

1. RF MMIC Innovator

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[Classification] Application Note

[Date] 2015.06

[Revision No.] Rev.A

[Measuring Instruments]

- NA_Agilent 8753ES

- SA_Agilent E4440A

- SG_Agilent 4438C

- SG_IFR 3416

Wide Band Drive Amp BT09E

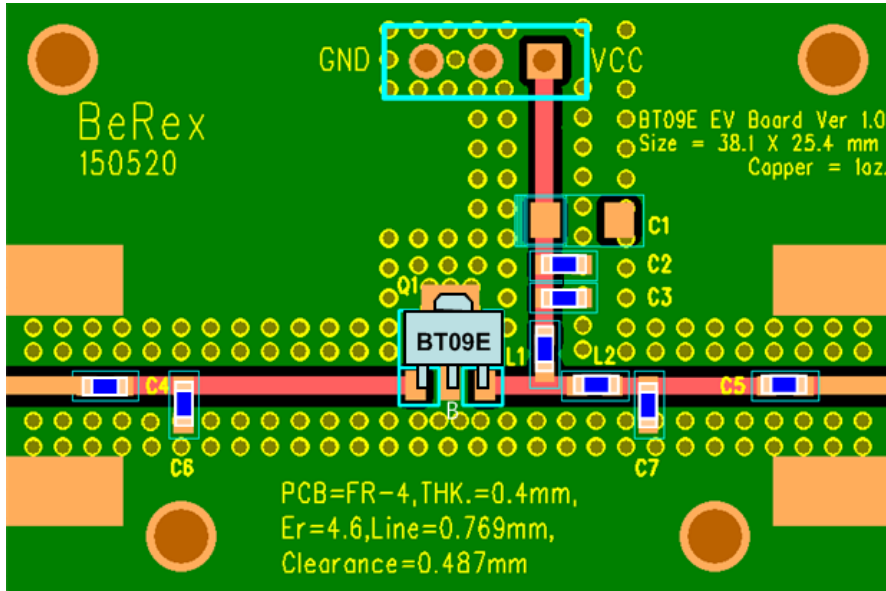
Application Note



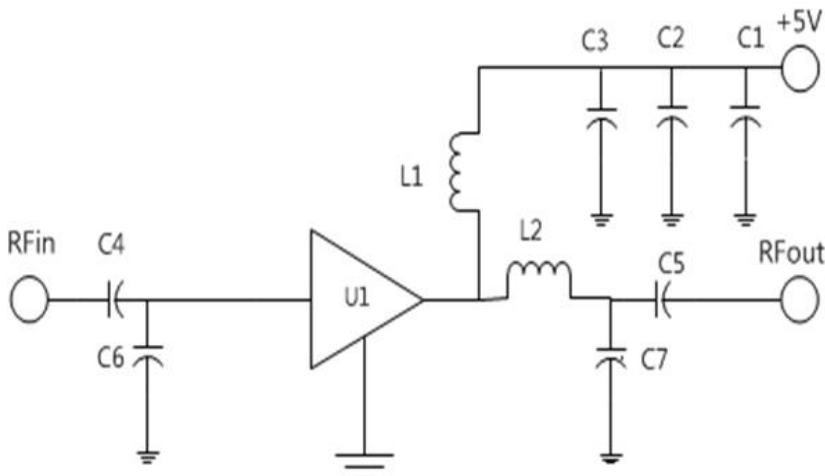
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1. BT09E_738MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	3216 CAP	-	
C2	1608 CAP	1uF	Samsung
C3	1608 CAP	100pF	Samsung
C4	1608 CAP	100pF	Samsung
C5	1608 CAP	100pF	Samsung
C6	1608 CAP	10pF	Samsung
C7	1608 CAP	2.7pF	Samsung
L1	1608 IND	33nH	Taiyo Yuden
L2	1608 IND	4.7nH	Taiyo Yuden
U1	SOT89PKG	BT09E	BEREX



TITLE	
BT09E Evaluation Board	
(738 MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

