

**RF MMIC Innovator**[www.berex.com](http://www.berex.com)

[CLASSIFICATION] APPLICATION NOTE

[DATE] 2010.09

[REVISION NO.] REV.A

[MEASURING INSTRUMENTS]

- NA\_AGILENT 8753ES

- SA\_AGILENT E4404B

- SG\_AGILENT 4438C

- SG\_IFR 3416

## **Wide Band Drive Amp BT05CV**

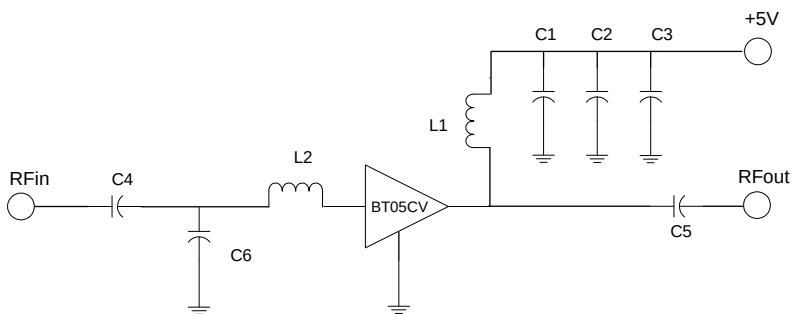
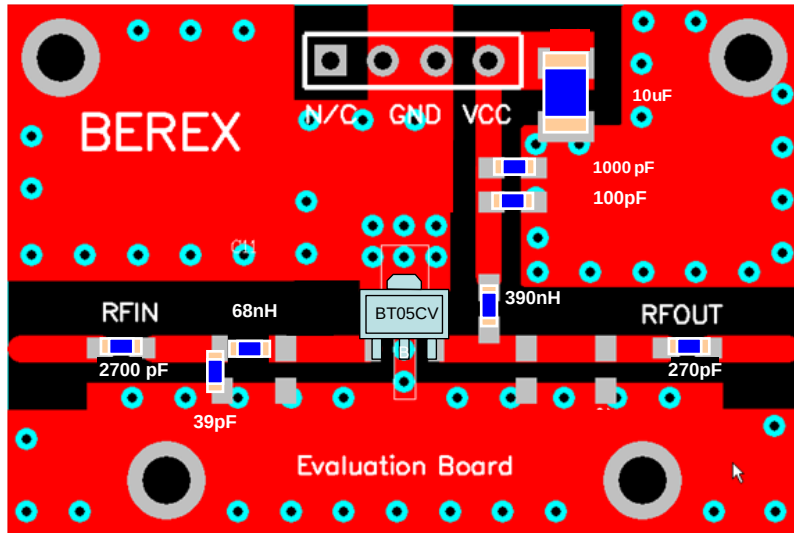
### **Application Note**



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## 1. BT05CV 70MHz Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 3mm
3. The distance between the center of the series Inductor(L2) and the Input Pin of BT05CV is 1.7mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 2700pF | Samsung  |
| C5        | 0603 CAP                 | 270pF  | Samsung  |
| C6        | 0603 CAP                 | 39pF   | Samsung  |
| 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                 | 390nH  | Ceratech |
| L2        | 0603 IND                 | 68nH   | Ceratech |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

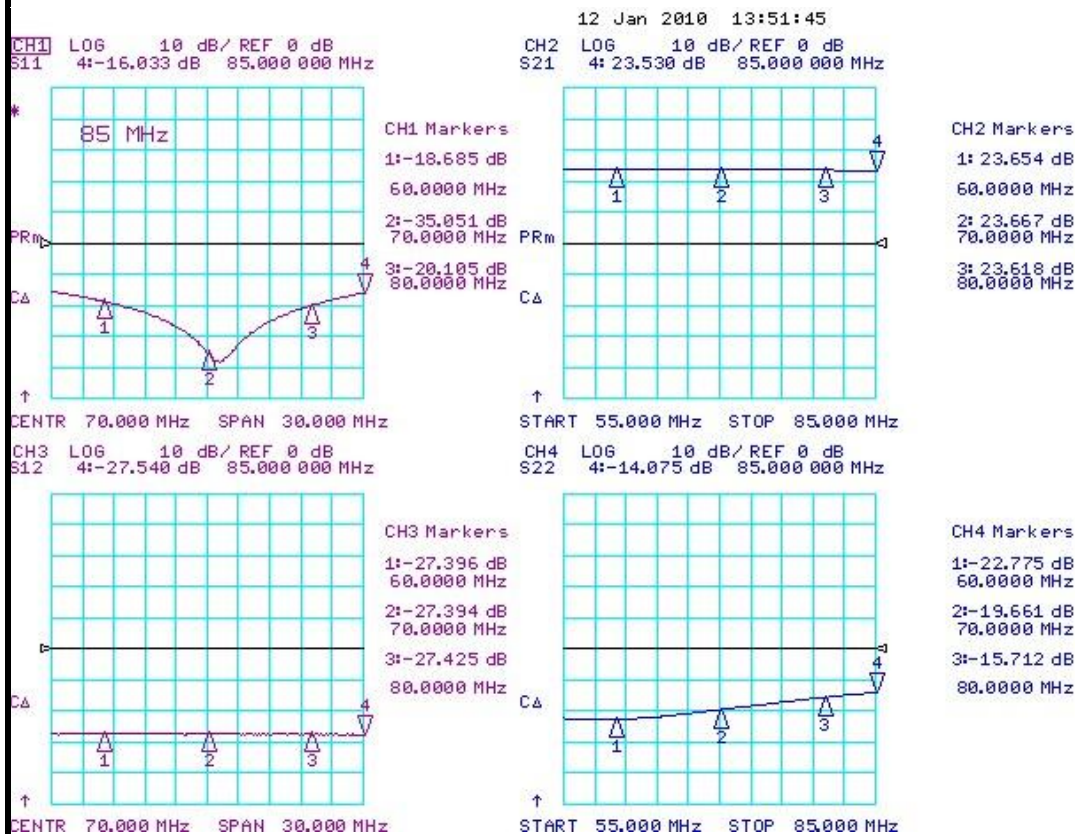
(70 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
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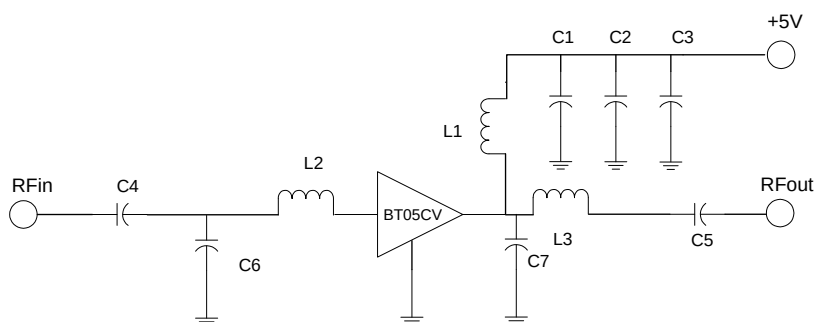
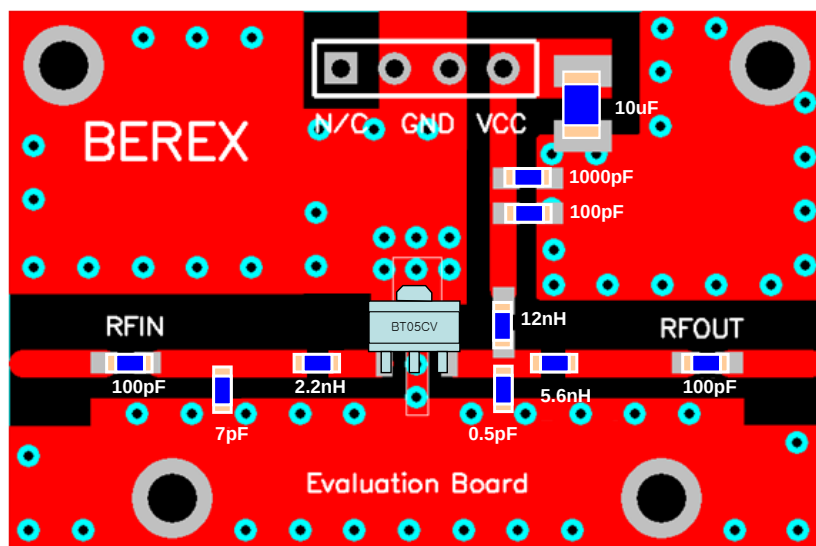
## 1.1 BT05CV\_70MHz Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
| -  | 70            | 5          | 80          | 23.6         | 39                           | 24.6          | 35          | 19          | 4.7        |

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



## 2. BT05CV\_CDMA(824~849MHz) Application Note



## Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 8.2mm
3. The distance between the center of the series Inductor(L2) and the Input Pin of BT05CV is 1.5mm
4. The distance between the center of the series Inductor(L3) and the Output Pin of BT05CV is 3.3mm
5. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 2mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 7pF    | Samsung  |
| C7        | 0603 CAP                 | 0.5pF  | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 12nH   | Ceratech |
| L2        | 0603 IND                 | 2.2nH  | Ceratech |
| L3        | 0603 IND                 | 5.6nH  | Ceratech |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

(824~849 MHz)

Drawing  
Number

Rev.

