

1. RF MMIC Innovator

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[CLASSIFICATION] APPLICATION NOTE

[DATE] 2016.03

[REVISION NO.] REV.A

[MEASURING INSTRUMENTS]

- NA\_AGILENT 8753ES

- SA\_AGILENT E4440A

- SG\_AGILENT 4438C

- SG\_IFR 3416

# High Power Amp BMT332

## Low current (500mA)

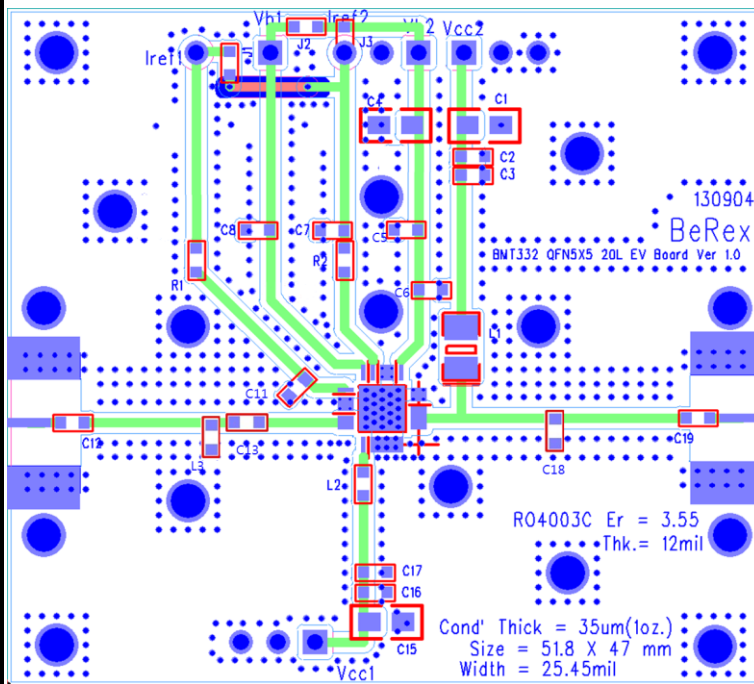
### Application Note



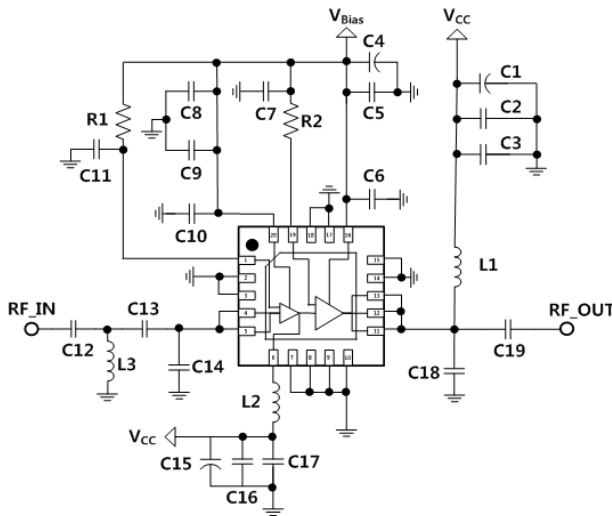
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1. BMT332\_850MHz Low current (500mA) Application Note



BOM			Marks
C1	1206	10uF	Tantalum
C2	0603	1nF	Samsung
C3	0603	100pF	Samsung
C4	1206	10uF	Tantalum
C5	0603	1 nF	Samsung
C6	0603	2.7pF	Samsung
C7	0603	1nF	Samsung
C8	0603	1nF	Samsung
C9		N/C	
C10		N/C	
C11	0603	27pF	Samsung
C12	0603	100pF	Samsung
C13	0603	5pF	Samsung
C14		N/C	
C15	1206	10uF	Tantalum
C16	0603	1nF	Samsung
C17	0603	100pF	Samsung
C18	0603	10pF	High Q
C19	0603	100pF	Samsung
L1	0603	100nH	Coil
L2	0603	100nH	Samsung
L3	0603	5.6nH	Samsung
R1	0603	330Ω	Samsung
R2	0603	150Ω	Samsung



Note:

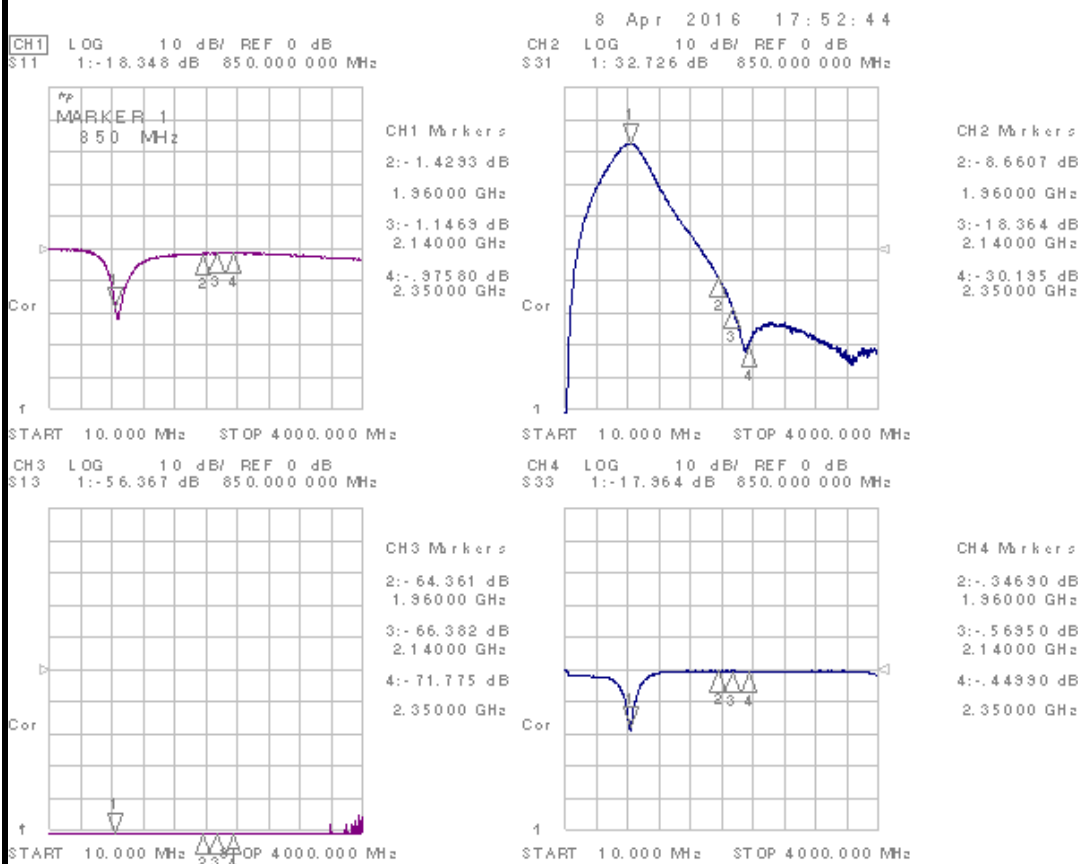
Reference	Object	Distance
Input pin	L3	9.4mm
Input pin	C13	6.6mm
Output pin	C18	8.9mm
Pin16	C5	10mm
Pin16	C6	5.5mm
Pin20	C8	12mm

TITLE	
BMT332 Evaluation Board	
(850 MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

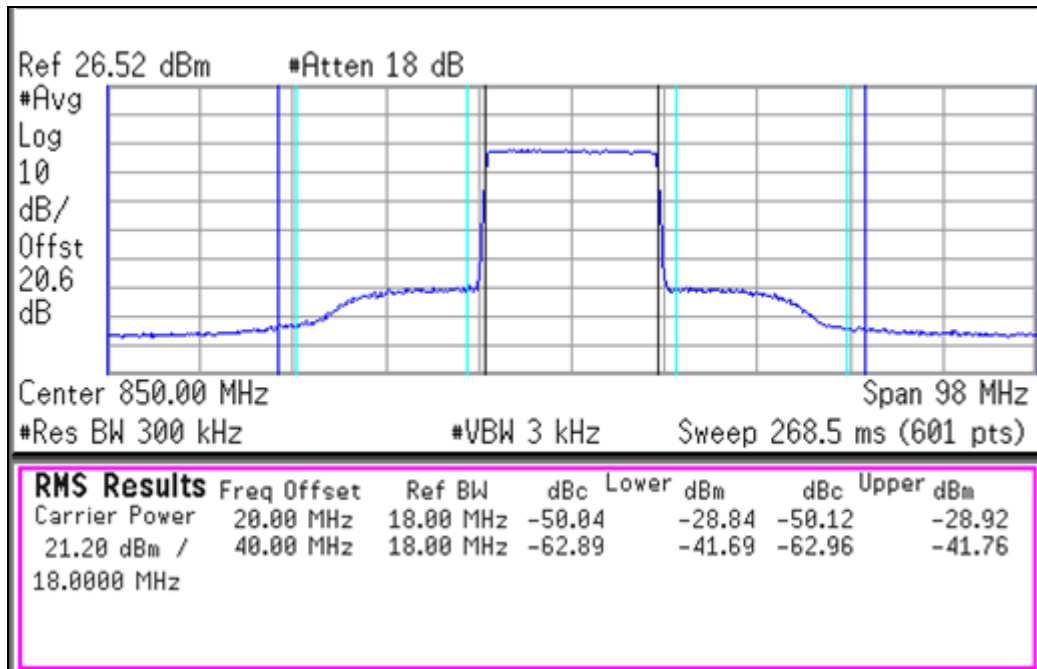
1.1 BMT332\_850MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	850	5	507	32.7	46	33	-18.3	-17.3	6.9

