



MEDIUM POWER, WIDEBAND, HIGH IP3

Monolithic Amplifier

PMA3-83MP-D+

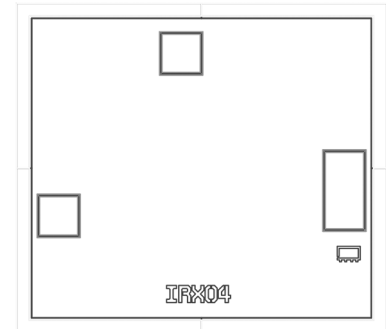
50Ω 0.4 to 8 GHz 0.5W

THE BIG DEAL

- High Pout, 0.5W to 2GHz
- High IP3, 37.9 dBm Typ.
- Low Noise Figure, 3.1dB Typ
- Patent Pending

TYPICAL APPLICATIONS

- WiFi
- WLAN
- LTE/WCDMA/EDGE
- L, S and C-band Radar
- C-band Satcom



SEE ORDERING INFORMATION ON THE LAST PAGE

+RoHS Compliant

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

PRODUCT OVERVIEW

The PMA3-83MP-D+ is a GaAs PHEMT based wide-band, low noise MMIC amplifier die with a unique combination of low noise, high IP3, and high output power, over a wide-band making it ideal for sensitive, high-dynamic range receiver applications. This design operates on a single supply of 8V, is well matched for 50Ω.

KEY FEATURES

Feature	Advantages
Low noise, 3dB Typical up to 8GHz	Enables lower system noise figure performance.
High IP3 • +39.5 dBm at 0.4 GHz • +37.9 dBm at 2 GHz • +39.0 dBm at 4 GHz • +38.6 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.
VDD Operates over 5V to 8V	Allows the designer to tailor Pout and OIP3 via DC input for easier integration.
Unpackaged die	Enables users to integrate it directly into hybrids.
Wide bandwidth with flat gain • ±1.5 dB over 4 to 7 GHz • ±2.0 dB over 0.4 to 8 GHz	Enables a single amplifier to be used in many wideband applications including defense, instrumentation and more.



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Monolithic Amplifier PMA3-83MP-D+

Mini-Circuits

ELECTRICAL SPECIFICATIONS¹ AT 25°C, 50Ω, UNLESS NOTED

Parameter	Condition (MHz)	VDD=8V & Vldj= 1.7V			Units
		Min.	Typ.	Max.	
Frequency range		400		8000	MHz
Gain	400		21.7		dB
	2000		21.0		
	4000		18.9		
	5000		18.6		
	8000		17.3		
Input Return loss	400		13.1		dB
	2000		14.8		
	4000		8.3		
	5000		8.4		
	8000		10.4		
Output Return loss	400		9.8		dB
	2000		17.3		
	4000		13.8		
	5000		11.8		
	8000		23.6		
P1dB	400		27.2		dBm
	2000		27.8		
	4000		25.9		
	5000		25.1		
	8000		25.3		
OIP3 (Pout= 18dBm/Tone)	400		39.5		dBm
	2000		37.9		
	4000		39.0		
	5000		35.2		
	8000		38.6		
Noise Figure	400		3.5		dB
	2000		3.2		
	4000		3.2		
	6000		3.0		
	8000		3.3		
Device operating voltage (VDD)		7.6	8.0	8.4	V
Device operating current (IDD)			144	175	mA
Device current variation vs. temperature ²			-50		μA/°C
Device current variation vs voltage ³			0.02		mA/mV
Thermal resistance, junction-to-ground Lead			46.3		°C/W

1. Die is soldered in 3x3mm 12L MCLP and measured on Mini-Circuits Characterization Test Board TB-PMA3-83MP+. See Characterization Test & Application Circuit (Fig. 1)

2. Device Current Variation vs. Temperature= (Current in mA at 85°C - Current in mA at -45°C)/130°C

3. Device Current Variation vs. Voltage = (Current in mA at 8.4V - Current in mA at 7.6V) / ((8.4V-7.6V)*1000 mA/mV)

ABSOLUTE MAXIMUM RATINGS⁴

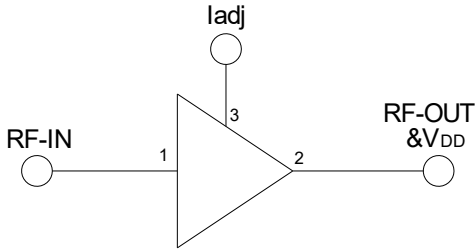
Parameter	Ratings
Operating temperature (ground lead)	-40°C to 85°C
Storage temperature	-65°C to 150°C
Junction Temperature	150°C
Total power dissipation	1.4W
Input power (CW)	+22 dBm (5 minutes max.) +17 dBm (continuous)
DC voltage at Vldj	1.8V
DC voltage at VDD	9V

4. Permanent damage may occur if any of those limits are exceeded. Electrical maximum ratings are not intended for continuous normal operation.





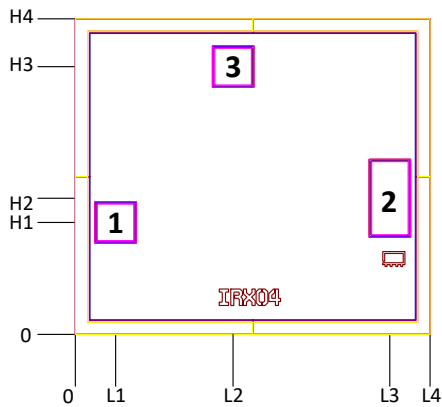
SIMPLIFIED SCHEMATIC



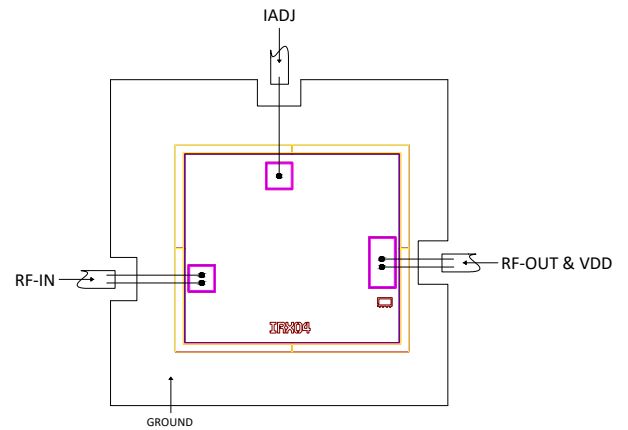
PAD DESCRIPTION

Function	Pad Number	Description (Fig 1)
RF-IN	1	Connects to RF input via C1
RF-OUT & VDD	2	Connects to RF output via C2 and connects to VDD via L1
Iadj	3	Current Adjustment Pad. Connects to V _{Iadj}

BONDING PAD POSITION



ASSEMBLY DIAGRAM



DIE DIMENSIONS IN μM

L1	L2	L3	L4	H1	H2	H3	H4
83.0	324	646	728	230	280	550	648

Thickness	Die Size	Pad Size 1 & 3	Pad Size 2
100	728 x 648	75 x 75	75 x 150

Recommended Wire Length and Loop Height, Typical

Wire	Wire Length (mils)	Wire Loop Height (mils)
RF-IN	45	7
RF-OUT & VDD	28	7
IADJ	Not Critical	



CHARACTERIZATION TEST & APPLICATION CIRCUIT

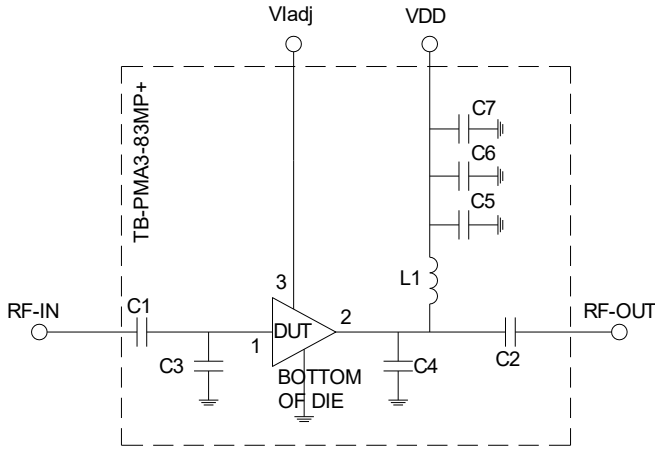


Fig 1. Application and Characterization Circuit

Note: This block diagram is used for characterization. (DUT is packaged in 3x3 12L MCLP and soldered on Mini-Circuits Characterization test board TB-PMA3-83MP+)

Gain, Return loss, Output power at 1dB compression (P1dB), output IP3 (OIP3) and noise figure measured using Agilent's N5242A PNA-X microwave network analyzer.

Conditions:

1. VDD=8V, Vadj = 1.7V
2. Gain and Return loss: Pin= -25dBm
3. Output IP3 (OIP3): Two tones, spaced 1 MHz apart, 18 dBm/tone at output.

Component	Size	Value	Part Number	Manufacturer
C1	0402	100pF	GRM1555C1H101JA01D	Murata
C2	0402	100pF	GRM1555C1H101JA01D	Murata
C3	0402	0.3pF	GQM1555C2DR30WB01D	Murata
C4	0402	0.3pF	GQM1555C2DR30WB01D	Murata
C5	0402	10pF	GRM1555C1H100JA01D	Murata
C6	0402	1uF	GRM155C71A105KE11D	Murata
C7	0603	10uF	GRM188D71A106MA73J	Murata
L1	0603	33nH	0603CS-33NXJEU	Coilcraft

ASSEMBLY PROCEDURE

1. Storage
Dice should be stored in a dry nitrogen purged desiccators or equivalent.
2. ESD
MMIC PHEMT amplifier dice are susceptible to electrostatic and mechanical damage. Die are supplied in antistatic protected material, which should be open in clean room conditions at an appropriately grounded anti-static workstation.
3. Die Handling and Attachment
Devices need careful handling using correctly designed collets, it is recommended to handle the chip along the edges with a custom design collet. The die mounting surface must be clean and flat. Using conductive silver filled epoxy, recommended epoxies are Ablestik 84-1 LMISR4 or equivalents. Apply sufficient epoxy to meet required epoxy bond line thickness, epoxy fillet height and epoxy coverage around total periphery. Parts shall be cured in a nitrogen filled atmosphere per manufacturer's cure condition. It is recommended to use anti-static die pick up tools only.
4. Wire Bonding
Bond pad openings in the surface passivation above the bond pads are provided to allow wire bonding to the dice gold bond pads. Thermo-sonic bonding is used with minimized ultrasonic content. Bond force, time, ultrasonic power and temperature are all critical parameters. Suggested wire is pure gold, 1mil diameter. Bonds must be made from the bond pads on the die to the packaged or substrate. All bond wires should be kept as short as low as reasonable to minimize performance degradation due to undesirable series inductance.



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Monolithic Amplifier **PMA3-83MP-D+**

ADDITIONAL DETAILED TECHNICAL INFORMATION IS AVAILABLE ON OUR DASH BOARD.

Performance Data	Data Table Swept Graphs S-Parameter (S2P Files) Data Set with and without port extension(.zip file)	
Case Style	Die	
Die Ordering and packaging information	Quantity, Package Small, Gel - Pak: 5,10,50,100 KGD* Medium, Partial wafer: KGD*<2254 Full Wafer †Available upon request contact sales representative Refer to AN-60-067	Model No. PMA3-83MP-DG+ PMA3-83MP-DP+ PMA3-83MP-DF+
Environmental Ratings	ENV80	

*Known Good Die ("KGD") means that the dice in question have been subjected to Mini-Circuits DC test performance criteria and measurement instructions and that the parametric data of such dice fall within a predefined range. While DC testing is not definitive, it does provide a higher degree of confidence that die are capable of meeting typical RF electrical parameters specified by Mini-Circuits.

