

RF MMIC Innovator

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[Classification] Application Note

[Date] 2010.05

[Revision No.] Rev.A

[Measuring Instruments]

- NA_Agilent 8753ES

- SA_Agilent E4404B

- SG_Agilent 4438C

- SG_IFR 3416

Internally matched IF Amp BIF 5

Application Note



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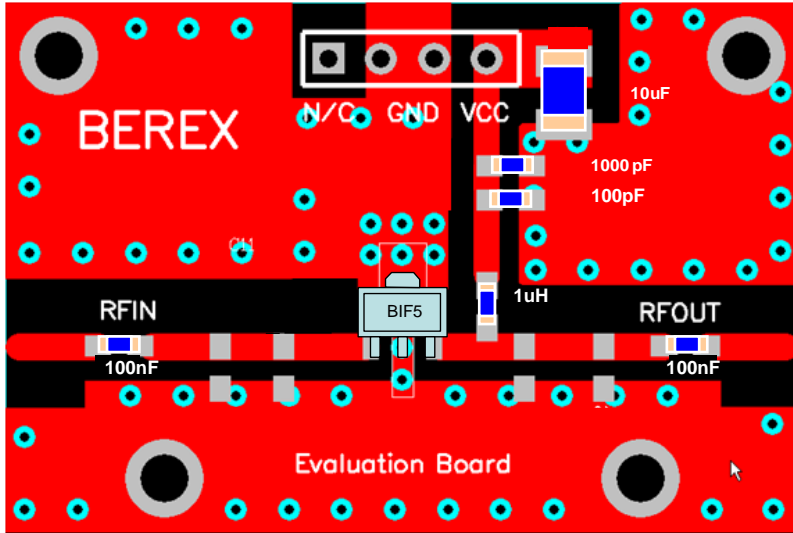
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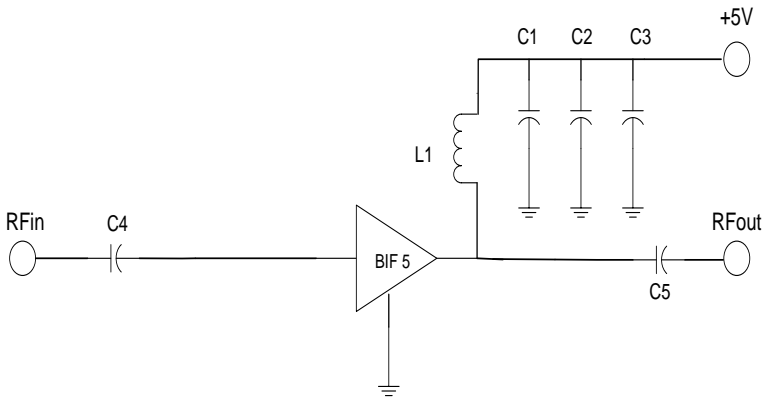
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1. BIF5_70~1000MHz Application Note



| 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 | 100nF | Samsung |
| C5 | 0603 CAP | 100nF | 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 | 1uH | Ceratech |
| L2 | 0603 IND | NZ | |
| L3 | 0603 IND | NA | |
| R1 | 0603 RES | NA | |
| U1 | SOT89 PKG | BIF 5 | BEREX |
| | | | |
| | | | |



Note:

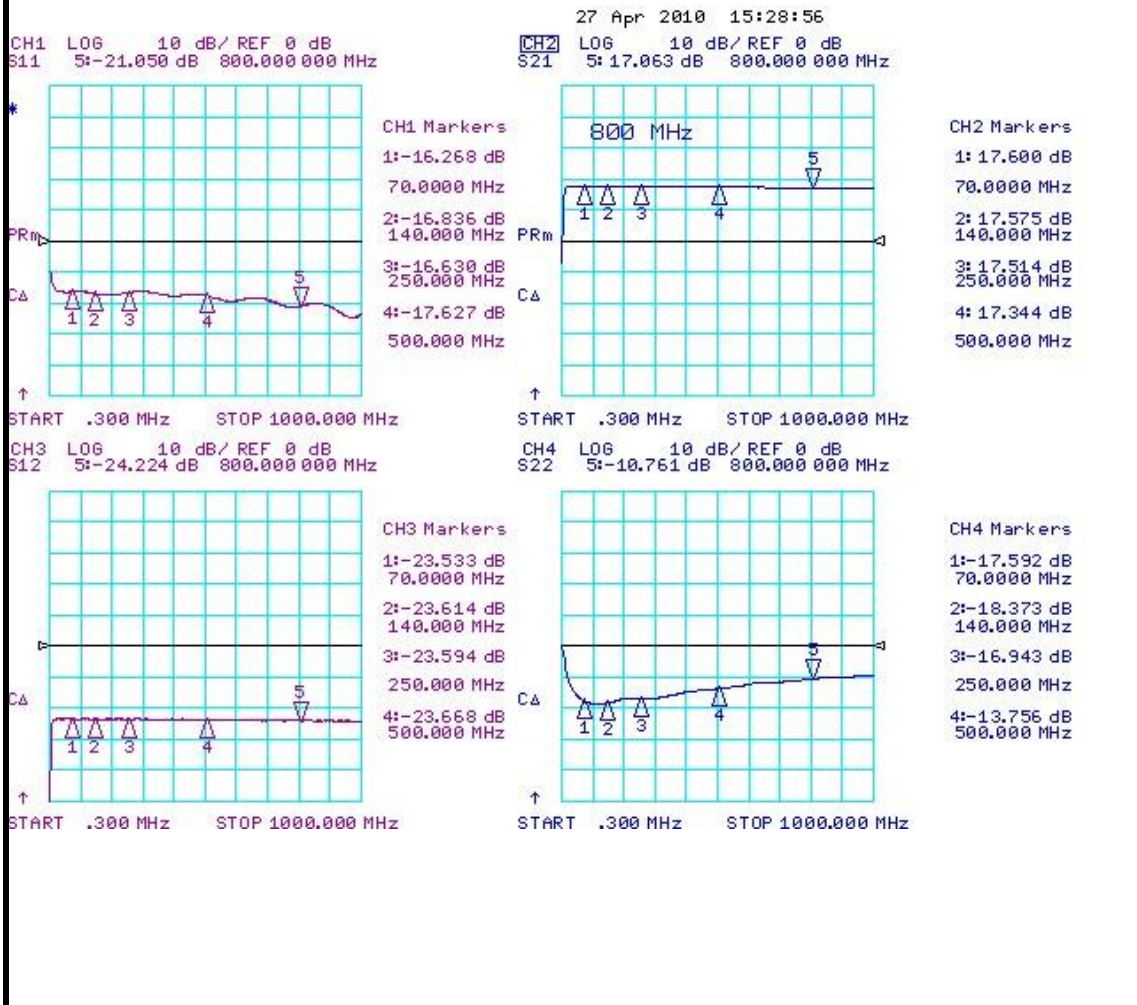
1. PCB: 31mil thick FR4

| | |
|-----------------------|----------|
| TITLE | |
| BIF5 Evaluation Board | |
| (70~1000MHz) | |
| Drawing Number | Rev. |
| Date | Drawn By |
| FILE NAME | SHEET |
| | |