(1) OIP3 was tested @Pout=23dBm/tone 1MHz offset



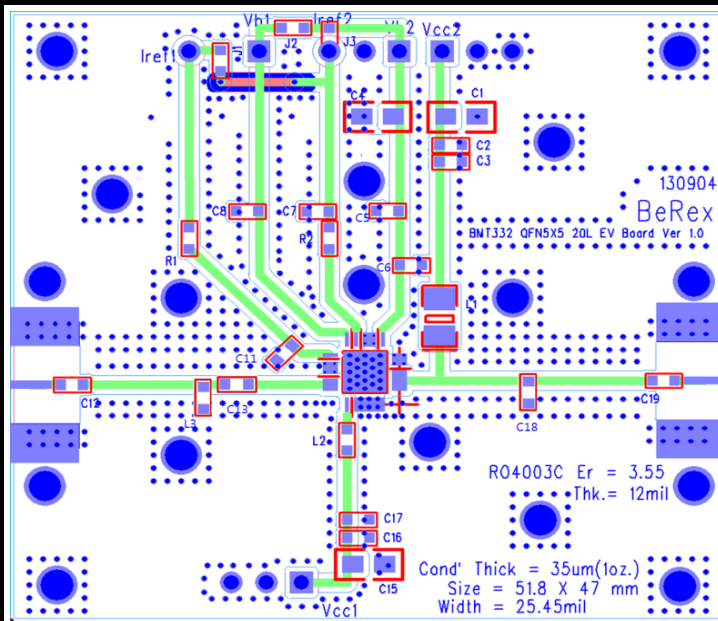
## 1.2 BMT332\_ 850MHz LTE 20MHz ACLR



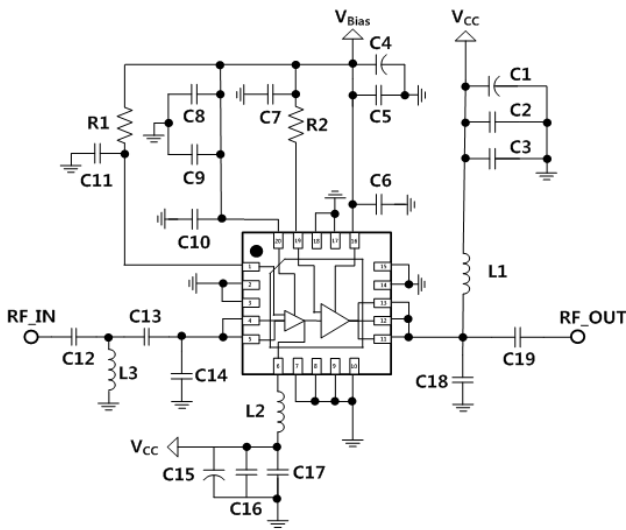
[Test condition]

⇒ -50dBc@Output power 21.2dBm

2. BMT332\_1960MHz Low current (500mA) Application Note



BOM			Marks
C1	1206	10uF	Tantalum
C2	0603	1nF	Samsung
C3	0603	100pF	Samsung
C4	1206	10uF	Tantalum
C5	0603	1 nF	Samsung
C6	0603	1.8pF	Samsung
C7	0603	1nF	Samsung
C8	0603	1nF	Samsung
C9	0603	1pF	Samsung
C10		N/C	
C11	0603	1nF	Samsung
C12	0603	33pF	Samsung
C13	0603	3.3pF	Samsung
C14	0603	2.7pF	Samsung
C15	1206	10uF	Tantalum
C16	0603	1nF	Samsung
C17	0603	100pF	Samsung
C18	0603	3.9pF	High Q
C19	0603	33pF	Samsung
L1	0603	33nH	Coil
L2	0603	12nH	Samsung
L3		N/A	
R1	0603	330Ω	Samsung
R2	0603	150Ω	Samsung



Note:

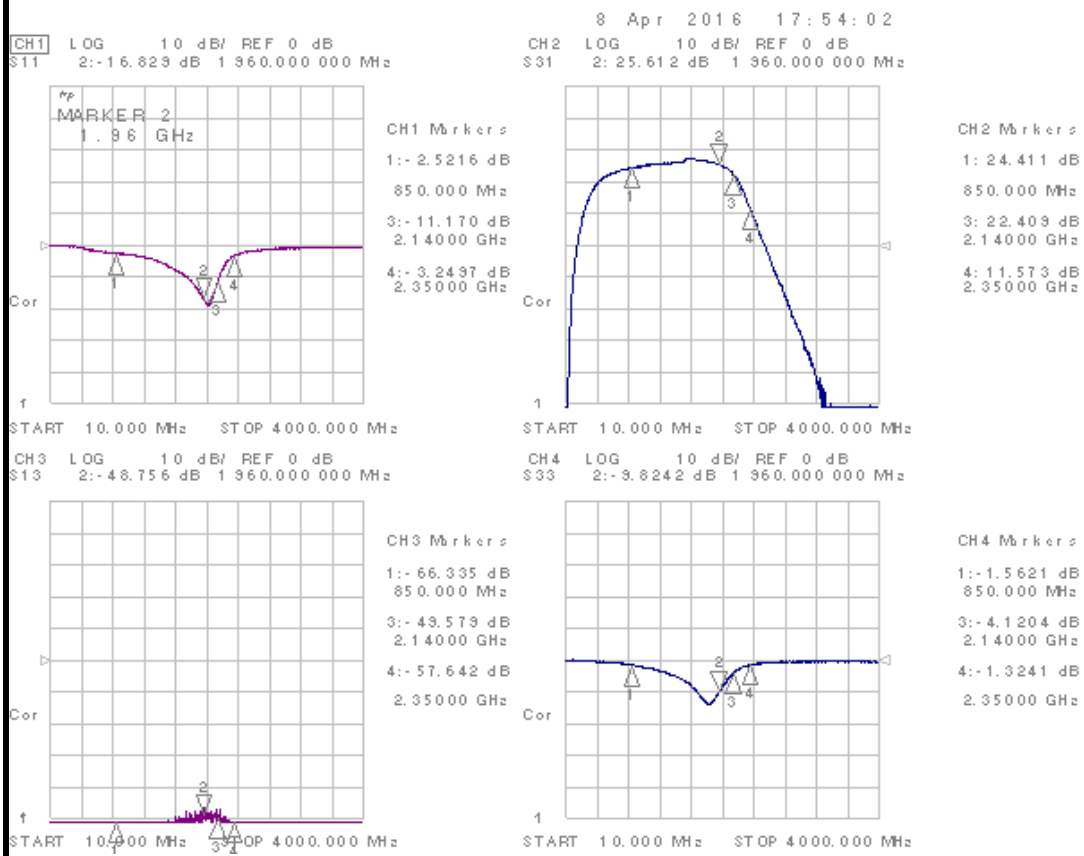
Reference	Object	Distance
Input pin	L3	4.9mm
Input pin	C13	3.5mm
Output pin	C18	2.7mm
Pin16	C5	10mm
Pin16	C6	5.5mm
Pin20	C8	12mm
Pin20	C9	7.5mm

TITLE	
BMT332 Evaluation Board	
(1960 MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

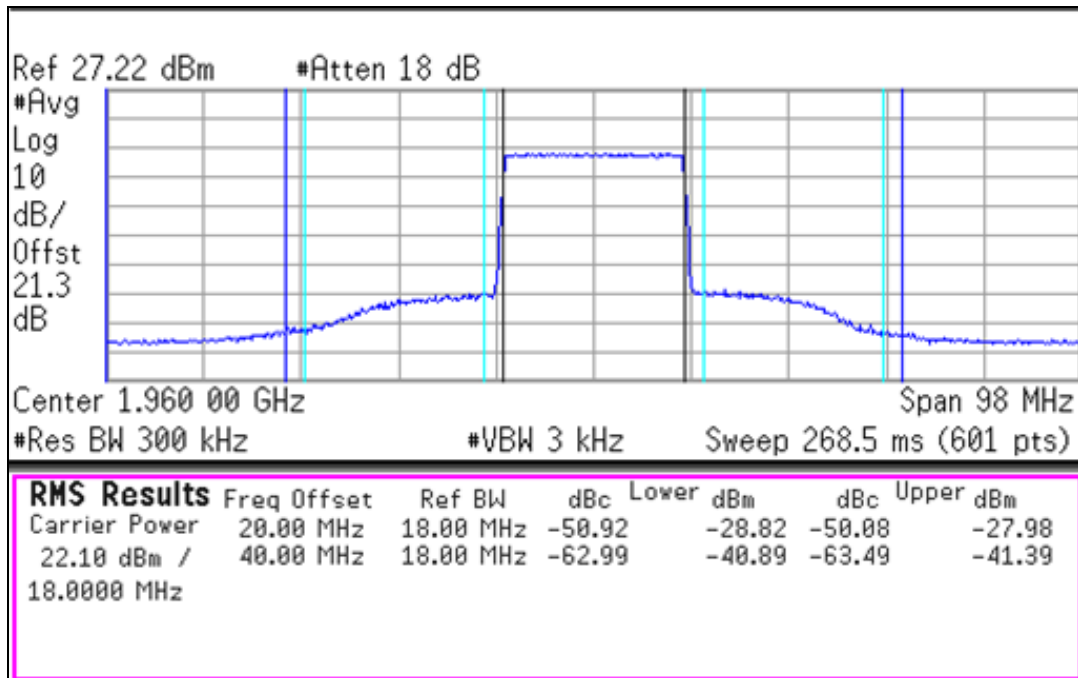
2.1 BMT332\_1960MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	1960	5	514	25.6	46.2	33	-16.8	-9.8	5.6

