5 VOLT-SURFACE MOUNT

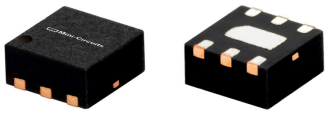
Monolithic Amplifier

LHY-84+

50Ω DC to 7 GHz

THE BIG DEAL

- High Gain, 24.4 dB Typ. at 10 MHz
- High P1dB, 20.8 dB Typ. at 10 MHz
- High IP3, +38.5 dBm Typ. at 10 MHz
- Small Size, 2x2 mm
- Ruggedized Design
- Fixed +5 V Operation
- Unconditionally Stable
- Excellent ESD Protection
- Transient Protected, US Patent 6,943,629



Generic photo used for illustration purposes only

CASE STYLE: MC1630-1

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Base Station Infrastructure
- Portable Wireless
- CATV & DBS
- MMDS & Wireless LAN
- LTE

PRODUCT OVERVIEW

LHY-84+ (RoHS compliant) is a wideband amplifier offering high dynamic range. Lead finish is matte tin. It has repeatable performance from lot to lot and is enclosed in a 2x2 mm QFN-style package. It uses patented Transient Protected Darlington configuration and is fabricated using InGaP HBT technology.

KEY FEATURES

Feature	Advantages
Broadband: DC to 7 GHz	Broadband covering primary wireless communications bands: CATV & DBS, MMDS & Wireless LAN, LTE.
Combination of High P1dB & OIP3: P1dB, +20.8 dBm at 10 MHz OIP3, +38.5 dBm at 10 MHz	The LHY-84+ matches industry leading IP3 performance relative to device size and power consumption. IP3 is typically 12-18 dB above the P1dB point. This feature makes this amplifier ideal for use in: • Driver amplifiers for complex waveform upconverter paths • Drivers in linearized transmitter systems • Secondary amplifiers in ultra High Dynamic range receivers
High Gain, 24 dB Typ. at 10 MHz	Minimizes number of stages reduces PCB space and BOM costs to achieve high gain for the line up.
Small 2x2 mm QFN-Style Package	Tiny footprint saves space in dense layouts while providing low inductance, repeatable transitions, and excellent thermal contact to the PCB.

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50Ω DC to 7 GHz

ELECTRICAL SPECIFICATIONS AT +25°C, +5 V & 50Ω, UNLESS NOTED OTHERWISE

Parameter	Condition (MHz)	V_{DD} = +5 V[1]			V_{DD} = +5 V[2]	Units
		Min.	Typ.	Max.	Typ.	
Frequency Range[3]		DC		7	DC-7	GHz
Gain	10	22	24.4	26.8	24.3	dB
	1000	20.5	22.8	25.1	22.7	
	2000	17.9	20.0	21.9	19.9	
	4000	13.4	15.7	16.4	14.5	
	6000		11.8		9.9	
	7000		9.8		7.9	
Input Return Loss	10	18	24		22	dB
	1000	13	17		18	
	2000	10	15		15	
	4000		15		11	
	6000		14		10	
	7000		12		9	
Output Return Loss	10	16	22		20	dB
	1000		9		9	
	2000		6		6	
	4000		6		5	
	6000		6		5	
	7000		5		6	
Reverse Isolation	2000		28		28	dB
Output Power @ 1 dB Compression	10		+20.8		20.1	dBm
	1000		+21.0		20.7	
	2000		+21.1		20.6	
	4000		+19.6		19.0	
	6000		+16.8		15.5	
	7000		+15.5		14.0	
Output IP3[4]	10	+32.3	+38.5		36.7	dBm
	1000	+30.6	+34.4		34.5	
	2000	+28.7	+33.1		33.5	
	4000		+31.1		30.8	
	6000		+29.7		27.7	
	7000		+27.9		26.8	
Noise Figure	10		5.1		5.1	dB
	1000		5.2		5.1	
	2000		5.4		5.5	
	4000		5.6		5.9	
	6000		6.1		6.4	
	7000		6.5		6.9	
Device Operating Voltage		+4.75	+5.0	+5.25	+5.0	V
Device Operating Current			111	130	106	mA
Device Current Variation vs. Temperature[5]			78		78	µA/°C
Device Current Variation vs. Voltage[6]			0.057		0.055	mA/mV
Thermal Resistance, Junction-to-Ground Lead at +85°C Stage Temp.			64		64	°C/W

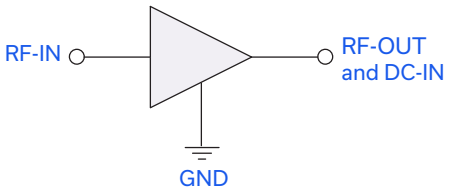
1. Measured on Mini-Circuits Characterization test board TB-621+. See Characterization Test Circuit (Fig. 1).
2. Measured on Mini-Circuits Application test board TB-1064+. See Characterization Test Circuit (Fig. 2).
3. Guaranteed specifications DC-7 GHz. Low frequency cut-off determined by external coupling capacitors and external bias choke.
4. Tested at P_{OUT} = 0 dBm/tone.
5. (Current at +85°C - Current at -45°C)/130
6. (Current at +5.25 V-current - Current at +4.75 V)/1000

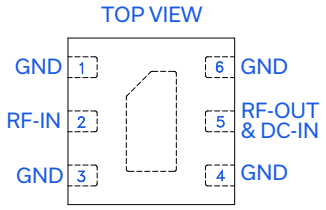
ABSOLUTE MAXIMUM RATINGS[7]

Parameter	Ratings
Operating Temperature (Ground Lead)	-45°C to +85°C
Storage Temperature	-65°C to +150°C
Power Dissipation	1 W
Input Power (CW)	+13 dBm
DC Voltage on Pad 5	+5.8 V

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

SIMPLIFIED SCHEMATIC AND PIN DESCRIPTION





Function	Pin Number	Description
RF-IN	2	RF input pin. This pin requires the use of an external DC blocking capacitor chosen for the frequency of operation.
RF-OUT and DC-IN	5	RF output and bias pin. DC voltage is present on this pin; therefore a DC blocking capacitor is necessary for proper operation. An RF choke is needed to feed DC bias without loss of RF signal due to the bias connection, as shown in "Recommended Application Circuit", Fig. 2.
GND	1,3,4,6 & Paddle	Connections to ground. Use via holes as shown in "Suggested Layout for PCB Design" to reduce ground path inductance for best performance.

CHARACTERIZATION TEST CIRCUIT

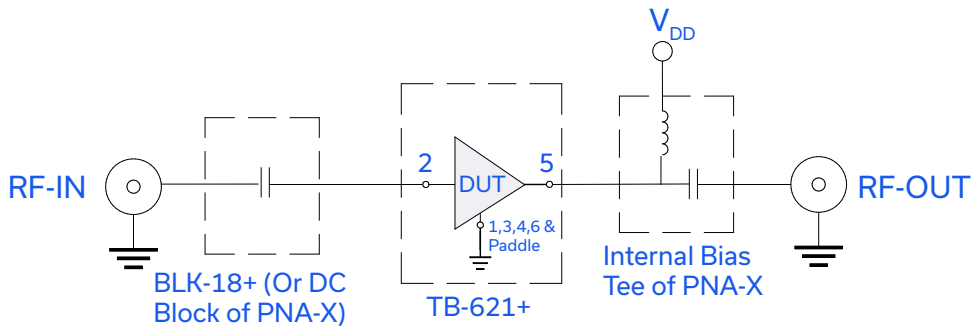
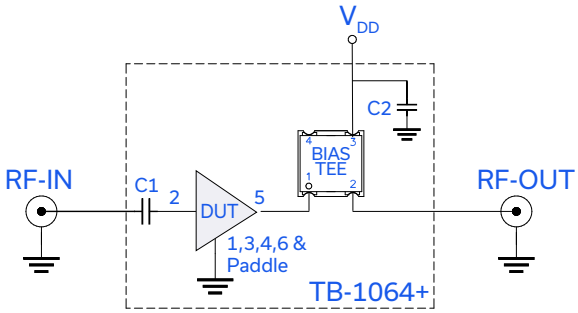


Fig 1. Characterization Circuit
Note: This block diagram is used for characterization. (DUT soldered on Mini-Circuits Characterization test board TB-621+) Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3) and Noise Figure measured using Agilent's N5242A PNA-X microwave network analyzer.

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

RECOMMENDED APPLICATION CIRCUIT

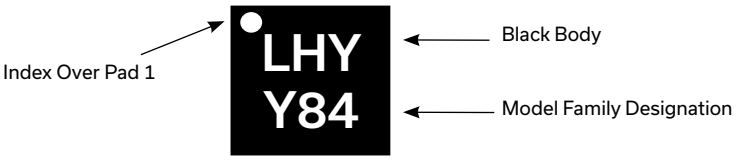


Component	P/N	Supplier	Value	Size
DUT	LHY-84+	MCL		2x2 mm
C1	LBB0402X104MGT1C8	Presidio	0.1 uF	0402
C2	GRM188R71H103KA01D	Murate	0.01 uF	0603
Bias-Tee	TCBT-123+	MCL		0.15x0.15"

Fig 2. Application Circuit
Note: (DUT soldered on Mini-Circuits Application test board TB-1064+). TB-1064+ uses a three layer PCB, see drawing. Gain, Return Loss, Output Power at 1 dB Compression (P1dB), Output IP3 (OIP3) and Noise Figure measured using Agilent's N5242A PNA-X microwave network analyzer.