ESD RATING

Human Body Model (HBM): Class 1A (250V) in accordance with ANSI/ESD STM 5.1 - 2001
(Tested in 3x3 12L MCLP package)

NOTES

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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 = 8.00V, Vadj = 1.7V , Id = 139mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.02	29.21	13.58	10.46	1.29	0.73	38.43	26.99	3.28
600	22.04	29.04	15.19	12.39	1.30	0.76	38.45	27.16	3.23
800	21.95	28.96	15.97	13.50	1.30	0.78	38.22	27.30	3.29
1000	21.82	28.93	16.32	14.77	1.32	0.80	38.04	27.48	3.20
1200	21.71	28.87	16.35	15.44	1.32	0.82	37.83	27.56	3.21
1400	21.53	28.84	16.28	16.20	1.34	0.83	37.84	27.69	3.10
1600	21.41	28.78	16.02	16.19	1.34	0.84	37.98	27.67	3.11
1800	21.21	28.80	15.75	16.12	1.36	0.85	37.68	27.54	3.12
2000	21.11	28.75	15.44	15.67	1.37	0.85	37.41	27.65	3.09
2200	20.93	28.71	14.84	15.11	1.38	0.86	37.24	27.42	3.01
2400	20.76	28.76	14.17	14.81	1.40	0.87	37.40	27.49	2.93
2600	20.49	28.87	13.50	14.19	1.44	0.88	37.49	27.15	3.05
2800	20.21	29.01	12.96	14.44	1.48	0.91	38.14	27.02	3.08
3000	19.91	29.09	12.16	14.23	1.50	0.93	39.50	26.86	3.08
3200	19.74	29.02	11.38	14.57	1.49	0.95	41.03	26.76	3.12
3400	19.58	28.96	10.57	14.39	1.46	0.98	43.69	26.68	3.08
3600	19.36	29.01	9.87	14.22	1.47	1.00	42.22	26.45	3.01
3800	19.24	28.96	9.04	13.24	1.44	1.01	39.83	26.38	2.98
4000	19.08	29.01	8.35	12.27	1.45	1.01	38.65	25.85	2.99
4200	19.02	28.96	7.72	11.07	1.43	1.00	36.83	25.20	2.99
4400	18.93	28.89	7.25	10.39	1.43	0.99	35.36	25.28	3.00
4600	18.92	28.72	7.02	9.92	1.42	0.96	34.28	24.33	2.84
4800	18.93	28.49	7.07	10.07	1.42	0.95	33.95	25.25	2.81
5000	18.98	28.14	7.41	10.44	1.41	0.93	33.87	24.42	2.70
5200	19.15	27.74	8.02	11.73	1.39	0.92	33.06	24.96	2.66
5400	19.29	27.45	8.90	13.31	1.39	0.91	33.40	25.72	2.62
5600	19.47	27.09	9.61	16.60	1.35	0.91	34.22	25.86	2.60
5800	19.52	26.96	10.19	21.49	1.36	0.92	35.13	26.19	2.59
6000	19.45	26.89	10.00	31.42	1.36	0.94	36.28	26.16	2.66
6200	19.22	26.95	9.32	26.65	1.38	0.98	37.49	26.05	2.76
6400	19.04	27.09	8.26	20.99	1.38	1.02	38.44	25.92	2.80
6600	18.93	27.28	7.48	18.66	1.37	1.07	39.12	25.84	2.87
6800	18.98	27.37	6.91	17.85	1.33	1.10	38.92	25.74	2.97
7000	18.86	27.51	6.57	18.83	1.33	1.13	38.77	25.68	2.93
7200	18.66	27.64	6.32	19.11	1.34	1.16	38.43	25.63	2.89
7400	18.57	27.92	6.61	20.05	1.41	1.15	38.25	25.67	2.92
7600	18.29	28.10	7.33	22.79	1.54	1.11	37.90	25.81	2.91
7800	18.04	27.88	8.05	24.67	1.60	1.07	37.64	25.81	2.88
8000	17.93	27.74	8.65	30.63	1.64	1.05	37.64	25.79	2.98

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 7.60V, Vadj = 1.7V , Id = 127mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.83	28.90	13.52	10.39	1.28	0.72	38.63	26.57	3.26
600	21.86	28.84	15.15	12.25	1.29	0.75	38.50	26.74	3.14
800	21.78	28.78	15.96	13.39	1.30	0.78	38.21	26.90	3.26
1000	21.66	28.76	16.34	14.61	1.31	0.80	38.04	27.09	3.25
1200	21.55	28.71	16.41	15.32	1.32	0.81	37.84	27.17	3.12
1400	21.38	28.67	16.36	16.06	1.33	0.83	37.88	27.29	3.05
1600	21.26	28.61	16.12	16.10	1.34	0.84	38.05	27.25	3.05
1800	21.07	28.63	15.86	16.04	1.36	0.85	37.80	27.17	3.08
2000	20.97	28.51	15.53	15.59	1.36	0.85	37.64	27.25	3.03
2200	20.80	28.54	14.93	15.03	1.38	0.85	37.42	27.00	2.99
2400	20.63	28.57	14.25	14.73	1.39	0.87	37.53	27.09	2.95
2600	20.37	28.67	13.57	14.15	1.43	0.88	37.73	26.73	3.00
2800	20.09	28.85	13.04	14.36	1.48	0.90	38.40	26.64	3.04
3000	19.80	28.92	12.24	14.21	1.50	0.93	39.73	26.51	3.04
3200	19.63	28.84	11.46	14.52	1.48	0.95	41.33	26.51	3.12
3400	19.48	28.78	10.66	14.40	1.45	0.97	44.45	26.43	3.06
3600	19.27	28.83	9.94	14.21	1.46	1.00	41.00	26.31	3.06
3800	19.14	28.80	9.12	13.28	1.43	1.01	39.22	26.34	2.96
4000	18.99	28.84	8.41	12.29	1.44	1.01	38.12	25.92	3.02
4200	18.94	28.78	7.77	11.12	1.42	1.00	36.56	25.49	2.97
4400	18.86	28.74	7.28	10.40	1.42	0.98	35.17	25.53	2.94
4600	18.85	28.63	7.04	9.96	1.42	0.96	34.08	24.53	2.84
4800	18.86	28.33	7.08	10.08	1.41	0.95	33.64	25.39	2.80
5000	18.91	28.01	7.42	10.48	1.41	0.93	33.42	24.47	2.71
5200	19.07	27.64	8.05	11.75	1.39	0.92	32.58	24.85	2.64
5400	19.22	27.31	8.94	13.39	1.38	0.91	33.02	25.56	2.63
5600	19.41	27.03	9.69	16.68	1.36	0.91	33.63	25.64	2.59
5800	19.46	26.83	10.30	21.76	1.35	0.92	34.72	25.88	2.58
6000	19.39	26.79	10.12	31.81	1.36	0.94	36.14	25.85	2.60
6200	19.18	26.84	9.42	26.28	1.38	0.97	37.98	25.67	2.69
6400	18.99	26.96	8.35	20.79	1.37	1.02	38.94	25.53	2.76
6600	18.89	27.17	7.56	18.48	1.37	1.06	39.22	25.44	2.81
6800	18.94	27.27	7.00	17.72	1.33	1.09	38.92	25.37	2.96
7000	18.83	27.41	6.64	18.66	1.33	1.13	38.48	25.30	2.93
7200	18.63	27.55	6.40	19.03	1.34	1.15	38.10	25.29	2.93
7400	18.55	27.80	6.68	19.95	1.40	1.14	37.98	25.35	2.94
7600	18.26	27.99	7.40	22.83	1.54	1.11	37.76	25.53	2.85
7800	18.02	27.76	8.12	24.87	1.59	1.07	37.55	25.54	2.86
8000	17.92	27.63	8.73	31.58	1.63	1.04	37.55	25.52	2.92

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.40V, Vadj = 1.7V , Id = 150mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.25	29.26	13.50	10.60	1.27	0.72	38.44	27.45	3.32
600	22.26	29.18	15.11	12.46	1.29	0.76	38.55	27.64	3.23
800	22.16	29.10	15.90	13.74	1.29	0.78	38.36	27.75	3.30
1000	22.04	29.07	16.20	14.88	1.31	0.80	38.21	27.95	3.18
1200	21.91	29.01	16.23	15.70	1.31	0.82	38.03	28.01	3.23
1400	21.74	29.00	16.13	16.31	1.33	0.83	38.00	28.11	3.09
1600	21.59	28.93	15.88	16.41	1.34	0.84	38.19	28.06	3.07
1800	21.40	28.89	15.60	16.26	1.35	0.85	37.76	27.99	3.06
2000	21.29	28.85	15.29	15.81	1.36	0.85	37.37	28.09	3.02
2200	21.12	28.81	14.70	15.26	1.37	0.86	37.31	27.86	3.08
2400	20.93	28.86	14.05	14.89	1.39	0.87	37.34	27.93	3.14
2600	20.67	28.97	13.37	14.36	1.42	0.88	37.45	27.61	3.05
2800	20.38	29.10	12.83	14.48	1.47	0.91	38.08	27.45	3.08
3000	20.08	29.21	12.01	14.38	1.49	0.93	39.42	27.30	3.12
3200	19.91	29.09	11.24	14.57	1.47	0.96	40.86	27.05	3.08
3400	19.73	29.07	10.44	14.49	1.45	0.98	43.23	26.98	3.04
3600	19.53	29.09	9.69	14.15	1.45	1.00	43.42	26.68	3.09
3800	19.37	29.09	8.91	13.25	1.43	1.02	40.43	26.49	3.02
4000	19.23	29.10	8.21	12.17	1.43	1.02	39.09	25.80	3.04
4200	19.15	29.05	7.59	11.06	1.42	1.00	37.18	24.90	3.02
4400	19.08	28.95	7.11	10.29	1.41	0.99	35.60	24.96	2.90
4600	19.05	28.83	6.90	9.90	1.41	0.97	34.59	24.03	2.85
4800	19.06	28.54	6.95	9.97	1.40	0.95	34.36	25.04	2.82
5000	19.12	28.26	7.29	10.43	1.40	0.93	34.00	24.26	2.77
5200	19.27	27.84	7.89	11.60	1.38	0.92	33.37	24.91	2.70
5400	19.43	27.50	8.74	13.27	1.37	0.91	34.06	25.86	2.65
5600	19.60	27.24	9.46	16.32	1.35	0.91	34.72	26.06	2.60
5800	19.65	27.01	10.02	21.32	1.34	0.92	35.62	26.48	2.60
6000	19.57	26.94	9.83	30.44	1.35	0.94	36.52	26.46	2.64
6200	19.36	27.02	9.12	26.99	1.37	0.98	37.36	26.40	2.79
6400	19.15	27.18	8.10	21.39	1.37	1.03	38.06	26.29	2.73
6600	19.06	27.36	7.31	18.81	1.36	1.07	38.77	26.22	2.87
6800	19.09	27.44	6.77	18.15	1.32	1.11	38.72	26.08	2.90
7000	18.99	27.57	6.40	18.98	1.31	1.14	38.75	25.98	2.94
7200	18.76	27.72	6.19	19.38	1.33	1.17	38.58	25.95	2.95
7400	18.69	28.00	6.47	20.08	1.39	1.15	38.44	25.93	2.94
7600	18.38	28.19	7.19	22.83	1.53	1.12	38.20	26.02	2.96
7800	18.15	27.95	7.88	24.06	1.59	1.08	37.95	26.04	2.81
8000	18.03	27.85	8.48	29.61	1.64	1.05	37.84	26.01	3.01

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 8.00V, Vadj = 1.7V, Id = 176mA Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.65	29.33	12.82	8.27	1.28	0.67	38.92	27.36	2.93
600	21.72	29.21	14.08	9.49	1.30	0.71	39.20	27.50	2.84
800	21.68	29.14	14.94	9.92	1.30	0.72	39.03	27.60	2.82
1000	21.62	29.05	15.68	10.98	1.32	0.75	38.82	27.83	2.86
1200	21.58	28.95	16.20	11.49	1.31	0.76	38.50	27.96	2.83
1400	21.45	28.93	16.48	12.30	1.34	0.78	38.34	28.10	2.71
1600	21.40	28.85	16.28	12.52	1.33	0.79	38.23	28.14	2.69
1800	21.20	28.91	16.06	12.65	1.37	0.80	37.84	28.02	2.66
2000	21.15	28.76	15.52	12.42	1.35	0.80	37.55	28.09	2.56
2200	20.97	28.85	14.68	11.91	1.38	0.80	37.31	27.87	2.65
2400	20.86	28.76	13.77	11.97	1.38	0.81	37.15	27.96	2.74
2600	20.57	28.97	13.08	11.44	1.42	0.83	37.18	27.63	2.65
2800	20.38	29.02	12.76	12.05	1.45	0.85	37.33	27.53	2.71
3000	20.08	29.15	12.58	12.31	1.50	0.88	38.22	27.44	2.71
3200	20.03	28.97	11.97	13.43	1.47	0.91	38.94	27.49	2.65
3400	19.98	28.85	11.45	13.98	1.44	0.93	40.30	27.43	2.65
3600	19.84	28.82	11.09	15.51	1.45	0.96	43.80	27.31	2.57
3800	19.85	28.68	10.39	15.60	1.41	0.98	40.93	27.28	2.55
4000	19.73	28.77	9.80	15.52	1.44	0.99	39.34	26.93	2.61
4200	19.77	28.66	9.10	13.88	1.41	0.98	38.06	26.59	2.50
4400	19.69	28.63	8.51	12.97	1.42	0.97	36.30	26.77	2.41
4600	19.76	28.48	8.07	11.98	1.39	0.95	35.19	25.59	2.32
4800	19.73	28.38	8.03	12.00	1.40	0.94	35.11	26.39	2.31
5000	19.76	28.16	8.29	12.07	1.39	0.92	34.89	25.89	2.20
5200	19.82	27.82	8.96	13.68	1.38	0.91	34.14	26.23	2.28
5400	19.81	27.52	10.02	15.49	1.38	0.89	34.77	27.02	2.10
5600	19.94	27.29	10.82	19.57	1.36	0.89	35.53	27.31	2.14
5800	20.02	27.06	11.48	22.85	1.35	0.88	36.65	27.27	2.15
6000	20.03	27.03	11.35	21.92	1.35	0.88	38.20	27.28	2.20
6200	19.89	27.13	10.63	19.29	1.37	0.91	41.09	27.00	2.26
6400	19.71	27.26	9.43	17.39	1.38	0.95	43.33	26.72	2.30
6600	19.57	27.26	8.57	16.53	1.37	0.98	42.95	26.62	2.38
6800	19.65	27.28	7.84	16.14	1.32	1.01	41.78	26.44	2.41
7000	19.61	27.39	7.30	17.14	1.30	1.05	41.31	26.29	2.45
7200	19.69	27.40	6.74	18.79	1.25	1.09	40.59	26.27	2.50
7400	19.39	27.72	7.12	20.50	1.33	1.10	40.23	26.00	2.45
7600	19.17	27.54	7.66	25.62	1.37	1.07	40.63	26.54	2.42
7800	18.85	27.47	8.56	38.34	1.46	1.03	40.39	26.55	2.43
8000	18.66	27.73	9.50	24.82	1.58	1.00	40.11	26.56	2.45

