APPLICATION NOTE

MITSUBISHI ELECTRIC
Silicon RF Power Semiconductors

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(Taking charge of Silicon RF by
MIYOSHI Electronics)

SUBJECT: RD01MUS2B & RD07MUS2B TETRA 2stage amplifier RF characteristics data.

SUMMARY: This application note shows the TETRA data.

- Sample history :
  - RD01MUS2B: Lot No. “TY2”
  - RD07MUS2B: Lot No. “10YAA-G”

  Reference(AN-UHF116)
  - RD01MUS2: Lot No. “571”
  - RD07MUS2B: Lot No. “105AB”

- Measurement conditions :

  @ f=380 / 405 / 430MHz , Vdd=7.2V,
  Idq1=40/150mA(Vdd=7.2V,Vgg1:Adj.), Idq2=250mA(Vdd=7.2V, Vgg2:adj.),
  π/4DQPSK, Filter (α=0.35), Symbol rate=18ksps,
  Band Width=18kHz, Cannel Spacing=25 / 50 / 75KHz

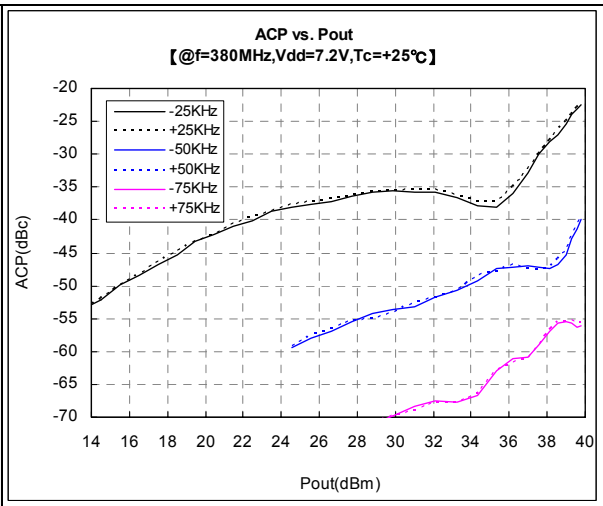
- Results :

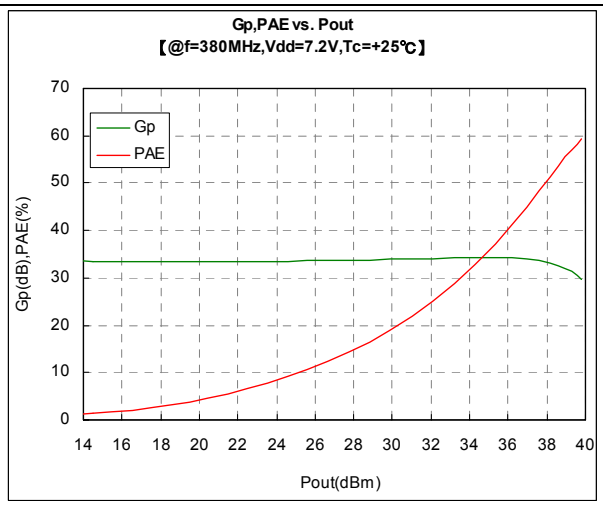
  - Page 2 shows ;
    ACP vs. Pout & Gp, PAE vs. Pout
    (@f=380MHz, Vdd=7.2V, Idq1=40/150mA, Zl=50ohm)
  - Page 3 shows ;
    ACP vs. Pout & Gp, PAE vs. Pout
    (@f=405MHz, Vdd=7.2V, Idq1=40/150mA, Zl=50ohm)
  - Page 4 shows ;
    ACP vs. Pout & Gp, PAE vs. Pout
    (@f=430MHz, Vdd=7.2V, Idq1=40/150mA, Zl=50ohm)
  - Page 5 shows the equivalent circuit.
  - Page 6 shows the TEST BLOCK DIAGRAM.

■ACP vs. Pout(f=380MHz)　　■Gp, PAE vs. Pout(f=380MHz)