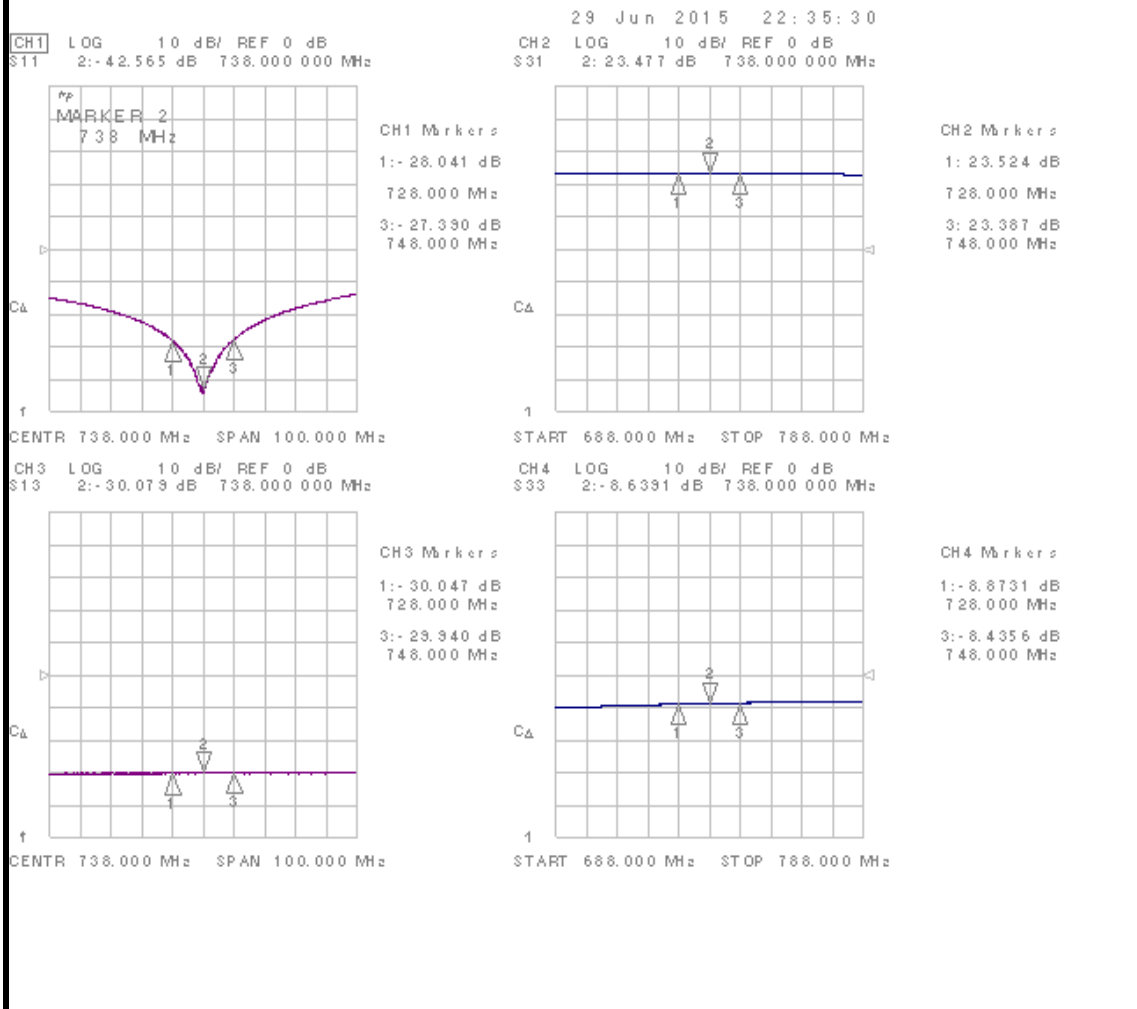
Note: _PCB: 31mil thick FR4

1. The distance between the edge of the shunt cap(C6) and the Input Pin of BT09E is 8.9mm
2. The distance between the edge of the series ind(L2) and the Output Pin of BT09E is 3.5mm
3. The distance between the edge of the shunt cap(C7) and the Output Pin of BT09E is 5.6mm

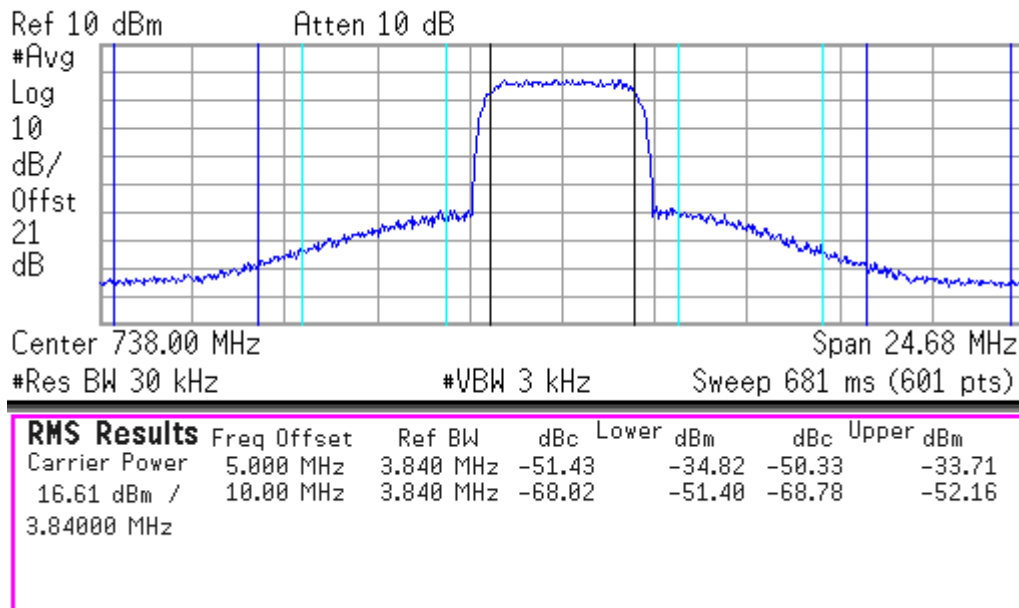
1.1 BT09E_738MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	738	5	82	23.4	42	26.5	-42.5	-8.6	4.7