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

PRODUCT MARKING



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

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LHY-84+

50Ω DC to 7 GHz

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

Performance Data	Data Table Swept Graphs S-Parameter (S2P Files) Data Set (.zip file)
Case Style	MC1630-1 Plastic package, exposed paddle Lead Finish: Matte Tin
Tape & Reel **Standard Quantities Available on Reel**	F66 7" Reels with 20, 50, 100, 200, 500, 1000, 2000, or 3000 devices
Suggested Layout for PCB Design	PL-593
Evaluation Board	TB-1064+
Environmental Ratings	ENV08T1

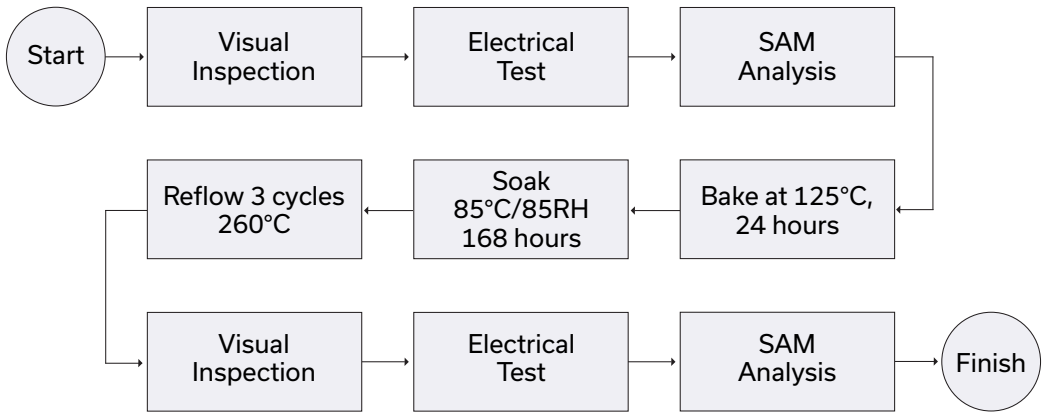
ESD RATING

Human Body Model (HBM): Class 1C (Pass 1000 V) in accordance with ANSI/ESD STM 5.1 - 2001

MSL RATING

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

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/terms/viewterm.html

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 = 109.39mA @ 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)
10	24.43	31.51	24.90	22.94	1.34	0.81	37.10	20.27	5.28
50	24.45	31.42	24.74	22.22	1.33	0.80	37.49	20.93	5.06
100	24.42	31.41	24.62	21.40	1.33	0.80	39.52	20.77	5.03
200	24.34	31.35	23.85	18.92	1.32	0.80	37.92	20.98	5.02
300	24.24	31.24	22.84	16.71	1.30	0.79	37.36	20.94	5.05
400	24.10	31.11	21.84	14.81	1.29	0.78	37.28	20.95	5.02
500	23.94	30.93	20.86	13.31	1.27	0.78	37.05	21.04	5.06
600	23.75	30.74	20.01	12.07	1.24	0.76	37.14	21.00	5.05
700	23.54	30.54	19.13	11.06	1.22	0.75	36.16	20.97	5.14
800	23.31	30.32	18.43	10.22	1.20	0.74	36.15	20.90	5.13
900	23.07	30.10	17.88	9.50	1.17	0.73	35.66	20.89	5.14
1000	22.82	29.88	17.38	8.91	1.15	0.72	34.90	20.99	5.14
1250	22.15	29.33	16.45	7.79	1.11	0.70	34.89	20.83	5.18
1500	21.47	28.79	15.85	7.06	1.08	0.68	33.98	20.94	5.26
1750	20.80	28.26	15.47	6.55	1.06	0.66	33.87	20.96	5.33
2000	20.15	27.75	15.29	6.24	1.05	0.65	33.82	21.09	5.34
2250	19.53	27.25	15.18	6.02	1.04	0.64	34.26	20.91	5.33
2500	18.93	26.75	15.13	5.90	1.04	0.64	34.18	20.61	5.40
2750	18.38	26.27	15.13	5.84	1.04	0.64	33.08	20.74	5.44
3000	17.85	25.79	15.14	5.83	1.05	0.64	32.68	20.83	5.40
3250	17.34	25.33	15.15	5.84	1.05	0.64	32.86	20.60	5.54
3500	16.83	24.90	15.23	5.86	1.06	0.64	33.06	20.30	5.48
3750	16.34	24.48	15.23	5.87	1.07	0.64	32.45	19.92	5.53
4000	15.85	24.10	15.24	5.85	1.08	0.64	31.33	19.78	5.55
4250	15.37	23.74	15.29	5.85	1.10	0.64	31.43	19.67	5.67
4500	14.89	23.39	15.23	5.83	1.12	0.64	30.82	19.30	5.64
4750	14.41	23.08	15.12	5.81	1.14	0.64	30.73	19.00	5.68
5000	13.93	22.78	14.87	5.78	1.15	0.64	30.27	18.63	5.81
5250	13.44	22.52	14.53	5.70	1.18	0.63	30.22	18.23	5.81
5500	12.94	22.29	14.20	5.64	1.20	0.63	30.15	17.75	5.89
5750	12.45	22.08	13.83	5.55	1.23	0.63	29.86	17.40	5.98
6000	11.94	21.89	13.44	5.50	1.26	0.64	29.81	16.97	6.01
6250	11.44	21.72	13.05	5.43	1.29	0.64	29.52	16.55	6.13
6500	10.95	21.56	12.61	5.34	1.32	0.64	29.04	16.23	6.21
6750	10.46	21.42	12.24	5.27	1.35	0.64	28.92	15.82	6.31
7000	9.96	21.29	11.87	5.21	1.39	0.64	27.96	15.56	6.37
7250	9.48	21.16	11.53	5.17	1.43	0.65	28.21	15.14	6.45
7500	9.01	21.04	11.19	5.15	1.46	0.65	27.23	14.87	6.56

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 = 95.44mA @ 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)
10	24.30	31.26	26.76	21.38	1.32	0.80	36.50	19.35	5.17
50	24.30	31.23	26.84	20.84	1.32	0.79	35.56	19.90	4.93
100	24.28	31.22	26.51	20.24	1.32	0.79	36.41	19.76	4.91
200	24.20	31.15	25.37	18.25	1.31	0.79	35.84	19.91	4.92
300	24.10	31.04	23.91	16.31	1.30	0.79	35.65	19.89	4.91
400	23.96	30.89	22.60	14.57	1.28	0.78	34.69	19.87	4.93
500	23.80	30.73	21.40	13.15	1.26	0.77	34.83	19.95	4.91
600	23.61	30.53	20.37	11.96	1.23	0.76	35.06	19.90	4.95
700	23.41	30.32	19.41	10.98	1.21	0.75	34.57	19.86	5.03
800	23.18	30.11	18.62	10.16	1.18	0.74	34.39	19.78	5.00
900	22.95	29.89	18.01	9.46	1.16	0.73	34.14	19.79	5.01
1000	22.69	29.66	17.47	8.87	1.14	0.72	33.52	19.89	5.04
1250	22.04	29.11	16.46	7.77	1.10	0.69	33.36	19.69	5.09
1500	21.36	28.57	15.81	7.04	1.07	0.68	32.57	19.82	5.15
1750	20.70	28.05	15.41	6.54	1.04	0.66	32.52	19.86	5.20
2000	20.05	27.54	15.19	6.23	1.03	0.65	32.45	19.95	5.20
2250	19.43	27.06	15.06	6.01	1.03	0.65	32.67	19.73	5.23
2500	18.85	26.56	15.01	5.89	1.02	0.64	33.01	19.37	5.24
2750	18.29	26.09	14.98	5.84	1.03	0.64	32.06	19.80	5.31
3000	17.76	25.63	14.99	5.83	1.03	0.64	31.77	19.87	5.26
3250	17.26	25.17	14.97	5.85	1.04	0.64	31.79	19.68	5.41
3500	16.75	24.75	15.05	5.87	1.05	0.65	32.13	19.36	5.35
3750	16.26	24.35	15.05	5.89	1.06	0.65	31.66	19.07	5.39
4000	15.76	23.97	15.07	5.87	1.08	0.65	30.55	19.01	5.38
4250	15.28	23.62	15.12	5.88	1.09	0.65	30.48	18.91	5.50
4500	14.80	23.28	15.09	5.88	1.11	0.65	29.96	18.60	5.50
4750	14.32	22.98	14.99	5.87	1.13	0.64	29.98	18.29	5.55
5000	13.83	22.68	14.75	5.85	1.16	0.64	29.39	17.97	5.66
5250	13.34	22.44	14.42	5.78	1.18	0.64	29.52	17.58	5.67
5500	12.83	22.21	14.12	5.73	1.21	0.64	29.37	17.08	5.74
5750	12.33	22.01	13.76	5.65	1.24	0.64	29.01	16.76	5.82
6000	11.82	21.83	13.38	5.61	1.27	0.65	28.96	16.33	5.86
6250	11.31	21.67	13.01	5.54	1.31	0.65	28.85	15.90	5.93
6500	10.81	21.52	12.58	5.47	1.34	0.65	28.23	15.61	6.04
6750	10.32	21.38	12.21	5.41	1.38	0.65	28.12	15.19	6.14
7000	9.82	21.26	11.85	5.35	1.42	0.66	27.15	14.96	6.22
7250	9.34	21.13	11.52	5.32	1.46	0.66	27.39	14.54	6.28
7500	8.86	21.01	11.18	5.31	1.50	0.67	26.43	14.29	6.39

