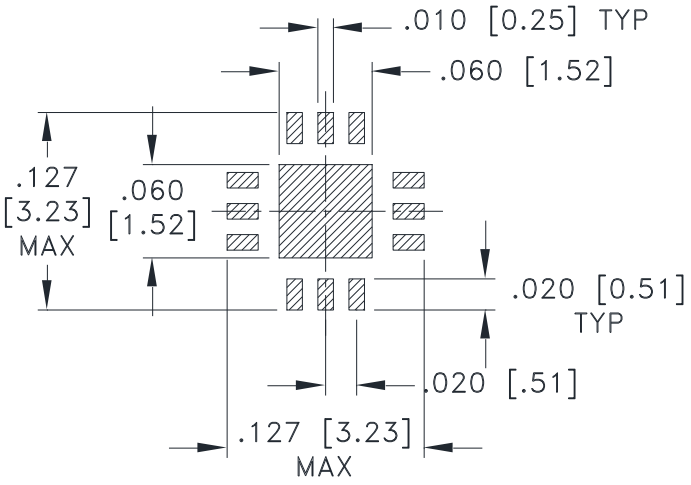
Case Style DQ

DQ1225

Outline Dimensions



PCB Land Pattern



SUGGESTED LAYOUT,
TOLERANCE TO BE WITHIN ±.002

Weight: .02 Grams

Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3 Pl. ± .004

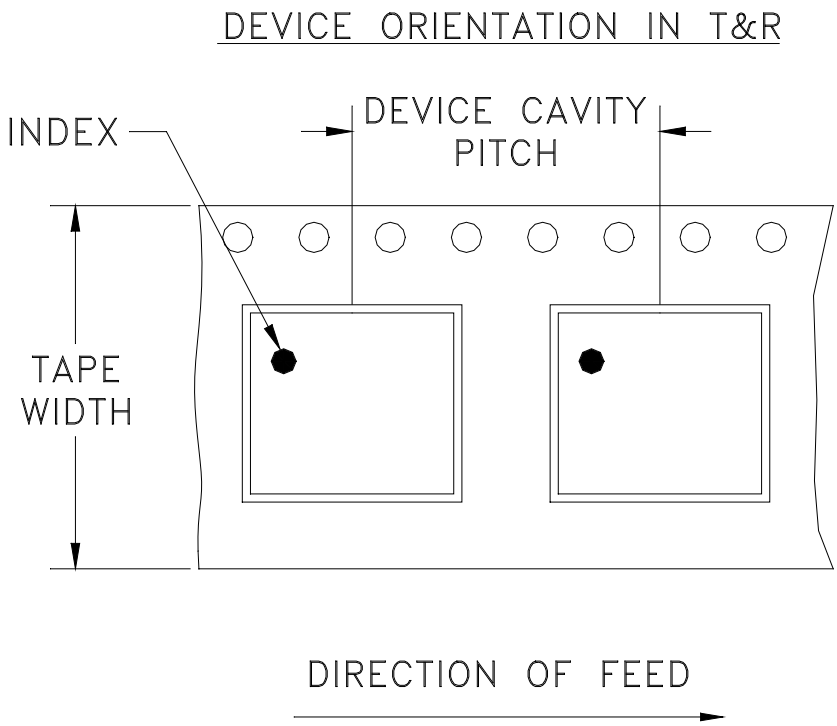
Notes:

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 Data sheet.
   - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

This document and its contents are the property of Mini-Circuits.

Tape & Reel Packaging TR-F66



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

Note: Please consult individual model data sheet to determine device per reel availability.

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

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

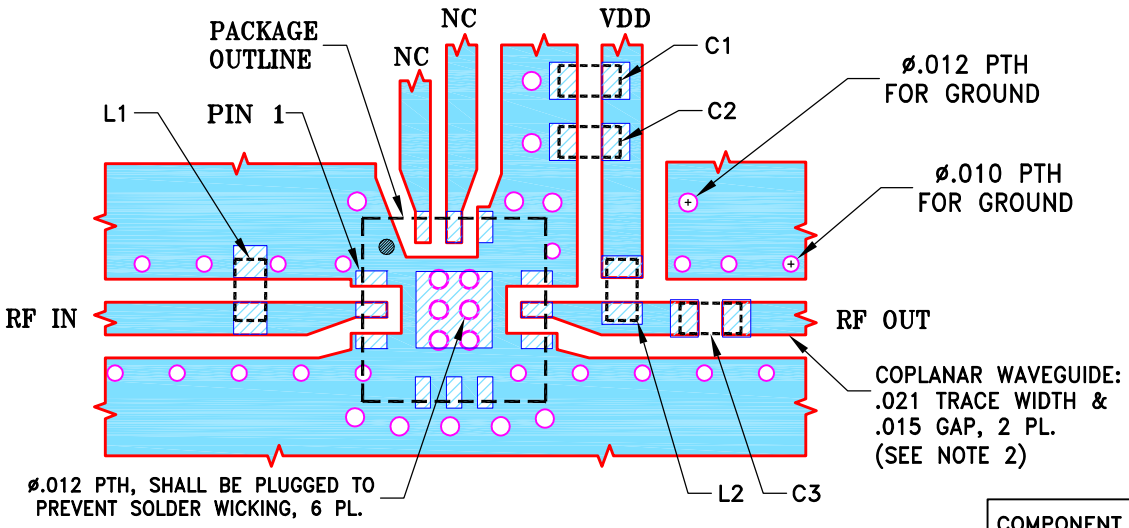
Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