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



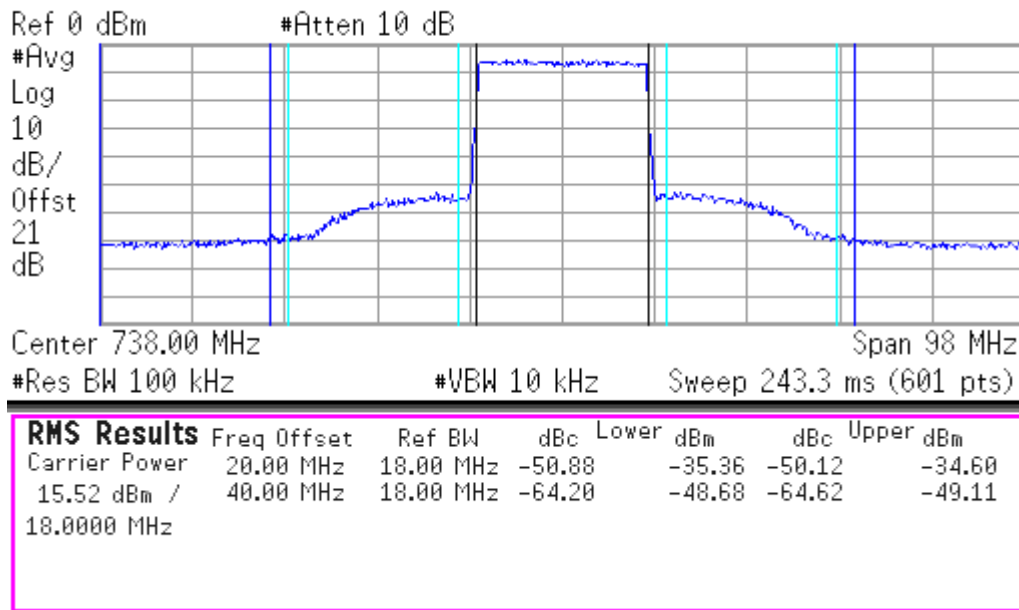
1.2 BT09E_ 738MHz WCDMA 1FA ACLR



[Test condition]