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 = 123.97mA @ 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)
10	24.53	31.62	23.58	24.20	1.34	0.81	38.64	21.07	5.34
50	24.55	31.56	23.64	23.35	1.33	0.80	40.12	21.83	5.13
100	24.52	31.56	23.46	22.29	1.33	0.81	41.24	21.64	5.11
200	24.44	31.49	22.91	19.38	1.32	0.80	39.19	21.88	5.15
300	24.33	31.39	22.14	16.96	1.31	0.80	40.07	21.86	5.10
400	24.19	31.25	21.29	14.97	1.29	0.79	38.28	21.85	5.10
500	24.03	31.08	20.46	13.41	1.27	0.78	38.76	21.94	5.11
600	23.84	30.90	19.69	12.13	1.25	0.77	38.33	21.92	5.15
700	23.62	30.69	18.91	11.11	1.23	0.76	37.33	21.91	5.21
800	23.40	30.48	18.28	10.26	1.20	0.74	37.17	21.85	5.17
900	23.16	30.26	17.77	9.53	1.18	0.73	37.14	21.81	5.21
1000	22.90	30.04	17.29	8.93	1.16	0.72	36.31	21.90	5.23
1250	22.23	29.49	16.41	7.81	1.12	0.70	36.01	21.78	5.27
1500	21.54	28.94	15.86	7.07	1.09	0.68	35.03	21.81	5.34
1750	20.87	28.42	15.50	6.57	1.07	0.66	35.10	21.87	5.40
2000	20.21	27.90	15.33	6.25	1.06	0.65	34.91	22.08	5.41
2250	19.58	27.40	15.24	6.03	1.05	0.64	35.08	21.93	5.45
2500	18.99	26.89	15.22	5.91	1.05	0.64	35.23	21.64	5.44
2750	18.43	26.40	15.22	5.85	1.05	0.64	33.86	21.49	5.50
3000	17.89	25.91	15.24	5.83	1.06	0.64	33.58	21.58	5.49
3250	17.39	25.45	15.22	5.84	1.06	0.64	33.53	21.31	5.61
3500	16.88	25.00	15.31	5.86	1.07	0.64	33.84	21.03	5.60
3750	16.39	24.59	15.31	5.86	1.08	0.64	33.38	20.59	5.59
4000	15.89	24.19	15.33	5.84	1.09	0.64	31.94	20.35	5.60
4250	15.42	23.83	15.35	5.83	1.10	0.64	32.24	20.24	5.75
4500	14.94	23.47	15.30	5.81	1.12	0.64	31.44	19.83	5.75
4750	14.46	23.16	15.18	5.79	1.14	0.64	31.44	19.52	5.77
5000	13.98	22.84	14.91	5.74	1.16	0.63	30.94	19.13	5.88
5250	13.49	22.58	14.57	5.66	1.18	0.63	30.84	18.73	5.94
5500	12.99	22.35	14.22	5.59	1.20	0.63	30.86	18.24	5.98
5750	12.50	22.13	13.84	5.50	1.22	0.63	30.41	17.89	6.05
6000	12.00	21.94	13.45	5.43	1.25	0.63	30.35	17.46	6.12
6250	11.50	21.77	13.04	5.36	1.28	0.63	30.15	17.04	6.25
6500	11.01	21.60	12.61	5.26	1.31	0.63	29.66	16.71	6.33
6750	10.52	21.46	12.23	5.19	1.34	0.63	29.57	16.30	6.44
7000	10.03	21.33	11.85	5.12	1.38	0.63	28.55	16.01	6.49
7250	9.55	21.19	11.51	5.08	1.41	0.64	28.87	15.60	6.57
7500	9.08	21.07	11.16	5.04	1.45	0.65	27.84	15.35	6.69

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 = 104.49mA @ 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)
10	24.55	31.68	24.21	23.65	1.34	0.81	41.08	20.20	4.63
50	24.56	31.59	24.05	22.62	1.33	0.80	38.54	20.79	4.46
100	24.54	31.58	24.13	21.49	1.33	0.80	40.34	20.67	4.44
200	24.47	31.50	23.73	18.86	1.32	0.80	38.14	20.85	4.44
300	24.36	31.37	22.43	16.79	1.31	0.79	40.06	20.84	4.43
400	24.23	31.22	21.24	15.00	1.29	0.79	37.18	20.82	4.42
500	24.07	31.04	20.43	13.43	1.26	0.78	37.01	20.90	4.42
600	23.89	30.84	19.67	12.12	1.24	0.76	36.85	20.87	4.42
700	23.68	30.63	18.77	11.09	1.22	0.75	37.17	20.84	4.53
800	23.46	30.41	18.02	10.29	1.19	0.74	35.95	20.76	4.46
900	23.24	30.18	17.54	9.59	1.17	0.73	35.96	20.76	4.52
1000	22.99	29.95	17.11	8.95	1.15	0.72	35.08	20.86	4.54
1250	22.33	29.40	16.17	7.77	1.10	0.69	34.94	20.65	4.56
1500	21.69	28.83	15.69	7.07	1.07	0.67	34.20	20.81	4.61
1750	21.03	28.32	15.28	6.50	1.05	0.65	34.07	20.87	4.69
2000	20.39	27.80	15.10	6.18	1.04	0.64	34.01	20.93	4.67
2250	19.78	27.32	15.04	5.93	1.03	0.63	34.50	20.67	4.74
2500	19.23	26.81	14.96	5.85	1.02	0.62	34.75	20.42	4.72
2750	18.66	26.34	15.08	5.69	1.02	0.62	33.30	20.81	4.75
3000	18.17	25.86	15.22	5.73	1.03	0.62	33.04	20.93	4.75
3250	17.69	25.40	15.39	5.68	1.03	0.61	33.03	20.77	4.89
3500	17.23	24.93	15.55	5.72	1.03	0.61	33.57	20.50	4.81
3750	16.77	24.52	15.53	5.65	1.04	0.61	32.81	20.12	4.86
4000	16.30	24.14	15.82	5.59	1.05	0.60	31.83	20.16	4.82
4250	15.86	23.75	15.70	5.52	1.05	0.59	31.99	20.14	4.98
4500	15.41	23.40	15.64	5.48	1.06	0.59	31.39	19.84	4.96
4750	14.95	23.10	15.39	5.40	1.07	0.58	31.43	19.58	5.00
5000	14.49	22.79	15.14	5.30	1.08	0.58	30.88	19.24	5.09
5250	14.02	22.53	14.71	5.20	1.10	0.57	31.01	18.89	5.14
5500	13.56	22.29	14.31	5.15	1.12	0.57	30.86	18.38	5.17
5750	13.11	22.04	13.89	5.07	1.13	0.57	30.56	18.09	5.27
6000	12.66	21.82	13.58	5.07	1.15	0.58	30.68	17.69	5.31
6250	12.21	21.61	13.23	5.02	1.17	0.58	30.56	17.27	5.41
6500	11.76	21.43	12.82	4.96	1.19	0.58	29.96	16.99	5.46
6750	11.32	21.24	12.49	4.89	1.21	0.58	30.05	16.57	5.56
7000	10.85	21.11	12.23	4.79	1.24	0.58	28.94	16.33	5.59
7250	10.39	20.96	11.85	4.67	1.26	0.57	29.07	15.88	5.66
7500	9.93	20.86	11.40	4.57	1.28	0.57	28.27	15.61	5.76