This document and its contents are the property of Mini-Circuits.

THIRD ANGLE PROJECTION

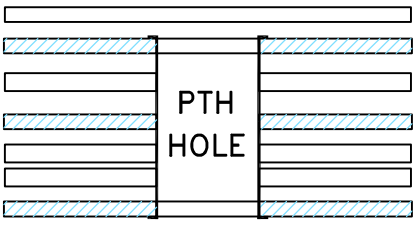
REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M173021	NEW RELEASE	04/23/19	ITG	RS

SUGGESTED MOUNTING CONFIGURATION FOR DQ1225 CASE STYLE, "12AM02" PIN CODE



COMPONENT	SIZE
C1...C3,L1,L2	0402

STACK-UP DIAGRAM



-TOP SOLDER MASK
-COPPER LAYER 1, 0.5 OZ.
-CORE, 0.010", ROGERS RO4350B
-COPPER LAYER 2, 0.5 OZ.
-PREPREG, FR4 (THICKNESS AS REQUIRED)
-CORE, 0.039", FR4
-COPPER LAYER 3, 0.5 OZ.

1. TOTAL FINISHED THICKNESS 0.057" ± 10%.
2. PTH HOLES PRESENT FROM COPPER LAYER 1 TO 3.

NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010"±.001"; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-PMA3-83LNW+.
4. 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	04/17/19
TOLERANCES ON:	CHECKED	GF	04/23/19
2 PL DECIMALS ±	APPROVED	RS	04/23/19
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

Mini-Circuits®
THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS. EXCEPT FOR USE EXPRESSLY GRANTED, IN WRITING, TO ITS VENDORS, VENDEE AND THE UNITED STATES GOVERNMENT, MINI-CIRCUITS RESERVES ALL PROPRIETARY DESIGN, USE , MANUFACTURING AND REPRODUCTION RIGHTS THERETO. THESE CONTENTS SHALL NOT BE USED, DUPLICATED OR DISCLOSED TO ANY OUTSIDE PARTY, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION OF MINI-CIRCUITS.

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

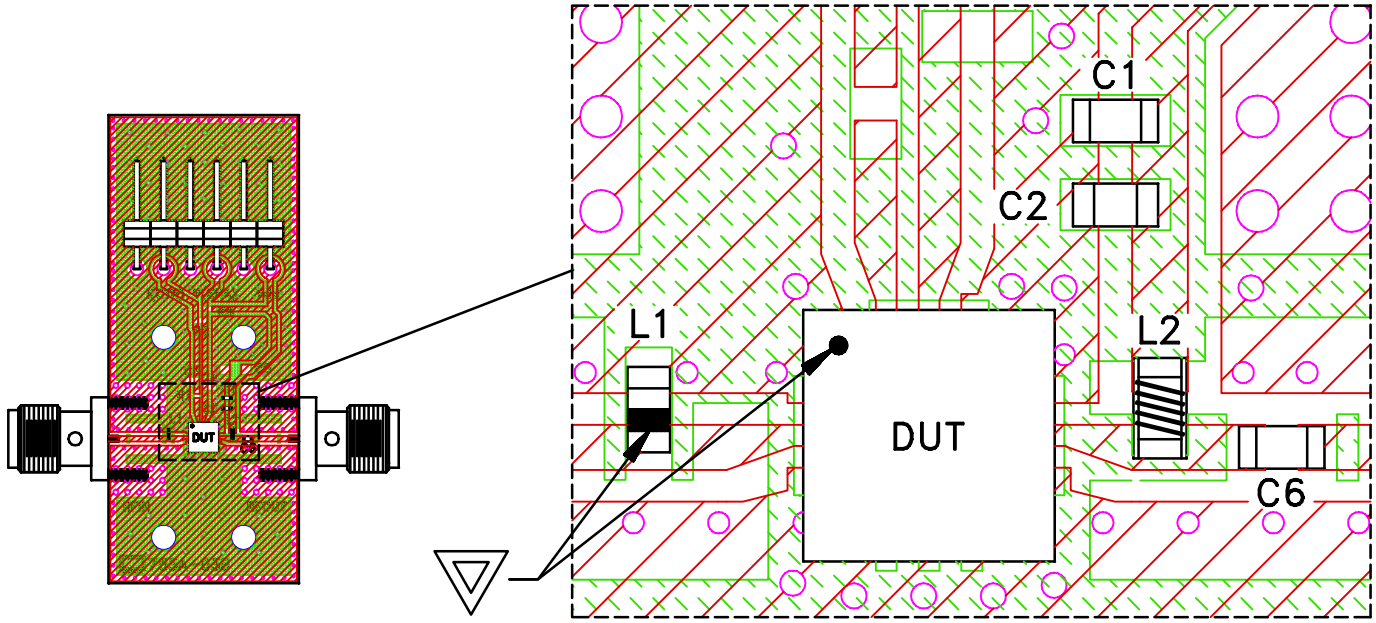
Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, 12AM02, DQ1225, TB-PMA3-83LNW+