⇒ -50dBc@Output power 16.6dBm

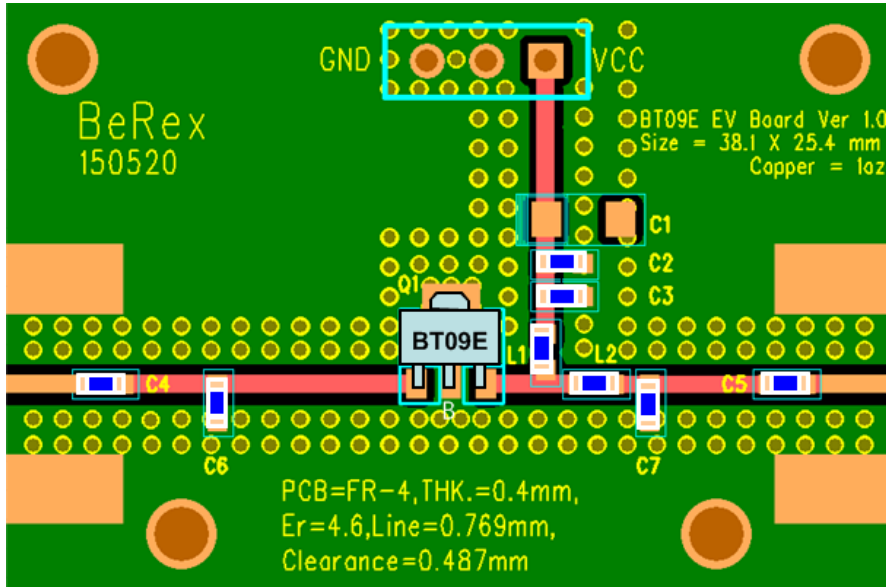
1.3 BT09E_ 738MHz LTE 20MHz ACLR



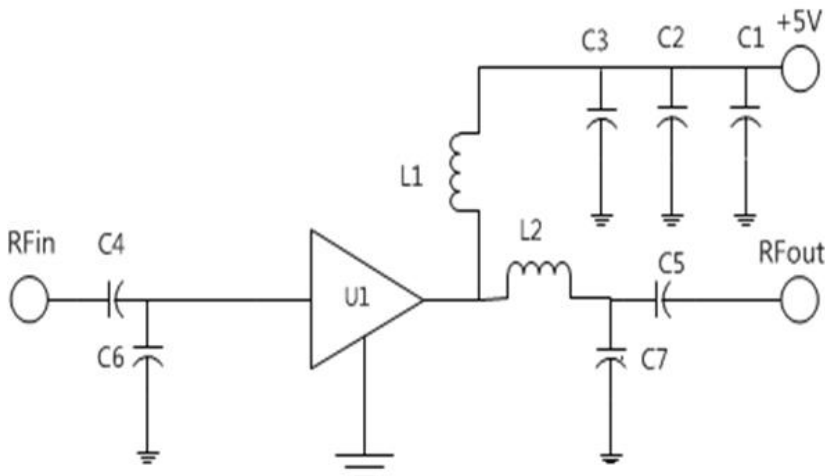
[Test condition]

⇒ -50dBc@Output power 15.5dBm

2. BT09E_793MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	3216 CAP	-	
C2	1608 CAP	1uF	Samsung
C3	1608 CAP	100pF	Samsung
C4	1608 CAP	100pF	Samsung
C5	1608 CAP	100pF	Samsung
C6	1608 CAP	9pF	Samsung
C7	1608 CAP	2.2pF	Samsung
L1	1608 IND	33nH	Taiyo Yuden
L2	1608 IND	3.9nH	Taiyo Yuden
U1	SOT89 PKG	BT09E	BEREX



Note: _PCB: 31mil thick FR4

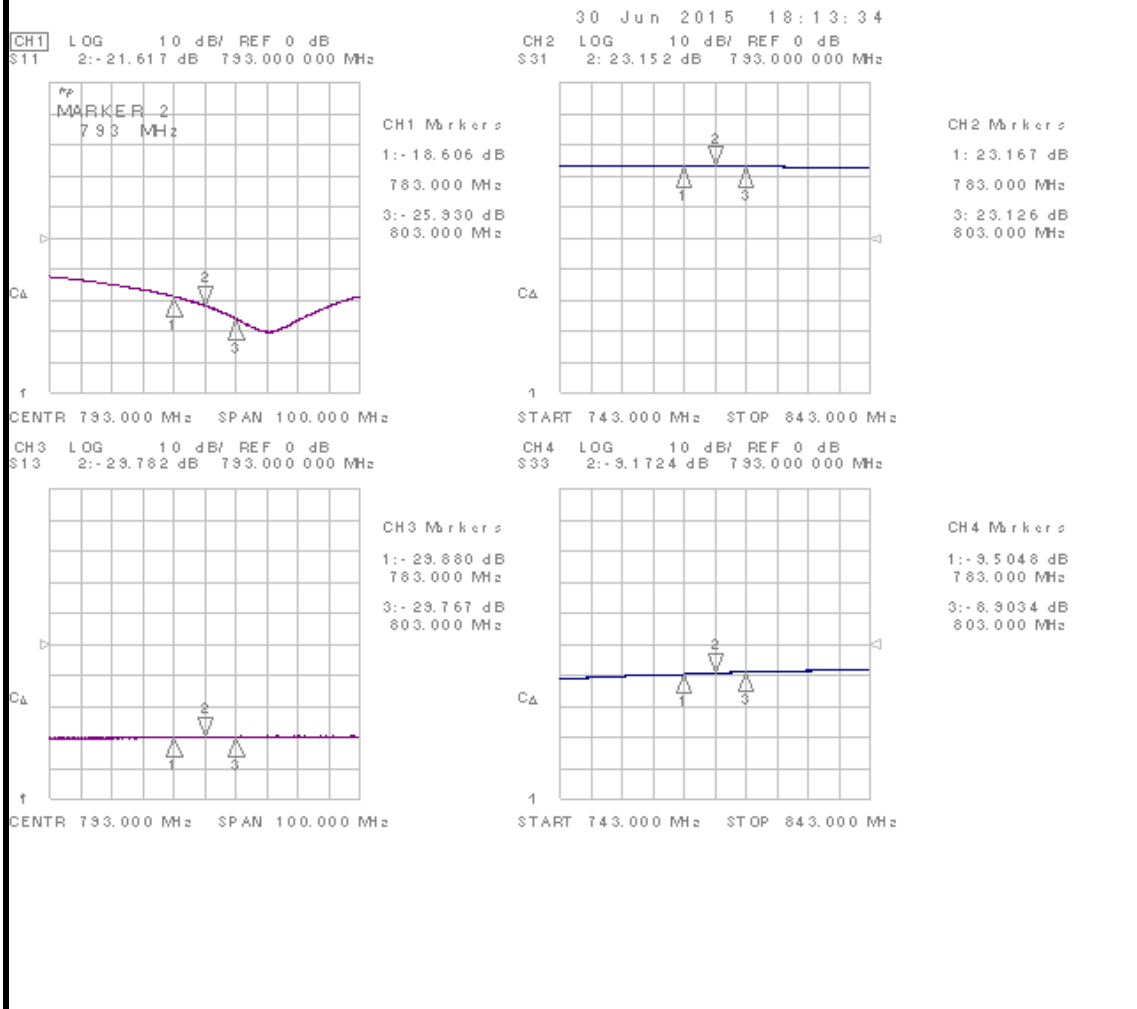
4. The distance between the edge of the shunt cap(C6) and the Input Pin of BT09E is 7.6mm
5. The distance between the edge of the series ind(L2) and the Output Pin of BT09E is 3.5mm
6. The distance between the edge of the shunt cap(C7) and the Output Pin of BT09E is 5.6mm