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 = 91.75mA @ 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)
10	24.44	31.48	25.76	22.19	1.33	0.80	43.65	19.26	4.51
50	24.44	31.42	25.58	21.36	1.32	0.80	36.09	19.72	4.37
100	24.42	31.40	25.71	20.49	1.32	0.80	37.62	19.64	4.34
200	24.34	31.32	25.07	18.29	1.31	0.79	36.28	19.75	4.36
300	24.24	31.20	23.40	16.46	1.30	0.79	35.69	19.73	4.30
400	24.11	31.04	21.90	14.80	1.28	0.78	35.40	19.69	4.35
500	23.96	30.86	20.93	13.31	1.26	0.77	34.96	19.77	4.28
600	23.78	30.66	20.07	12.04	1.23	0.76	35.06	19.71	4.35
700	23.57	30.44	19.07	11.04	1.21	0.75	34.49	19.64	4.42
800	23.36	30.22	18.25	10.25	1.18	0.74	34.59	19.54	4.40
900	23.13	29.98	17.69	9.55	1.16	0.73	34.47	19.58	4.44
1000	22.89	29.75	17.25	8.93	1.14	0.71	33.45	19.69	4.45
1250	22.24	29.21	16.22	7.75	1.09	0.69	33.44	19.45	4.47
1500	21.61	28.64	15.70	7.06	1.06	0.67	32.88	19.66	4.55
1750	20.95	28.13	15.28	6.49	1.04	0.65	32.75	19.67	4.70
2000	20.32	27.63	15.07	6.17	1.02	0.64	32.68	19.67	4.60
2250	19.71	27.15	15.00	5.92	1.02	0.63	32.89	19.35	4.64
2500	19.16	26.65	14.89	5.84	1.01	0.62	33.42	19.08	4.60
2750	18.60	26.20	14.99	5.69	1.01	0.62	32.01	19.78	4.68
3000	18.11	25.72	15.12	5.72	1.01	0.62	32.11	19.82	4.66
3250	17.63	25.27	15.27	5.68	1.02	0.61	32.12	19.74	4.80
3500	17.18	24.81	15.46	5.72	1.02	0.61	32.49	19.45	4.72
3750	16.71	24.40	15.41	5.65	1.03	0.61	31.96	19.25	4.74
4000	16.24	24.04	15.71	5.61	1.04	0.60	30.81	19.33	4.71
4250	15.80	23.65	15.59	5.53	1.04	0.59	30.93	19.29	4.87
4500	15.35	23.31	15.54	5.51	1.06	0.59	30.45	19.05	4.87
4750	14.88	23.01	15.31	5.43	1.07	0.59	30.53	18.76	4.88
5000	14.42	22.72	15.08	5.34	1.08	0.58	29.94	18.51	5.01
5250	13.95	22.46	14.65	5.24	1.10	0.58	30.01	18.14	5.03
5500	13.49	22.22	14.27	5.21	1.12	0.58	29.96	17.62	5.04
5750	13.03	21.99	13.87	5.13	1.13	0.58	29.69	17.36	5.14
6000	12.58	21.77	13.57	5.14	1.16	0.58	29.65	16.95	5.16
6250	12.13	21.56	13.21	5.10	1.18	0.59	29.58	16.51	5.28
6500	11.67	21.38	12.82	5.05	1.20	0.59	28.95	16.27	5.37
6750	11.22	21.21	12.51	4.99	1.23	0.59	28.83	15.84	5.46
7000	10.75	21.08	12.22	4.89	1.25	0.59	27.91	15.66	5.49
7250	10.29	20.94	11.87	4.78	1.28	0.59	28.09	15.19	5.51
7500	9.82	20.83	11.41	4.68	1.30	0.59	27.30	14.97	5.63

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 = 117.81mA @ 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)
10	24.64	31.81	22.99	24.91	1.35	0.81	41.10	21.03	4.69
50	24.65	31.73	23.00	23.66	1.34	0.81	40.37	21.72	4.53
100	24.63	31.71	23.09	22.29	1.33	0.81	43.29	21.56	4.50
200	24.56	31.64	22.87	19.26	1.33	0.80	41.08	21.79	4.54
300	24.45	31.51	21.74	17.02	1.31	0.80	40.64	21.78	4.50
400	24.32	31.36	20.73	15.14	1.29	0.79	40.08	21.77	4.50
500	24.16	31.18	20.05	13.53	1.27	0.78	39.11	21.85	4.53
600	23.97	30.99	19.36	12.18	1.25	0.77	38.50	21.84	4.53
700	23.77	30.78	18.52	11.14	1.22	0.75	38.22	21.80	4.58
800	23.55	30.56	17.85	10.33	1.20	0.74	37.39	21.75	4.57
900	23.32	30.33	17.40	9.62	1.18	0.73	37.31	21.73	4.59
1000	23.07	30.10	17.01	8.98	1.16	0.72	36.27	21.83	4.62
1250	22.41	29.55	16.10	7.79	1.11	0.69	36.38	21.64	4.65
1500	21.76	28.99	15.66	7.09	1.08	0.67	35.25	21.79	4.71
1750	21.10	28.46	15.28	6.52	1.06	0.65	34.99	21.79	4.78
2000	20.46	27.95	15.13	6.20	1.05	0.64	35.08	21.98	4.74
2250	19.84	27.45	15.08	5.95	1.04	0.63	35.25	21.77	4.82
2500	19.29	26.93	15.00	5.86	1.03	0.62	35.84	21.53	4.81
2750	18.72	26.47	15.13	5.71	1.03	0.61	34.20	21.63	4.85
3000	18.23	25.97	15.28	5.74	1.03	0.62	34.14	21.79	4.83
3250	17.75	25.51	15.46	5.69	1.04	0.61	34.08	21.57	4.95
3500	17.29	25.03	15.65	5.72	1.04	0.61	34.45	21.31	4.89
3750	16.82	24.62	15.62	5.65	1.04	0.60	33.73	20.89	4.92
4000	16.35	24.24	15.91	5.59	1.05	0.60	32.66	20.82	4.90
4250	15.92	23.83	15.77	5.51	1.05	0.59	32.67	20.80	5.03
4500	15.47	23.48	15.68	5.47	1.06	0.59	32.20	20.44	5.08
4750	15.01	23.17	15.43	5.38	1.08	0.58	32.24	20.19	5.10
5000	14.55	22.86	15.18	5.28	1.09	0.57	31.66	19.81	5.20
5250	14.09	22.60	14.72	5.17	1.10	0.57	31.82	19.45	5.20
5500	13.63	22.34	14.33	5.11	1.11	0.57	31.71	18.96	5.26
5750	13.18	22.10	13.90	5.02	1.12	0.57	31.34	18.65	5.35
6000	12.74	21.87	13.59	5.01	1.14	0.57	31.57	18.25	5.41
6250	12.29	21.65	13.23	4.96	1.16	0.57	31.43	17.84	5.49
6500	11.85	21.46	12.81	4.89	1.18	0.57	30.87	17.54	5.60
6750	11.41	21.28	12.48	4.82	1.20	0.57	30.80	17.13	5.66
7000	10.94	21.14	12.21	4.71	1.22	0.57	29.77	16.85	5.72
7250	10.49	20.99	11.84	4.59	1.24	0.56	30.05	16.40	5.75
7500	10.02	20.88	11.37	4.47	1.27	0.56	29.13	16.11	5.86

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 = 114.59mA @ Temperature = +85°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)
10	24.33	31.32	25.69	22.30	1.33	0.80	36.43	20.31	5.78
50	24.34	31.26	25.55	21.89	1.32	0.80	37.57	21.03	5.59
100	24.31	31.26	24.84	21.41	1.32	0.80	38.37	20.84	5.56
200	24.23	31.20	23.23	19.12	1.31	0.80	38.08	21.04	5.61
300	24.11	31.10	22.42	16.59	1.30	0.79	37.34	21.03	5.47
400	23.96	30.97	21.99	14.49	1.28	0.78	37.68	21.02	5.53
500	23.79	30.81	21.17	12.97	1.26	0.77	37.52	21.10	5.57
600	23.59	30.63	20.12	11.81	1.24	0.76	36.99	21.08	5.56
700	23.36	30.42	19.16	10.87	1.22	0.75	36.91	21.05	5.66
800	23.13	30.22	18.51	10.05	1.20	0.74	36.38	20.99	5.60
900	22.88	30.00	17.99	9.35	1.17	0.73	36.14	20.97	5.65
1000	22.62	29.77	17.50	8.79	1.15	0.72	35.42	21.07	5.64
1250	21.94	29.21	16.57	7.75	1.11	0.70	35.34	20.95	5.71
1500	21.25	28.65	15.93	7.07	1.08	0.69	34.11	21.00	5.78
1750	20.56	28.11	15.53	6.59	1.06	0.67	34.17	21.06	5.89
2000	19.88	27.59	15.29	6.28	1.05	0.66	33.91	21.22	5.86
2250	19.22	27.09	15.13	6.07	1.05	0.66	34.07	21.05	5.94
2500	18.60	26.60	14.97	5.96	1.05	0.66	34.28	20.73	5.91
2750	18.00	26.12	14.86	5.92	1.06	0.66	32.95	20.55	5.98
3000	17.42	25.66	14.81	5.93	1.07	0.66	32.65	20.58	5.98
3250	16.86	25.22	14.72	5.97	1.08	0.67	32.43	20.26	6.13
3500	16.30	24.81	14.73	6.00	1.10	0.67	32.59	19.92	6.07
3750	15.75	24.42	14.69	6.04	1.12	0.68	31.90	19.47	6.15
4000	15.20	24.07	14.74	6.07	1.15	0.68	30.72	19.19	6.16
4250	14.68	23.71	14.73	6.11	1.17	0.68	30.44	18.97	6.29
4500	14.16	23.38	14.71	6.19	1.20	0.69	29.89	18.57	6.29
4750	13.64	23.08	14.62	6.26	1.23	0.69	29.69	18.20	6.37
5000	13.13	22.78	14.43	6.31	1.27	0.70	29.16	17.84	6.47
5250	12.61	22.53	14.16	6.30	1.30	0.70	29.09	17.40	6.51
5500	12.08	22.31	13.87	6.26	1.34	0.70	28.89	16.95	6.55
5750	11.54	22.12	13.53	6.16	1.38	0.70	28.47	16.59	6.69
6000	10.99	21.95	13.16	6.04	1.42	0.70	28.28	16.14	6.76
6250	10.43	21.81	12.70	5.91	1.46	0.70	28.04	15.72	6.87
6500	9.89	21.70	12.25	5.81	1.51	0.70	27.58	15.40	6.97
6750	9.35	21.57	11.74	5.72	1.56	0.70	27.44	15.01	7.10
7000	8.82	21.47	11.29	5.68	1.61	0.71	26.56	14.75	7.18
7250	8.32	21.35	10.89	5.68	1.66	0.72	26.75	14.33	7.28
7500	7.83	21.23	10.52	5.73	1.71	0.73	25.80	14.12	7.43