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 7.60V, Vadj = 1.7V Id = 162mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.78	29.25	12.43	8.23	1.26	0.66	38.93	26.74	2.86
600	21.83	29.10	13.70	9.15	1.27	0.69	39.11	26.87	2.83
800	21.79	29.05	14.58	9.84	1.28	0.71	38.94	27.02	2.88
1000	21.75	28.97	15.26	10.60	1.29	0.73	38.80	27.25	2.78
1200	21.69	28.90	15.87	11.33	1.30	0.75	38.55	27.38	2.79
1400	21.60	28.82	16.13	11.93	1.30	0.77	38.41	27.56	2.68
1600	21.50	28.80	16.07	12.26	1.32	0.78	38.34	27.56	2.66
1800	21.35	28.76	15.77	12.39	1.33	0.79	38.06	27.50	2.60
2000	21.26	28.73	15.29	12.10	1.34	0.79	37.86	27.56	2.58
2200	21.12	28.68	14.38	11.77	1.34	0.79	38.06	27.36	2.61
2400	20.95	28.74	13.55	11.60	1.36	0.80	37.51	27.41	2.63
2600	20.73	28.85	12.82	11.38	1.38	0.82	37.45	27.12	2.62
2800	20.47	28.94	12.55	11.67	1.43	0.84	37.67	27.02	2.64
3000	20.22	29.07	12.32	12.26	1.47	0.87	38.31	26.94	2.72
3200	20.16	28.87	11.84	13.00	1.43	0.90	39.14	27.04	2.61
3400	20.10	28.77	11.35	14.02	1.41	0.93	40.38	26.93	2.60
3600	20.02	28.69	10.90	15.14	1.40	0.95	43.16	26.85	2.55
3800	19.95	28.63	10.37	15.91	1.39	0.98	40.22	26.90	2.58
4000	19.91	28.58	9.74	15.58	1.39	0.98	39.18	26.57	2.57
4200	19.89	28.51	9.06	14.33	1.38	0.98	38.09	26.39	2.55
4400	19.87	28.52	8.41	13.10	1.38	0.97	36.38	26.54	2.37
4600	19.88	28.42	8.03	12.34	1.37	0.95	35.14	25.47	2.34
4800	19.90	28.25	7.93	12.09	1.37	0.93	34.91	26.32	2.56
5000	19.91	28.06	8.22	12.45	1.37	0.92	34.94	25.78	2.26
5200	19.92	27.76	8.90	13.78	1.36	0.91	34.01	26.19	2.21
5400	19.96	27.43	9.94	16.01	1.36	0.89	34.81	26.79	2.14
5600	20.05	27.26	10.86	19.56	1.35	0.89	35.85	27.10	2.15
5800	20.12	27.02	11.55	23.16	1.33	0.87	37.70	26.92	2.14
6000	20.12	27.01	11.38	21.59	1.34	0.88	40.19	26.88	2.21
6200	20.01	27.07	10.59	18.67	1.35	0.90	43.76	26.60	2.28
6400	19.79	27.21	9.44	17.17	1.36	0.94	41.43	26.29	2.26
6600	19.69	27.24	8.54	16.07	1.35	0.97	39.33	26.16	2.33
6800	19.71	27.26	7.84	15.95	1.31	1.01	38.40	25.94	2.48
7000	19.76	27.29	7.20	16.70	1.26	1.05	38.31	25.82	2.46
7200	19.74	27.39	6.76	18.62	1.24	1.09	38.32	25.83	2.52
7400	19.53	27.62	7.10	20.08	1.30	1.09	38.17	25.50	2.50
7600	19.25	27.53	7.69	25.63	1.37	1.06	39.55	26.09	2.44
7800	18.98	27.44	8.53	35.78	1.44	1.03	39.94	26.09	2.46
8000	18.73	27.74	9.57	23.81	1.57	1.00	39.88	26.13	2.43

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 8.40V, Vadj = 1.7V , Id = 182mA @ Temperature = -45°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.62	29.41	13.02	8.34	1.30	0.68	38.95	27.92	2.94
600	21.72	29.26	14.29	9.79	1.31	0.72	39.34	28.06	2.84
800	21.64	29.21	15.15	10.03	1.31	0.73	39.18	28.16	2.85
1000	21.61	29.10	15.89	11.39	1.33	0.76	38.97	28.38	2.83
1200	21.54	29.02	16.42	11.59	1.33	0.77	38.65	28.50	2.77
1400	21.42	29.00	16.66	12.80	1.35	0.79	38.46	28.63	2.76
1600	21.36	28.90	16.44	12.60	1.34	0.79	38.32	28.65	2.71
1800	21.17	28.94	16.21	13.17	1.38	0.81	37.80	28.54	2.75
2000	21.10	28.80	15.70	12.46	1.36	0.80	37.36	28.59	2.64
2200	20.92	28.87	14.85	12.38	1.39	0.81	37.11	28.38	2.68
2400	20.83	28.86	13.93	12.00	1.39	0.82	36.98	28.41	2.72
2600	20.51	28.99	13.24	11.85	1.44	0.84	36.94	28.14	2.67
2800	20.34	29.06	12.90	12.11	1.46	0.86	37.20	28.03	2.68
3000	19.98	29.22	12.77	12.71	1.53	0.89	37.85	27.93	2.75
3200	20.02	28.95	12.02	13.48	1.47	0.91	38.58	27.98	2.66
3400	19.85	28.91	11.55	14.41	1.47	0.94	39.67	27.85	2.63
3600	19.83	28.79	11.07	15.33	1.44	0.96	42.77	27.71	2.61
3800	19.72	28.83	10.44	15.91	1.45	0.98	42.25	27.74	2.54
4000	19.66	28.79	9.77	14.90	1.44	0.99	40.03	27.26	2.61
4200	19.67	28.69	9.10	13.95	1.43	0.98	38.42	26.81	2.47
4400	19.59	28.70	8.51	12.42	1.43	0.97	36.81	26.98	2.43
4600	19.67	28.52	8.07	12.03	1.41	0.95	35.33	25.69	2.37
4800	19.59	28.46	8.07	11.50	1.43	0.93	35.06	26.54	2.35
5000	19.72	28.15	8.24	12.14	1.40	0.92	34.91	26.03	2.26
5200	19.63	27.93	9.07	13.08	1.42	0.91	34.24	26.29	2.21
5400	19.79	27.47	9.94	15.66	1.38	0.90	34.79	27.22	2.19
5600	19.82	27.37	10.79	18.45	1.38	0.89	35.50	27.49	2.14
5800	19.95	27.11	11.39	23.71	1.36	0.89	36.47	27.63	2.16
6000	19.91	27.10	11.37	22.19	1.37	0.89	37.56	27.62	2.19
6200	19.87	27.10	10.58	19.57	1.37	0.91	39.36	27.38	2.29
6400	19.59	27.29	9.48	18.08	1.40	0.95	40.92	27.12	2.30
6600	19.56	27.26	8.53	16.66	1.37	0.98	42.58	27.03	2.35
6800	19.50	27.40	7.93	16.74	1.36	1.02	43.15	26.85	2.44
7000	19.63	27.29	7.20	17.24	1.28	1.06	42.50	26.72	2.44
7200	19.50	27.53	6.86	19.67	1.30	1.10	41.64	26.74	2.54
7400	19.39	27.64	7.02	20.37	1.31	1.10	41.27	26.48	2.48
7600	19.02	27.64	7.70	27.19	1.41	1.07	40.59	26.90	2.44
7800	18.83	27.47	8.48	38.96	1.46	1.04	39.98	26.97	2.39
8000	18.50	27.84	9.55	24.33	1.62	1.00	39.70	27.01	2.49

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 8.00V, Vadj = 1.7V , Id = 117mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.00	28.94	13.59	12.37	1.29	0.76	40.60	26.71	3.47
600	21.99	28.82	15.16	15.66	1.30	0.79	40.52	26.92	3.51
800	21.86	28.77	15.65	17.88	1.31	0.82	40.16	27.03	3.46
1000	21.68	28.75	15.64	19.57	1.32	0.84	40.45	27.17	3.43
1200	21.52	28.70	15.37	19.80	1.33	0.85	40.72	27.21	3.42
1400	21.30	28.68	15.12	19.82	1.34	0.86	41.34	27.29	3.28
1600	21.14	28.67	14.81	18.91	1.35	0.87	42.56	27.19	3.35
1800	20.93	28.66	14.65	18.37	1.37	0.88	41.26	27.12	3.31
2000	20.81	28.55	14.50	17.65	1.37	0.88	40.62	27.09	3.25
2200	20.64	28.55	14.20	17.15	1.39	0.89	40.78	27.06	3.24
2400	20.44	28.61	13.76	16.57	1.42	0.90	41.88	27.00	3.23
2600	20.18	28.70	13.18	15.86	1.45	0.91	42.06	26.79	3.32
2800	19.88	28.81	12.52	15.61	1.49	0.93	41.90	26.62	3.32
3000	19.54	28.95	11.55	14.77	1.51	0.96	39.92	26.49	3.36
3200	19.29	28.95	10.68	14.35	1.51	0.98	38.16	26.13	3.32
3400	19.05	28.99	9.75	13.45	1.49	1.00	37.33	26.15	3.31
3600	18.76	29.11	8.92	12.52	1.49	1.02	35.31	25.85	3.26
3800	18.56	29.09	8.07	11.32	1.46	1.03	34.30	25.42	3.28
4000	18.36	29.19	7.41	10.32	1.47	1.02	33.76	24.86	3.36
4200	18.26	29.15	6.86	9.39	1.45	1.00	33.02	23.95	3.21
4400	18.19	29.11	6.46	8.83	1.45	0.98	32.56	24.03	3.17
4600	18.19	28.94	6.29	8.55	1.44	0.96	32.08	22.87	3.09
4800	18.25	28.69	6.32	8.69	1.43	0.95	31.91	23.67	3.10
5000	18.32	28.32	6.61	9.13	1.42	0.94	31.30	22.75	2.96
5200	18.49	27.80	7.15	10.31	1.40	0.94	30.91	23.21	2.98
5400	18.64	27.37	7.99	11.89	1.39	0.93	31.20	24.05	2.95
5600	18.83	27.02	8.67	14.78	1.37	0.95	31.31	24.19	2.89
5800	18.92	26.76	9.25	19.48	1.36	0.96	32.04	24.79	2.95
6000	18.92	26.75	9.13	29.33	1.37	0.98	33.21	24.79	3.00
6200	18.73	26.85	8.60	30.88	1.39	1.02	34.26	24.89	3.07
6400	18.48	27.01	7.72	22.28	1.39	1.07	34.81	24.96	3.14
6600	18.29	27.21	7.07	19.37	1.40	1.11	35.40	24.93	3.24
6800	18.25	27.34	6.56	18.18	1.38	1.14	35.60	24.89	3.30
7000	18.06	27.51	6.20	18.02	1.38	1.17	35.31	24.81	3.28
7200	17.88	27.58	5.96	16.78	1.37	1.19	35.04	24.69	3.32
7400	17.77	27.68	6.12	16.94	1.42	1.17	35.05	24.60	3.31
7600	17.49	27.81	6.77	17.92	1.55	1.13	34.89	24.46	3.31
7800	17.25	27.51	7.50	19.45	1.61	1.09	34.77	24.44	3.26
8000	17.14	27.38	8.17	25.42	1.67	1.07	34.83	24.30	3.32

