

1. RF MMIC Innovator

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Classification: Application Note

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Wide Band Gain Block BG14A

Application Note



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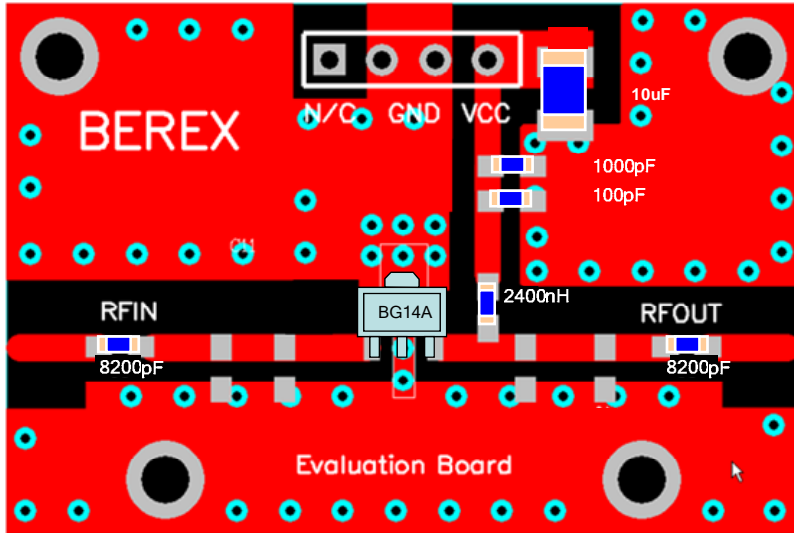
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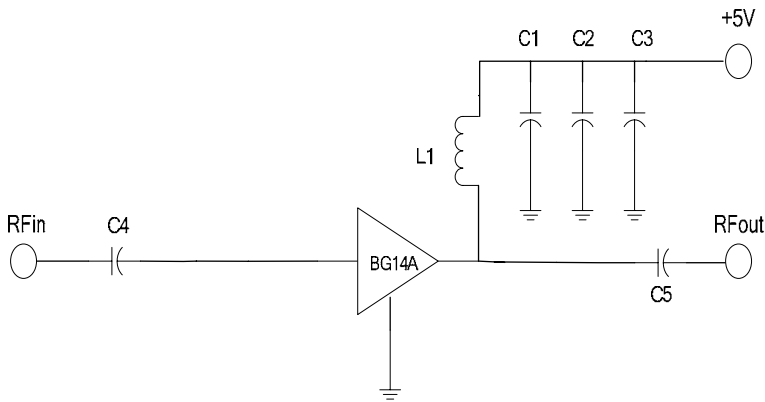
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1. BG14A 4.950MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	0603 CAP	100pF	Samsung
C2	604 CAP	1000pF	Samsung
C3	A3216 CAP	10uF	AVX
C4	0603 CAP	8200pF	Samsung
C5	0603 CAP	8200pF	Samsung
C6	0603 CAP	NA	
C7	0603 CAP	NA	
C8	0603 CAP	NA	
C9	0603 CAP	NA	
C10	0603 CAP	NA	
C11	0603 CAP	NA	
C12	0603 CAP	NA	
L1	0603 IND	2400nH	Ceratech
L2	0603 IND	NA	
L3	0603 IND	NA	
R1	0603 RES	NA	
U1	SOT89 PKG	BG14A	BEREX



Note:

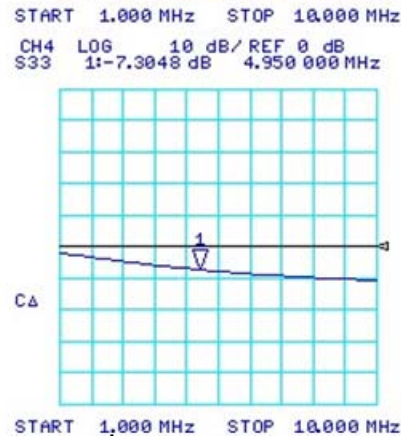
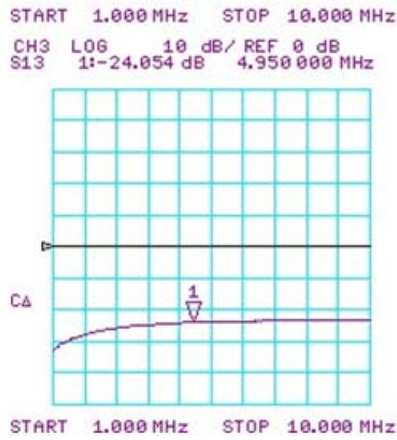
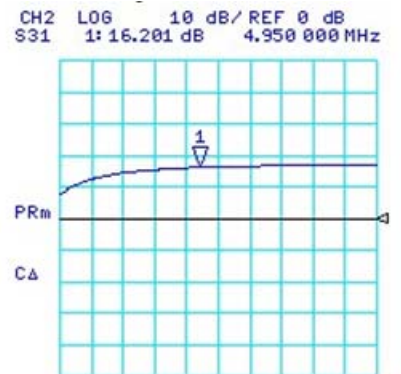
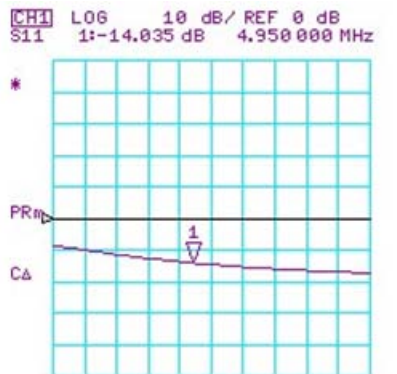
1. PCB: 31mil thick FR4

TITLE	
BG14A Evaluation Board	
(4.95MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

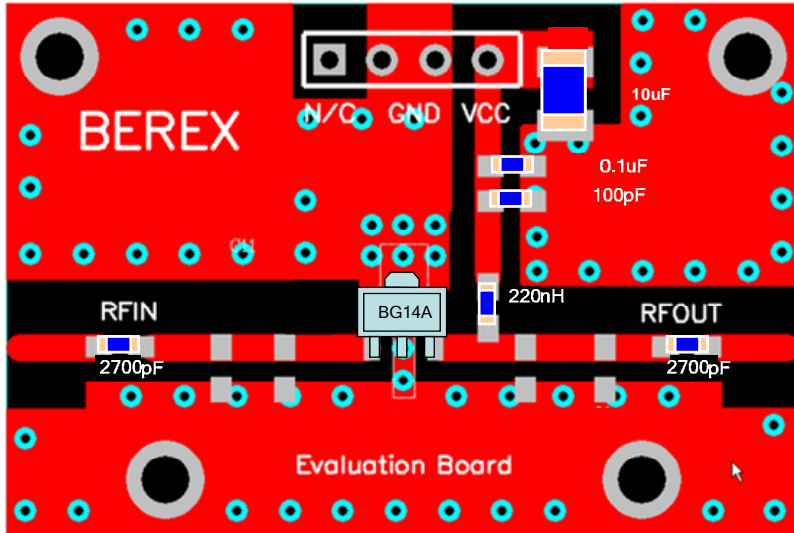
2. BG14A 4.95MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]
	4.95	5	77	16	34	18	-14	-7.3

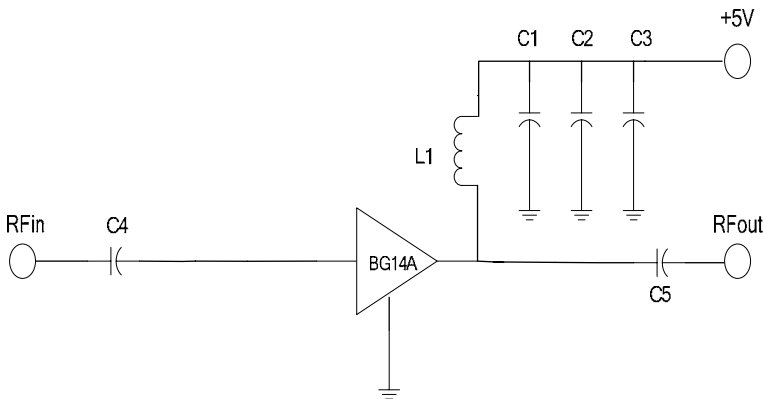
(1) OIP3 was tested @Pout=5dBm/tone 1MHz offset