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 = 99.40mA @ Temperature = +85°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)
10	24.18	31.11	28.02	20.80	1.32	0.79	35.17	19.42	5.69
50	24.18	31.07	27.82	20.46	1.32	0.79	36.05	20.04	5.46
100	24.16	31.06	26.85	20.18	1.32	0.79	37.25	19.86	5.41
200	24.08	31.00	24.54	18.44	1.31	0.79	35.77	20.03	5.45
300	23.96	30.90	23.40	16.22	1.29	0.79	35.64	20.00	5.39
400	23.82	30.76	22.66	14.26	1.28	0.78	35.74	19.99	5.42
500	23.65	30.60	21.66	12.82	1.26	0.77	35.34	20.07	5.47
600	23.45	30.41	20.44	11.71	1.23	0.76	35.42	20.03	5.44
700	23.23	30.21	19.34	10.80	1.21	0.75	35.02	20.00	5.52
800	23.00	29.99	18.61	10.00	1.18	0.74	34.70	19.92	5.49
900	22.76	29.77	18.03	9.32	1.16	0.73	34.47	19.93	5.53
1000	22.50	29.55	17.50	8.76	1.14	0.72	34.05	20.02	5.55
1250	21.83	28.98	16.51	7.74	1.10	0.70	33.64	19.84	5.60
1500	21.15	28.43	15.84	7.06	1.06	0.69	33.15	19.97	5.68
1750	20.47	27.90	15.42	6.58	1.04	0.67	32.68	20.02	5.75
2000	19.80	27.39	15.15	6.27	1.03	0.66	32.60	20.12	5.71
2250	19.15	26.89	14.97	6.07	1.03	0.66	32.77	19.95	5.79
2500	18.52	26.41	14.80	5.96	1.03	0.66	33.12	19.60	5.81
2750	17.93	25.94	14.70	5.92	1.04	0.66	31.89	19.71	5.84
3000	17.35	25.49	14.63	5.94	1.05	0.67	31.61	19.74	5.85
3250	16.80	25.06	14.56	5.98	1.07	0.67	31.48	19.46	6.02
3500	16.24	24.66	14.57	6.02	1.09	0.67	31.65	19.11	5.93
3750	15.69	24.28	14.54	6.06	1.11	0.68	31.10	18.72	6.00
4000	15.14	23.94	14.59	6.11	1.14	0.68	30.06	18.53	6.04
4250	14.62	23.59	14.59	6.16	1.16	0.69	29.83	18.33	6.13
4500	14.09	23.27	14.60	6.24	1.20	0.69	29.19	17.97	6.15
4750	13.58	22.98	14.50	6.32	1.23	0.70	29.13	17.61	6.21
5000	13.06	22.69	14.32	6.39	1.27	0.70	28.61	17.26	6.28
5250	12.54	22.45	14.07	6.39	1.30	0.71	28.43	16.84	6.34
5500	12.00	22.24	13.80	6.36	1.35	0.71	28.36	16.39	6.41
5750	11.47	22.05	13.47	6.26	1.38	0.71	27.85	16.02	6.49
6000	10.91	21.90	13.11	6.15	1.43	0.71	27.75	15.59	6.57
6250	10.35	21.76	12.67	6.03	1.48	0.71	27.54	15.16	6.68
6500	9.81	21.65	12.24	5.94	1.53	0.71	26.93	14.86	6.76
6750	9.26	21.54	11.73	5.85	1.58	0.71	26.84	14.46	6.89
7000	8.73	21.43	11.28	5.82	1.63	0.72	25.95	14.24	6.94
7250	8.23	21.32	10.90	5.83	1.68	0.73	26.18	13.83	7.08
7500	7.74	21.21	10.52	5.88	1.74	0.75	25.25	13.53	7.21

Typical Performance Data

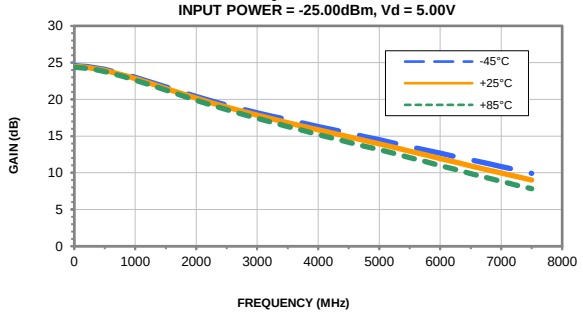
Definitions:
Input Return Loss = -S11 (dB)
Gain(Power Gain) = S21 (dB)
Reverse Isolation = -S12 (dB)
Output Return Loss = -S22 (dB)

TEST CONDITIONS: Vd = 5.25V, Id = 132.14mA @ Temperature = +85°C

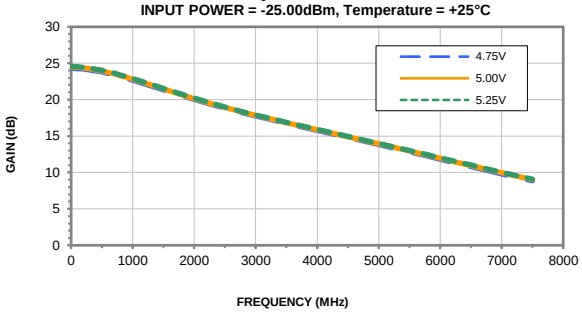
FREQ	Gain	Isolation	Input Return Loss	Output Return Loss	Stability		IP-3 Output	1dB Comp. Output	Noise Figure
(MHz)	(dB)	(dB)	(dB)	(dB)	K	Measure	(dBm)	(dBm)	(dB)
10	24.44	31.48	24.16	23.68	1.33	0.81	38.97	21.17	5.86
50	24.45	31.43	24.01	23.23	1.33	0.80	40.00	21.99	5.70
100	24.42	31.43	23.43	22.50	1.33	0.80	42.43	21.76	5.67
200	24.34	31.37	22.16	19.66	1.32	0.80	41.86	22.00	5.67
300	24.22	31.28	21.60	16.87	1.31	0.80	41.91	21.97	5.60
400	24.07	31.14	21.38	14.66	1.29	0.79	39.64	21.95	5.66
500	23.89	30.99	20.72	13.09	1.27	0.78	39.27	22.03	5.68
600	23.69	30.81	19.81	11.89	1.25	0.77	39.28	22.02	5.68
700	23.47	30.61	18.96	10.92	1.23	0.76	38.42	22.01	5.77
800	23.23	30.40	18.37	10.09	1.21	0.75	37.76	21.95	5.72
900	22.98	30.19	17.92	9.38	1.18	0.74	37.91	21.91	5.78
1000	22.71	29.96	17.46	8.82	1.16	0.73	37.05	21.98	5.82
1250	22.03	29.39	16.59	7.77	1.12	0.70	36.94	21.90	5.84
1500	21.33	28.84	16.01	7.09	1.09	0.69	35.62	21.87	5.90
1750	20.64	28.29	15.62	6.60	1.07	0.67	35.14	21.92	6.00
2000	19.95	27.76	15.40	6.29	1.06	0.66	35.13	22.12	5.94
2250	19.29	27.25	15.22	6.08	1.06	0.66	34.54	22.01	6.03
2500	18.66	26.75	15.07	5.97	1.06	0.66	34.83	21.72	6.07
2750	18.05	26.26	14.97	5.92	1.07	0.66	33.65	21.28	6.11
3000	17.47	25.79	14.91	5.93	1.08	0.66	33.31	21.28	6.10
3250	16.91	25.35	14.83	5.97	1.09	0.67	32.89	20.93	6.25
3500	16.34	24.92	14.83	6.00	1.11	0.67	32.97	20.59	6.18
3750	15.79	24.53	14.80	6.03	1.13	0.67	32.29	20.08	6.26
4000	15.24	24.17	14.83	6.06	1.16	0.68	31.30	19.74	6.24
4250	14.72	23.80	14.80	6.10	1.18	0.68	31.00	19.49	6.42
4500	14.20	23.47	14.80	6.16	1.21	0.69	30.33	19.07	6.46
4750	13.68	23.16	14.68	6.23	1.24	0.69	30.11	18.68	6.49
5000	13.17	22.85	14.48	6.28	1.27	0.69	29.58	18.31	6.61
5250	12.65	22.59	14.20	6.26	1.30	0.70	29.44	17.87	6.67
5500	12.12	22.37	13.90	6.21	1.34	0.70	29.33	17.42	6.71
5750	11.59	22.17	13.53	6.10	1.38	0.70	28.86	17.04	6.85
6000	11.04	22.00	13.17	5.99	1.42	0.69	28.63	16.60	6.90
6250	10.48	21.85	12.69	5.85	1.46	0.69	28.43	16.17	7.05
6500	9.94	21.73	12.23	5.75	1.50	0.69	27.93	15.85	7.14
6750	9.40	21.61	11.73	5.65	1.55	0.70	27.80	15.41	7.28
7000	8.87	21.49	11.27	5.61	1.60	0.70	26.95	15.19	7.37
7250	8.37	21.37	10.88	5.60	1.65	0.71	27.09	14.83	7.47
7500	7.88	21.25	10.50	5.64	1.70	0.73	26.21	14.56	7.62