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-628	OR

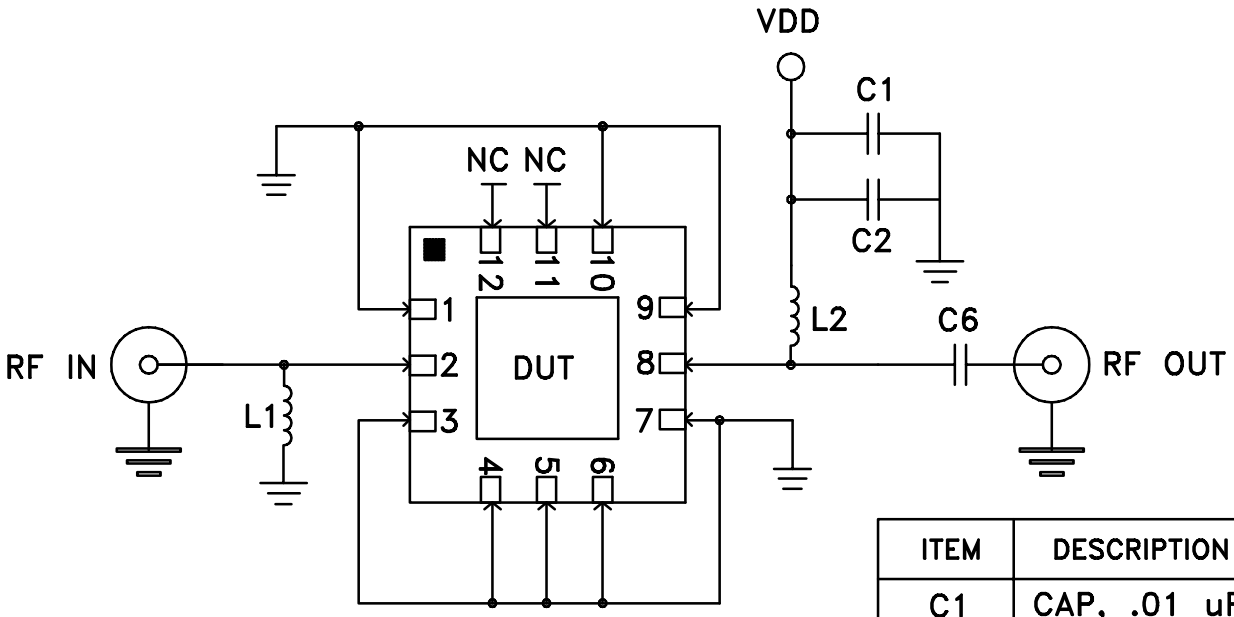
FILE:	SCALE:	SHEET:
98PL628	8:1	1 OF 1

Evaluation Board and Circuit



TB-PMA3-83LNW+

(SCALE 8:1)



Schematic Diagram

ITEM	DESCRIPTION	SIZE
C1	CAP, .01 uF	0402
C2	CAP, 10 pF	0402
C6	CAP, 100 pF	0402
L1	IND, 18 nH	0402
L2	IND, 39 nH	0402

Notes:

1. SMA Female Connectors.
2. PCB Material: Roger RO4350B or equivalent, Dielectric constant=3.5, Thickness=.010 inch.

Mini-Circuits®

THIS DOCUMENT AND ITS CONTENTS ARE THE PROPERTY OF MINI-CIRCUITS.

Mini-Circuits

Environmental Specifications ENV08T1

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

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

This document and its contents are the property of 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
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

This document and its contents are the property of Mini-Circuits.