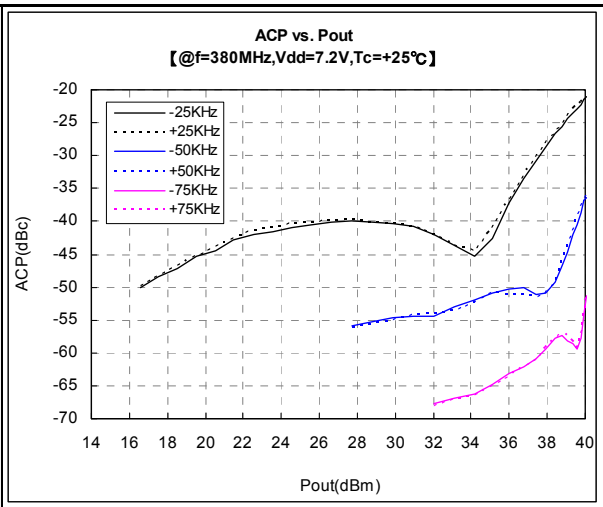
*RD01MUS2B + RD07MUS2B

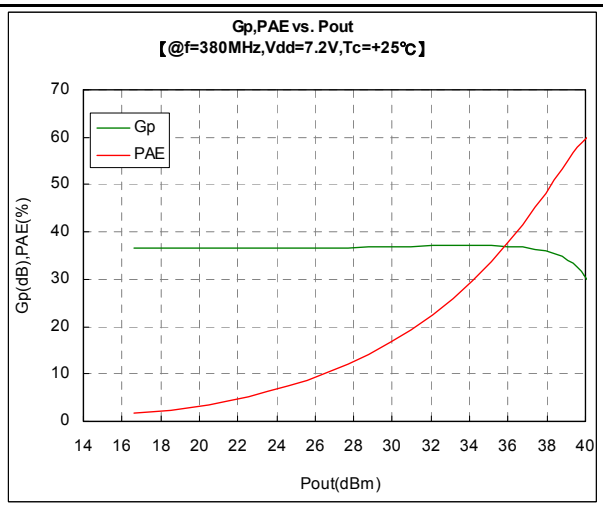
RD01MUS2B Idq1=40mA





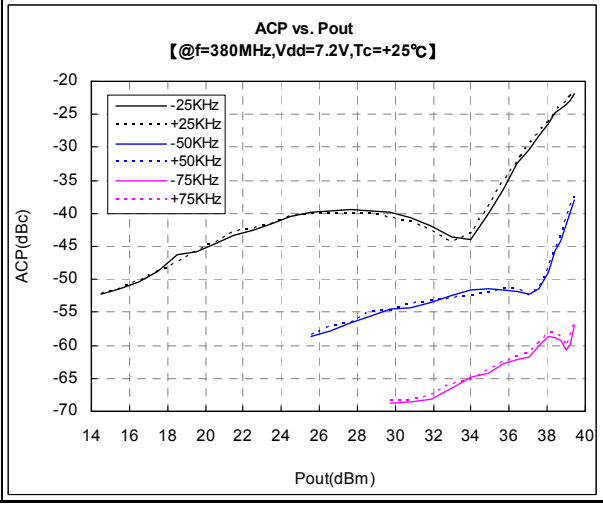
RD01MUS2B Idq1=150mA

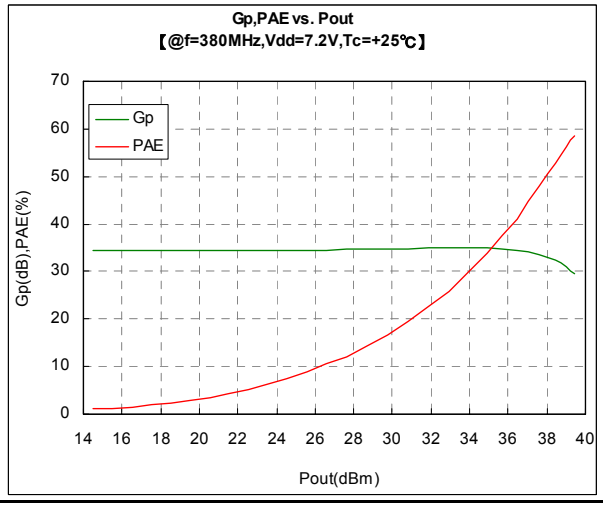




*RD01MUS2 + RD07MUS2B

RD01MUS2 Idq=150mA



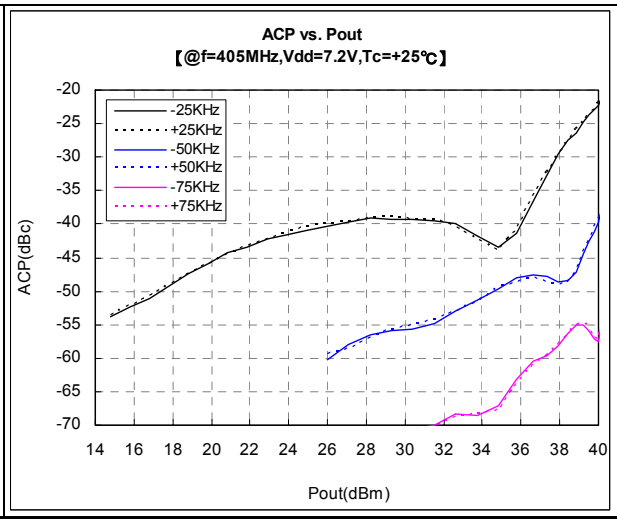


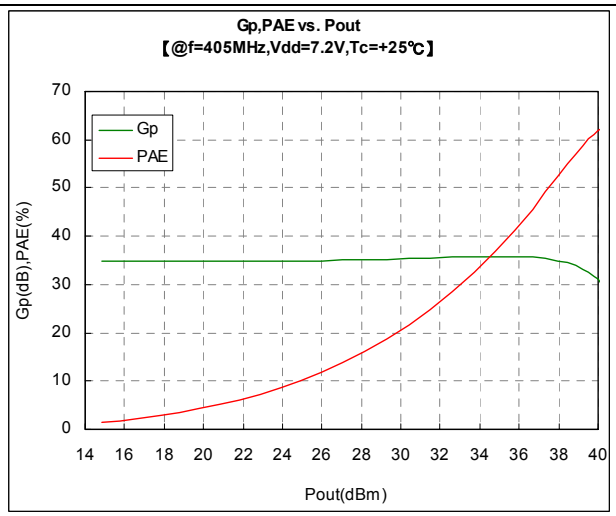
■ACP vs. Pout(f=405MHz)