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 7.60V, Vadj = 1.7V, Id = 107mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.88	28.76	13.50	12.47	1.28	0.76	41.45	26.24	3.51
600	21.88	28.64	15.07	15.84	1.29	0.79	40.90	26.44	3.51
800	21.74	28.57	15.59	18.32	1.30	0.81	40.20	26.54	3.45
1000	21.58	28.56	15.54	19.84	1.31	0.83	40.39	26.71	3.41
1200	21.40	28.52	15.30	20.30	1.32	0.85	40.94	26.74	3.48
1400	21.21	28.49	15.03	19.92	1.33	0.86	41.63	26.82	3.34
1600	21.03	28.48	14.74	19.19	1.34	0.87	42.81	26.76	3.34
1800	20.84	28.45	14.58	18.38	1.36	0.88	41.83	26.67	3.31
2000	20.71	28.35	14.45	17.77	1.36	0.88	41.02	26.65	3.26
2200	20.54	28.33	14.16	17.20	1.38	0.89	41.14	26.61	3.30
2400	20.34	28.44	13.74	16.61	1.41	0.90	41.98	26.51	3.34
2600	20.09	28.52	13.17	15.94	1.44	0.91	41.86	26.28	3.32
2800	19.79	28.67	12.50	15.59	1.48	0.93	41.63	26.14	3.28
3000	19.46	28.77	11.52	14.79	1.50	0.96	39.47	25.98	3.31
3200	19.21	28.80	10.64	14.24	1.49	0.98	37.84	25.74	3.39
3400	18.95	28.83	9.71	13.37	1.48	1.00	36.95	25.82	3.34
3600	18.69	28.92	8.83	12.34	1.47	1.02	35.20	25.55	3.32
3800	18.45	28.99	8.02	11.20	1.46	1.02	34.06	25.13	3.34
4000	18.28	29.08	7.33	10.15	1.46	1.02	33.75	24.69	3.31
4200	18.17	29.10	6.78	9.29	1.45	1.00	33.14	23.76	3.27
4400	18.11	29.01	6.37	8.70	1.43	0.98	32.72	23.89	3.22
4600	18.11	28.86	6.20	8.46	1.43	0.96	32.02	22.58	3.12
4800	18.17	28.63	6.22	8.55	1.42	0.95	31.87	23.43	3.12
5000	18.27	28.22	6.49	9.03	1.41	0.94	31.32	22.38	3.00
5200	18.42	27.72	7.05	10.14	1.39	0.94	30.97	22.93	2.94
5400	18.59	27.29	7.85	11.79	1.38	0.94	30.98	23.73	2.94
5600	18.76	26.92	8.59	14.57	1.36	0.95	31.18	23.90	2.94
5800	18.87	26.66	9.18	19.40	1.35	0.96	31.81	24.46	2.93
6000	18.86	26.64	9.10	28.52	1.36	0.98	32.77	24.45	2.94
6200	18.72	26.72	8.54	29.74	1.37	1.02	33.79	24.52	3.09
6400	18.45	26.93	7.72	22.20	1.39	1.07	34.38	24.56	3.18
6600	18.27	27.10	7.06	19.20	1.39	1.11	34.93	24.52	3.19
6800	18.20	27.24	6.58	18.12	1.37	1.14	35.09	24.49	3.27
7000	18.04	27.35	6.18	17.75	1.36	1.17	34.77	24.41	3.26
7200	17.83	27.48	5.96	16.58	1.37	1.19	34.50	24.33	3.30
7400	17.75	27.54	6.09	16.60	1.39	1.17	34.51	24.27	3.31
7600	17.46	27.63	6.73	17.68	1.52	1.13	34.47	24.11	3.27
7800	17.24	27.32	7.44	19.12	1.58	1.09	34.31	24.12	3.33
8000	17.12	27.18	8.14	25.33	1.64	1.07	34.44	24.00	3.31

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 8.40V, Vadj = 1.7V , Id = 127mA @ Temperature = +85°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.09	29.12	13.68	12.26	1.30	0.76	40.16	27.15	3.67
600	22.06	29.00	15.26	15.54	1.31	0.80	40.16	27.36	3.46
800	21.95	28.93	15.74	17.47	1.31	0.82	40.09	27.47	3.50
1000	21.75	28.94	15.76	19.40	1.34	0.84	40.45	27.63	3.47
1200	21.60	28.87	15.47	19.37	1.34	0.85	40.68	27.63	3.48
1400	21.36	28.87	15.23	19.79	1.36	0.86	41.23	27.70	3.41
1600	21.22	28.82	14.89	18.68	1.36	0.87	42.27	27.59	3.48
1800	21.00	28.83	14.73	18.42	1.39	0.88	41.02	27.50	3.34
2000	20.88	28.69	14.57	17.54	1.38	0.88	40.50	27.47	3.36
2200	20.70	28.72	14.26	17.13	1.41	0.89	40.50	27.50	3.32
2400	20.51	28.78	13.80	16.55	1.43	0.90	41.40	27.41	3.27
2600	20.23	28.87	13.22	15.82	1.47	0.92	41.66	27.22	3.33
2800	19.94	29.01	12.57	15.66	1.51	0.94	41.86	26.97	3.34
3000	19.60	29.08	11.61	14.77	1.52	0.96	40.37	26.82	3.39
3200	19.34	29.10	10.73	14.46	1.52	0.98	38.56	26.34	3.37
3400	19.12	29.10	9.80	13.54	1.50	1.00	37.77	26.38	3.47
3600	18.80	29.24	9.03	12.68	1.52	1.02	35.50	25.98	3.39
3800	18.64	29.23	8.13	11.42	1.48	1.03	33.61	25.55	3.38
4000	18.41	29.33	7.50	10.45	1.49	1.02	34.26	24.92	3.34
4200	18.35	29.25	6.93	9.47	1.46	1.00	33.42	23.91	3.38
4400	18.24	29.23	6.56	8.96	1.47	0.98	32.67	23.95	3.30
4600	18.27	29.03	6.37	8.61	1.45	0.96	32.17	22.86	3.22
4800	18.29	28.79	6.43	8.81	1.45	0.95	32.05	23.74	3.19
5000	18.37	28.42	6.72	9.19	1.44	0.94	31.59	22.88	3.06
5200	18.55	27.92	7.26	10.45	1.41	0.94	31.02	23.44	3.07
5400	18.68	27.51	8.10	11.93	1.41	0.93	31.45	24.30	3.01
5600	18.89	27.14	8.74	14.96	1.38	0.95	31.81	24.47	2.99
5800	18.97	26.90	9.29	19.46	1.37	0.96	32.72	25.12	2.96
6000	18.96	26.86	9.15	30.04	1.38	0.98	33.81	25.11	3.00
6200	18.74	26.97	8.62	32.13	1.41	1.02	34.89	25.25	3.11
6400	18.52	27.13	7.70	22.38	1.41	1.07	35.46	25.38	3.14
6600	18.31	27.31	7.07	19.67	1.42	1.11	35.96	25.34	3.31
6800	18.30	27.47	6.54	18.35	1.39	1.14	36.11	25.29	3.30
7000	18.08	27.62	6.25	18.42	1.41	1.17	35.85	25.18	3.36
7200	17.94	27.70	5.95	17.00	1.38	1.19	35.66	25.03	3.40
7400	17.80	27.87	6.13	17.27	1.45	1.17	35.49	24.93	3.33
7600	17.55	27.94	6.76	18.07	1.56	1.14	35.28	24.77	3.37
7800	17.29	27.66	7.52	19.65	1.63	1.10	35.11	24.76	3.31
8000	17.19	27.48	8.14	25.28	1.68	1.07	35.18	24.60	3.28

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package



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 = 8.00V , Iadj connection = Ground, Id = 63mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	20.23	26.83	13.32	13.23	1.27	0.75	35.32	27.04	3.36
600	20.29	26.73	14.98	18.63	1.28	0.79	35.06	27.27	3.27
800	20.17	26.72	15.52	25.07	1.29	0.81	34.42	27.45	3.35
1000	20.04	26.69	15.43	29.40	1.29	0.83	34.16	27.74	3.35
1200	19.87	26.69	15.15	25.57	1.30	0.84	33.96	27.88	3.25
1400	19.70	26.68	14.89	22.12	1.31	0.85	34.01	28.18	3.17
1600	19.54	26.67	14.73	20.30	1.32	0.85	34.02	28.13	3.24
1800	19.37	26.67	14.72	18.98	1.33	0.86	33.87	28.05	3.14
2000	19.28	26.59	14.80	18.41	1.34	0.86	33.91	28.18	3.16
2200	19.16	26.57	14.72	17.94	1.35	0.87	33.71	27.94	3.08
2400	18.99	26.64	14.41	17.24	1.37	0.88	33.44	28.06	2.99
2600	18.77	26.73	13.94	16.58	1.40	0.90	33.27	27.75	3.15
2800	18.47	26.92	13.32	16.04	1.44	0.92	33.45	27.74	3.22
3000	18.15	27.09	12.26	14.91	1.47	0.94	33.96	27.59	3.18
3200	17.95	27.10	11.20	13.82	1.45	0.95	34.52	27.74	3.15
3400	17.71	27.16	10.06	12.46	1.43	0.97	35.04	27.53	3.18
3600	17.47	27.28	9.03	11.15	1.41	0.97	35.33	27.49	3.12
3800	17.23	27.43	8.07	9.91	1.41	0.97	35.25	27.55	3.13
4000	17.04	27.55	7.27	8.85	1.40	0.96	35.72	27.22	3.18
4200	16.93	27.62	6.63	8.04	1.39	0.94	35.81	26.71	3.14
4400	16.85	27.57	6.17	7.50	1.37	0.91	35.83	26.57	3.07
4600	16.84	27.45	5.95	7.30	1.37	0.90	35.95	25.03	3.02
4800	16.91	27.25	5.96	7.40	1.37	0.89	34.89	26.30	2.98
5000	17.07	26.91	6.18	7.79	1.36	0.88	36.22	24.68	2.87
5200	17.31	26.51	6.67	8.60	1.34	0.88	34.41	25.36	2.84
5400	17.63	26.12	7.33	9.74	1.32	0.88	33.50	26.25	2.77
5600	17.93	25.75	8.07	11.66	1.29	0.89	33.31	26.51	2.67
5800	18.13	25.41	8.84	14.54	1.27	0.91	33.52	26.45	2.67
6000	18.17	25.21	9.12	18.39	1.27	0.94	34.19	26.52	2.68
6200	18.14	25.17	8.84	22.22	1.26	0.98	35.48	26.31	2.83
6400	18.08	25.30	8.07	21.09	1.25	1.03	36.70	26.09	2.82
6600	18.05	25.45	7.41	19.03	1.23	1.07	38.35	25.99	2.89
6800	17.98	25.64	6.90	17.59	1.22	1.10	38.75	25.82	2.98
7000	17.80	25.85	6.53	16.71	1.23	1.12	40.41	25.71	3.03
7200	17.49	26.10	6.31	15.53	1.27	1.13	40.27	25.65	3.01
7400	17.36	26.20	6.39	14.75	1.30	1.12	39.05	25.64	2.93
7600	17.17	26.20	6.55	14.81	1.35	1.09	39.35	25.90	2.97
7800	17.14	25.97	6.79	15.51	1.35	1.07	40.02	25.86	2.95
8000	17.13	25.86	7.58	18.94	1.41	1.05	41.20	25.90	2.94

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V , Iadj connection = 0.2V, Id = 77mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	20.94	27.68	13.54	12.38	1.27	0.74	36.86	27.00	3.32
600	20.99	27.49	15.27	15.97	1.27	0.78	36.45	27.20	3.27
800	20.88	27.46	15.95	18.89	1.28	0.80	35.70	27.38	3.25
1000	20.75	27.44	16.01	20.94	1.29	0.82	35.45	27.67	3.29
1200	20.60	27.40	15.84	21.76	1.30	0.83	35.29	27.79	3.24
1400	20.43	27.36	15.62	21.25	1.31	0.84	35.41	28.03	3.10
1600	20.28	27.34	15.42	20.28	1.32	0.85	35.48	27.99	3.14
1800	20.11	27.36	15.33	19.26	1.33	0.86	35.07	27.89	3.10
2000	20.01	27.29	15.26	18.51	1.34	0.86	34.98	28.00	3.10
2200	19.88	27.30	14.99	17.84	1.35	0.87	34.76	27.78	3.00
2400	19.70	27.34	14.52	17.08	1.37	0.88	34.56	27.88	2.90
2600	19.47	27.46	13.94	16.37	1.40	0.89	34.45	27.57	3.08
2800	19.18	27.60	13.32	16.10	1.44	0.91	34.66	27.51	3.14
3000	18.87	27.76	12.31	15.32	1.47	0.94	35.34	27.33	3.14
3200	18.68	27.75	11.35	14.65	1.45	0.96	36.17	27.34	3.12
3400	18.48	27.77	10.31	13.63	1.43	0.98	36.94	27.11	3.05
3600	18.26	27.84	9.35	12.45	1.42	0.99	37.33	26.93	3.06
3800	18.05	27.95	8.43	11.17	1.41	0.99	37.80	26.97	3.08
4000	17.89	28.04	7.64	10.02	1.40	0.98	38.38	26.11	3.13
4200	17.79	28.07	7.00	9.10	1.39	0.96	37.88	25.35	3.00
4400	17.72	28.04	6.52	8.46	1.38	0.94	37.53	25.22	2.93
4600	17.71	27.90	6.30	8.20	1.38	0.92	36.44	23.95	2.95
4800	17.75	27.63	6.33	8.30	1.37	0.91	34.91	25.45	2.87
5000	17.88	27.35	6.58	8.73	1.37	0.90	35.29	23.55	2.83
5200	18.09	26.99	7.11	9.65	1.36	0.89	33.67	24.64	2.72
5400	18.35	26.62	7.83	10.97	1.33	0.89	32.94	26.00	2.65
5600	18.59	26.32	8.59	13.26	1.32	0.90	32.88	26.33	2.65
5800	18.72	25.99	9.29	16.88	1.30	0.92	33.24	26.41	2.69
6000	18.69	25.88	9.41	22.67	1.30	0.95	34.06	26.47	2.67
6200	18.61	25.86	8.96	28.59	1.30	0.98	35.34	26.27	2.78
6400	18.52	26.06	8.08	22.80	1.29	1.03	36.91	26.04	2.75
6600	18.49	26.24	7.38	19.99	1.28	1.07	38.03	25.94	2.82
6800	18.43	26.42	6.89	18.73	1.27	1.11	38.27	25.74	2.87
7000	18.27	26.62	6.58	18.52	1.29	1.13	39.68	25.59	2.95
7200	17.96	26.88	6.42	17.66	1.34	1.14	40.55	25.50	2.96
7400	17.84	26.94	6.59	16.90	1.37	1.13	38.65	25.41	2.87
7600	17.64	26.98	6.84	17.06	1.42	1.10	38.95	25.74	2.96
7800	17.59	26.76	7.12	17.82	1.43	1.08	39.36	25.70	2.82
8000	17.52	26.75	7.93	22.15	1.51	1.06	39.76	25.74	2.93