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BT09E Evaluation Board	
(793 MHz)	
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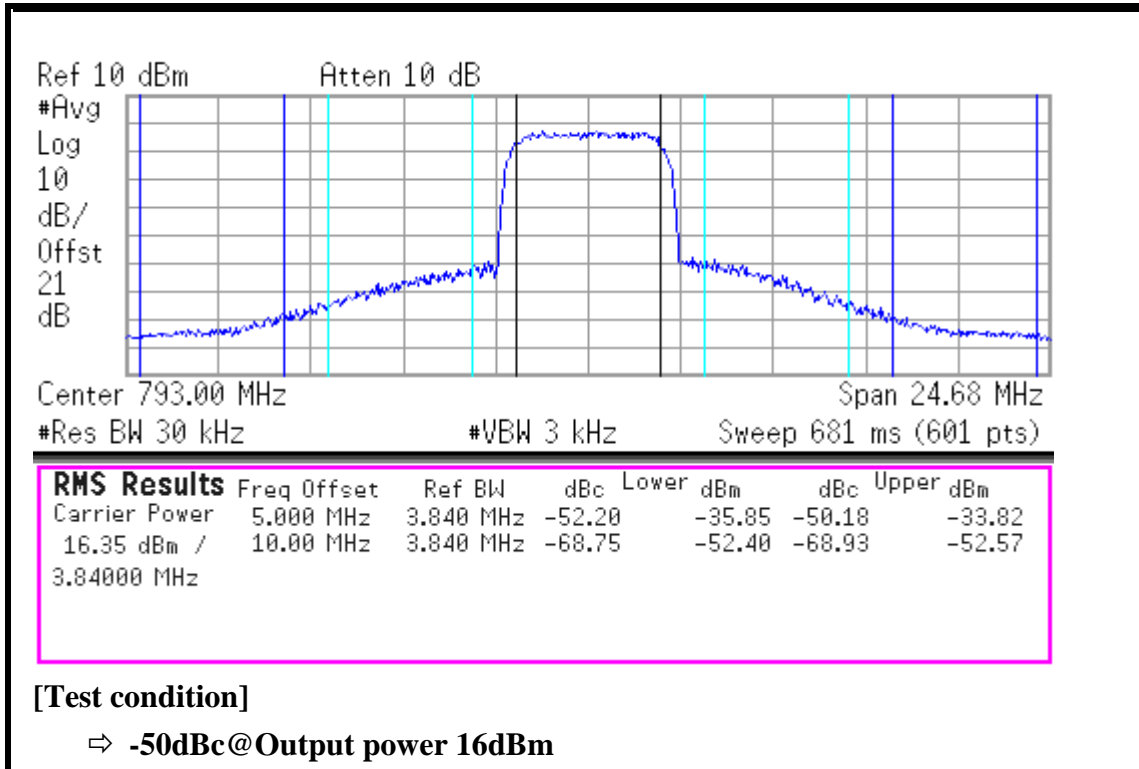
2.1 BT09E_793MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	875	5	84	23.1	41.6	26.5	-21.6	-9.1	4.5