Date

Drawn By

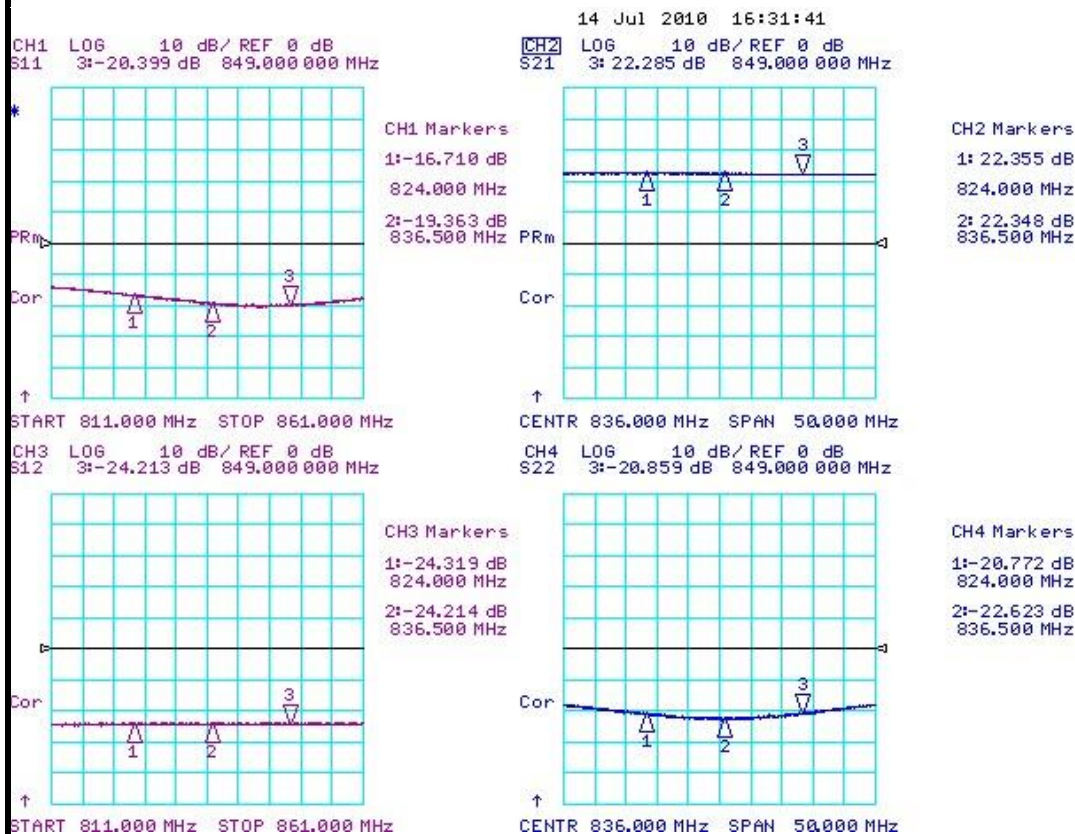
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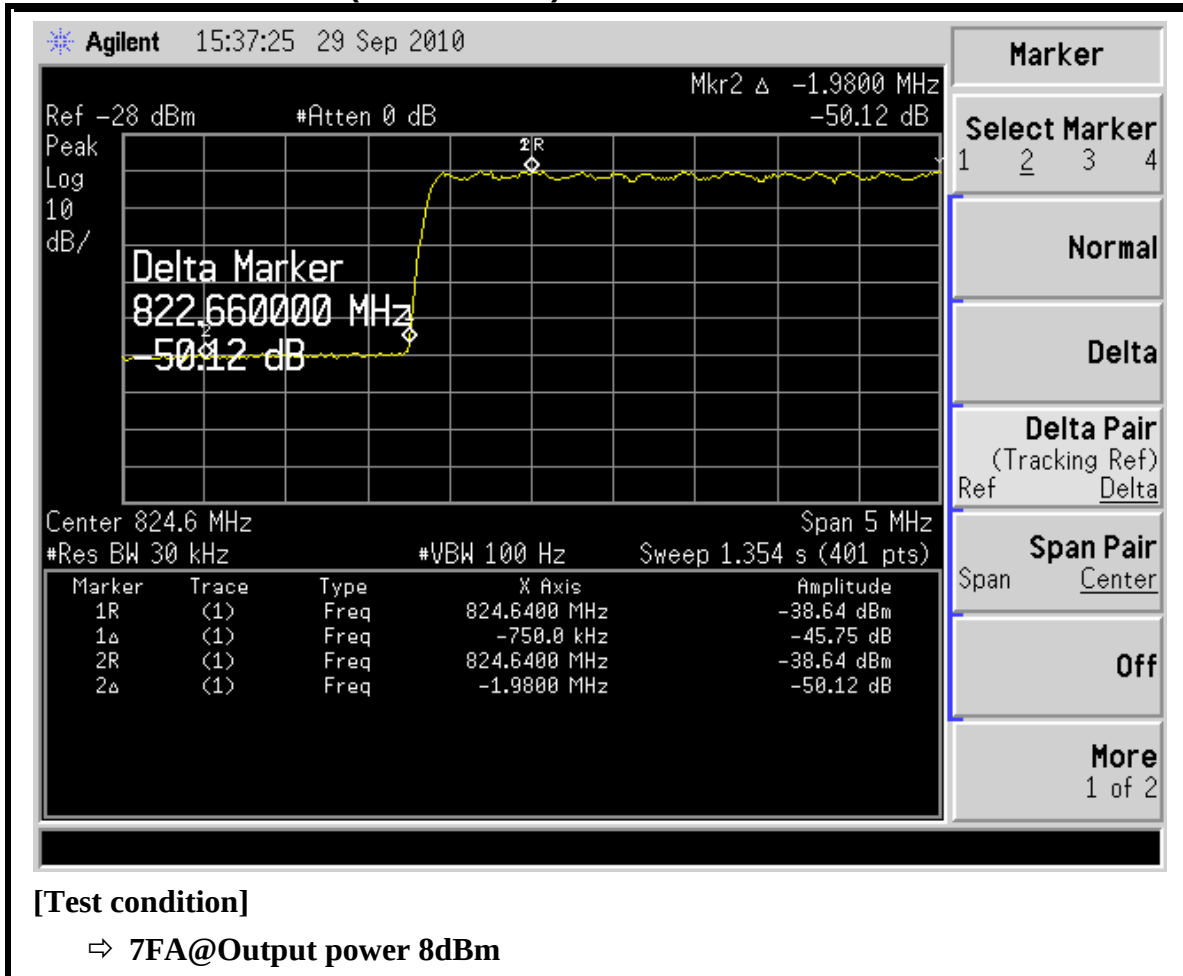
## 2.1 BT05CV\_CDMA(824~849MHz) Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
| -  | 836.5         | 5          | 85          | 22.3         | 41.5                         | 23.7          | 19.3        | 22.6        | 5.3        |

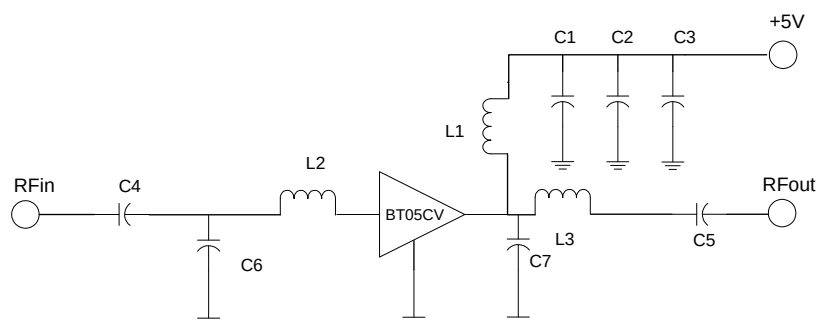
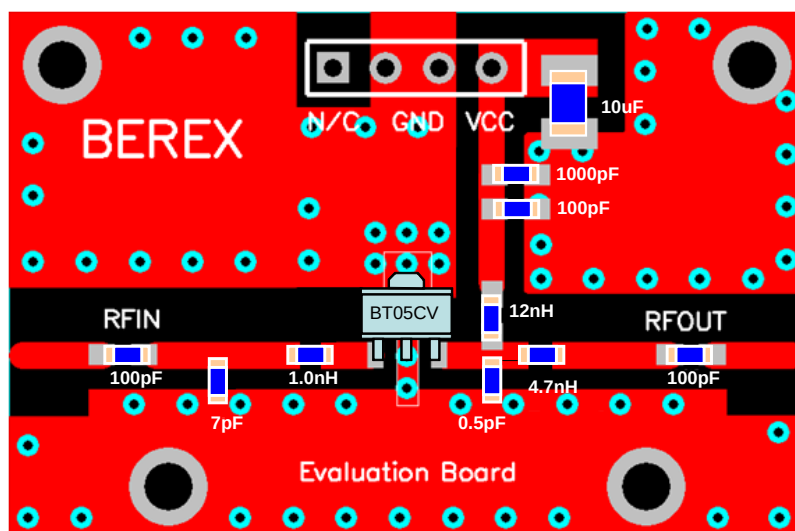
(1) OIP3 was tested @Pout=7dBm/tone 1MHz offset



## 2.2 BT05CV\_CDMA(824~849MHz) SPURIOUS



## 3. BT05CV\_CDMA(869~894MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 9.1mm
3. The distance between the center of the series Inductor(L2) and the Input Pin of BT05CV is 1.7mm
4. The distance between the center of the series Inductor(L3) and the Output Pin of BT05CV is 3.8mm
5. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 1mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 7pF    | Samsung  |
| C7        | 0603 CAP                 | 0.5pF  | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 12nH   | Ceratech |
| L2        | 0603 IND                 | 1.0nH  | Ceratech |
| L3        | 0603 IND                 | 4.7nH  | Ceratech |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

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BT05CV Evaluation Board

(869~894 MHz)