Typical Performance Curves

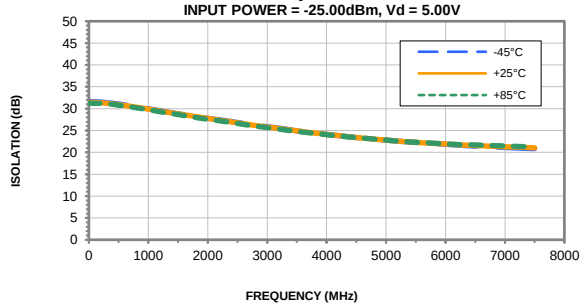
GAIN vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



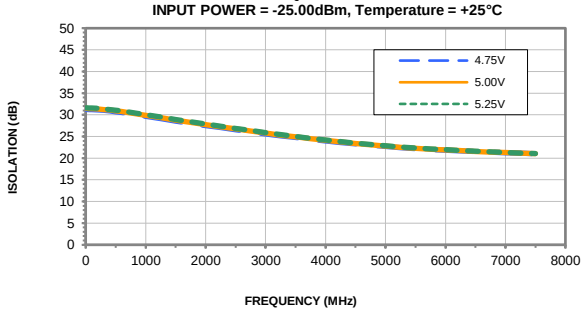
GAIN vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



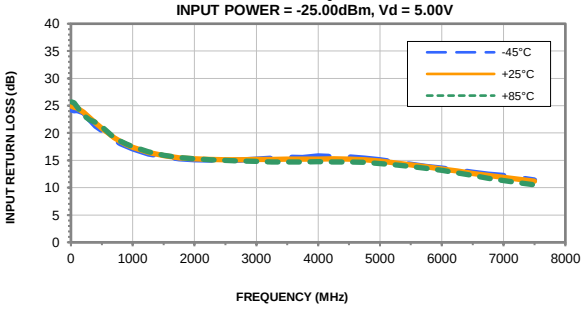
ISOLATION vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



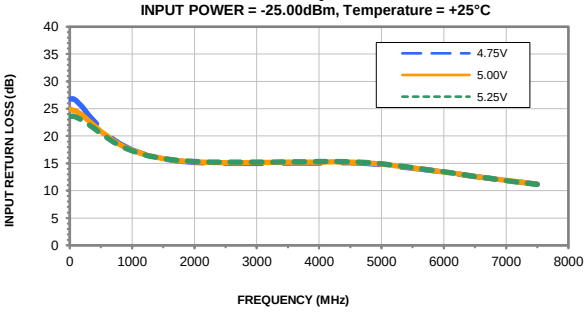
ISOLATION vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



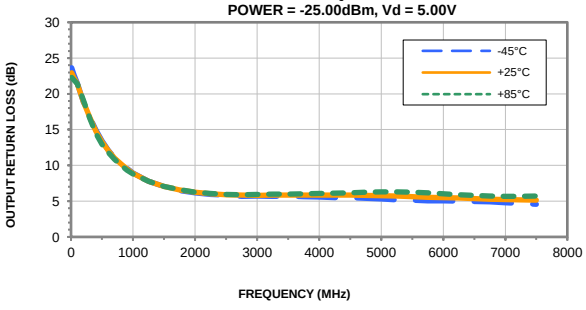
INPUT RETURN LOSS vs. FREQUENCY & TEMPERATURE
INPUT POWER = -25.00dBm, Vd = 5.00V



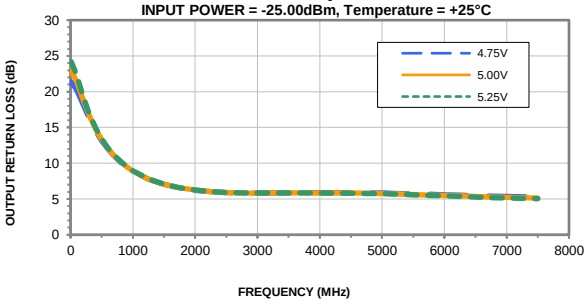
INPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C



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

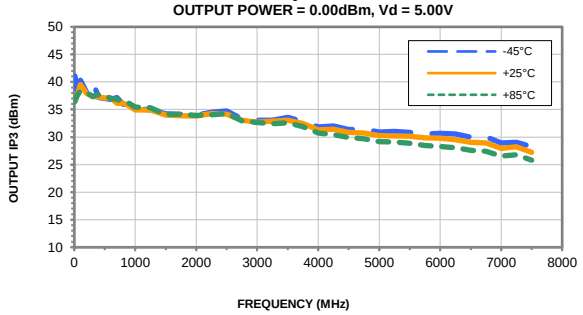


OUTPUT RETURN LOSS vs. FREQUENCY & DEVICE VOLTAGE
INPUT POWER = -25.00dBm, Temperature = +25°C

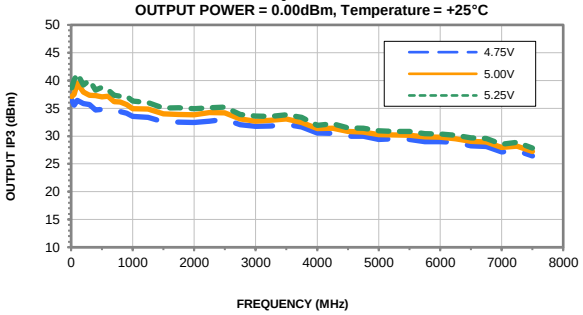


Typical Performance Curves

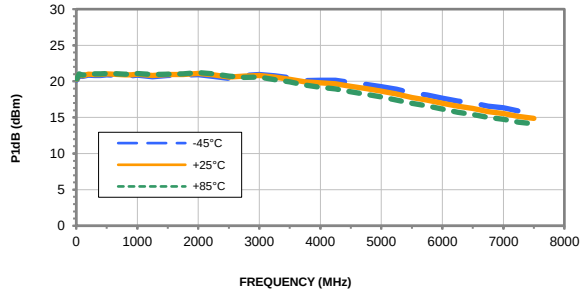
OUTPUT IP3 vs. FREQUENCY & TEMPERATURE
OUTPUT POWER = 0.00dBm, Vd = 5.00V



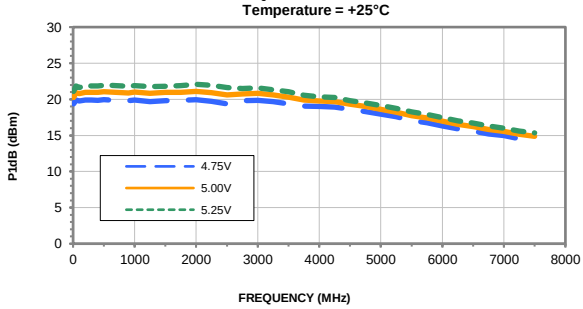
OUTPUT IP3 vs. FREQUENCY & DEVICE VOLTAGE
OUTPUT POWER = 0.00dBm, Temperature = +25°C



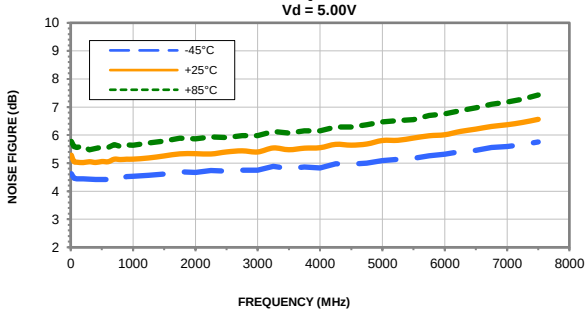
P1dB vs. FREQUENCY & TEMPERATURE
Vd = 5.00V



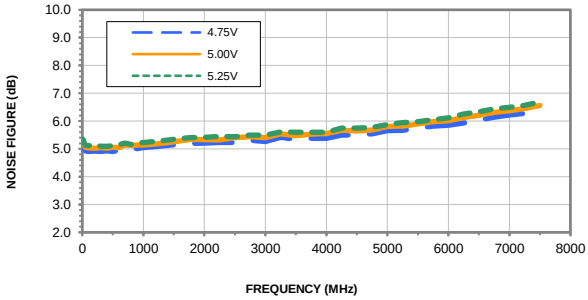
P1dB vs. FREQUENCY & DEVICE VOLTAGE
Temperature = +25°C



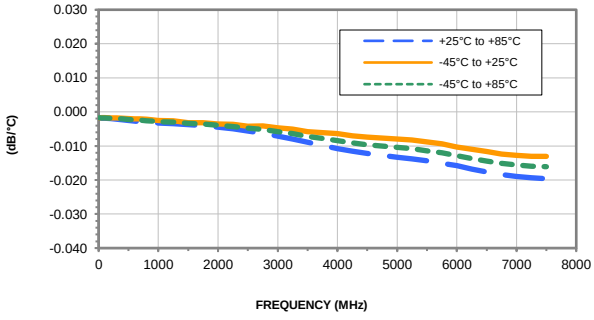
NOISE FIGURE vs. FREQUENCY & TEMPERATURE
Vd = 5.00V