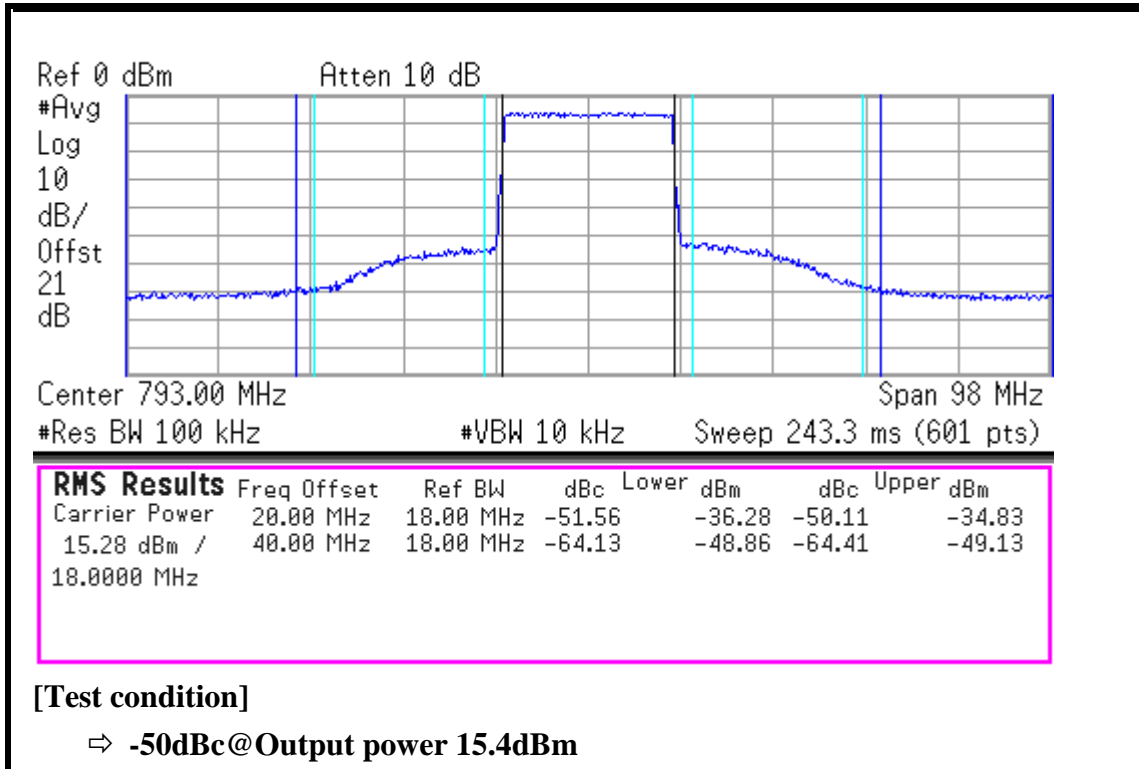
(1) OIP3 was tested @Pout=10dBm/tone 1MHz offset