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Date

Drawn By

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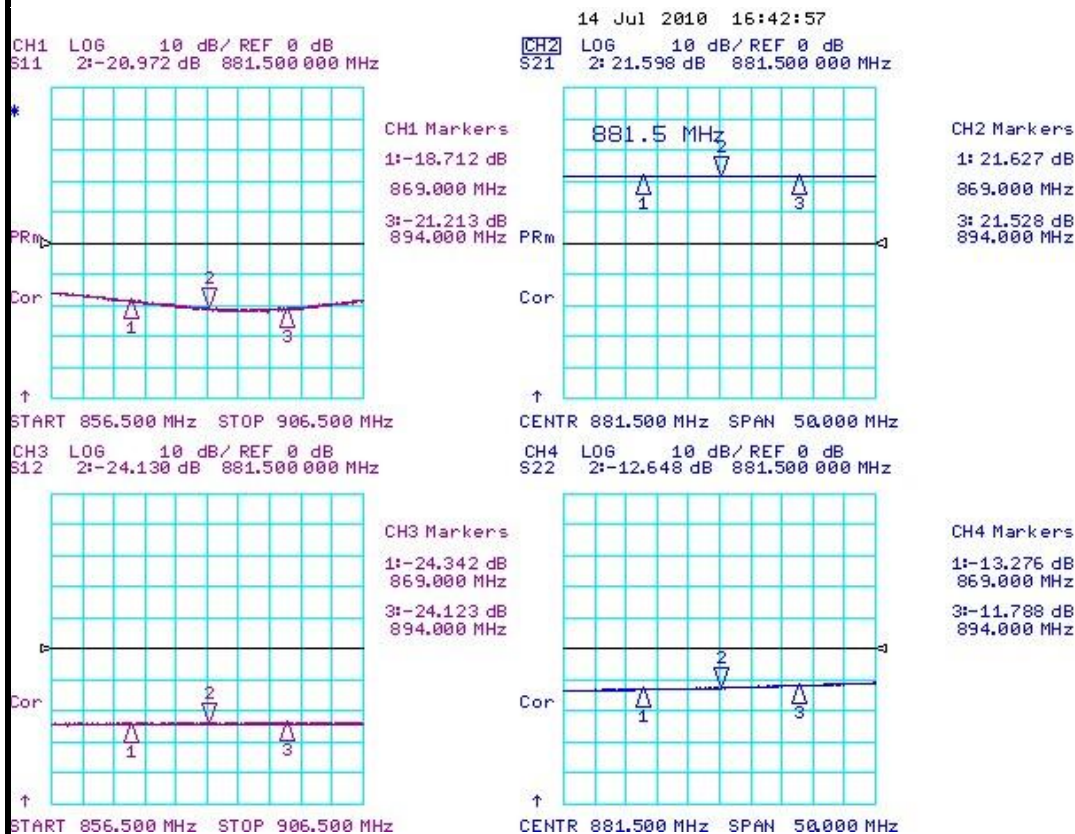
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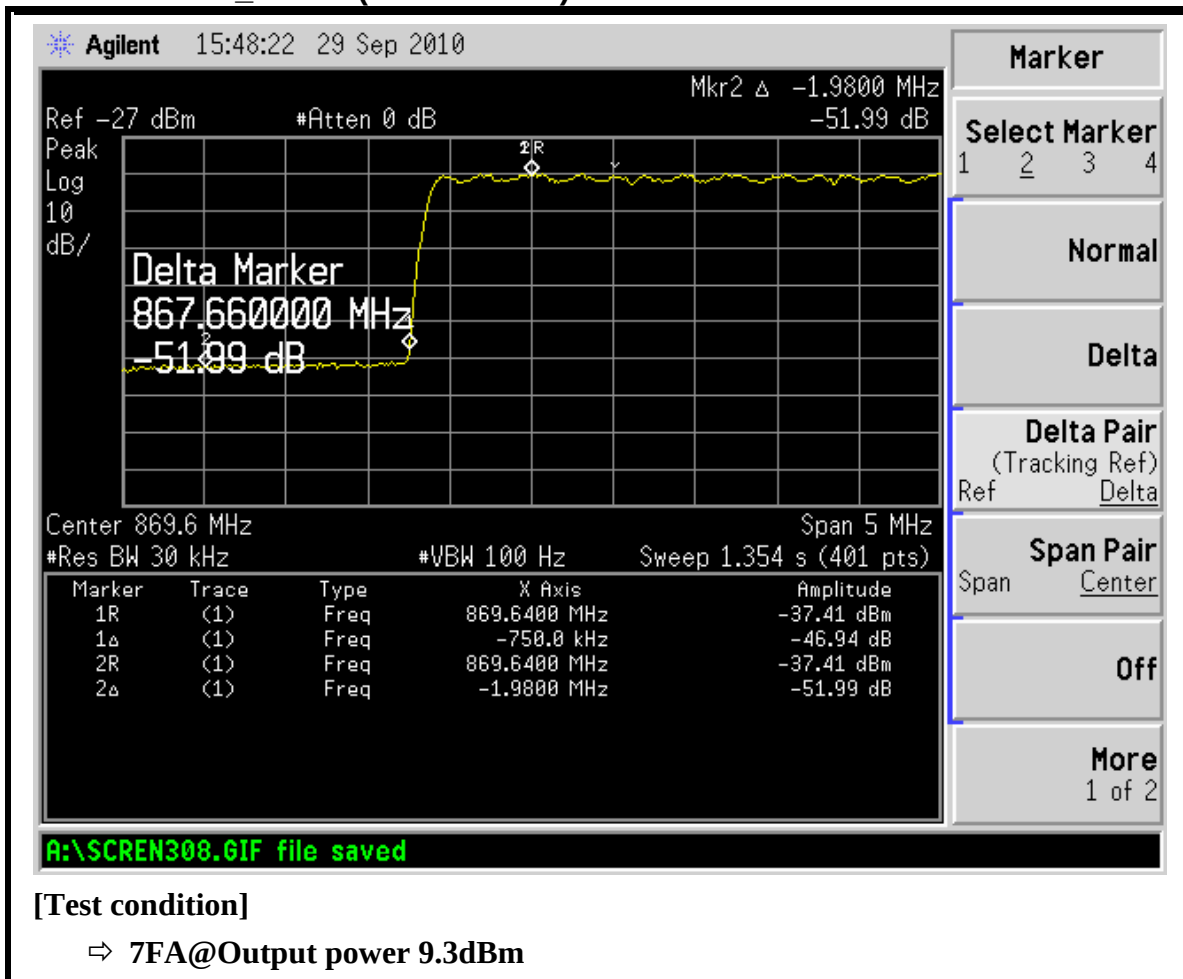
### 3.1 BT05CV\_CDMA(869~894MHz) Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 881.5         | 5          | 78          | 21.5         | 41.6                         | 23            | 20.9        | 12.6        | 5.2        |

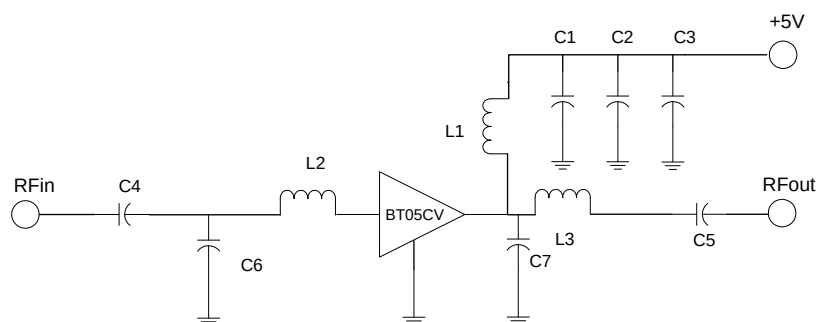
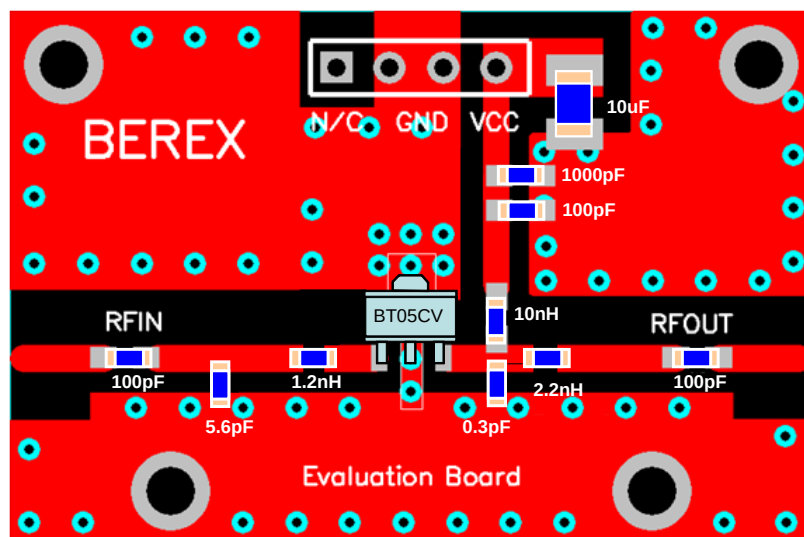
(1) OIP3 was tested @Pout=7dBm/tone 1MHz offset



### 3.2 BT05CV\_ CDMA(869~894MHz) SPURIOUS



## 4. BT05CV\_WCDMA(905~915MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 10.4mm
3. The distance between the center of the series Inductor(L2) and the Input Pin of BT05CV is 1.7mm
4. The distance between the center of the series Inductor(L3) and the Output Pin of BT05CV is 3.8mm
5. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 1.5mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 5.6pF  | Samsung  |
| C7        | 0603 CAP                 | 0.3pF  | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 10nH   | Ceratech |
| L2        | 0603 IND                 | 1.2nH  | Ceratech |
| L3        | 0603 IND                 | 2.2nH  | Ceratech |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

TITLE

BT05CV Evaluation Board

(905~915 MHz)

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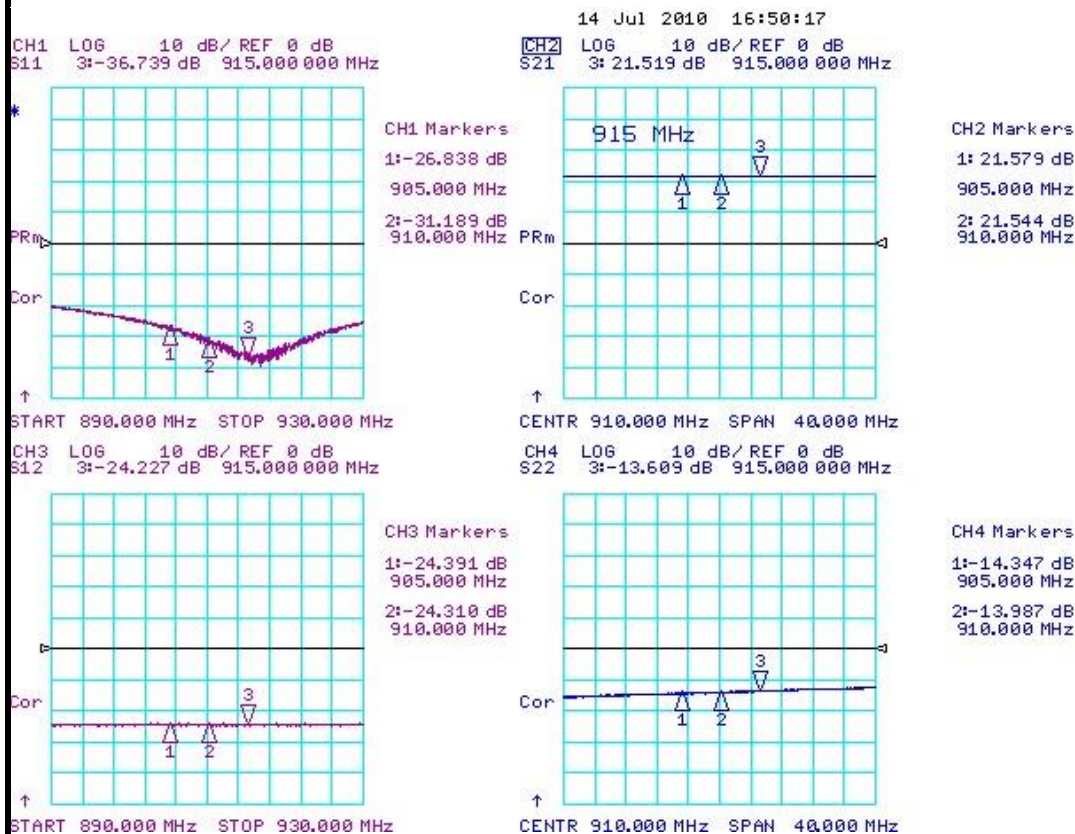
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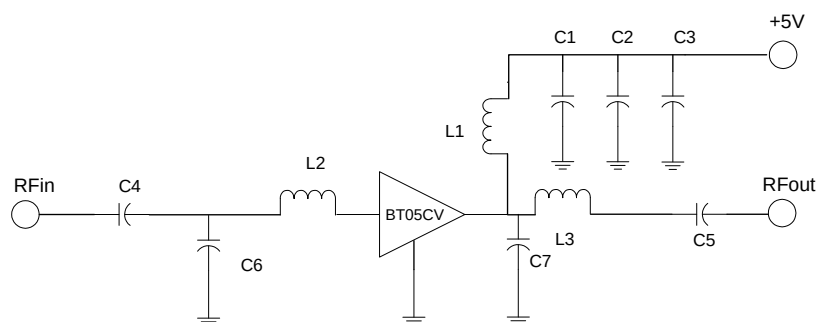
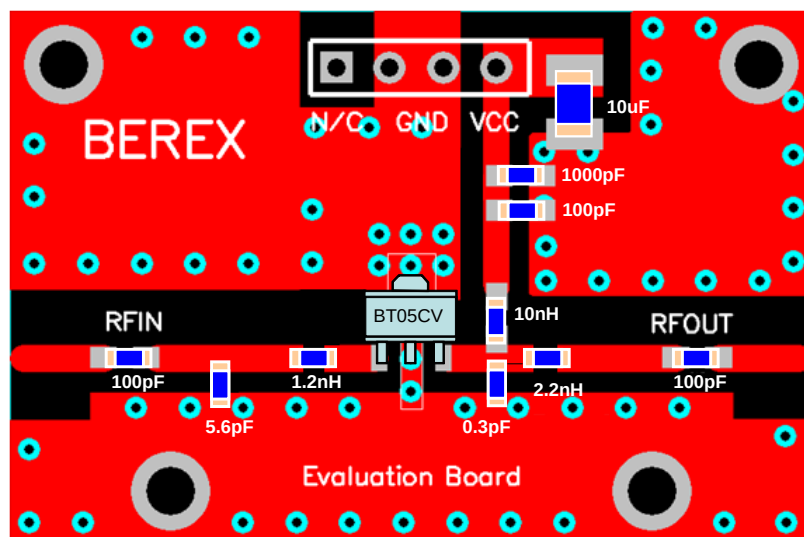
## 4.1 BT05CV\_WCDMA(905~915MHz) Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 910           | 5          | 83          | 21.5         | 42.5                         | 24.1          | 31.1        | 13.9        | 5.2        |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset



## 5. BT05CV\_WCDMA(950~960MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 8mm
3. The distance between the center of the series Inductor(L2) and the Input Pin of BT05CV is 1.7mm
4. The distance between the center of the series Inductor(L3) and the Output Pin of BT05CV is 3.8mm
5. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 1.5mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 5.6pF  | Samsung  |
| C7        | 0603 CAP                 | 0.3pF  | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 10nH   | Ceratech |
| L2        | 0603 IND                 | 1.2nH  | Ceratech |
| L3        | 0603 IND                 | 2.2nH  | Ceratech |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

TITLE

BT05CV Evaluation Board

(950~960 MHz)

Drawing  
Number

Rev.

Date

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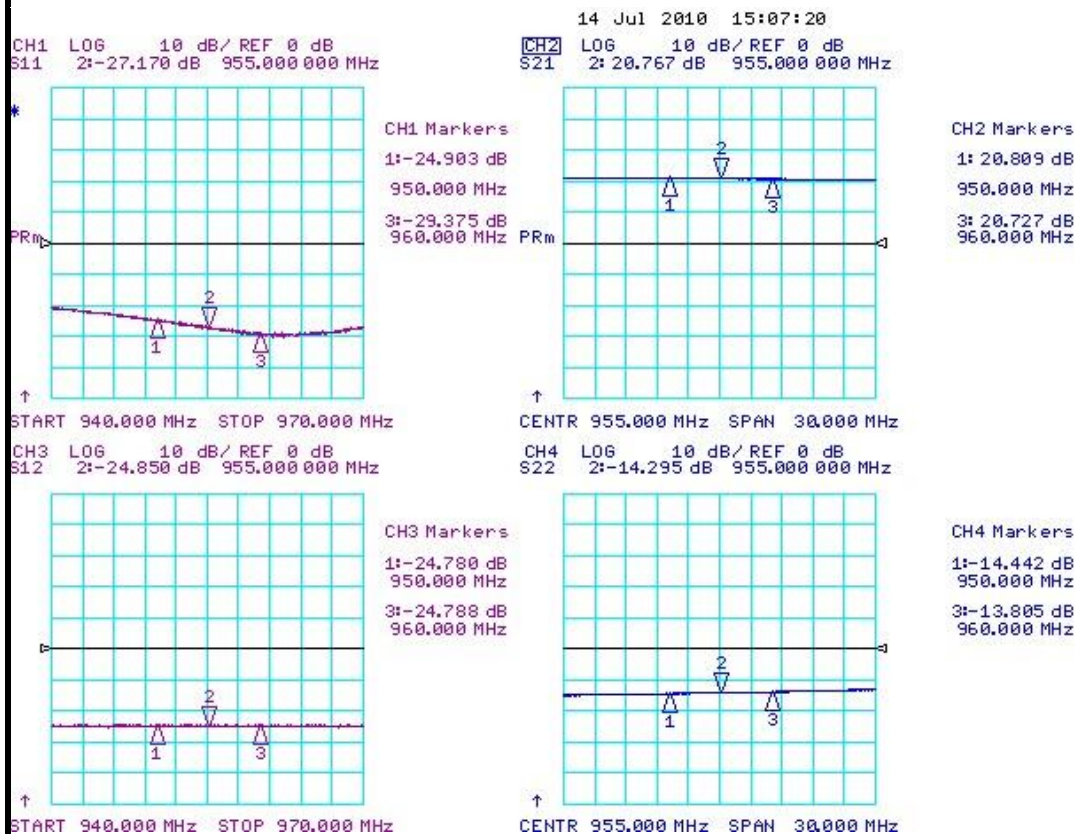
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## A. BT05CV\_WCDMA(950~960MHz) Test Result

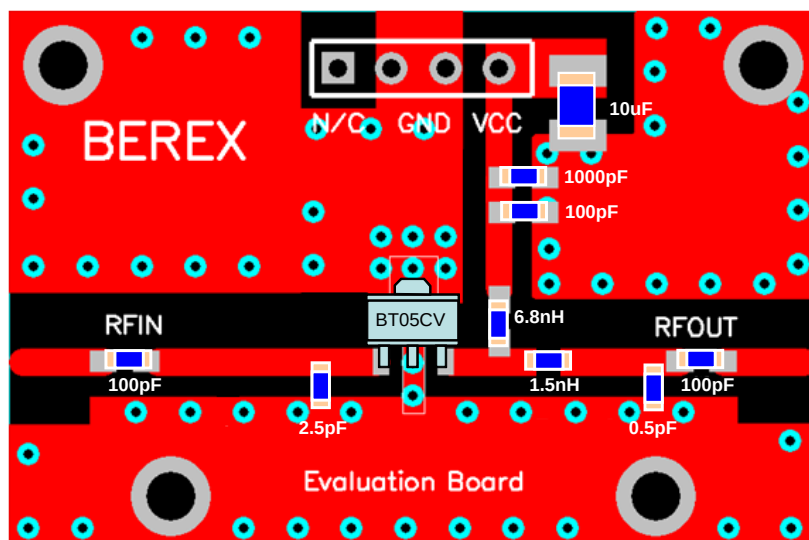
| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 955           | 5          | 84          | 20.7         | 42.3                         | 24            | 27.1        | 14.2        | 5.2        |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset

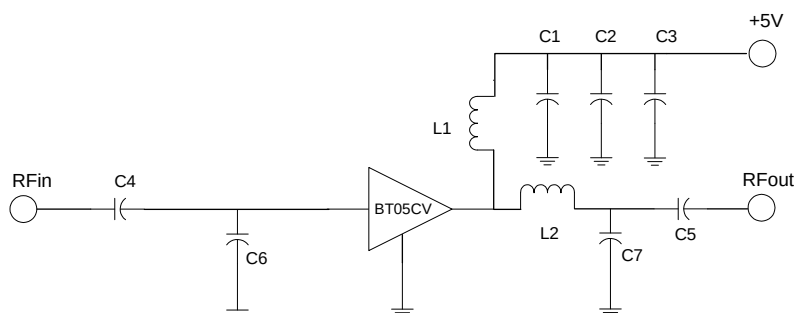




## 6. BT05CV\_PCS(1750~1780MHz) Application Note



| Ref. Des. | Description/Part Number | Values | Vendor   |
|-----------|-------------------------|--------|----------|
| C1        | 0603 CAP                | 100pF  | Samsung  |
| C2        | 0603 CAP                | 1000pF | Samsung  |
| C3        | A3216 CAP               | 10uF   | AVX      |
| C4        | 0603 CAP                | 100pF  | Samsung  |
| C5        | 0603 CAP                | 100pF  | Samsung  |
| C6        | 0603 CAP                | 2.5pF  | Samsung  |
| C7        | 0603 CAP                | 0.5pF  | Samsung  |
| C8        | 0603 CAP                | NA     |          |
| C9        | 0603 CAP                | NA     |          |
| C10       | 0603 CAP                | NA     |          |
| C11       | 0603 CAP                | NA     |          |
| C12       | 0603 CAP                | NA     |          |
| L1        | 0603 IND                | 6.8nH  | Ceratech |
| L2        | 0603 IND                | 1.5nH  | Ceratech |
| L3        | 0603 IND                | NA     |          |
| R1        | 0603 RES                | NA     |          |
| U1        | SOT89 PKG               | BT05CV | BEREX    |
|           |                         |        |          |
|           |                         |        |          |



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 1.6mm
3. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 11.0mm
4. The distance between the center of the series Inductor(L2) and the Output Pin of BT05CV is 3.8mm

TITLE

BT05CV Evaluation Board

(1750~1780 MHz)

Drawing  
Number

Rev.