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



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

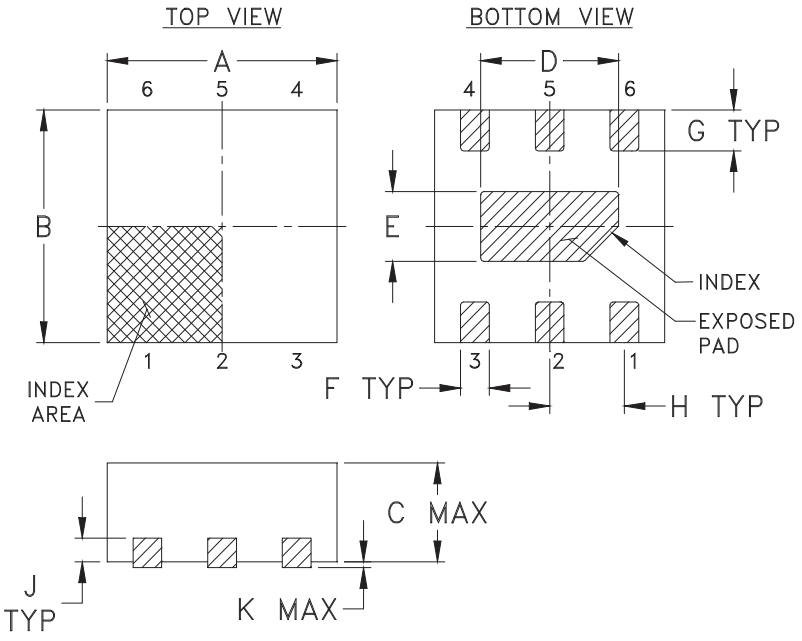


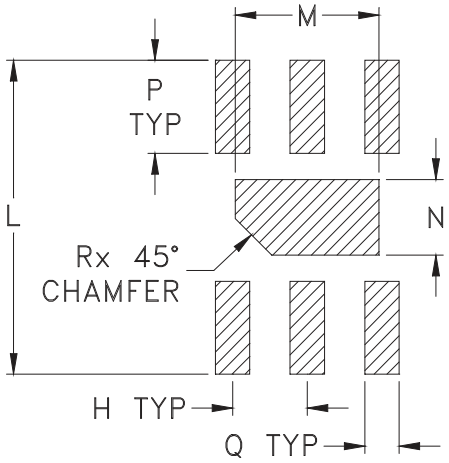
Case Style MC

MC1630-1

Outline Dimensions

PCB Land Pattern





Suggested Layout,
Tolerance to be within ±.002

CASE #.	A	B	C	D	E	F	G	H	J	K	L	M	N	P
MC1630-1	.079 (2.00)	.079 (2.00)	.039 (1.00)	.047 (1.20)	.024 (.60)	.010 (.25)	.014 (.35)	.026 (.65)	.008 (.20)	.002 (.05)	.106 (2.70)	.049 (1.25)	.026 (.65)	.031 (.80)

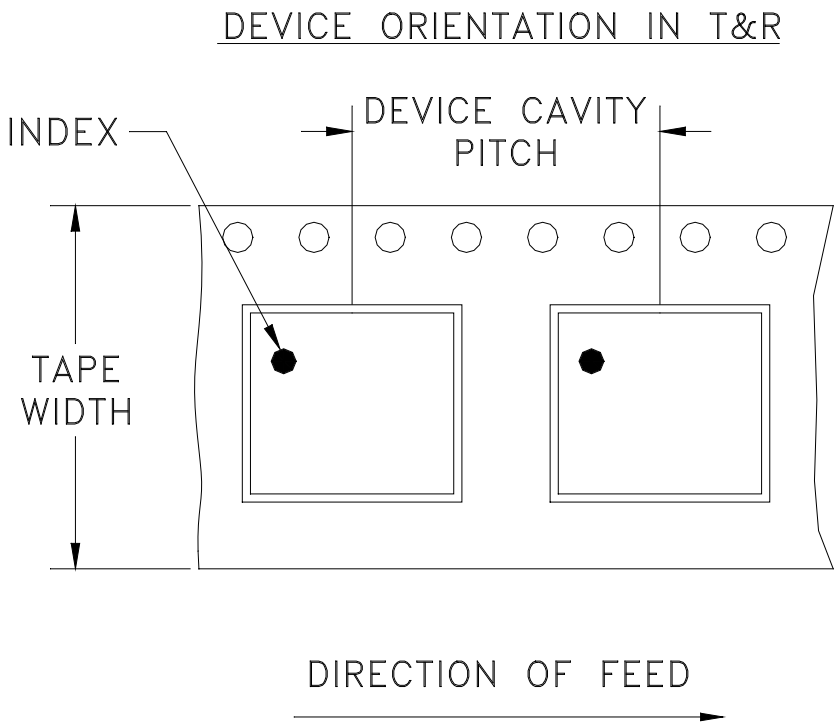
CASE #.	Q	R	WT, GRAM
MC1630-1	.012 (.30)	.012 (.30)	.006

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

Notes:

1. Case material: Plastic.
2. Termination finish:
   For RoHS Case Styles: Tin-Silver over Nickel plated or Matte-Tin plated (See Data sheet).
   All models, (+) suffix.
3. Lead #1 identifier shall be located in the cross-hatched area shown.
   Identifier may be either a molded or marked feature.

Tape & Reel Packaging TR-F66



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

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

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

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

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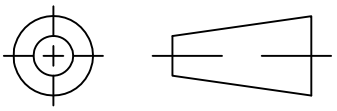
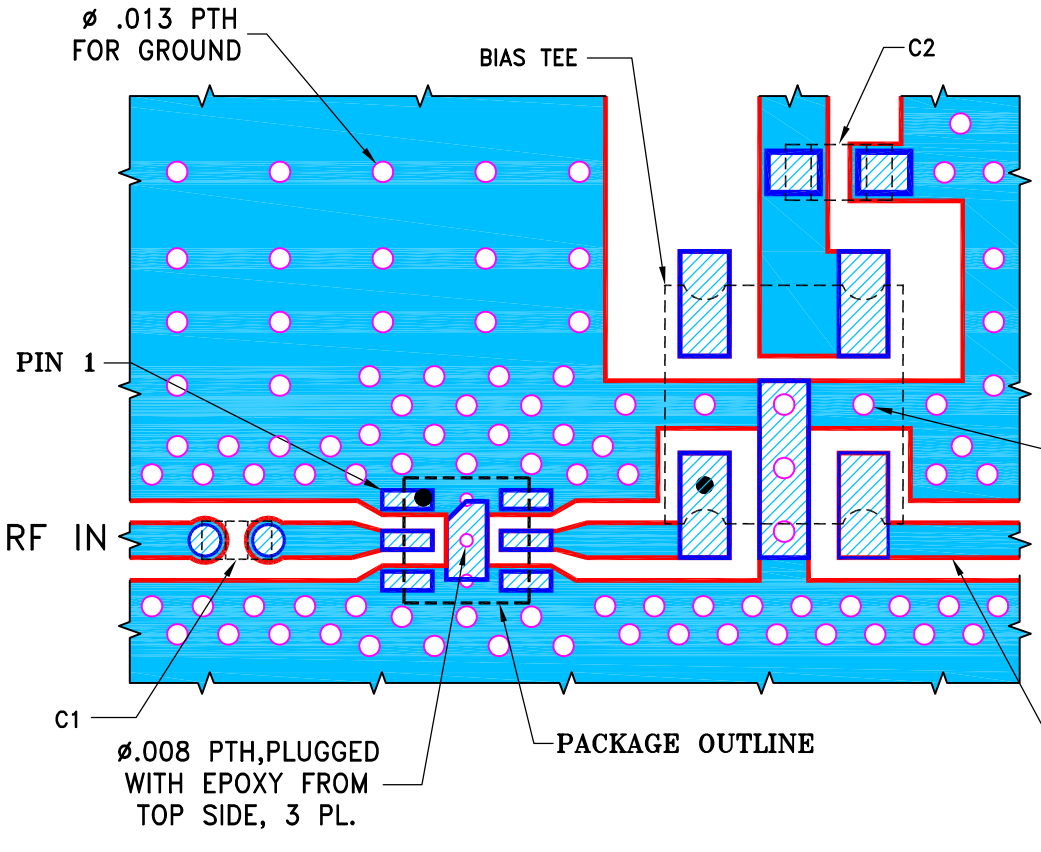
THIRD ANGLE PROJECTION



REVISIONS					
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M168691	NEW RELEASE	06/29/18	GF	GH

SUGGESTED MOUNTING CONFIGURATION FOR MC1630-1 CASE STYLE, "06AM06" PIN CODE



COMPONENT	SIZE
DUT	2X2mm 6 LEAD MCLP
C1	0402
C2	0603
BIAS TEE	.15"X.15"

COPPER LAYER 1

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 FOOTPRINTS ARE SHOWN FOR REFERENCE.
4. LAYER 3 OF THE PCB IS CONTINUOUS GROUND PLANE.