2. BG14A 70MHz Application



Ref. Des.	Description/ Part Number	Values	Vendor
C1	0603 CAP	100pF	Samsung
C2	604 CAP	0.1uF	Samsung
C3	A3216 CAP	10uF	AVX
C4	0603 CAP	2700pF	Samsung
C5	0603 CAP	2700pF	Samsung
C6	0603 CAP	NA	
C7	0603 CAP	NA	
C8	0603 CAP	NA	
C9	0603 CAP	NA	
C10	0603 CAP	NA	
C11	0603 CAP	NA	
C12	0603 CAP	NA	
L1	0603 IND	220nH	Ceratech
L2	0603 IND	NA	
L3	0603 IND	NA	
R1	0603 RES	NA	
U1	SOT89 PKG	BG14A	BEREX



Note:

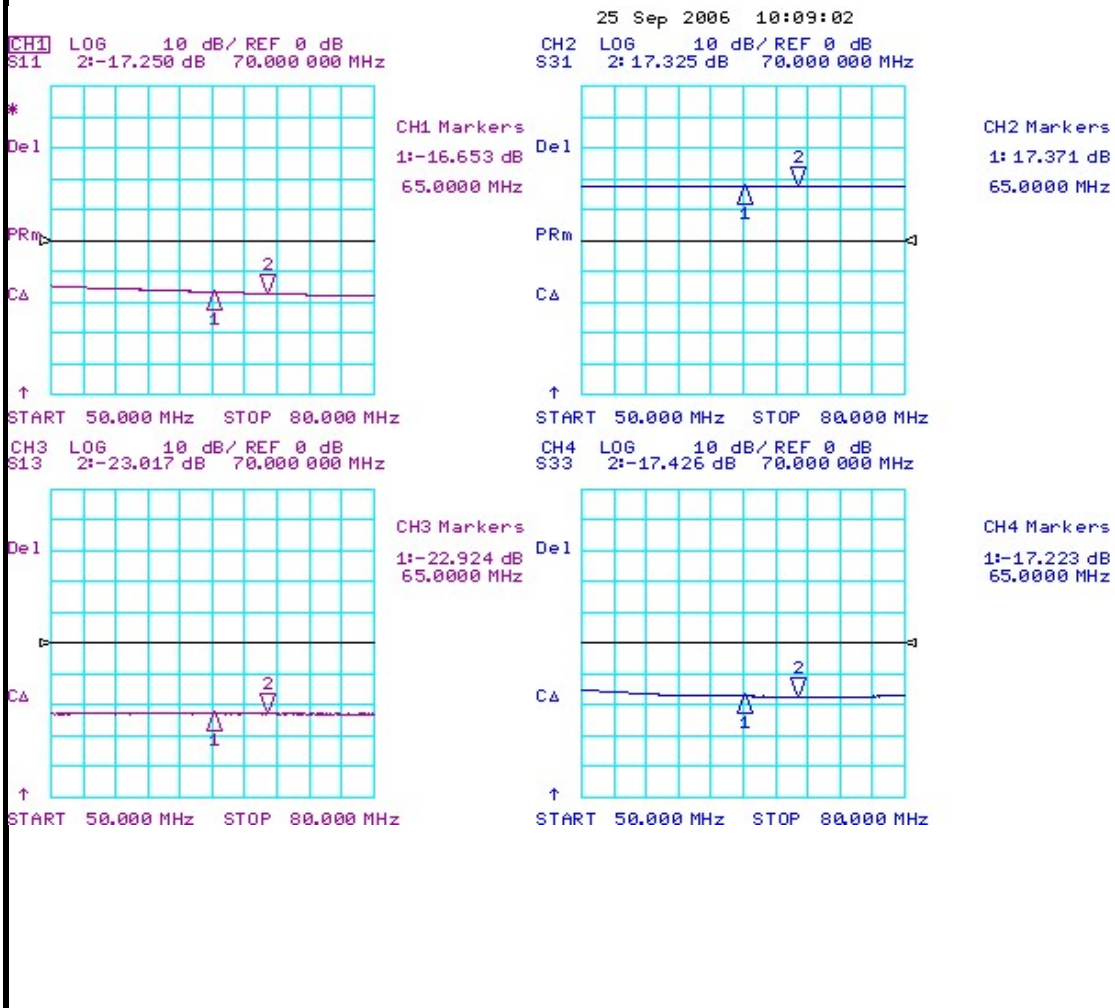
- 3. PCB: 31mil thick FR4

TITLE	
BG14A Evaluation Board	
(70MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