Date

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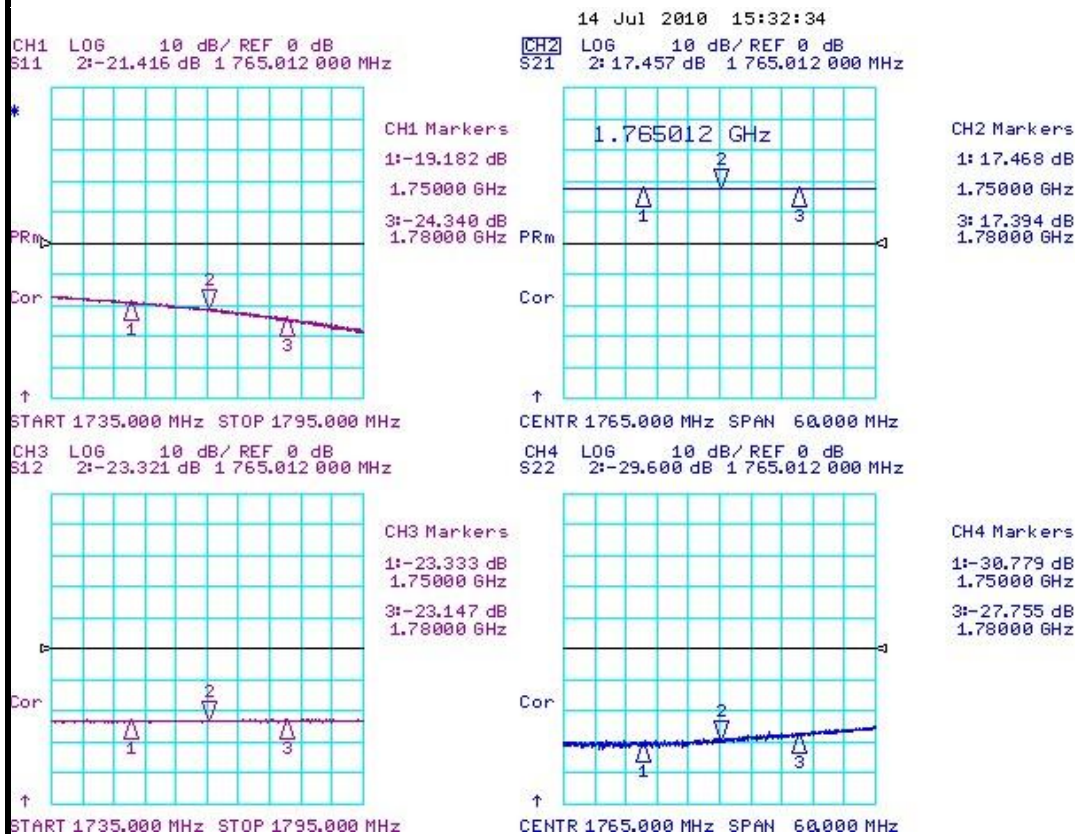
FILE NAME

SHEET

## 6.1 BT05CV\_PCS(1750~1780MHz) Test Result

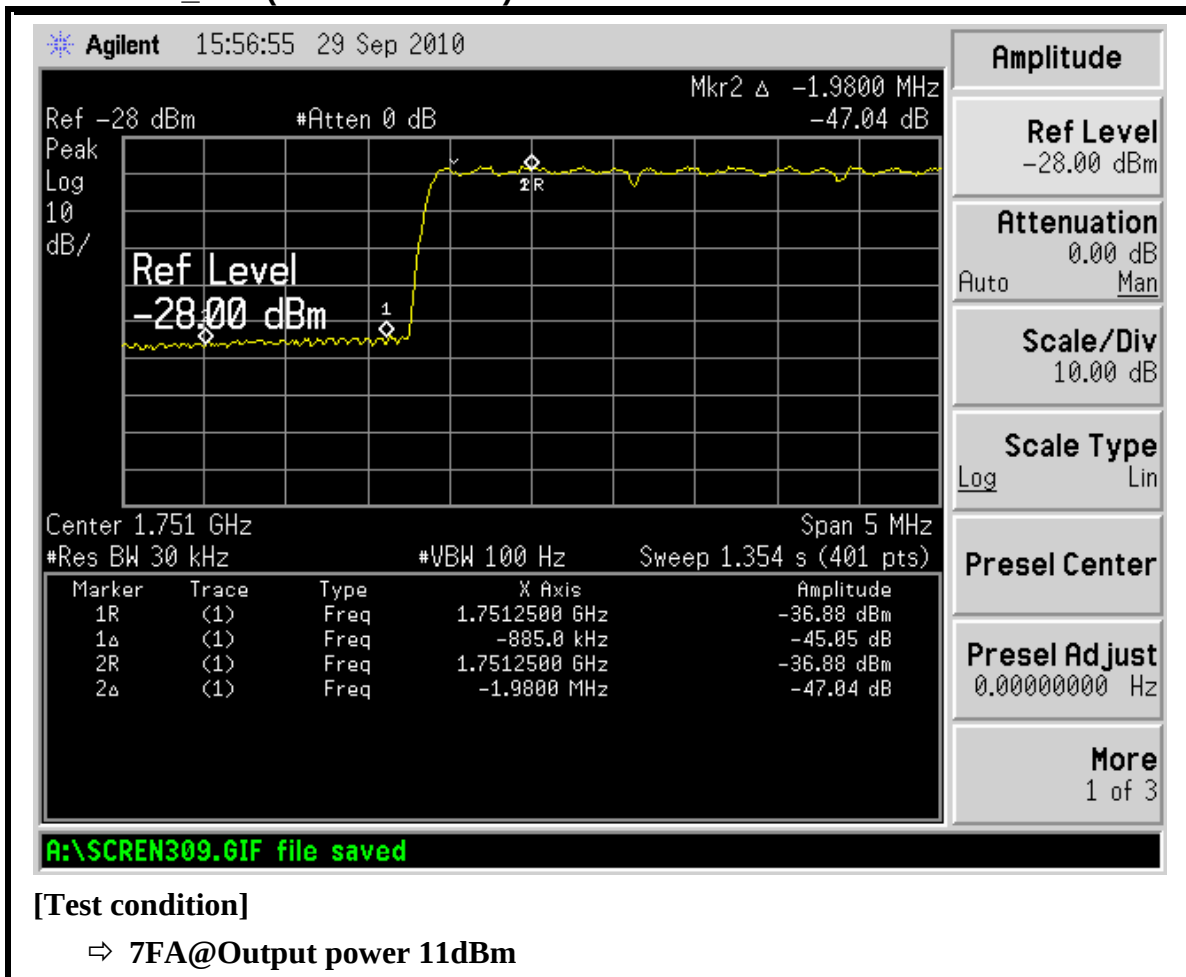
| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 1765          | 5          | 86          | 17.4         | 42.6                         | 24            | 21.4        | 29.6        | 5          |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset

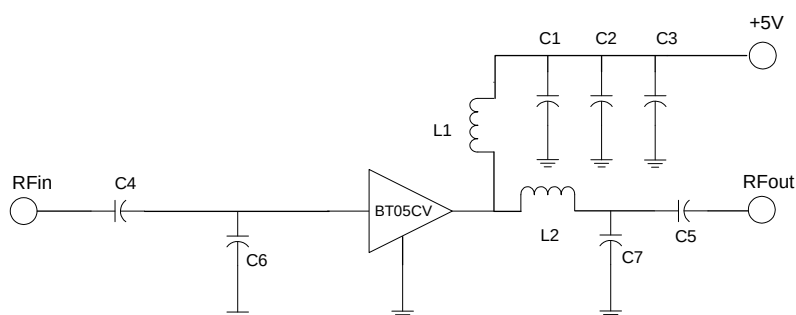
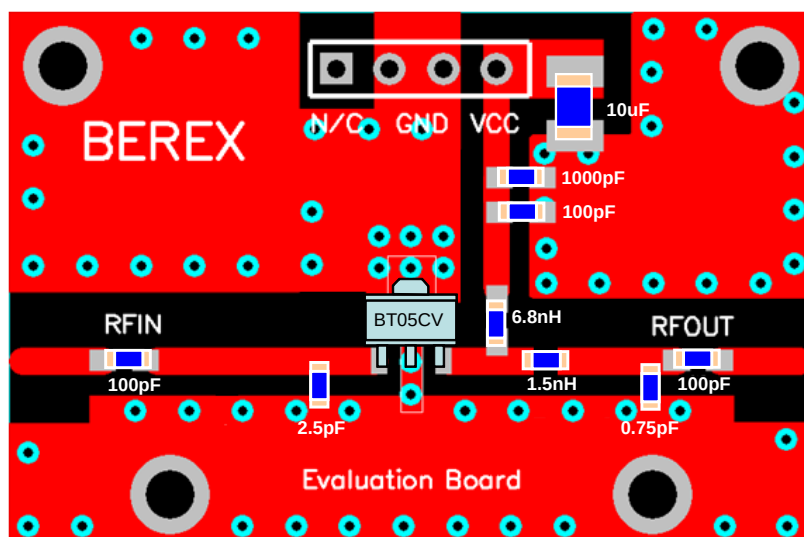




## 6.2 BT05CV\_PCS(1750~1780MHz) SPURIOUS



## 7 BT05CV\_PCS(1840~1870MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 1.0mm
3. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 10.5mm
4. The distance between the center of the series Inductor(L2) and the Output Pin of BT05CV is 3.8mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 2.5pF  | Samsung  |
| C7        | 0603 CAP                 | 0.75pF | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 6.8nH  | Ceratech |
| L2        | 0603 IND                 | 1.5nH  | Ceratech |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

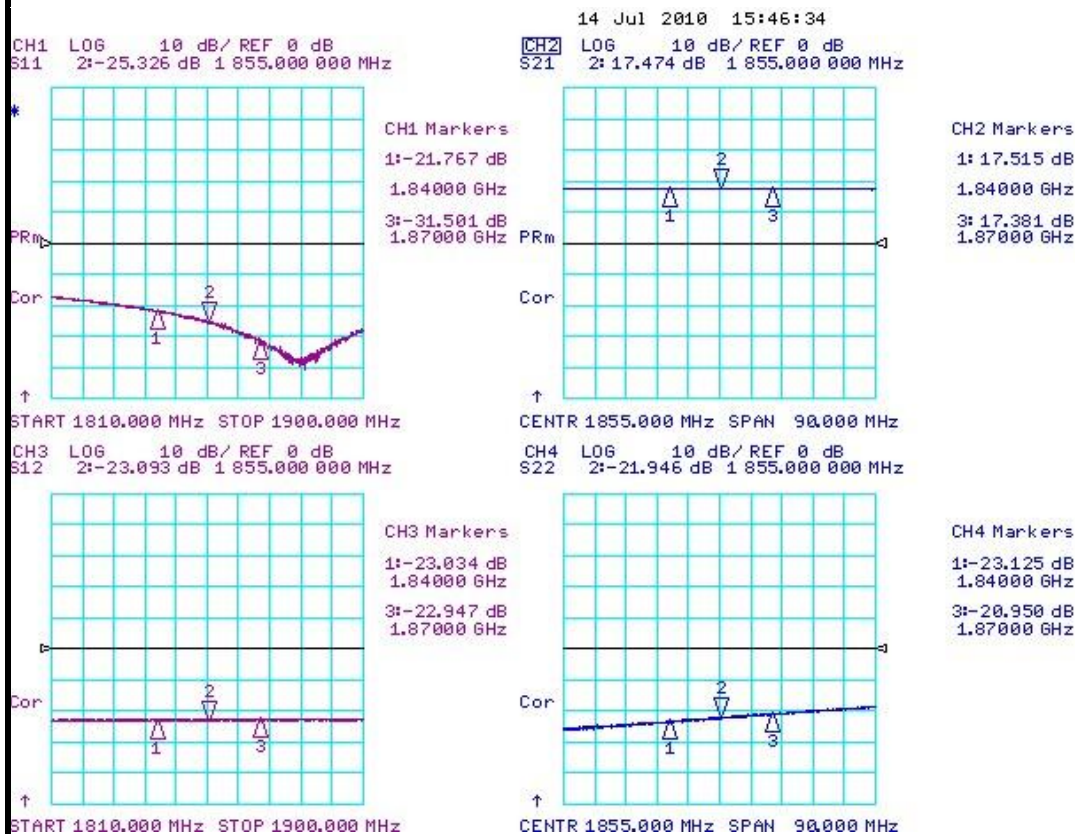
(1840~1870 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
|                |          |
| FILE NAME      | SHEET    |
|                |          |