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

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	GF	06/26/18
TOLERANCES ON:	CHECKED	IL	06/28/18
2 PL DECIMALS ±	APPROVED	GH	06/29/18
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

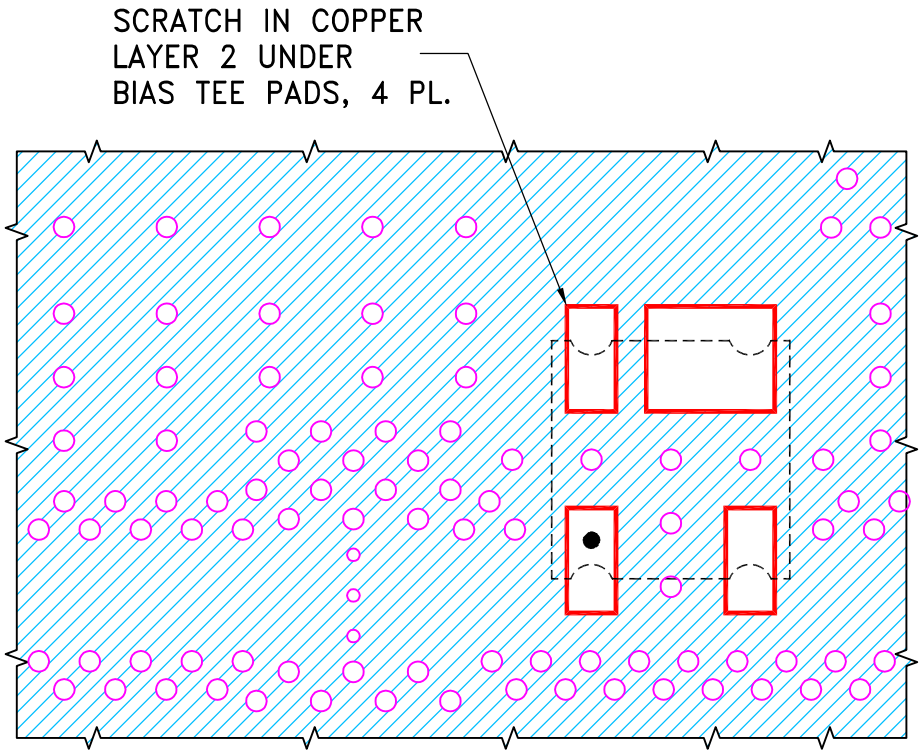
ASHEETA1.DWG REV:A DATE:01/12/95

Mini-Circuits® 13 Neptune Avenue Brooklyn NY 11235

PL, 06AM06, MC1630-1, TB-1064+

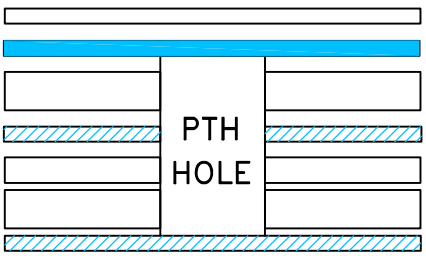
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-593	OR

FILE:	SCALE:	SHEET:
98PL593	8:1	1 OF 2



COPPER LAYER 2

STACK–UP DIAGRAM



–TOP SOLDER MASK
–TOP COPPER (LAYER 1), 0.5 OZ.
–CORE, 0.010", ROGERS RO4350B
–COPPER LAYER 2, 0.5 OZ.
–PREPREG, .004", ROGERS RO4450F
–CORE, 0.0066", ROGERS RO4350B
–BOTTOM COPPER (LAYER 3), 0.5 OZ.

1. TOTAL FINISHED THICKNESS 0.026" ± 10%.
2. PTH HOLES PRESENT FROM COPPER LAYER 1 TO 3.

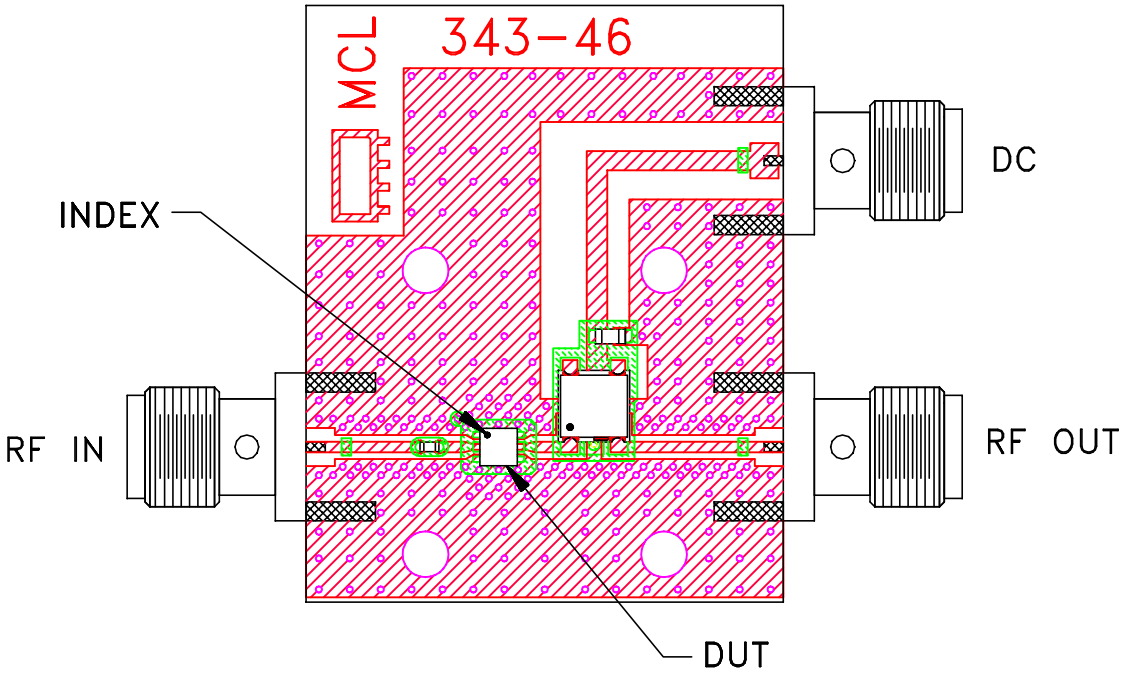
ASHEETA2.DWG REV:A DATE: 01/12/94

ALL DIMENSIONS ARE IN INCHES EXCEPT OTHERWISE SPECIFIED

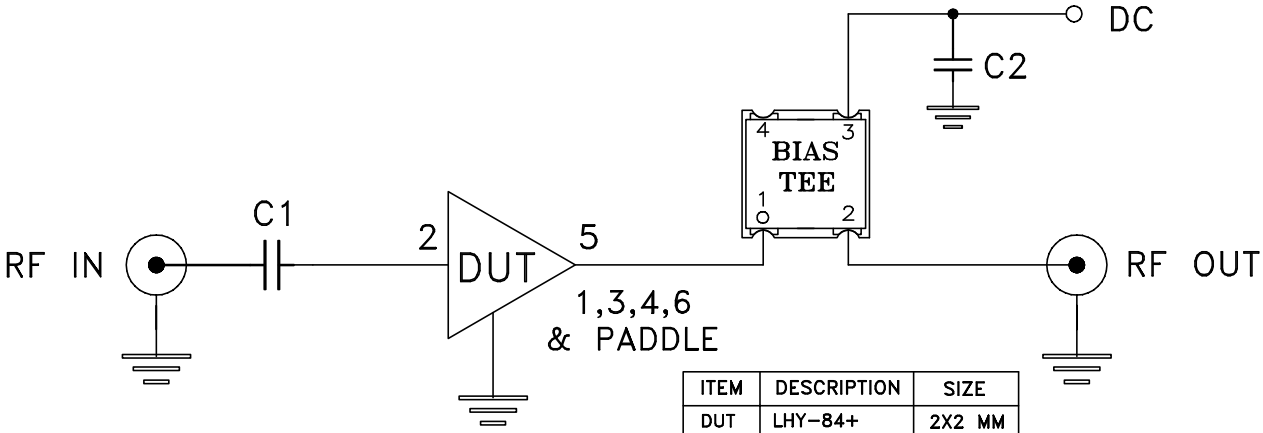
SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98–PL–593	OR

FILE:	SCALE:	SHEET:
98PL593	8:1	2 OF 2

Evaluation Board and Circuit

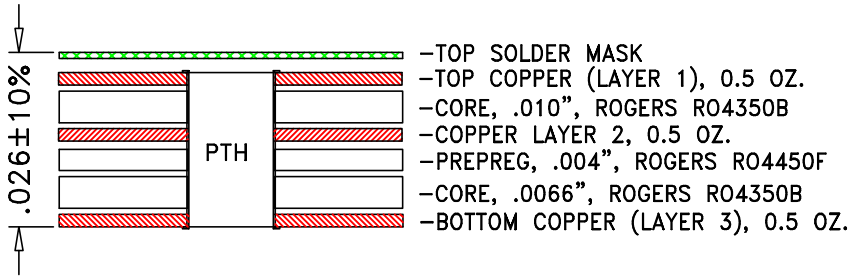


TB-1064+



ITEM	DESCRIPTION	SIZE
DUT	LHY-84+	2X2 MM
C1	CAP, 0.1 uF	0402
C2	CAP, 0.01 uF	0603
BIAS	TCBT-123+	.15"X.15"

Schematic Diagram



Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: RO4350 or equivalent, Dielectric Constant=3.5, Thickness=.032 inch.

Mini-Circuits®

Mini-Circuits

Environmental Specifications ENV08T1

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

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

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

Specification	Test/Inspection Condition	Reference/Spec
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215