

RF MMIC Innovator

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[CLASSIFICATION] APPLICATION NOTE

[DATE] 2015. 01

[REVISION No.] REV.A

[MEASURING INSTRUMENTS]

- NA\_AGILENT E5071B

- SA\_AGILENT E4440B

- SG\_AGILENT 4438C

- SG\_IFR 3416

## Wide Band Drive Amp BT09VG

### Application Note



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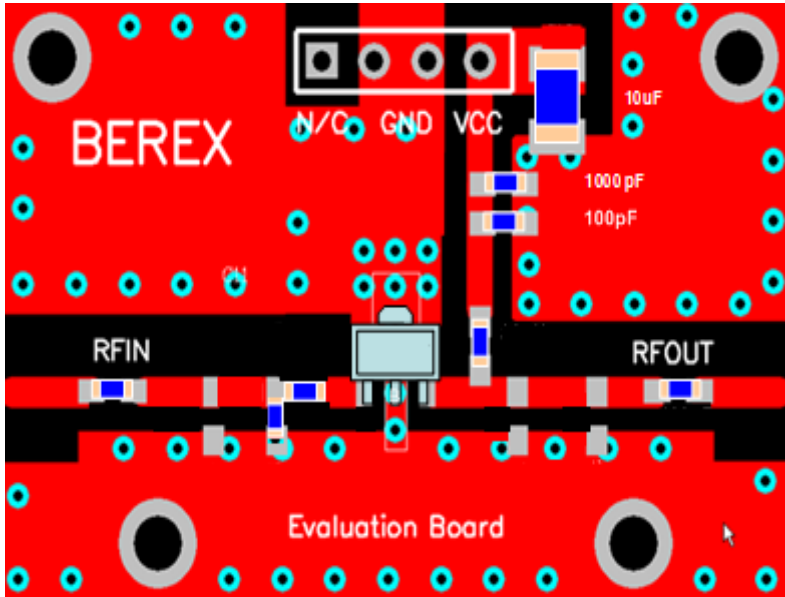
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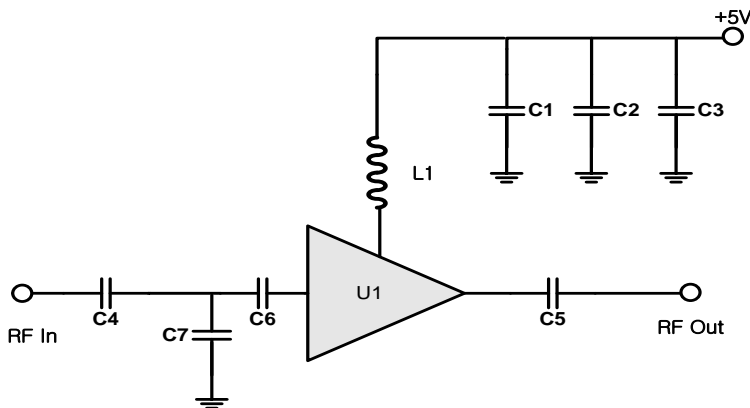
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1. BT09VG\_ 3500MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	0603 CAP	100pF	Samsung
C2	0603 CAP	1nF	Samsung
C3	A3216 CAP	10uF	AVX
C4	0603 CAP	22pF	Samsung
C5	0603 CAP	22pF	Samsung
C6	0603 CAP	0.5pF	Samsung
C7	0603 CAP	0.5pF	Samsung
L1	0603 IND	22nH	Ceratech
U1	SOT89 PKG	BT09VG	BEREX



Note:

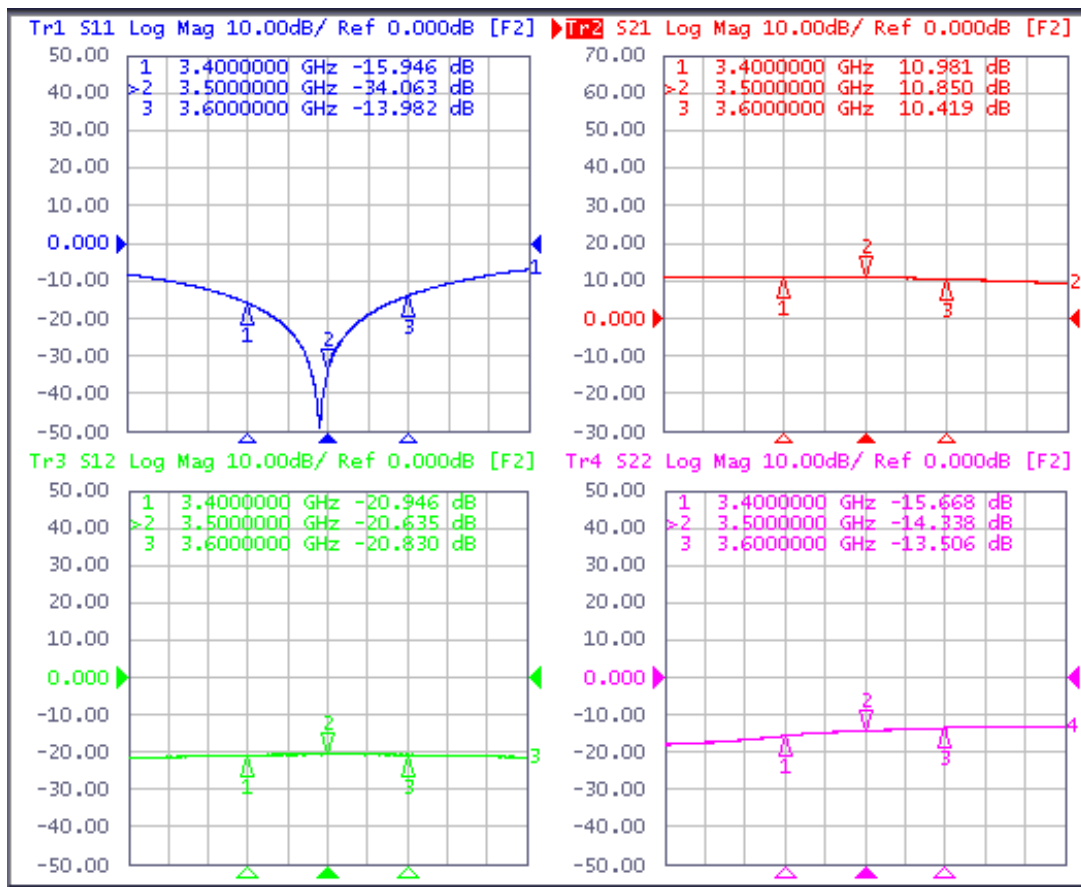
1. PCB: 31mil thick FR4

TITLE	
BT09VG Evaluation Board	
(3500MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

1.1 BT09VG\_3500MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
-	3400	5	145	10.9	40.0	25.1	-15.9	-15.6	5.0
-	3500	5	145	10.8	40.1	25.1	-34.0	-14.3	5.2
-	3600	5	145	10.4	40.2	25.2	-13.9	-13.5	5.3