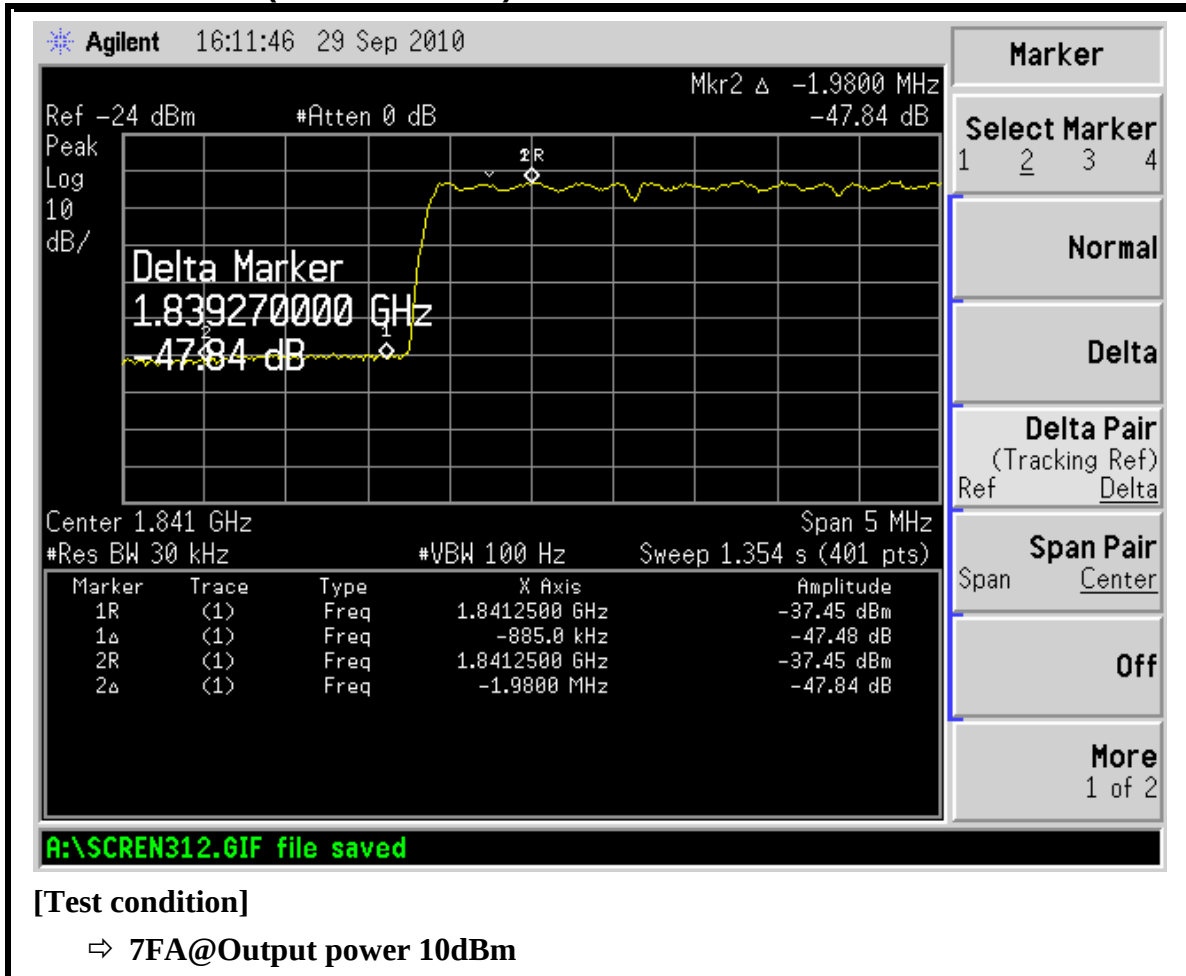
## 7.1 BT05CV\_PCS(1840~1870MHz)Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 1855          | 84         | 84          | 17.4         | 42.8                         | 24.3          | 25.3        | 21.9        | 5          |

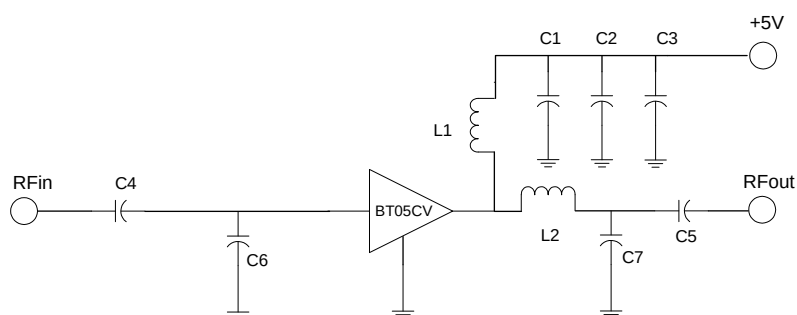
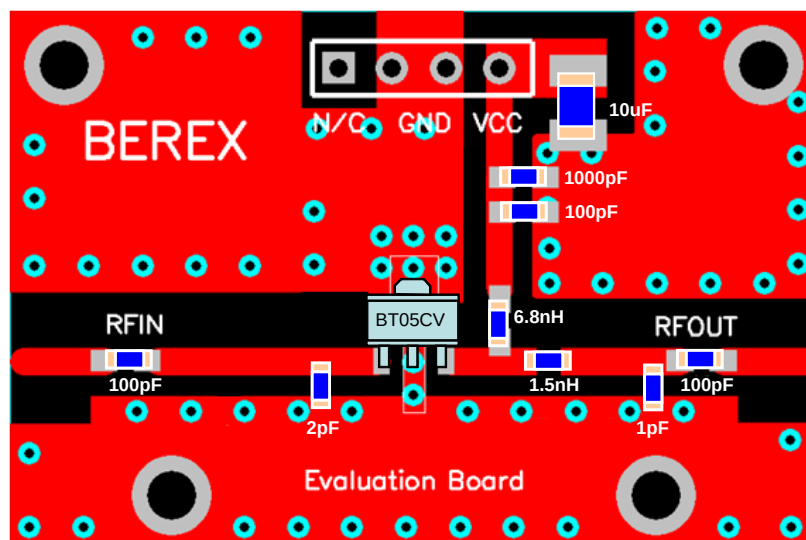
(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset



## 7.2BT05CV\_PCS(1840~1870MHz)SPURIOUS



## 8 BT05CV\_WCDMA(1940~1980MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 1.7mm
3. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 9.0mm
4. The distance between the center of the series Inductor(L2) and the Output Pin of BT05CV is 3.5mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 2pF    | Samsung  |
| C7        | 0603 CAP                 | 1pF    | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 6.8nH  | Ceratech |
| L2        | 0603 IND                 | 1.5nH  | Ceratech |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

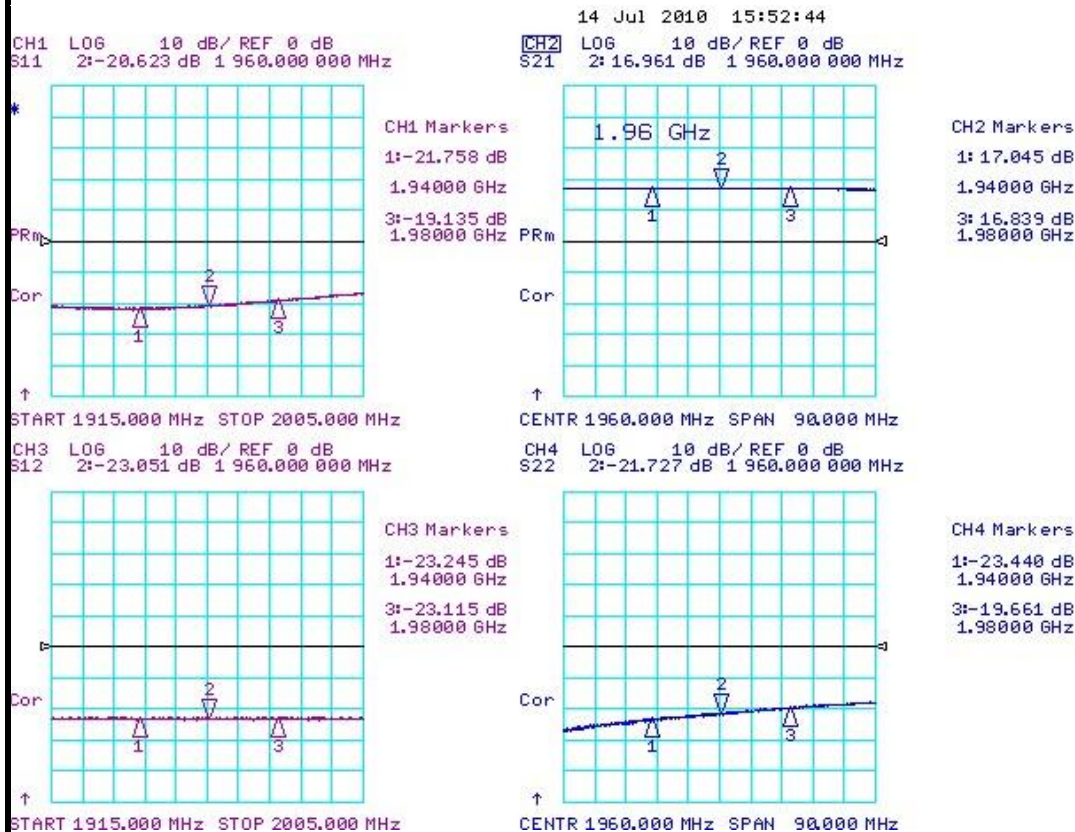
(1940~1980 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
|                |          |
| FILE NAME      | SHEET    |
|                |          |