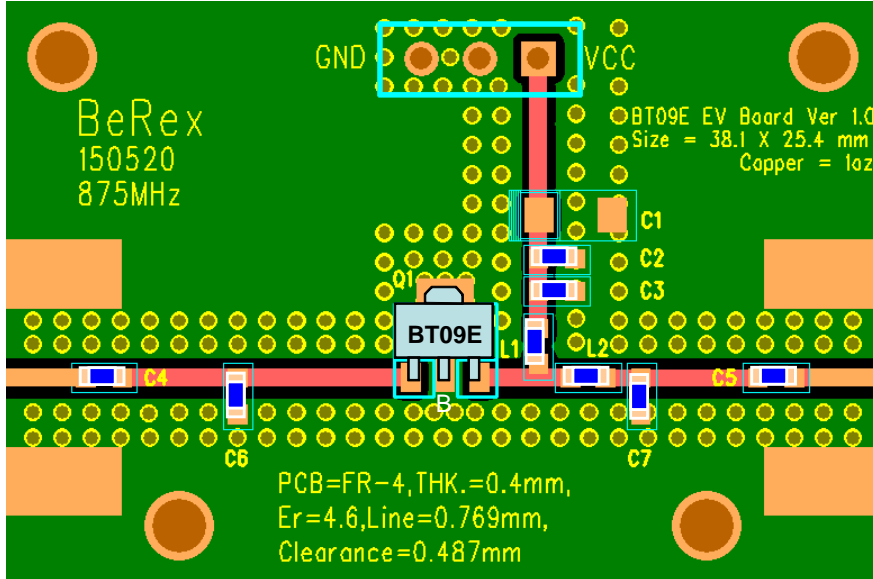
2.2 BT09E_ 793MHz WCDMA 1FA ACLR



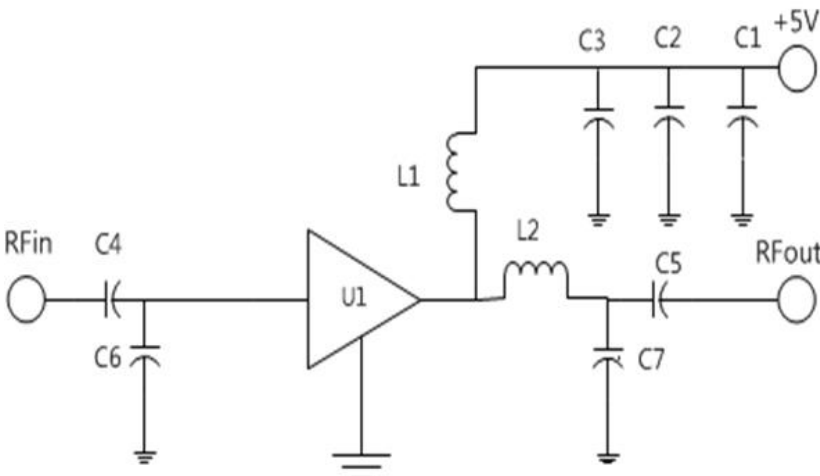
2.3 BT09E_ 793MHz LTE 20MHz ACLR



3. BT09E_875MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	3216 CAP	-	
C2	1608 CAP	1uF	Samsung
C3	1608 CAP	100pF	Samsung
C4	1608 CAP	100pF	Samsung
C5	1608 CAP	100pF	Samsung
C6	1608 CAP	8.2pF	Samsung
C7	1608 CAP	2pF	Samsung
L1	1608 IND	33nH	Taiyo Yuden
L2	1608 IND	4.7nH	Taiyo Yuden
U1	SOT89 PKG	BT09E	BEREX



Note: _PCB: 31mil thick FR4

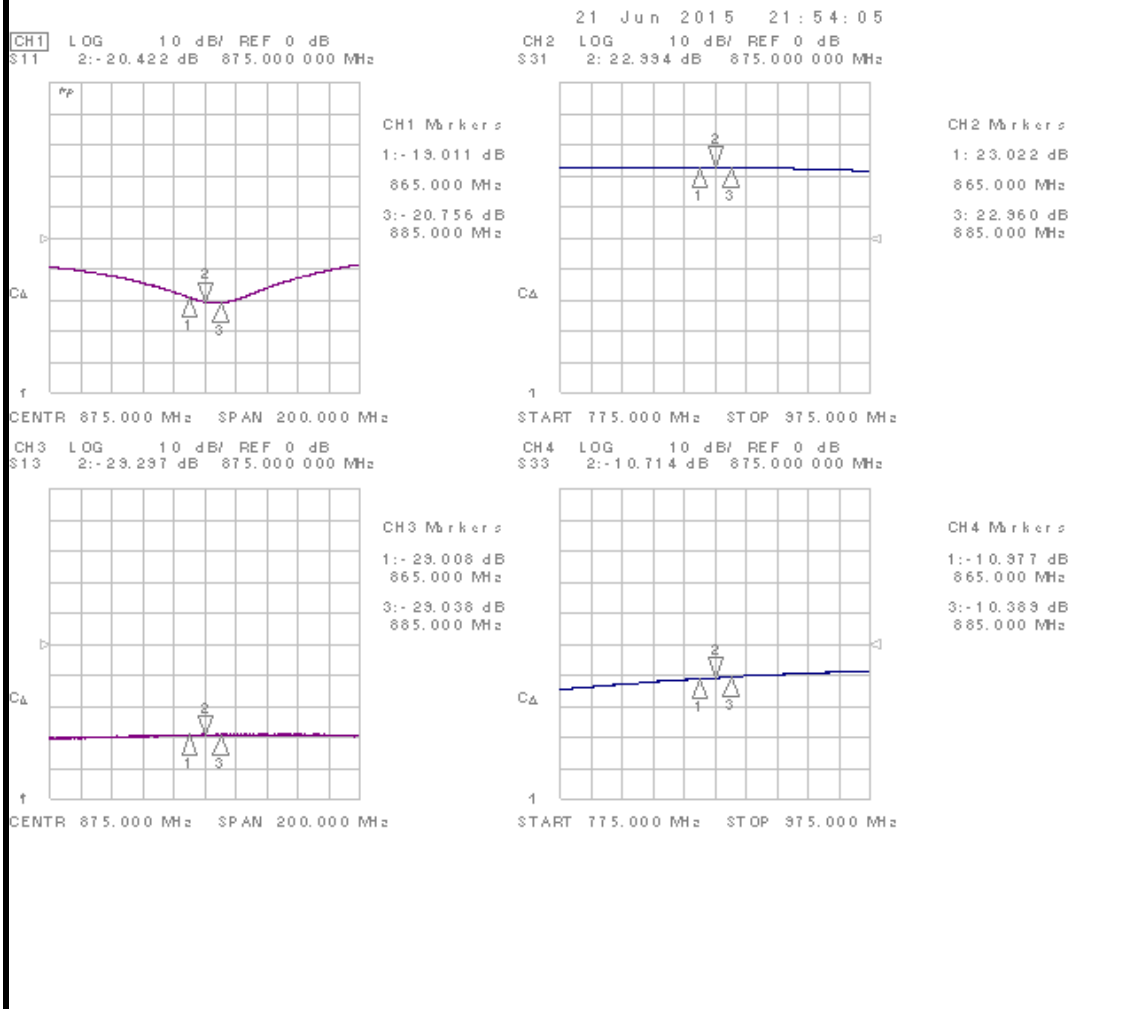
7. The distance between the edge of the shunt cap(C6) and the Input Pin of BT09E is 6.7mm
8. The distance between the edge of the series ind(L2) and the Output Pin of BT09E is 3.5mm
9. The distance between the edge of the shunt cap(C7) and the Output Pin of BT09E is 5.6mm