(1) OIP3 was tested @Pout=23dBm/tone 1MHz offset



## 2.2 BMT332\_ 1960MHz LTE 20MHz ACLR

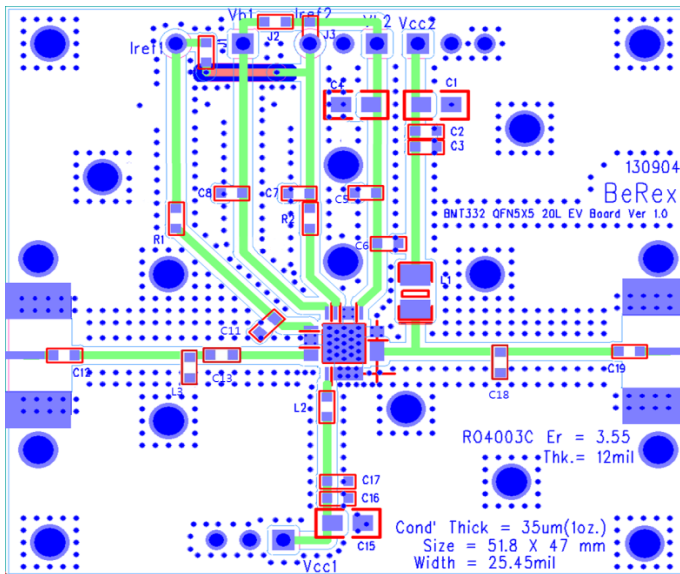


[Test condition]

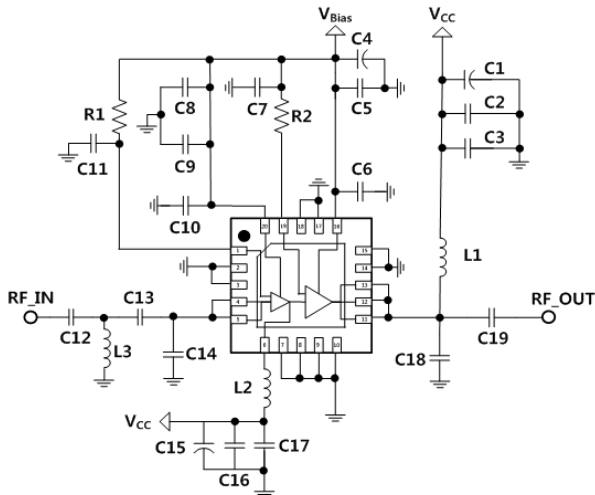
⇒ -50dBc@Output power 22.1dBm



3. BMT332\_2140MHz Low current (500mA) Application Note



BOM			Marks
C1	1206	10uF	Tantalum
C2	0603	1nF	Samsung
C3	0603	100pF	Samsung
C4	1206	10uF	Tantalum
C5	0603	1 nF	Samsung
C6	0603	1.8pF	Samsung
C7	0603	1nF	Samsung
C8	0603	1nF	Samsung
C9	0603	1pF	Samsung
C10		N/C	
C11	0603	1nF	Samsung
C12	0603	33pF	Samsung
C13	0603	3pF	Samsung
C14	0603	2.5pF	Samsung
C15	1206	10uF	Tantalum
C16	0603	1nF	Samsung
C17	0603	100pF	Samsung
C18	0603	3.6pF	High Q
C19	0603	33pF	Samsung
L1	0603	33nH	Coil
L2	0603	12nH	Samsung
L3		N/A	
R1	0603	330Ω	Samsung
R2	0603	150Ω	Samsung



Note:

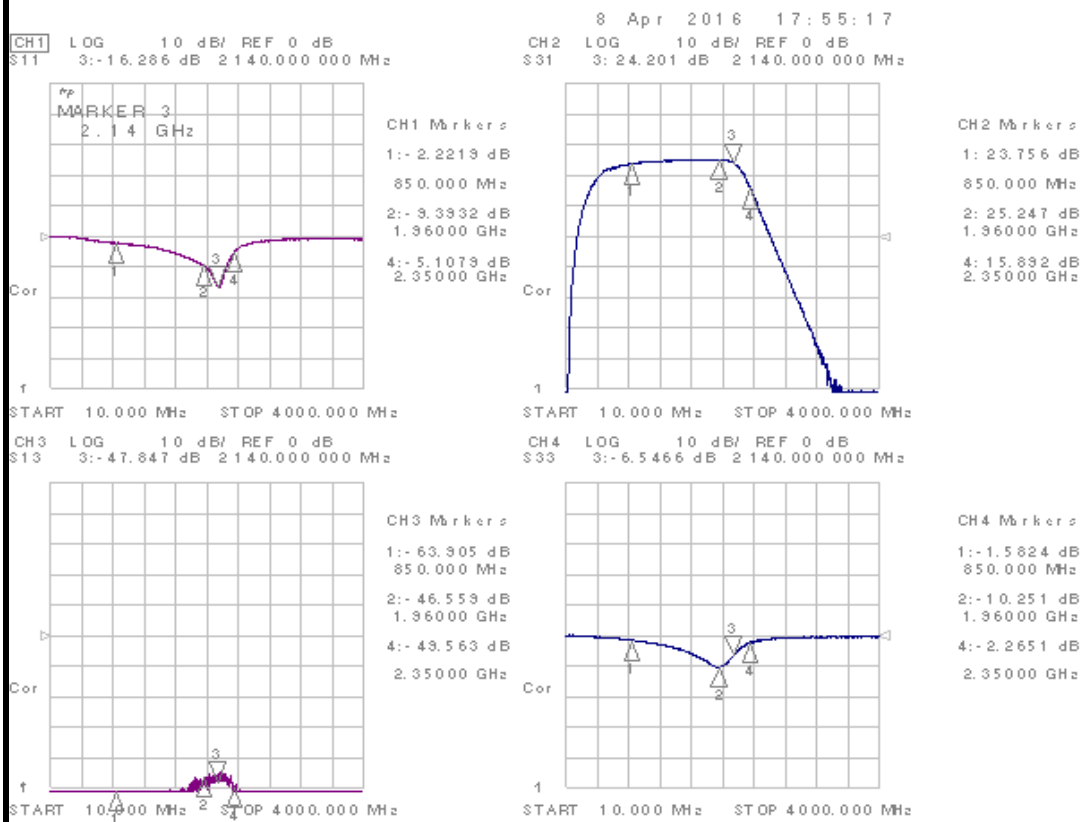
Reference	Object	Distance
Input pin	C13	3.8mm
Input pin	C14	2.4mm
Output pin	C18	2.1mm
Pin16	C6	9.7mm
Pin16	C8	12mm
Pin20	C9	7.5mm

TITLE	
BMT332 Evaluation Board	
(2140 MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

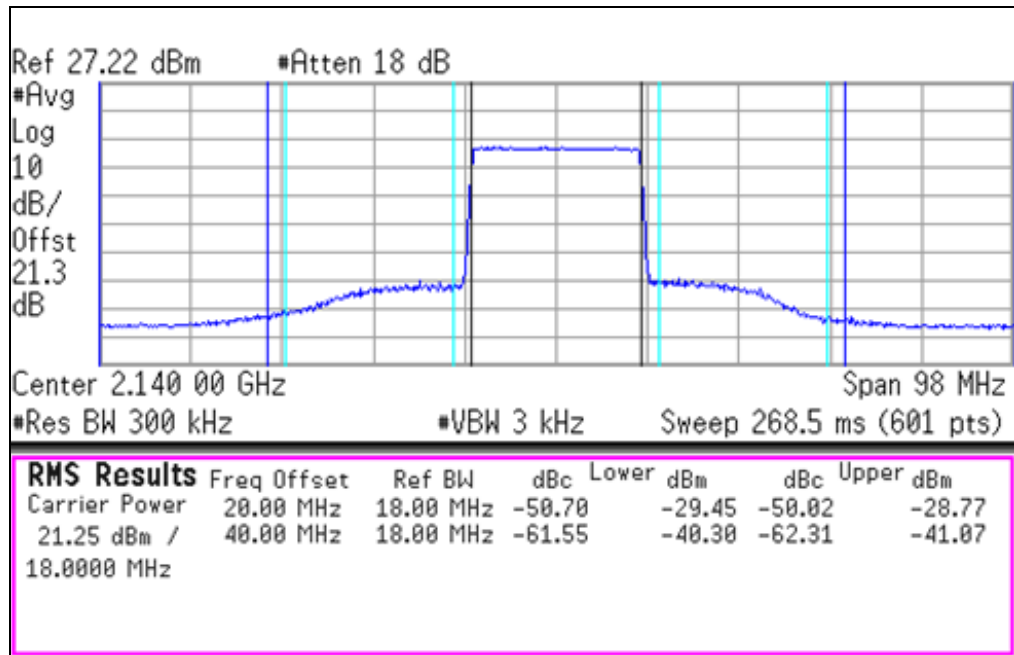
### 3.1 BMT332\_2140MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	2140	5	514	24.2	45	33.4	-16.2	-6.5	5.5