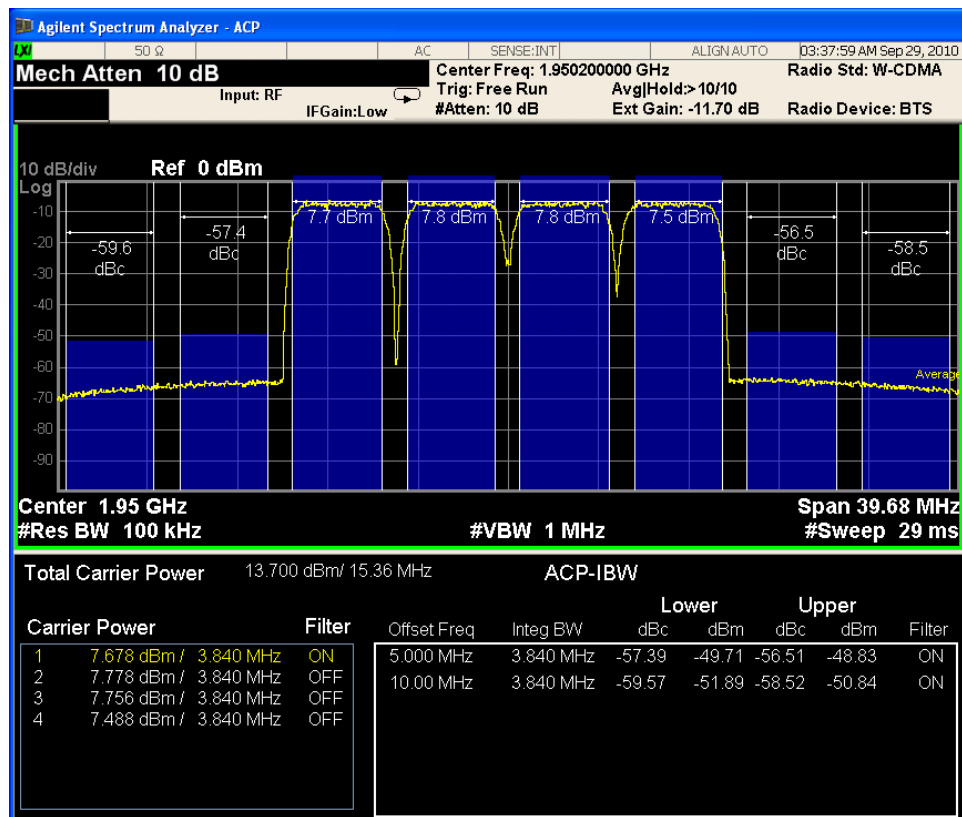
## 8.1 BT05CV\_WCDMA(1940~1980MHz)TestResult

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 1960          | 5          | 88          | 16.9         | 43.3                         | 23.8          | 20.6        | 21.7        | 5          |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset



## 8.2 BT05CV\_WCDMA(1940~1980MHz) ACLR

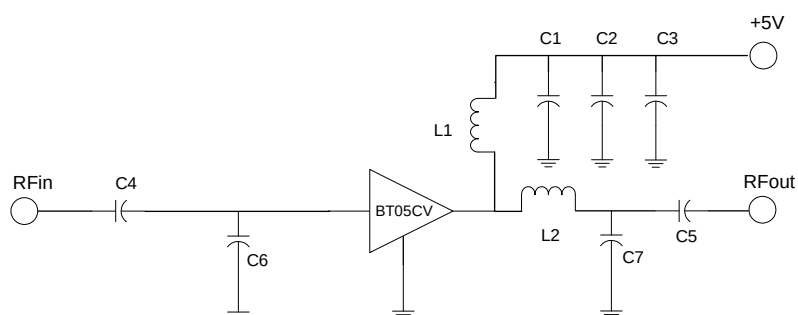
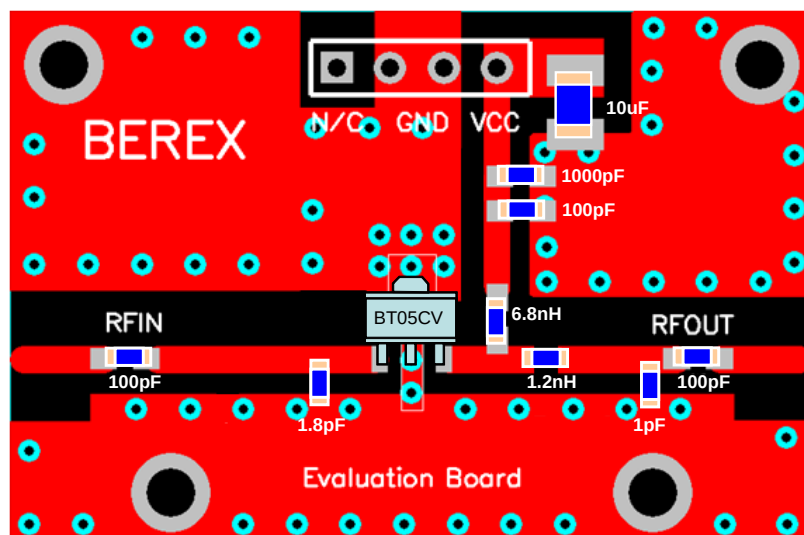


[Test condition]

⇒ 4FA@Output power 13.7dBm



## 9 BT05CV\_WCDMA(2130~2170MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 1.0mm
3. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 8mm
4. The distance between the center of the series Inductor(L2) and the Output Pin of BT05CV is 3.8mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 1.8pF  | Samsung  |
| C7        | 0603 CAP                 | 1pF    | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 6.8nH  | Ceratech |
| L2        | 0603 IND                 | 1.2nH  | Ceratech |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

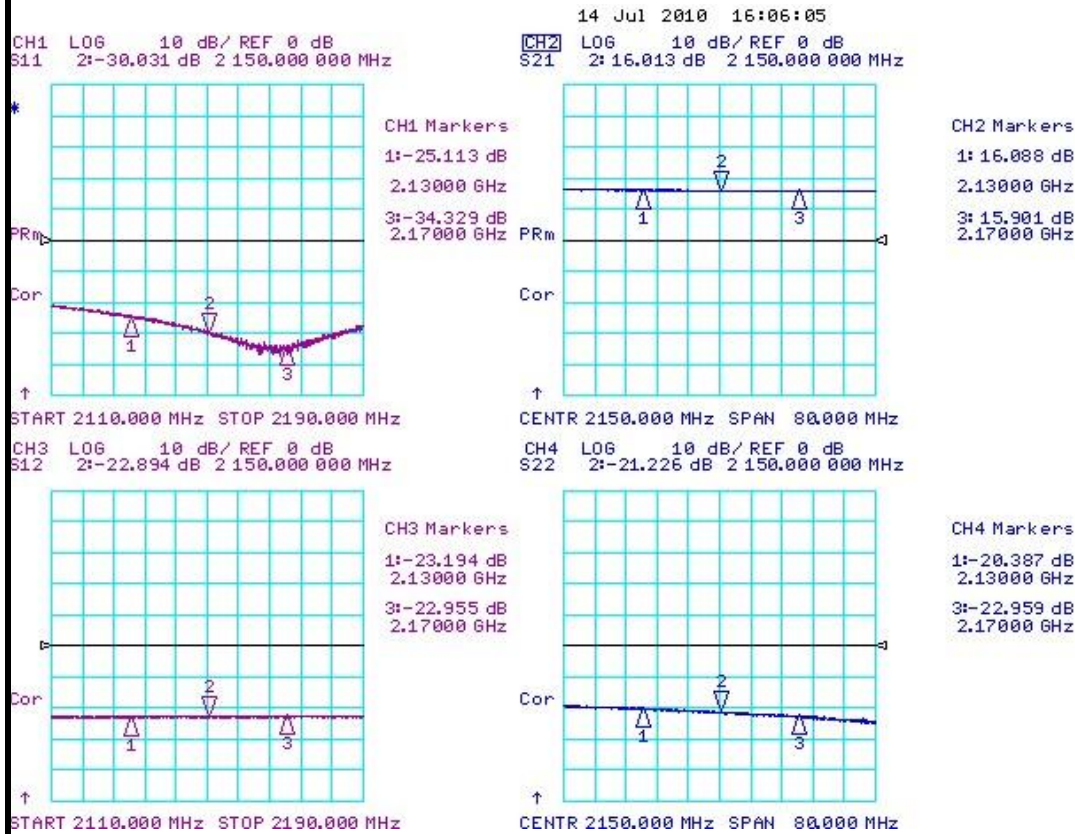
(2130~2170 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
|                |          |
| FILE NAME      | SHEET    |
|                |          |

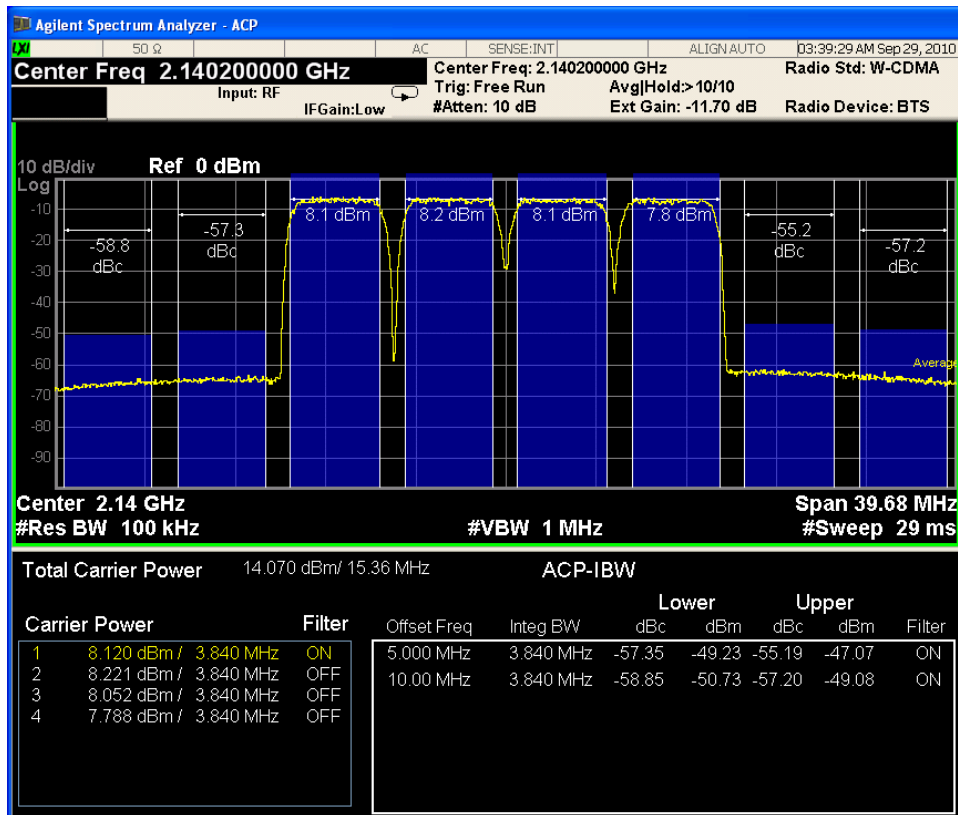
## 9.1 BT05CV\_WCDMA(2130~2170MHz) Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 2150          | 5          | 85          | 16.0         | 43.8                         | 24            | 30.0        | 21.2        | 5.2        |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset



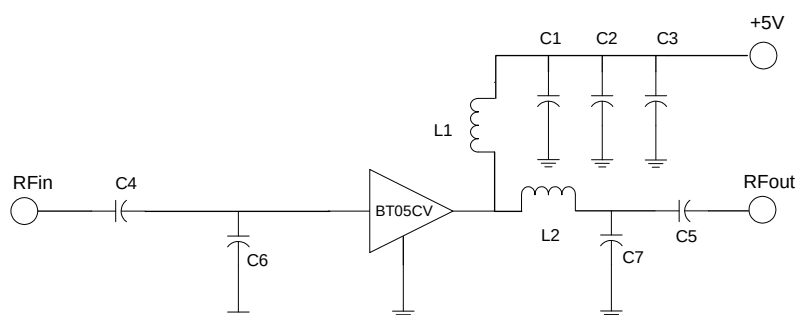
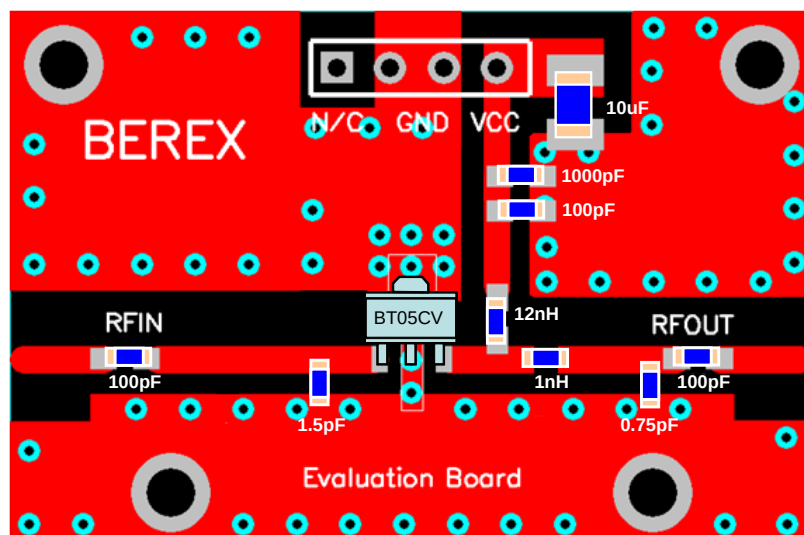
## 9.2 BT05CV\_ WCDMA(2130~2170MHz) ACLR



[Test condition]

⇒ 4FA@Output power 14.0dBm

## 10 BT05CV\_WIBRO(2300~2360MHz) Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the shunt cap(C6) and the Input Pin of BT05CV is 1.0mm
3. The distance between the center of the shunt cap(C7) and the Output Pin of BT05CV is 7.5mm
4. The distance between the center of the series Inductor(L2) and the Output Pin of BT05CV is 3.8mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 100pF  | Samsung  |
| C5        | 0603 CAP                 | 100pF  | Samsung  |
| C6        | 0603 CAP                 | 1.5pF  | Samsung  |
| C7        | 0603 CAP                 | 0.75pF | Samsung  |
| C8        | 0603 CAP                 | NA     |          |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 12nH   | Ceratech |
| L2        | 0603 IND                 | 1nH    | Ceratech |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

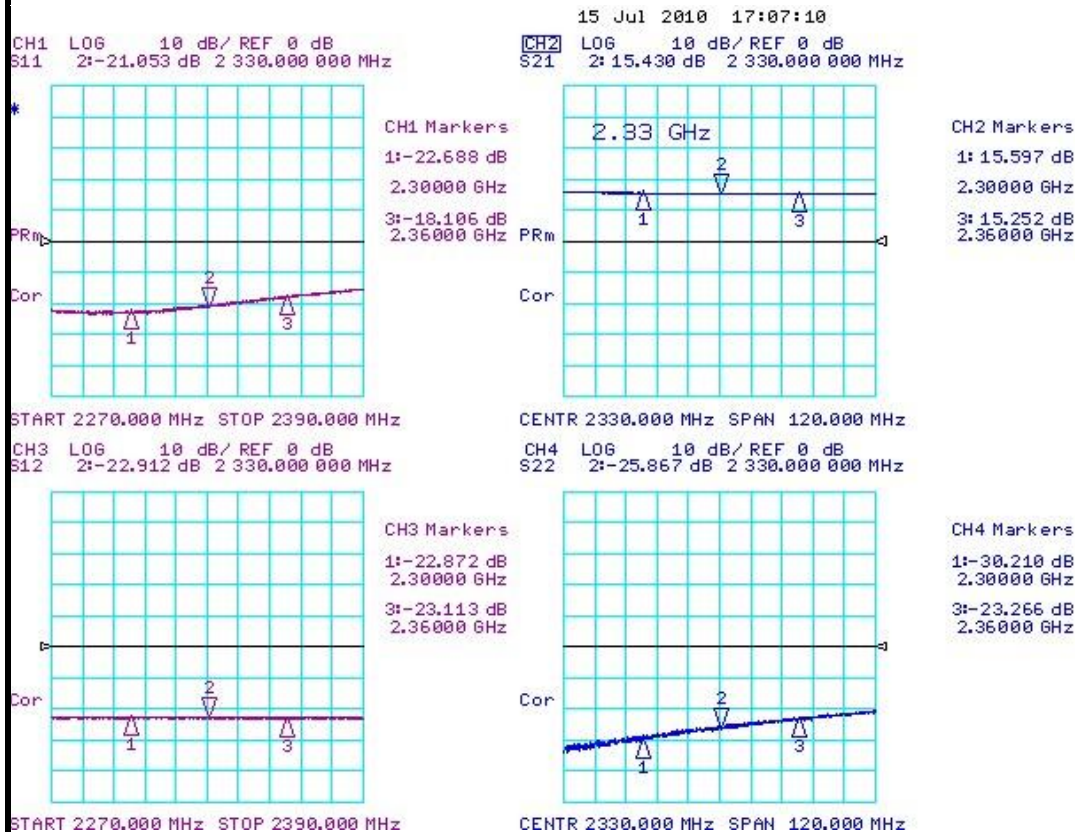
(2300~2360 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
|                |          |
| FILE NAME      | SHEET    |
|                |          |

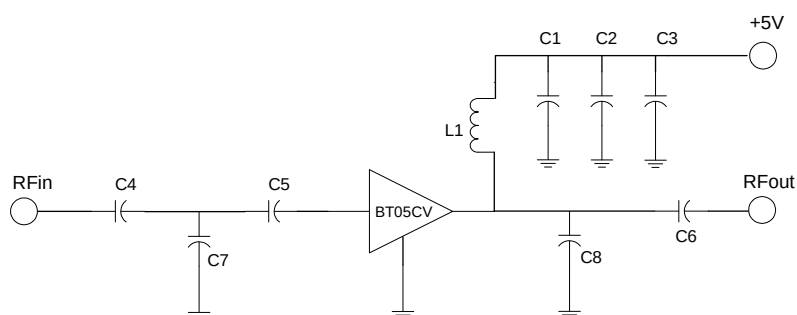
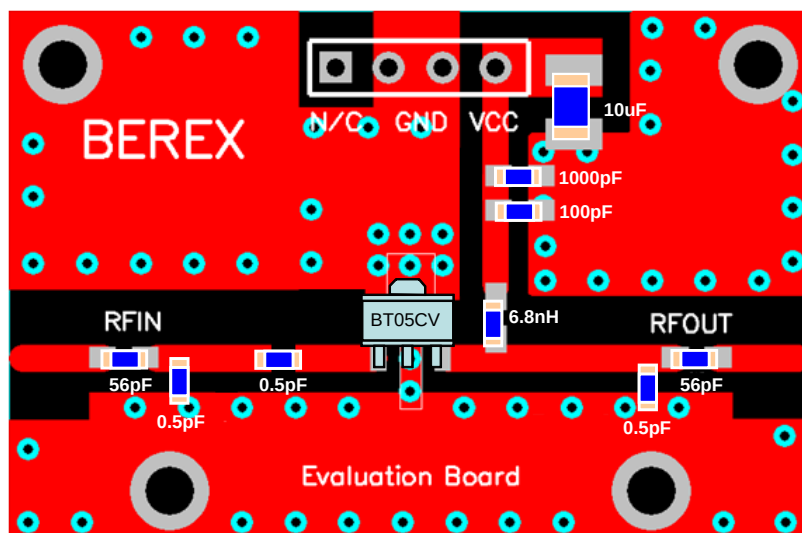
## 10.1 BT05CV\_WIBRO(2300~2360MHz) Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 2330          | 5          | 85          | 15.4         | 43.3                         | 24            | 21.0        | 25.8        | 5.2        |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset



## 11 BT05CV\_3500MHz Application Note



Note:

1. PCB: 31mil thick FR4
2. The distance between the center of the series cap(C5) and the Input Pin of BT05CV is 3.0mm
3. The distance between the center of the series cap(C7) and the Input Pin of BT05CV is 10mm
4. The distance between the center of the shunt cap(C8) and the Output Pin of BT05CV is 2.3mm

| Ref. Des. | Description/ Part Number | Values | Vendor   |
|-----------|--------------------------|--------|----------|
| C1        | 0603 CAP                 | 100pF  | Samsung  |
| C2        | 0603 CAP                 | 1000pF | Samsung  |
| C3        | A3216 CAP                | 10uF   | AVX      |
| C4        | 0603 CAP                 | 56pF   | Samsung  |
| C5        | 0603 CAP                 | 0.5pF  | Samsung  |
| C6        | 0603 CAP                 | 56pF   | Samsung  |
| C7        | 0603 CAP                 | 0.5pF  | Samsung  |
| C8        | 0603 CAP                 | 0.5pF  | Samsung  |
| C9        | 0603 CAP                 | NA     |          |
| C10       | 0603 CAP                 | NA     |          |
| C11       | 0603 CAP                 | NA     |          |
| C12       | 0603 CAP                 | NA     |          |
| L1        | 0603 IND                 | 6.8nH  | Ceratech |
| L2        | 0603 IND                 | NA     |          |
| L3        | 0603 IND                 | NA     |          |
| R1        | 0603 RES                 | NA     |          |
| U1        | SOT89 PKG                | BT05CV | BEREX    |
|           |                          |        |          |
|           |                          |        |          |

## TITLE

BT05CV Evaluation Board

(3500 MHz)

| Drawing Number | Rev.     |
|----------------|----------|
|                |          |
| Date           | Drawn By |
|                |          |
| FILE NAME      | SHEET    |
|                |          |

### 11.1 BT05CV\_3500MHz Test Result

| SN | Freq<br>[MHz] | Vcc<br>[V] | Icc<br>[mA] | Gain<br>[dB] | OIP3<br>[dBm] <sup>(1)</sup> | P1dB<br>[dBm] | IRL<br>[dB] | ORL<br>[dB] | NF<br>[dB] |
|----|---------------|------------|-------------|--------------|------------------------------|---------------|-------------|-------------|------------|
|    | 3500          | 5          | 84          | 12.6         | 40.9                         | 24.2          | 27.6        | 23.1        | 5.4        |

(1) OIP3 was tested @Pout=9dBm/tone 1MHz offset