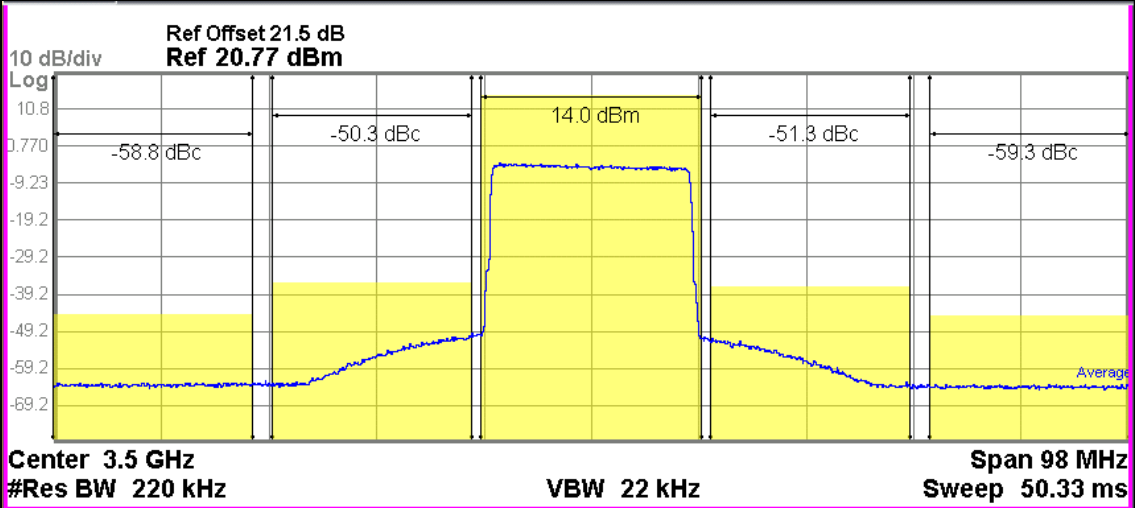
(1) OIP3 was tested @Pout=13dBm/tone 1MHz offset