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BT09E Evaluation Board	
(875 MHz)	
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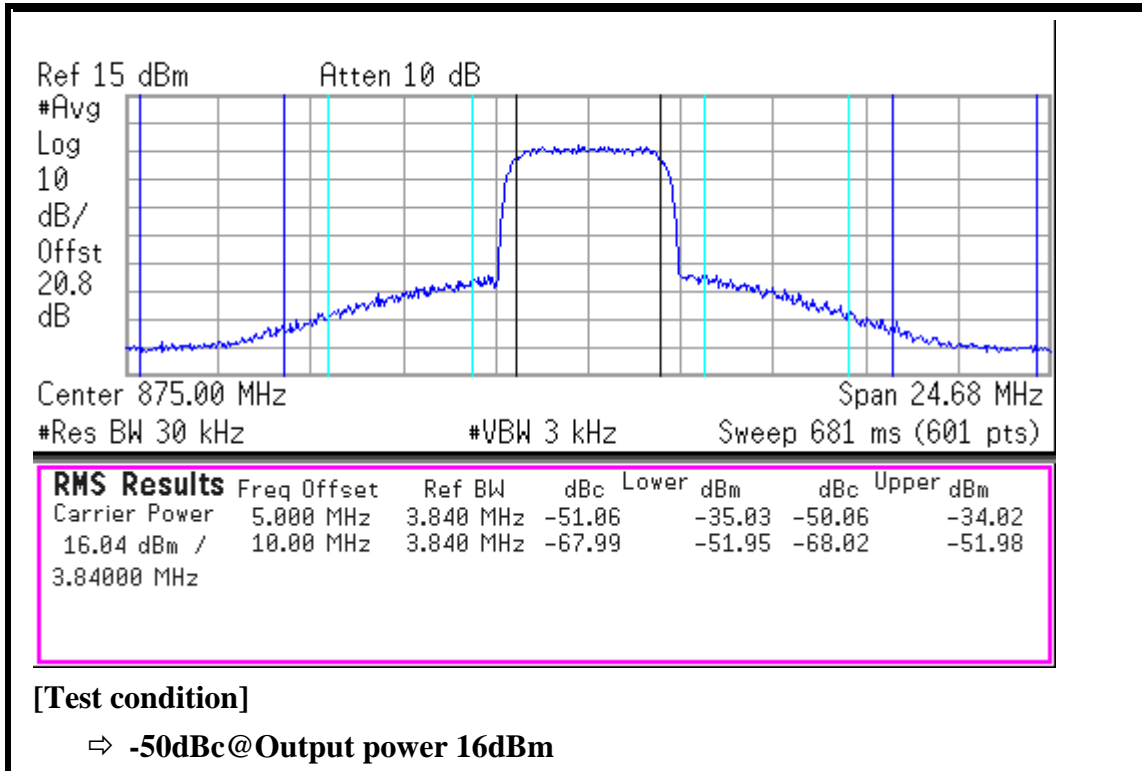
3.1 BT09E_875MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] ⁽¹⁾	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	875	5	84	23	40	25.7	-20.4	-10.7	4.3

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



3.2 BT09E_ 875MHz WCDMA 1FA ACLR



3.3 BT09E_ 875MHz LTE 20MHz ACLR