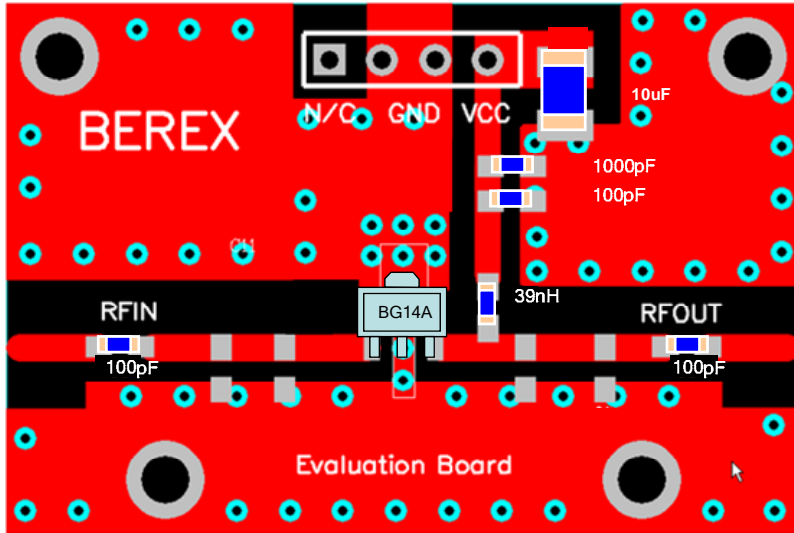
4. BG14A 70MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]
	70	5	77	17.32	39.5	19.7	-17.3	-17.4

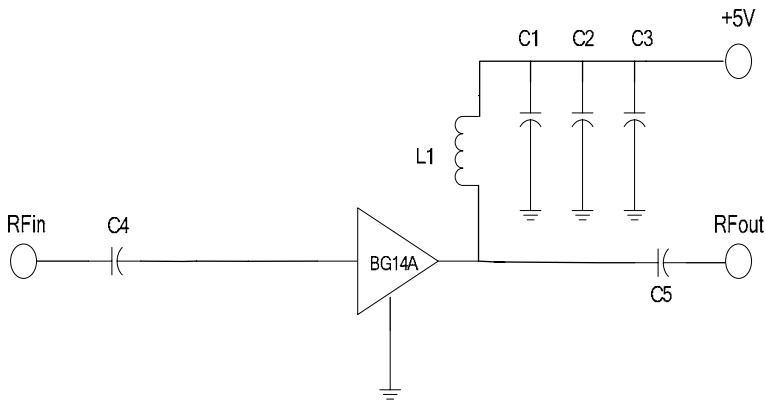
(1) OIP3 was tested @Pout=7dBm/tone 1MHz offset



3. BG14A Wide Band Application



Ref. Des.	Description/ Part Number	Values	Vendor
C1	0603 CAP	100pF	Samsung
C2	604 CAP	1000pF	Samsung
C3	A3216 CAP	10uF	AVX
C4	0603 CAP	100pF	Samsung
C5	0603 CAP	100pF	Samsung
C6	0603 CAP	NA	
C7	0603 CAP	NA	
C8	0603 CAP	NA	
C9	0603 CAP	NA	
C10	0603 CAP	NA	
C11	0603 CAP	NA	
C12	0603 CAP	NA	
L1	0603 IND	39nH	Ceratech
L2	0603 IND	NA	
L3	0603 IND	NA	
R1	0603 RES	NA	
U1	SOT89 PKG	BG14A	BEREX



Note:

- 5. PCB: 31mil thick FR4

TITLE	
BG14A Evaluation Board	
(Wide Band)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

6. BG14A Wide Band Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]
	500	5	77	17.3	39	20.0	-18.5	-14.0
	900	5	77	17.0	37.5	19.5	-17.5	-15.0
	1900	5	77	16.2	35.5	19.5	-27.5	-10.5
	2140	5	77	16.0	35.5	19.5	-23.0	-11.5
	2450	5	77	15.8	34.5	19.5	-19.0	-10.0
	3000	5	77	15.2	33.0	19.5	-16.0	-13.0

(1) OIP3 was tested @Pout=7dBm/tone 1MHz offset