### 1.2 LTE\_20MHz\_ACLR Test Result

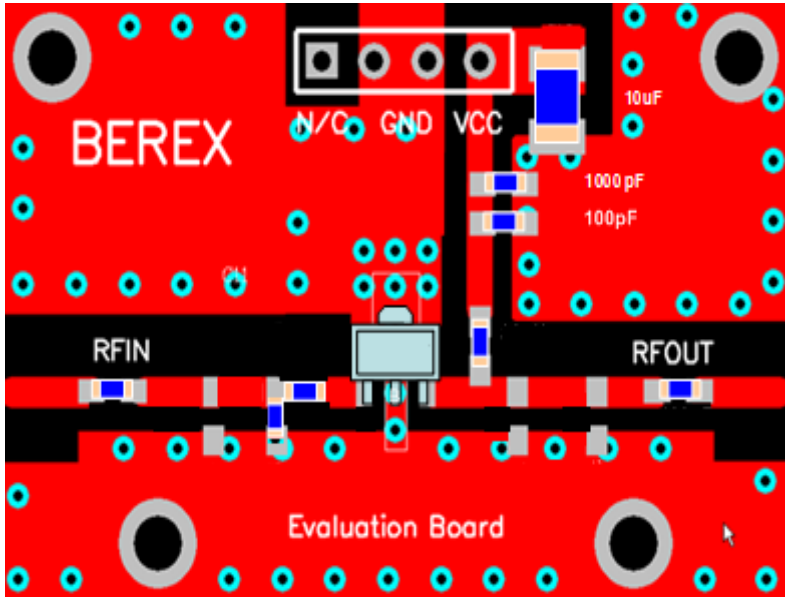
Out Power : 14.0 dBm

LTE\_FDD\_20MHz\_TM 3.1\_100% : 3500MHz -50dBc

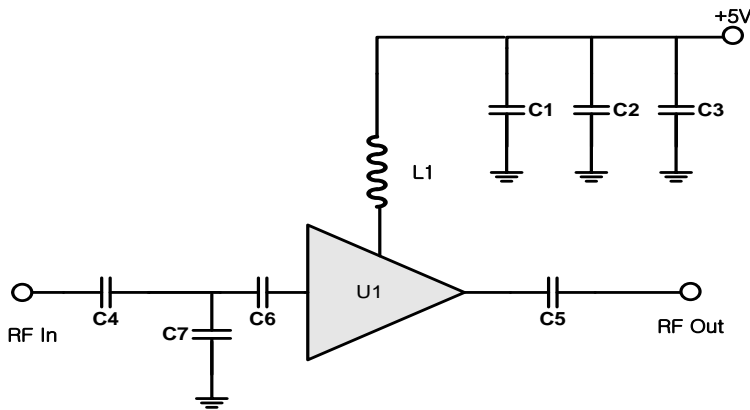


Total Carrier Power		14.026 dBm/ 20.00 MHz		ACP-IBW					
Carrier Power	Filter	Offset Freq	Integ BW	Lower		Upper		Filter	
1	14.026 dBm / 20.00 MHz	OFF		dBc	dBm	dBc	dBm	Filter	
		20.00 MHz	18.00 MHz	-50.27	-36.24	-51.31	-37.29	OFF	
		40.00 MHz	18.00 MHz	-58.85	-44.82	-59.33	-45.30	OFF	

2. BT09VG\_ 3700MHz Application Note



Ref. Des.	Description/ Part Number	Values	Vendor
C1	0603 CAP	100pF	Samsung
C2	0603 CAP	1nF	Samsung
C3	A3216 CAP	10uF	AVX
C4	0603 CAP	22pF	Samsung
C5	0603 CAP	22pF	Samsung
C6	0603 CAP	0.3pF	Samsung
C7	0603 CAP	0.3pF	Samsung
L1	0603 IND	22nH	Ceratech
U1	SOT89 PKG	BT09VG	BEREX



Note:

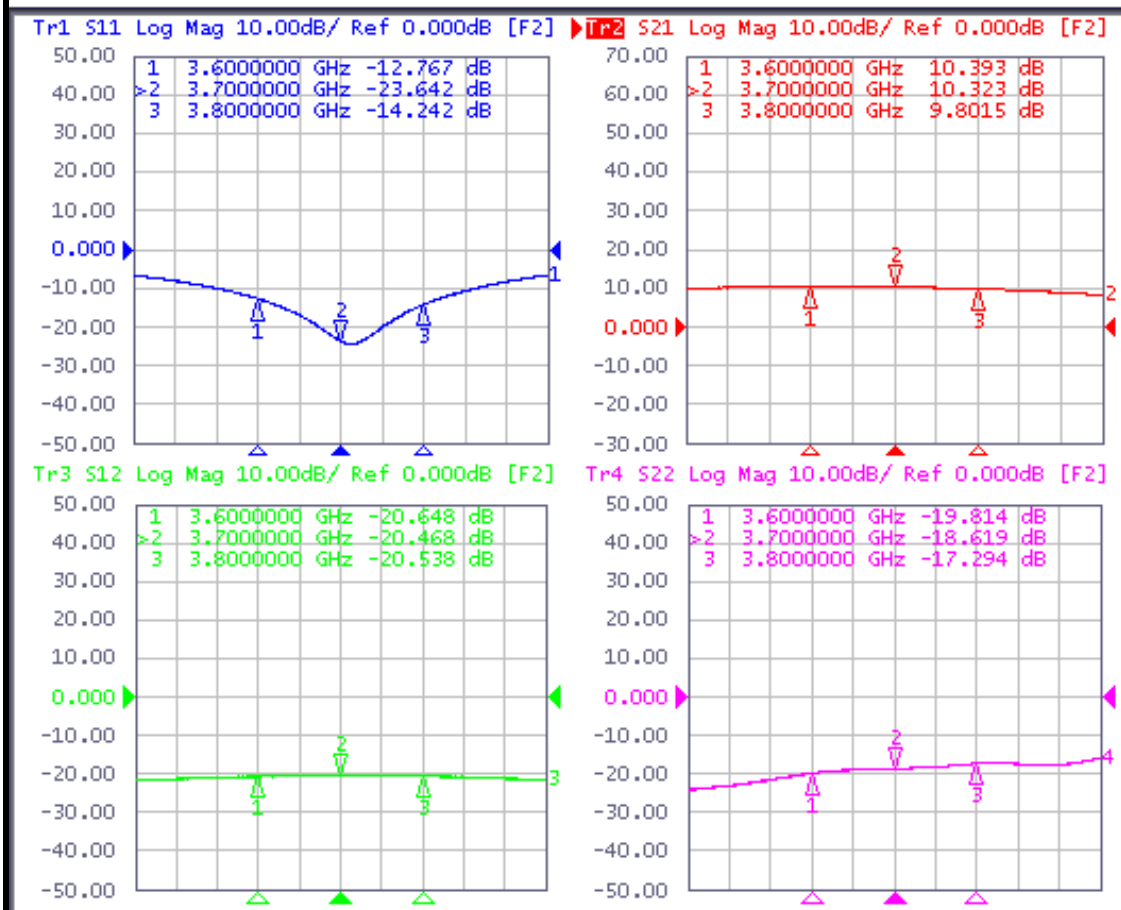
- 2. PCB: 31mil thick FR4

TITLE	
BT09VG Evaluation Board	
(3700MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

2.1 BT09VG\_3700MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
-	3600	5	143	10.4	40.2	25.2	-12.7	-19.8	5.3
-	3700	5	143	10.3	40.3	25.3	-23.6	-18.6	5.4
-	3800	5	143	9.8	40.3	25.3	-14.2	-17.3	5.4

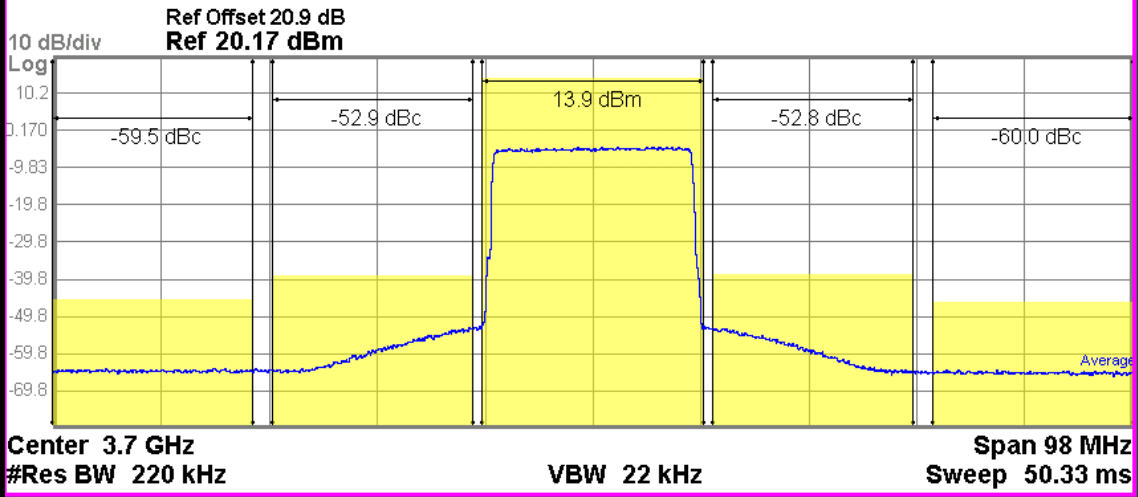
(1) OIP3 was tested @Pout=13dBm/tone 1MHz offset



### 2.2 LTE\_20MHz\_ACLR Test Result

Out Power : 13.9 dBm

LTE\_FDD\_20MHz\_TM 3.1\_100% : 3700MHz -50dBc



Total Carrier Power		13.916 dBm / 20.00 MHz		ACP-IBW					
Carrier Power	Filter	Offset Freq	Integ BW	Lower dBc	Lower dBm	Upper dBc	Upper dBm	Filter	
1	13.916 dBm / 20.00 MHz	20.00 MHz	18.00 MHz	-52.89	-38.98	-52.76	-38.84	OFF	
		40.00 MHz	18.00 MHz	-59.48	-45.56	-59.98	-46.06	OFF	