(1) OIP3 was tested @Pout=23dBm/tone 1MHz offset



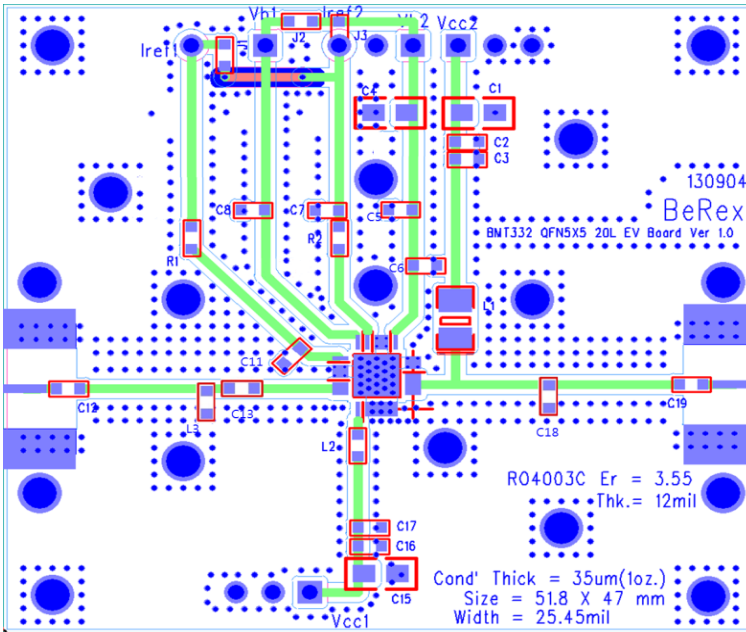
## 3.2 BMT332\_ 2140MHz LTE 20MHz ACLR



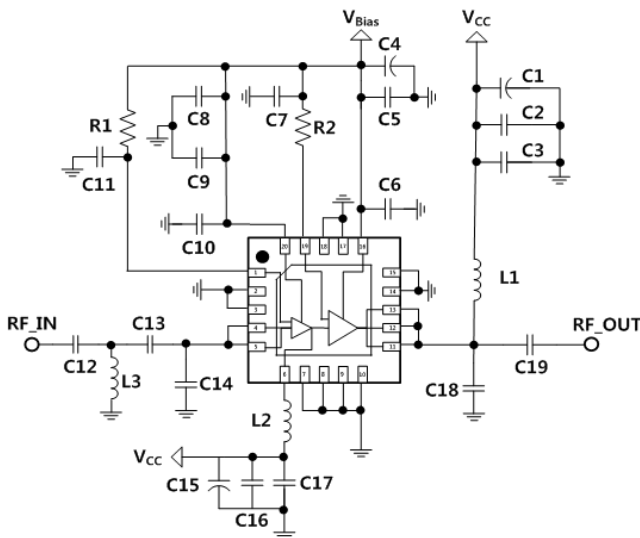
[Test condition]

⇒ -50dBc@Output power 21.25dBm

4. BMT332\_2350MHz Low current Application Note



BOM			Marks
C1	1206	10uF	Tantalum
C2	0603	1nF	Samsung
C3	0603	100pF	Samsung
C4	1206	10uF	Tantalum
C5	0603	1 nF	Samsung
C6	0603	1.8pF	Samsung
C7	0603	1nF	Samsung
C8	0603	1nF	Samsung
C9	0603	2pF	Samsung
C10		N/C	
C11	0603	1nF	Samsung
C12	0603	22pF	Samsung
C13	0603	2.2pF	Samsung
C14	0603	2.2pF	Samsung
C15	1206	10uF	Tantalum
C16	0603	1nF	Samsung
C17	0603	100pF	Samsung
C18	0603	3.3pF	High Q
C19	0603	22pF	Samsung
L1	0603	22nH	Coil
L2	0603	10nH	Samsung
L3		N/A	
R1	0603	330Ω	Samsung
R2	0603	150Ω	Samsung



Note:

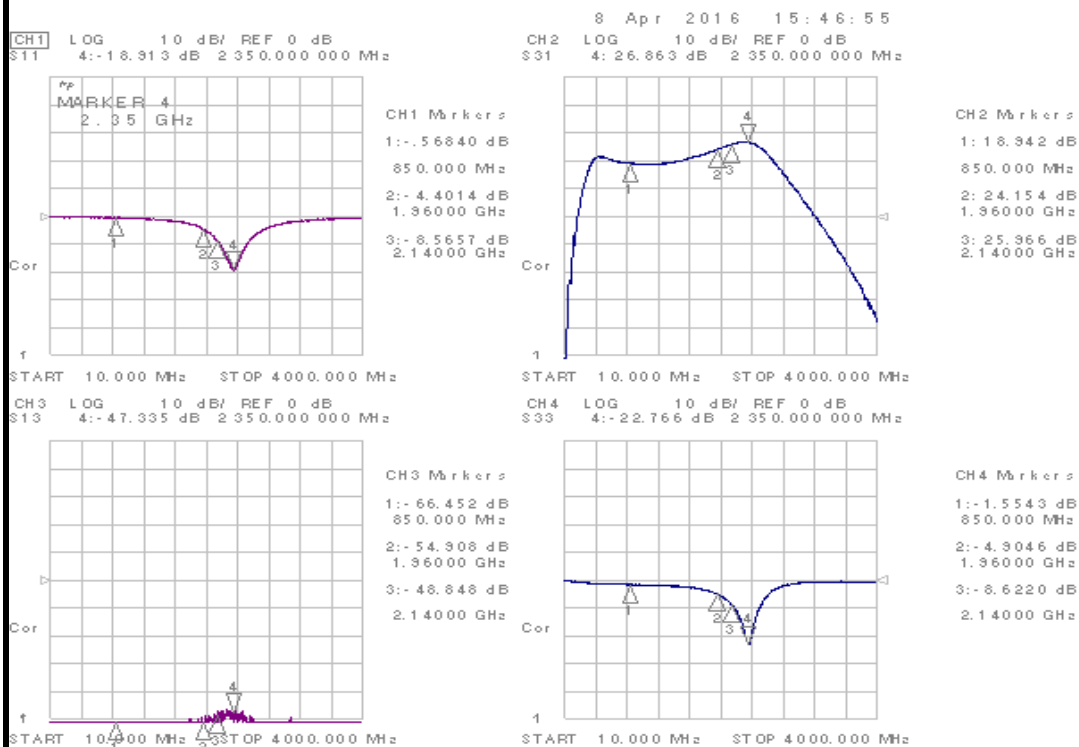
Reference	Object	Distance
Input pin	C13	3.7mm
Input pin	C14	1.2mm
Output pin	C18	2.1mm
Pin16	C5	14.5mm
Pin16	C6	5.5mm
Pin20	C8	12mm
Pin20	C9	7.5mm

TITLE	
BMT332 Evaluation Board	
(2350 MHz)	
Drawing Number	Rev.
Date	Drawn By
FILE NAME	SHEET

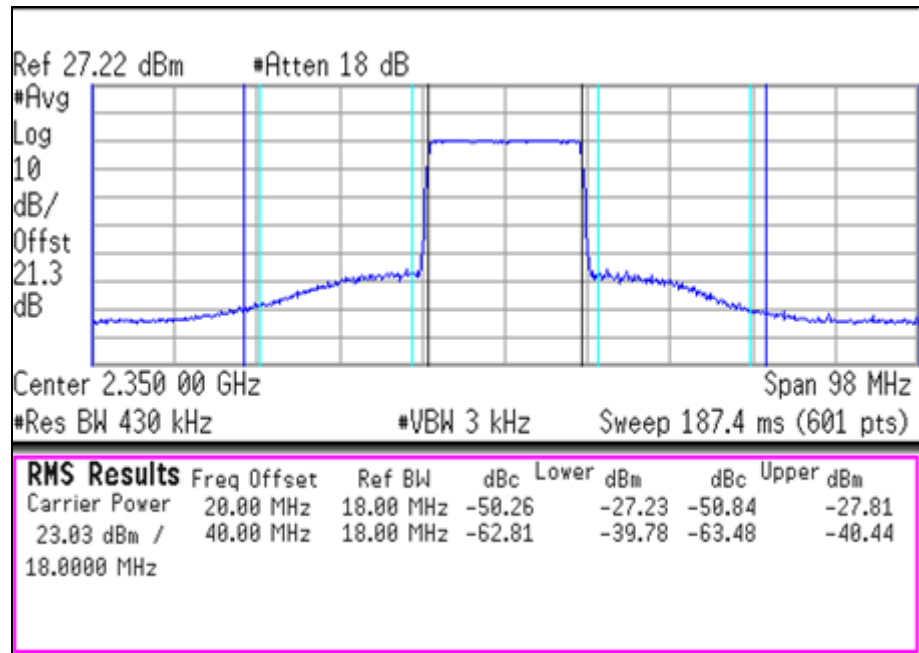
### 4.1 BMT332\_2350MHz Test Result

SN	Freq [MHz]	Vcc [V]	Icc [mA]	Gain [dB]	OIP3 [dBm] <sup>(1)</sup>	P1dB [dBm]	IRL [dB]	ORL [dB]	NF [dB]
	2350	5	535	26.8	45.5	33.5	-18.3	-22.7	5.4

(1) OIP3 was tested @Pout=23dBm/tone 1MHz offset



## 4.2 BMT332\_ 2350MHz LTE 20MHz ACLR



[Test condition]

⇒ -50dBc@Output power 23dBm