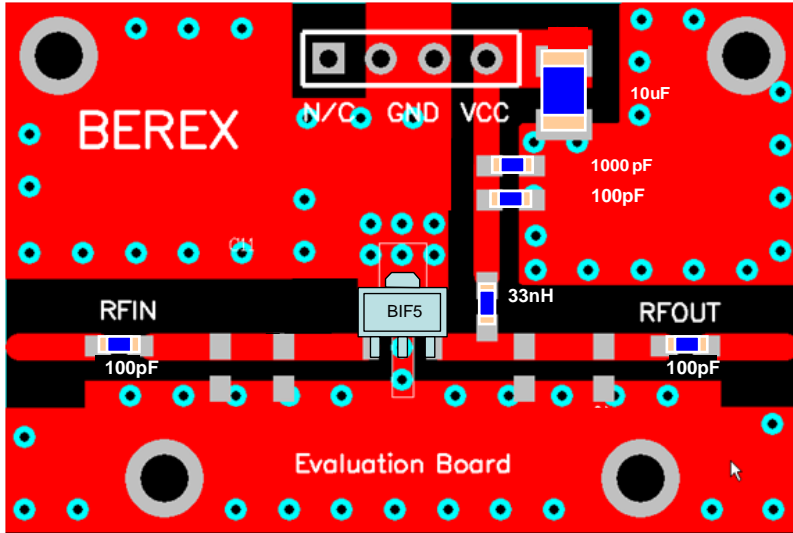
1.1 BIF5_70~1000MHz Test Result

| SN | Freq [MHz] | Vcc [V] | Icc [mA] | Gain [dB] | OIP3 [dBm] ⁽¹⁾ | P1dB [dBm] | IRL [dB] | ORL [dB] | NF [dB] |
|----|------------|---------|----------|-----------|---------------------------|------------|----------|----------|---------|
| - | 70 | 5 | 102 | 17.6 | 42 | 20.9 | -16.2 | -17.5 | 4.0 |
| - | 140 | 5 | 102 | 17.5 | 41 | 21.2 | -16.8 | -18.3 | 4.1 |
| - | 250 | 5 | 102 | 17.5 | 40.2 | 21.3 | -16.6 | -16.9 | 4.2 |
| - | 500 | 5 | 102 | 17.3 | 39.5 | 21.2 | -17.7 | -13.7 | 4.3 |
| - | 800 | 5 | 102 | 17.0 | 37 | 20.7 | -21.0 | -10.7 | 4.3 |

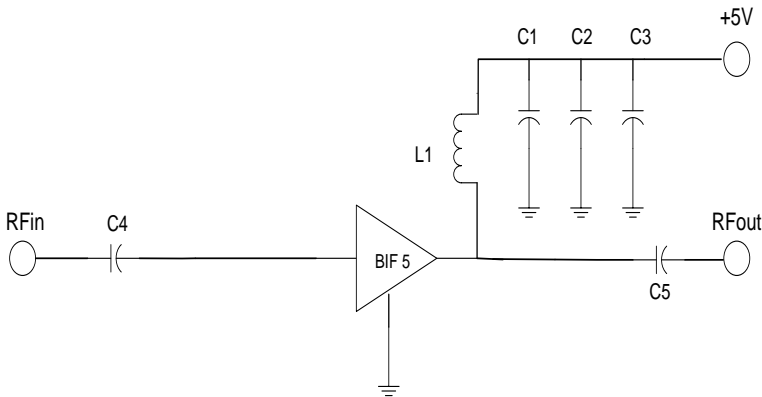
(1) OIP3 was tested @Pout=10dBm/tone 1MHz offset



2. BIF5_500~2400MHz 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 | 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 | 33nH | Ceratech |
| L2 | 0603 IND | NZ | |
| L3 | 0603 IND | NA | |
| R1 | 0603 RES | NA | |
| U1 | SOT89 PKG | BIF 5 | BEREX |



Note:

- 2. PCB: 31mil thick FR4

| TITLE | |
|-----------------------|----------|
| BIF5 Evaluation Board | |
| (500~2400MHz) | |
| Drawing Number | Rev. |
| Date | Drawn By |
| FILE NAME | SHEET |

2.1 BIF5_500~2400MHz Test Result

| SN | Freq [MHz] | Vcc [V] | Icc [mA] | Gain [dB] | OIP3 [dBm] ⁽¹⁾ | P1dB [dBm] | IRL [dB] | ORL [dB] | NF [dB] |
|----|------------|---------|----------|-----------|---------------------------|------------|----------|----------|---------|
| - | 500 | 5 | 102 | 17.6 | 39.5 | 21.4 | -14.9 | -16.9 | 4.3 |
| - | 900 | 5 | 102 | 17.5 | 35.6 | 20.7 | -17.9 | -14.3 | 4.3 |
| - | 1800 | 5 | 102 | 16.7 | 28.5 | 18.2 | -30.4 | -7.5 | 4.5 |
| - | 2100 | 5 | 102 | 16.5 | 26 | 17 | -27.3 | -7.5 | 4.5 |
| - | 2400 | 5 | 102 | 16.4 | 26 | 16.3 | -20.4 | -7.0 | 4.7 |

(1) OIP3 was tested @Pout=10dBm/tone 1MHz offset