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 0.4V, Id = 87mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.31	28.09	13.55	11.80	1.27	0.74	37.93	26.98	3.25
600	21.35	27.93	15.29	14.64	1.27	0.77	37.45	27.16	3.21
800	21.24	27.89	16.03	16.79	1.28	0.79	36.69	27.31	3.27
1000	21.12	27.85	16.18	18.36	1.29	0.81	36.45	27.59	3.24
1200	20.98	27.82	16.09	19.36	1.30	0.83	36.34	27.73	3.13
1400	20.81	27.78	15.90	19.56	1.31	0.84	36.53	27.90	3.11
1600	20.66	27.76	15.70	19.16	1.32	0.84	36.57	27.85	3.12
1800	20.49	27.75	15.54	18.51	1.33	0.85	36.18	27.76	3.09
2000	20.39	27.69	15.40	17.82	1.34	0.85	36.08	27.86	3.03
2200	20.25	27.68	15.02	17.17	1.35	0.86	35.88	27.65	3.01
2400	20.06	27.73	14.47	16.48	1.37	0.87	35.70	27.76	3.00
2600	19.83	27.86	13.85	15.84	1.40	0.89	35.48	27.43	3.04
2800	19.55	28.03	13.25	15.72	1.45	0.91	35.80	27.35	3.06
3000	19.24	28.15	12.28	15.22	1.47	0.94	36.67	27.09	3.07
3200	19.06	28.10	11.38	14.82	1.45	0.96	37.71	26.96	3.11
3400	18.86	28.11	10.41	14.10	1.43	0.98	39.19	26.76	3.10
3600	18.66	28.17	9.50	13.09	1.42	0.99	40.41	26.50	3.02
3800	18.47	28.26	8.62	11.87	1.41	1.00	40.13	26.33	3.09
4000	18.31	28.32	7.84	10.69	1.41	0.99	39.42	25.48	3.05
4200	18.23	28.31	7.20	9.72	1.39	0.98	38.03	24.70	2.96
4400	18.16	28.28	6.72	9.01	1.39	0.96	37.14	24.74	2.91
4600	18.14	28.15	6.50	8.72	1.38	0.94	35.55	23.28	2.90
4800	18.18	27.88	6.53	8.81	1.38	0.92	34.39	24.96	2.79
5000	18.29	27.58	6.80	9.26	1.37	0.91	34.35	23.01	2.74
5200	18.47	27.27	7.36	10.24	1.37	0.90	32.99	24.33	2.69
5400	18.71	26.91	8.10	11.66	1.35	0.90	32.60	25.83	2.60
5600	18.91	26.60	8.86	14.15	1.33	0.91	32.66	26.23	2.57
5800	19.01	26.33	9.53	18.26	1.32	0.92	33.09	26.36	2.60
6000	18.95	26.24	9.54	25.73	1.32	0.95	34.09	26.41	2.63
6200	18.84	26.24	8.99	31.45	1.32	0.98	35.33	26.25	2.72
6400	18.75	26.42	8.07	22.57	1.31	1.03	36.81	26.02	2.76
6600	18.71	26.60	7.36	19.81	1.30	1.07	37.76	25.91	2.72
6800	18.66	26.79	6.88	18.84	1.29	1.11	37.98	25.70	2.87
7000	18.50	27.00	6.59	19.16	1.31	1.13	38.69	25.50	2.93
7200	18.20	27.25	6.46	18.82	1.36	1.15	38.97	25.40	2.95
7400	18.08	27.38	6.67	18.13	1.41	1.13	38.03	25.34	2.88
7600	17.87	27.38	6.97	18.43	1.46	1.11	38.16	25.64	2.88
7800	17.81	27.16	7.28	19.28	1.47	1.08	38.27	25.64	2.83
8000	17.72	27.16	8.08	24.13	1.55	1.06	38.39	25.70	2.88

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 0.6V, Id = 97mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.56	28.37	13.54	11.35	1.27	0.73	38.51	26.95	3.25
600	21.60	28.30	15.26	13.78	1.28	0.76	38.05	27.15	3.17
800	21.50	28.22	16.03	15.55	1.28	0.79	37.34	27.26	3.21
1000	21.38	28.19	16.23	16.89	1.29	0.81	37.14	27.54	3.21
1200	21.24	28.13	16.21	17.88	1.30	0.82	37.06	27.66	3.14
1400	21.08	28.07	16.05	18.31	1.31	0.83	37.31	27.81	3.06
1600	20.93	28.08	15.84	18.17	1.32	0.84	37.48	27.77	3.05
1800	20.76	28.05	15.65	17.74	1.33	0.85	37.08	27.68	3.07
2000	20.65	27.99	15.43	17.13	1.34	0.85	36.98	27.80	3.08
2200	20.51	27.98	14.99	16.53	1.35	0.86	36.67	27.59	2.97
2400	20.32	28.03	14.39	15.93	1.37	0.87	36.52	27.67	2.87
2600	20.08	28.13	13.75	15.35	1.40	0.89	36.34	27.34	3.01
2800	19.80	28.32	13.16	15.31	1.45	0.91	36.91	27.22	3.05
3000	19.50	28.44	12.24	15.00	1.47	0.93	37.84	26.99	3.07
3200	19.32	28.40	11.38	14.81	1.46	0.96	38.97	26.76	3.01
3400	19.13	28.35	10.46	14.36	1.43	0.98	41.15	26.53	3.04
3600	18.94	28.39	9.60	13.52	1.42	1.00	41.33	26.18	2.97
3800	18.75	28.44	8.74	12.39	1.41	1.00	39.77	26.09	3.00
4000	18.61	28.50	7.98	11.20	1.41	1.00	38.39	25.27	3.06
4200	18.53	28.50	7.34	10.18	1.40	0.98	36.91	24.53	2.90
4400	18.46	28.45	6.87	9.44	1.39	0.97	36.08	24.50	2.88
4600	18.44	28.28	6.64	9.13	1.38	0.95	34.70	23.18	2.80
4800	18.47	28.05	6.69	9.20	1.38	0.93	33.93	24.75	2.80
5000	18.57	27.75	6.97	9.66	1.38	0.92	33.75	23.16	2.68
5200	18.73	27.44	7.54	10.68	1.37	0.91	32.68	24.22	2.63
5400	18.95	27.14	8.30	12.17	1.36	0.90	32.47	25.73	2.57
5600	19.13	26.79	9.05	14.81	1.33	0.91	32.60	26.16	2.52
5800	19.20	26.58	9.67	19.27	1.33	0.92	33.11	26.35	2.52
6000	19.12	26.46	9.62	28.55	1.33	0.95	34.13	26.39	2.61
6200	19.00	26.48	9.01	30.47	1.33	0.98	35.56	26.24	2.72
6400	18.90	26.70	8.05	21.92	1.33	1.03	36.90	25.98	2.76
6600	18.86	26.89	7.34	19.45	1.32	1.07	37.91	25.90	2.73
6800	18.81	27.08	6.87	18.71	1.31	1.11	38.09	25.69	2.90
7000	18.66	27.32	6.60	19.43	1.34	1.14	38.41	25.48	2.87
7200	18.36	27.55	6.48	19.59	1.39	1.15	38.38	25.42	2.93
7400	18.25	27.63	6.73	19.05	1.43	1.13	37.81	25.33	2.89
7600	18.04	27.67	7.05	19.50	1.49	1.11	37.77	25.63	2.88
7800	17.97	27.40	7.38	20.44	1.49	1.08	37.75	25.66	2.86
8000	17.86	27.44	8.18	25.77	1.58	1.06	37.84	25.77	2.87

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 0.8V, Id = 106mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.75	28.63	13.53	11.03	1.27	0.72	38.69	26.96	3.19
600	21.78	28.51	15.19	13.20	1.28	0.76	38.31	27.14	3.13
800	21.69	28.47	16.00	14.76	1.29	0.78	37.70	27.29	3.14
1000	21.57	28.41	16.24	15.97	1.29	0.80	37.54	27.54	3.15
1200	21.43	28.37	16.26	16.95	1.30	0.82	37.46	27.61	3.13
1400	21.28	28.33	16.12	17.45	1.31	0.83	37.77	27.80	3.03
1600	21.13	28.30	15.91	17.45	1.32	0.84	37.98	27.73	3.03
1800	20.95	28.30	15.69	17.15	1.34	0.85	37.64	27.64	2.96
2000	20.84	28.22	15.44	16.59	1.34	0.85	37.56	27.74	2.88
2200	20.69	28.20	14.95	16.04	1.36	0.86	37.19	27.53	2.96
2400	20.50	28.28	14.32	15.51	1.38	0.87	37.06	27.63	3.04
2600	20.26	28.38	13.65	14.97	1.41	0.88	36.97	27.32	3.00
2800	19.98	28.50	13.09	14.99	1.45	0.90	37.53	27.17	3.00
3000	19.68	28.62	12.19	14.77	1.47	0.93	38.77	26.93	3.08
3200	19.51	28.53	11.37	14.73	1.45	0.95	39.90	26.67	3.01
3400	19.32	28.56	10.49	14.47	1.44	0.98	42.30	26.52	3.03
3600	19.14	28.56	9.66	13.80	1.42	1.00	40.57	26.05	2.93
3800	18.96	28.62	8.83	12.75	1.42	1.01	38.89	26.01	2.99
4000	18.82	28.68	8.08	11.57	1.41	1.01	37.57	25.17	2.99
4200	18.74	28.65	7.45	10.53	1.40	0.99	36.17	24.51	2.91
4400	18.67	28.55	6.97	9.75	1.39	0.97	35.35	24.53	2.84
4600	18.65	28.44	6.75	9.42	1.39	0.95	34.22	23.32	2.77
4800	18.67	28.20	6.80	9.48	1.39	0.94	33.65	24.77	2.73
5000	18.77	27.87	7.09	9.95	1.38	0.92	33.38	23.45	2.67
5200	18.92	27.58	7.67	11.00	1.38	0.91	32.45	24.38	2.62
5400	19.13	27.25	8.44	12.54	1.36	0.90	32.45	25.73	2.57
5600	19.29	26.99	9.19	15.29	1.35	0.91	32.65	26.11	2.50
5800	19.34	26.77	9.79	20.03	1.34	0.92	33.33	26.34	2.54
6000	19.24	26.70	9.67	30.82	1.35	0.95	34.46	26.36	2.55
6200	19.11	26.68	9.02	28.79	1.35	0.99	36.00	26.22	2.72
6400	19.01	26.91	8.04	21.32	1.34	1.03	37.33	26.00	2.74
6600	18.97	27.07	7.32	19.08	1.33	1.07	38.27	25.94	2.80
6800	18.92	27.28	6.86	18.51	1.33	1.11	38.36	25.70	2.86
7000	18.77	27.49	6.60	19.49	1.35	1.14	38.45	25.55	2.84
7200	18.47	27.80	6.50	20.11	1.41	1.15	38.26	25.47	2.94
7400	18.37	27.87	6.76	19.71	1.45	1.14	37.83	25.39	2.88
7600	18.16	27.87	7.11	20.33	1.51	1.11	37.72	25.69	2.86
7800	18.08	27.63	7.45	21.37	1.51	1.09	37.60	25.74	2.78
8000	17.95	27.63	8.24	26.94	1.60	1.06	37.66	25.75	2.82

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 1.0V, Id = 116mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	21.90	28.90	13.49	10.79	1.28	0.72	38.68	26.97	3.23
600	21.93	28.72	15.15	12.78	1.28	0.76	38.37	27.16	3.16
800	21.83	28.65	15.95	14.22	1.29	0.78	37.89	27.31	3.16
1000	21.72	28.61	16.23	15.35	1.30	0.80	37.74	27.53	3.19
1200	21.58	28.55	16.28	16.29	1.30	0.81	37.67	27.64	3.12
1400	21.42	28.51	16.17	16.83	1.31	0.83	38.00	27.78	3.00
1600	21.27	28.52	15.95	16.91	1.33	0.84	38.24	27.72	3.04
1800	21.10	28.47	15.71	16.70	1.34	0.85	37.97	27.63	2.97
2000	20.99	28.40	15.42	16.18	1.35	0.85	37.89	27.72	3.01
2200	20.84	28.40	14.90	15.66	1.36	0.85	37.49	27.51	3.01
2400	20.64	28.46	14.25	15.18	1.38	0.87	37.41	27.60	2.71
2600	20.40	28.53	13.58	14.68	1.41	0.88	37.33	27.29	2.99
2800	20.12	28.69	13.02	14.72	1.45	0.90	37.97	27.14	3.10
3000	19.82	28.80	12.15	14.59	1.48	0.93	39.35	26.90	3.02
3200	19.65	28.71	11.35	14.64	1.46	0.95	40.61	26.64	3.02
3400	19.47	28.68	10.50	14.53	1.44	0.98	42.93	26.47	3.01
3600	19.29	28.71	9.70	13.99	1.43	1.00	40.22	26.12	2.98
3800	19.12	28.74	8.90	13.02	1.42	1.01	38.56	26.00	3.00
4000	18.98	28.78	8.15	11.86	1.41	1.01	37.31	25.25	3.00
4200	18.91	28.74	7.53	10.79	1.40	0.99	36.02	24.56	2.89
4400	18.84	28.70	7.06	9.99	1.40	0.98	35.05	24.55	2.81
4600	18.81	28.53	6.83	9.64	1.39	0.96	34.00	23.53	2.85
4800	18.83	28.30	6.88	9.71	1.39	0.94	33.48	24.82	2.74
5000	18.92	27.96	7.18	10.17	1.38	0.92	33.48	23.75	2.69
5200	19.06	27.67	7.77	11.25	1.38	0.91	32.45	24.52	2.65
5400	19.26	27.35	8.54	12.82	1.36	0.91	32.58	25.78	2.60
5600	19.41	27.12	9.29	15.66	1.35	0.91	32.85	26.10	2.54
5800	19.45	26.85	9.86	20.58	1.34	0.92	33.65	26.36	2.47
6000	19.33	26.80	9.70	32.48	1.35	0.95	34.88	26.38	2.57
6200	19.20	26.82	9.02	27.41	1.35	0.98	36.48	26.24	2.68
6400	19.09	27.04	8.03	20.84	1.35	1.03	37.81	26.02	2.72
6600	19.05	27.22	7.30	18.75	1.34	1.07	38.70	25.92	2.80
6800	19.00	27.42	6.84	18.28	1.33	1.11	38.65	25.75	2.84
7000	18.85	27.64	6.60	19.45	1.36	1.14	38.53	25.59	2.84
7200	18.56	27.90	6.51	20.44	1.42	1.15	38.23	25.51	3.00
7400	18.46	28.03	6.79	20.22	1.46	1.14	37.95	25.47	2.85
7600	18.25	27.97	7.16	21.06	1.51	1.11	37.79	25.76	2.87
7800	18.17	27.77	7.51	22.17	1.53	1.09	37.58	25.81	2.90
8000	18.03	27.79	8.29	27.91	1.61	1.06	37.62	25.81	2.94

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 1.2V, Id = 125mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.01	28.96	13.46	10.61	1.27	0.72	38.60	27.03	3.23
600	22.04	28.87	15.10	12.47	1.28	0.75	38.39	27.20	3.14
800	21.94	28.80	15.92	13.82	1.29	0.78	38.00	27.35	3.15
1000	21.83	28.75	16.21	14.90	1.30	0.80	37.88	27.57	3.24
1200	21.69	28.71	16.29	15.82	1.31	0.81	37.80	27.63	3.12
1400	21.54	28.64	16.19	16.39	1.31	0.82	38.09	27.75	3.02
1600	21.39	28.65	15.97	16.50	1.33	0.84	38.34	27.72	3.03
1800	21.21	28.65	15.71	16.35	1.35	0.85	38.17	27.64	3.02
2000	21.10	28.57	15.40	15.87	1.35	0.85	38.03	27.72	2.92
2200	20.95	28.56	14.86	15.37	1.36	0.85	37.61	27.55	2.99
2400	20.75	28.58	14.20	14.91	1.38	0.86	37.52	27.60	2.80
2600	20.51	28.72	13.51	14.44	1.42	0.88	37.47	27.27	3.00
2800	20.23	28.83	12.97	14.51	1.46	0.90	38.11	27.15	3.03
3000	19.93	28.91	12.10	14.43	1.48	0.93	39.54	26.88	3.08
3200	19.76	28.83	11.33	14.54	1.46	0.95	40.91	26.69	3.02
3400	19.58	28.83	10.51	14.54	1.44	0.98	43.58	26.56	2.97
3600	19.41	28.82	9.73	14.12	1.43	1.00	40.64	26.23	3.03
3800	19.24	28.85	8.94	13.22	1.42	1.01	38.19	26.07	2.96
4000	19.11	28.87	8.22	12.08	1.42	1.01	37.10	25.37	2.98
4200	19.03	28.87	7.59	11.00	1.41	1.00	36.03	24.73	2.90
4400	18.97	28.71	7.12	10.18	1.39	0.98	34.88	24.71	2.91
4600	18.94	28.63	6.90	9.83	1.40	0.96	33.90	23.75	2.82
4800	18.95	28.37	6.96	9.89	1.40	0.94	33.56	24.93	2.72
5000	19.03	28.07	7.26	10.36	1.39	0.93	33.41	23.96	2.70
5200	19.17	27.77	7.85	11.45	1.39	0.92	32.63	24.64	2.60
5400	19.37	27.48	8.62	13.04	1.37	0.91	32.76	25.79	2.58
5600	19.51	27.20	9.37	15.94	1.35	0.91	33.09	26.07	2.53
5800	19.53	26.98	9.92	20.99	1.35	0.92	34.01	26.35	2.58
6000	19.41	26.90	9.73	33.43	1.35	0.95	35.35	26.37	2.56
6200	19.27	26.90	9.02	26.39	1.35	0.98	36.92	26.23	2.75
6400	19.16	27.15	8.02	20.45	1.35	1.03	38.09	26.05	2.82
6600	19.12	27.35	7.28	18.48	1.34	1.07	39.00	25.95	2.78
6800	19.07	27.54	6.83	18.09	1.34	1.11	38.92	25.77	2.86
7000	18.92	27.78	6.60	19.37	1.37	1.14	38.67	25.65	2.91
7200	18.64	28.03	6.52	20.68	1.43	1.15	38.34	25.60	2.92
7400	18.54	28.10	6.80	20.57	1.46	1.14	38.08	25.57	2.89
7600	18.33	28.10	7.18	21.63	1.52	1.11	37.85	25.82	2.86
7800	18.24	27.87	7.55	22.80	1.53	1.09	37.61	25.82	2.83
8000	18.10	27.88	8.32	28.70	1.62	1.06	37.55	25.86	2.89

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 1.4V, Id = 134mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.10	29.13	13.44	10.48	1.27	0.72	38.52	27.09	3.24
600	22.12	28.98	15.07	12.25	1.28	0.75	38.39	27.22	3.20
800	22.02	28.92	15.88	13.54	1.29	0.77	38.07	27.36	3.16
1000	21.92	28.89	16.19	14.59	1.30	0.79	37.95	27.60	3.20
1200	21.78	28.85	16.29	15.49	1.31	0.81	37.84	27.68	3.13
1400	21.63	28.75	16.19	16.06	1.32	0.82	38.11	27.80	3.06
1600	21.48	28.75	15.98	16.21	1.33	0.83	38.34	27.75	3.05
1800	21.30	28.75	15.71	16.09	1.35	0.84	38.24	27.66	3.07
2000	21.19	28.64	15.37	15.63	1.35	0.84	38.17	27.75	2.99
2200	21.03	28.66	14.82	15.16	1.36	0.85	37.64	27.53	2.96
2400	20.84	28.70	14.15	14.72	1.38	0.86	37.58	27.61	2.93
2600	20.59	28.80	13.46	14.27	1.42	0.88	37.53	27.31	3.06
2800	20.31	28.90	12.92	14.35	1.45	0.90	38.13	27.15	3.04
3000	20.01	29.02	12.07	14.30	1.48	0.93	39.48	26.94	3.00
3200	19.84	28.95	11.32	14.47	1.46	0.95	40.87	26.77	3.05
3400	19.67	28.92	10.52	14.54	1.44	0.98	43.62	26.68	3.04
3600	19.50	28.90	9.75	14.19	1.43	1.00	40.98	26.36	2.96
3800	19.33	28.95	8.98	13.37	1.43	1.01	38.24	26.21	2.98
4000	19.20	28.97	8.26	12.24	1.42	1.01	37.34	25.60	2.99
4200	19.13	28.92	7.64	11.16	1.41	1.00	36.16	24.92	2.92
4400	19.06	28.84	7.17	10.34	1.40	0.98	34.98	24.90	2.87
4600	19.03	28.67	6.95	9.96	1.40	0.96	34.02	23.95	2.75
4800	19.05	28.40	7.02	10.02	1.40	0.94	33.65	25.11	2.79
5000	19.12	28.12	7.32	10.50	1.39	0.93	33.53	24.20	2.71
5200	19.26	27.82	7.92	11.60	1.39	0.92	32.81	24.86	2.61
5400	19.45	27.56	8.69	13.20	1.37	0.91	33.08	25.83	2.56
5600	19.58	27.26	9.43	16.13	1.36	0.91	33.42	26.11	2.58
5800	19.60	27.04	9.95	21.30	1.35	0.92	34.47	26.38	2.61
6000	19.47	26.94	9.74	33.87	1.35	0.95	35.81	26.37	2.58
6200	19.33	27.00	9.01	25.70	1.36	0.98	37.27	26.24	2.70
6400	19.21	27.21	8.00	20.12	1.35	1.03	38.39	26.08	2.76
6600	19.17	27.45	7.27	18.27	1.35	1.07	39.27	25.98	2.81
6800	19.12	27.65	6.83	17.93	1.35	1.10	39.11	25.81	2.87
7000	18.97	27.86	6.61	19.29	1.37	1.13	38.83	25.70	2.95
7200	18.69	28.12	6.53	20.82	1.43	1.15	38.48	25.66	2.90
7400	18.60	28.23	6.82	20.83	1.48	1.14	38.22	25.62	2.91
7600	18.40	28.18	7.19	22.00	1.53	1.11	37.95	25.86	2.88
7800	18.31	27.95	7.56	23.25	1.54	1.09	37.66	25.87	2.81
8000	18.15	27.97	8.34	29.35	1.63	1.06	37.59	25.89	2.87

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 1.6V, Id = 142mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.16	29.27	13.42	10.38	1.28	0.72	38.47	27.10	3.22
600	22.19	29.07	15.03	12.10	1.28	0.75	38.41	27.27	3.19
800	22.09	29.00	15.85	13.35	1.29	0.77	38.14	27.41	3.15
1000	21.99	28.98	16.17	14.37	1.30	0.79	38.01	27.63	3.26
1200	21.85	28.91	16.27	15.26	1.31	0.81	37.87	27.68	3.17
1400	21.70	28.86	16.19	15.84	1.32	0.82	38.09	27.85	3.06
1600	21.55	28.83	15.98	15.99	1.33	0.83	38.31	27.80	2.99
1800	21.37	28.82	15.70	15.91	1.35	0.84	38.25	27.71	2.99
2000	21.26	28.76	15.36	15.46	1.35	0.84	38.14	27.79	3.04
2200	21.10	28.73	14.79	15.00	1.36	0.85	37.66	27.56	2.94
2400	20.90	28.78	14.11	14.58	1.39	0.86	37.58	27.62	2.84
2600	20.66	28.89	13.42	14.14	1.42	0.88	37.55	27.32	3.00
2800	20.38	29.02	12.88	14.23	1.46	0.90	38.08	27.16	3.04
3000	20.08	29.14	12.04	14.20	1.49	0.93	39.30	26.99	3.06
3200	19.91	29.04	11.30	14.39	1.47	0.95	40.58	26.84	3.06
3400	19.73	28.97	10.52	14.52	1.44	0.98	43.00	26.76	3.01
3600	19.56	28.98	9.77	14.25	1.43	1.00	41.97	26.48	2.99
3800	19.40	29.00	9.01	13.47	1.43	1.01	38.55	26.34	2.99
4000	19.27	29.00	8.29	12.36	1.42	1.01	37.50	25.78	2.99
4200	19.21	28.98	7.68	11.28	1.41	1.00	36.50	25.06	2.91
4400	19.14	28.88	7.21	10.45	1.40	0.98	35.15	25.12	2.88
4600	19.11	28.70	7.00	10.07	1.40	0.96	34.14	24.18	2.82
4800	19.12	28.50	7.07	10.14	1.40	0.95	33.93	25.24	2.78
5000	19.19	28.16	7.38	10.61	1.39	0.93	33.74	24.43	2.74
5200	19.33	27.90	7.97	11.71	1.39	0.92	33.06	24.98	2.65
5400	19.51	27.59	8.75	13.33	1.37	0.91	33.41	25.91	2.57
5600	19.64	27.32	9.48	16.28	1.36	0.91	33.85	26.12	2.56
5800	19.65	27.14	9.98	21.51	1.36	0.93	34.94	26.38	2.56
6000	19.51	27.01	9.74	33.98	1.36	0.95	36.21	26.37	2.61
6200	19.37	27.06	9.00	25.19	1.36	0.98	37.58	26.25	2.72
6400	19.25	27.29	7.98	19.86	1.36	1.03	38.66	26.07	2.74
6600	19.22	27.52	7.26	18.06	1.35	1.07	39.47	26.00	2.80
6800	19.16	27.71	6.82	17.77	1.35	1.10	39.29	25.85	2.89
7000	19.02	27.93	6.62	19.20	1.38	1.13	39.00	25.75	2.93
7200	18.73	28.18	6.54	20.92	1.44	1.15	38.59	25.71	2.96
7400	18.65	28.28	6.84	21.02	1.48	1.14	38.35	25.71	2.92
7600	18.45	28.23	7.22	22.31	1.53	1.11	38.05	25.90	2.90
7800	18.36	28.03	7.58	23.61	1.54	1.09	37.73	25.92	2.83
8000	18.20	28.04	8.35	29.89	1.63	1.06	37.64	25.92	2.88

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 = 8.00V, Iadj connection = 1.8V, Id = 150mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.22	29.31	13.40	10.31	1.28	0.72	38.45	27.15	3.26
600	22.24	29.16	15.00	11.97	1.28	0.75	38.46	27.32	3.21
800	22.14	29.07	15.83	13.20	1.29	0.77	38.22	27.46	3.19
1000	22.04	29.04	16.16	14.20	1.30	0.79	38.07	27.65	3.27
1200	21.91	28.99	16.27	15.09	1.31	0.81	37.94	27.73	3.20
1400	21.75	28.94	16.20	15.66	1.32	0.82	38.11	27.89	3.06
1600	21.60	28.90	15.98	15.84	1.33	0.83	38.34	27.84	3.04
1800	21.43	28.91	15.69	15.76	1.35	0.84	38.29	27.73	2.99
2000	21.31	28.83	15.33	15.33	1.35	0.84	38.16	27.80	2.95
2200	21.15	28.81	14.76	14.88	1.37	0.85	37.69	27.60	3.01
2400	20.95	28.86	14.07	14.46	1.39	0.86	37.63	27.63	3.07
2600	20.71	28.94	13.38	14.04	1.42	0.88	37.60	27.33	3.03
2800	20.43	29.07	12.84	14.13	1.46	0.90	37.98	27.20	3.08
3000	20.13	29.19	12.02	14.12	1.48	0.93	39.19	27.02	3.08
3200	19.96	29.10	11.28	14.33	1.47	0.95	40.17	26.94	3.04
3400	19.79	29.05	10.51	14.50	1.45	0.98	42.37	26.86	3.01
3600	19.62	29.05	9.77	14.28	1.44	1.00	43.18	26.64	2.99
3800	19.46	29.04	9.03	13.55	1.42	1.01	39.02	26.53	3.02
4000	19.33	29.10	8.32	12.45	1.43	1.02	38.22	25.96	3.02
4200	19.27	29.01	7.71	11.38	1.41	1.00	36.95	25.31	3.00
4400	19.20	28.92	7.25	10.53	1.40	0.98	35.40	25.34	2.86
4600	19.17	28.74	7.04	10.15	1.40	0.96	34.42	24.40	2.77
4800	19.18	28.55	7.10	10.21	1.40	0.95	34.28	25.36	2.77
5000	19.25	28.22	7.41	10.69	1.40	0.93	34.13	24.64	2.70
5200	19.38	27.94	8.01	11.80	1.39	0.92	33.27	25.18	2.56
5400	19.57	27.63	8.79	13.42	1.37	0.91	33.77	25.96	2.58
5600	19.70	27.39	9.51	16.40	1.36	0.91	34.41	26.11	2.59
5800	19.70	27.13	10.01	21.70	1.35	0.92	35.41	26.40	2.58
6000	19.55	27.08	9.75	34.11	1.36	0.95	36.44	26.38	2.53
6200	19.41	27.11	8.99	24.83	1.36	0.98	37.79	26.25	2.71
6400	19.29	27.34	7.98	19.69	1.36	1.03	38.80	26.08	2.77
6600	19.26	27.54	7.25	17.92	1.35	1.07	39.63	26.00	2.90
6800	19.21	27.78	6.81	17.62	1.35	1.10	39.39	25.86	2.92
7000	19.06	28.00	6.61	19.06	1.38	1.13	39.12	25.79	2.95
7200	18.78	28.20	6.54	20.88	1.43	1.15	38.70	25.75	2.98
7400	18.69	28.31	6.84	21.12	1.48	1.14	38.48	25.76	2.89
7600	18.49	28.28	7.23	22.60	1.53	1.11	38.03	25.93	2.98
7800	18.41	28.06	7.60	24.05	1.54	1.09	37.77	25.95	2.86
8000	18.24	28.10	8.37	30.40	1.64	1.06	37.68	25.95	2.91

Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

Typical Performance Data

Definitions:

Input Return Loss = -S11 (dB)

Gain(Power Gain) = S21 (dB)

Reverse Isolation = -S12 (dB)

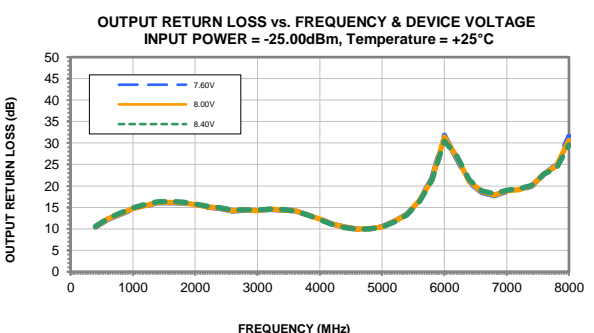
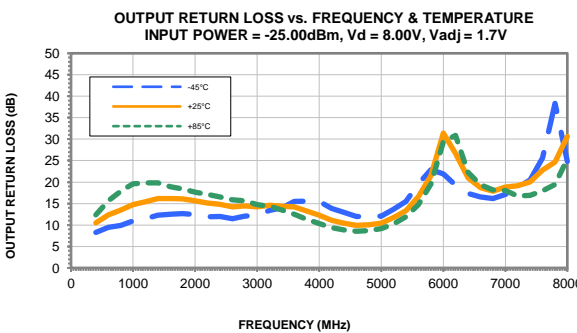
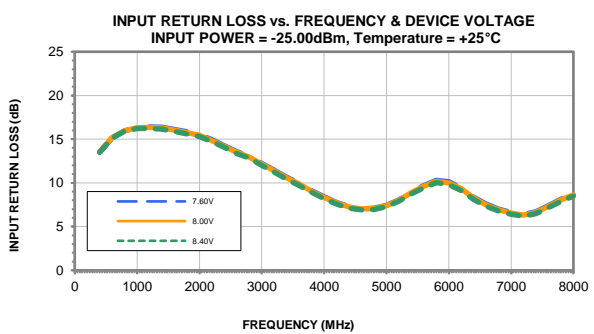
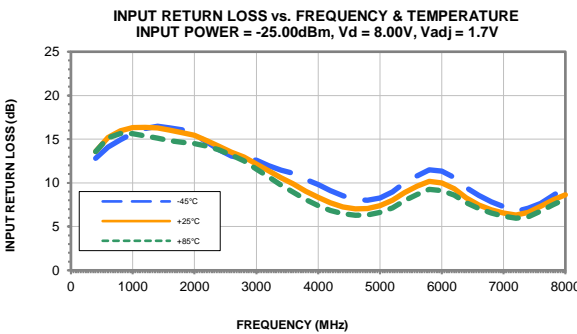
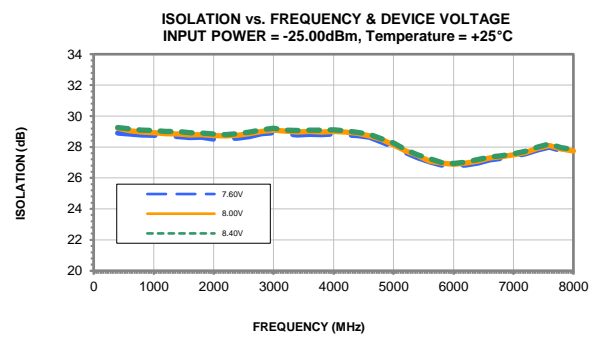
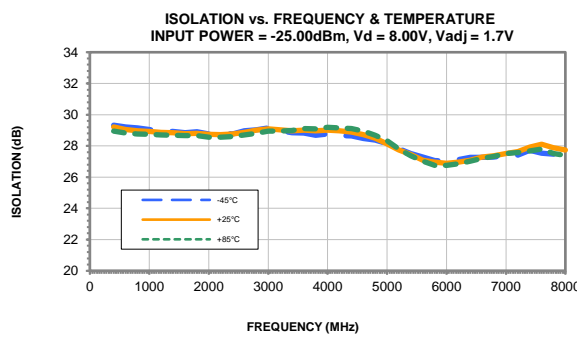
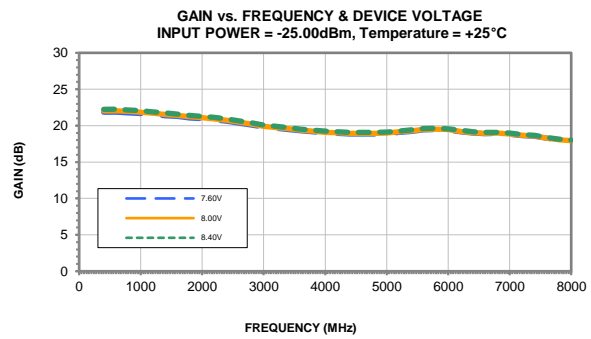
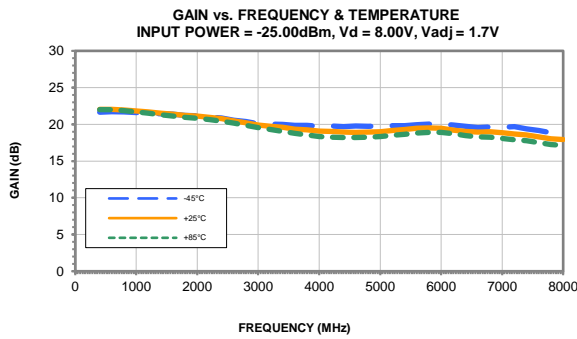
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 8.00V, Iadj connection = 2.0V, Id = 158mA @ Temperature = +25°C

FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
					K	Measure			
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
400	22.27	29.32	13.38	10.25	1.27	0.71	38.49	27.22	3.29
600	22.29	29.20	14.98	11.90	1.28	0.75	38.52	27.37	3.16
800	22.19	29.15	15.80	13.09	1.29	0.77	38.30	27.51	3.18
1000	22.08	29.10	16.14	14.08	1.30	0.79	38.16	27.69	3.11
1200	21.95	29.05	16.26	14.96	1.31	0.81	38.02	27.77	3.18
1400	21.80	29.02	16.18	15.55	1.32	0.82	38.14	27.93	3.10
1600	21.65	28.97	15.97	15.73	1.33	0.83	38.41	27.88	3.06
1800	21.47	28.96	15.68	15.66	1.35	0.84	38.36	27.75	3.05
2000	21.36	28.88	15.31	15.23	1.35	0.84	38.25	27.84	2.99
2200	21.20	28.86	14.73	14.80	1.37	0.85	37.76	27.63	3.03
2400	21.00	28.92	14.03	14.38	1.39	0.86	37.68	27.66	3.08
2600	20.75	29.00	13.35	13.96	1.42	0.88	37.67	27.36	3.06
2800	20.47	29.12	12.81	14.06	1.46	0.90	38.03	27.22	3.09
3000	20.17	29.27	11.99	14.05	1.49	0.93	38.95	27.10	3.05
3200	20.00	29.14	11.26	14.27	1.46	0.95	40.03	27.03	3.03
3400	19.83	29.11	10.50	14.47	1.45	0.98	41.91	26.99	3.04
3600	19.66	29.11	9.78	14.28	1.44	1.00	44.66	26.75	3.00
3800	19.50	29.08	9.04	13.59	1.42	1.01	39.59	26.72	3.03
4000	19.38	29.07	8.34	12.52	1.42	1.01	38.73	26.19	3.04
4200	19.32	29.05	7.74	11.44	1.41	1.00	37.41	25.47	2.95
4400	19.25	28.94	7.28	10.59	1.40	0.98	35.73	25.54	2.85
4600	19.22	28.80	7.07	10.22	1.40	0.97	34.72	24.60	2.85
4800	19.22	28.53	7.14	10.27	1.40	0.95	34.64	25.51	2.82
5000	19.29	28.23	7.45	10.75	1.39	0.93	34.38	24.83	2.73
5200	19.43	27.95	8.06	11.87	1.39	0.92	33.56	25.24	2.61
5400	19.61	27.68	8.82	13.50	1.38	0.91	34.23	26.00	2.58
5600	19.74	27.44	9.54	16.50	1.36	0.91	34.81	26.11	2.57
5800	19.74	27.18	10.03	21.85	1.35	0.92	35.77	26.39	2.62
6000	19.59	27.12	9.76	34.05	1.36	0.95	36.73	26.37	2.60
6200	19.44	27.12	9.00	24.57	1.36	0.98	37.98	26.24	2.77
6400	19.33	27.39	7.97	19.51	1.36	1.03	38.90	26.10	2.79
6600	19.29	27.57	7.24	17.78	1.35	1.07	39.55	26.02	2.82
6800	19.24	27.83	6.81	17.51	1.35	1.10	39.52	25.87	2.89
7000	19.09	28.04	6.60	18.94	1.38	1.13	39.16	25.82	2.96
7200	18.82	28.30	6.54	20.86	1.44	1.15	38.79	25.79	3.03
7400	18.73	28.37	6.85	21.18	1.48	1.14	38.58	25.80	2.88
7600	18.54	28.35	7.25	22.80	1.54	1.11	38.11	25.95	2.94
7800	18.45	28.08	7.62	24.34	1.54	1.09	37.74	25.97	2.84
8000	18.28	28.16	8.39	30.95	1.64	1.06	37.71	25.95	2.87

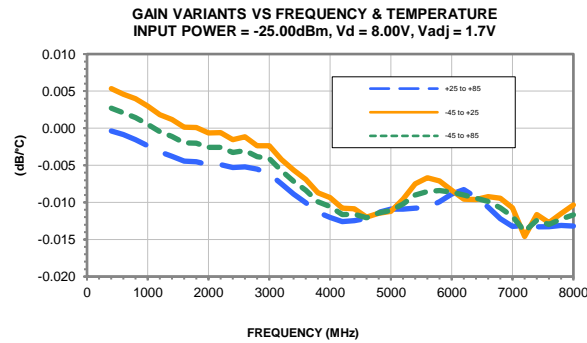
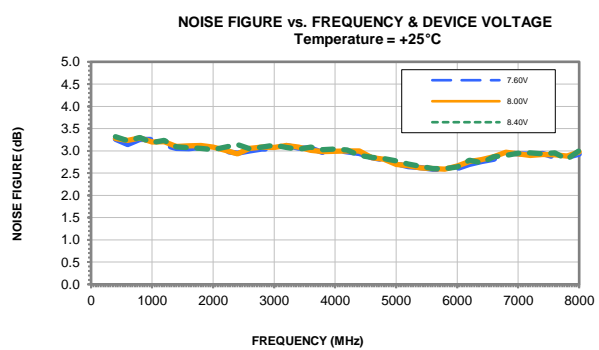
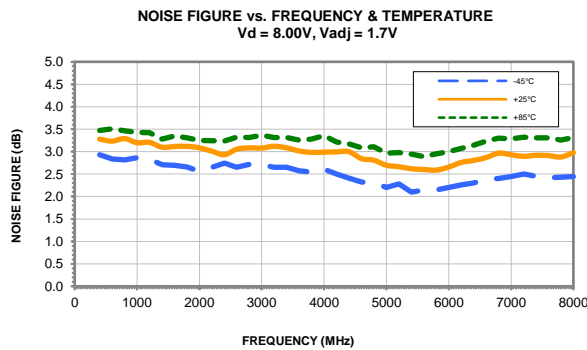
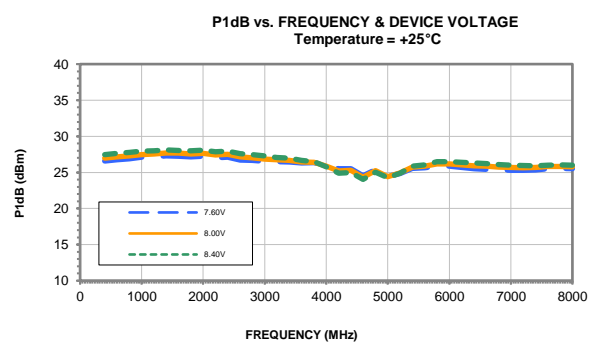
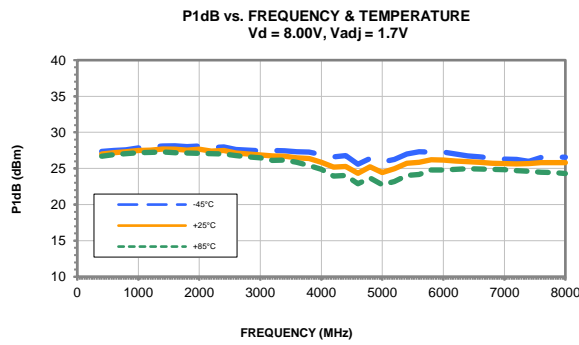
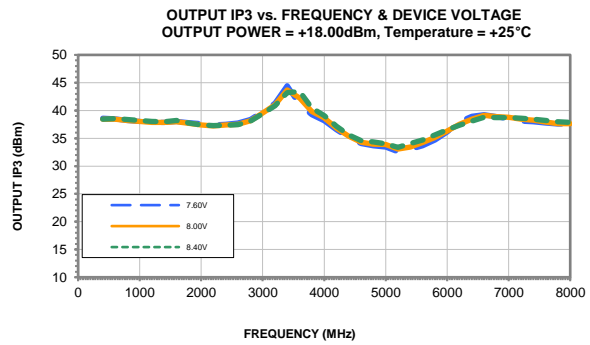
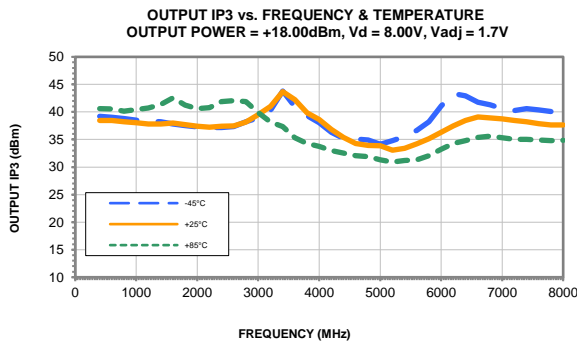
Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

Typical Performance Curves



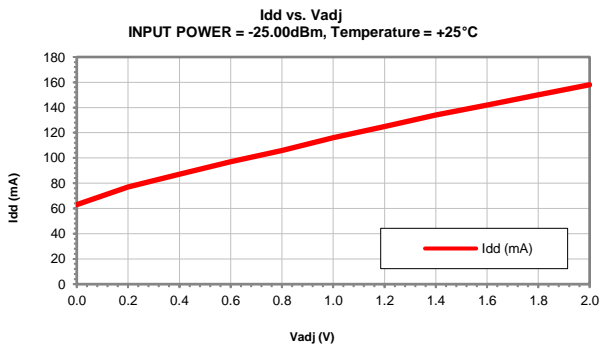
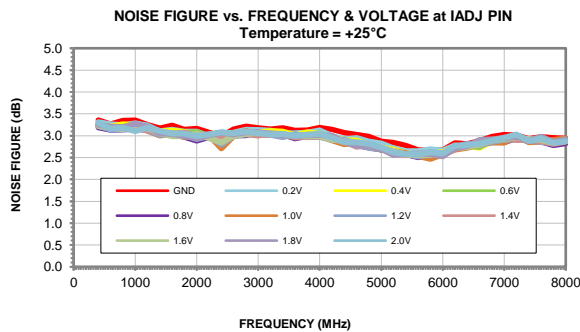
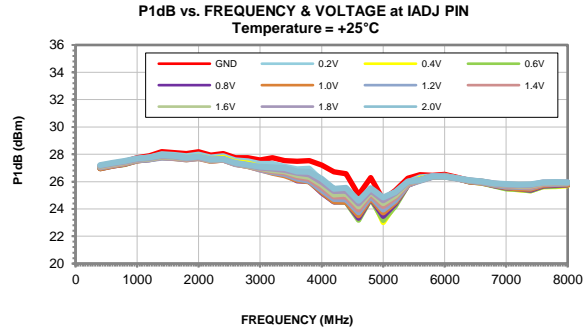
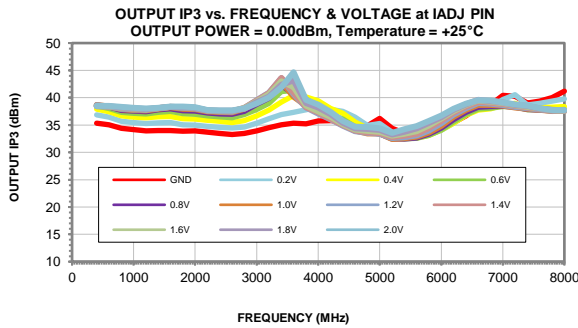
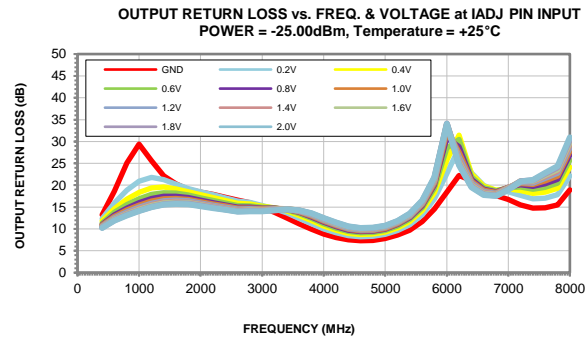
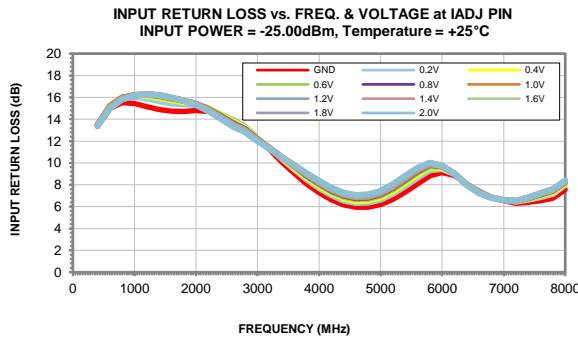
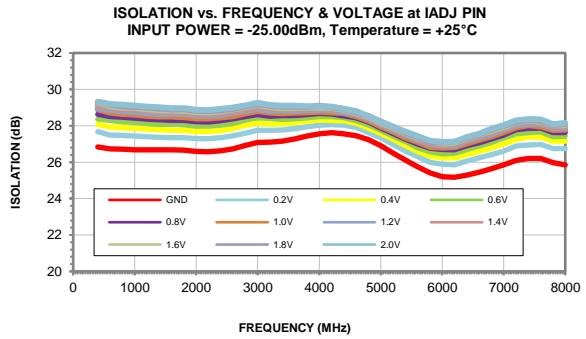
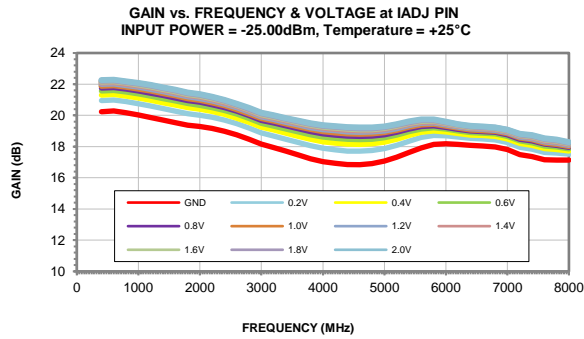
Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

Typical Performance Curves



Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

Typical Performance Curves



Note: Test data of Die packaged in industry standard 3x3mm 12L MCLP package

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 -40° to 105° C or -55° to 105° C or -45° to 105° C Ambient Environment	Refer to Individual Model Data Sheet
Storage Environment (Die)	-65° to 150°C	Individual Model Data Sheet
Storage Environment(Packaging)	-40° to 70°C and 40 to 60% humidity (In Factory Shipped Package)	