■Gp, PAE vs. Pout(f=405MHz)

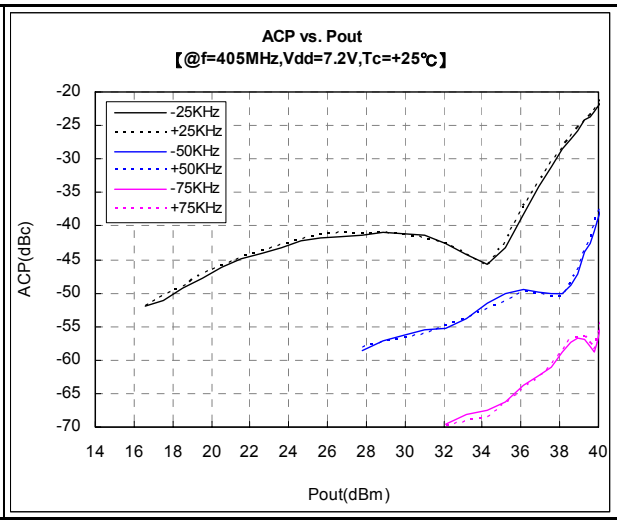
*RD01MUS2B + RD07MUS2B

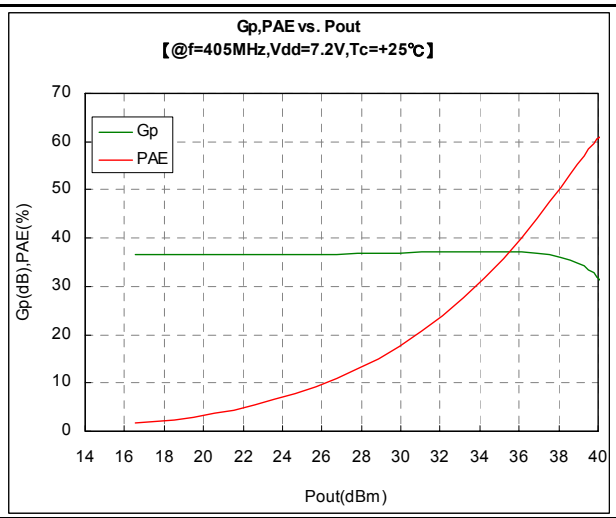
RD01MUS2B Idq1=40mA





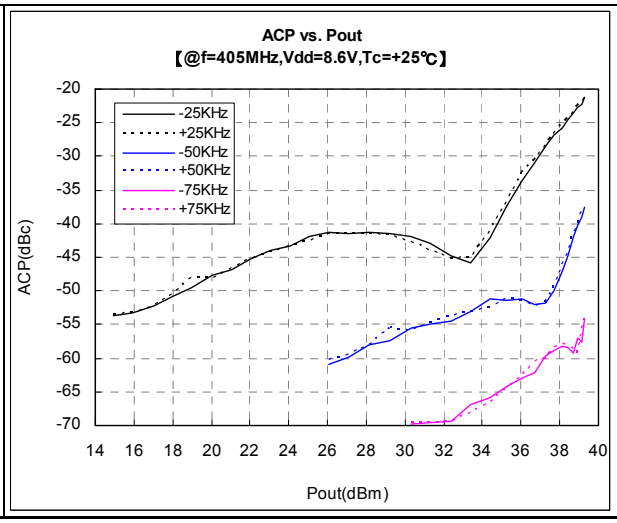
RD01MUS2B Idq1=150mA

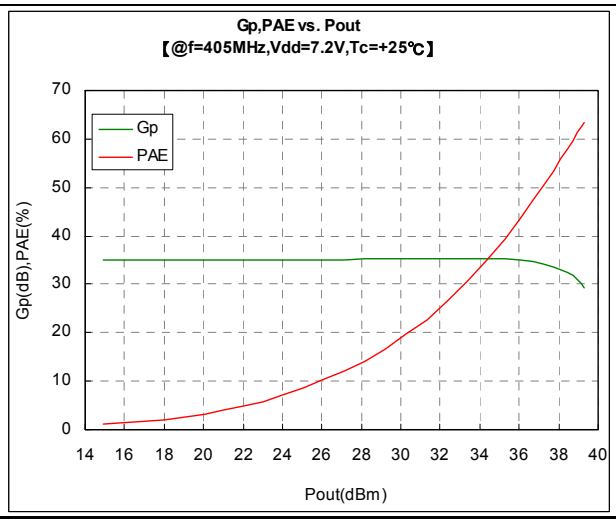




*RD01MUS2 + RD07MUS2B

RD01MUS2 Idq=150mA

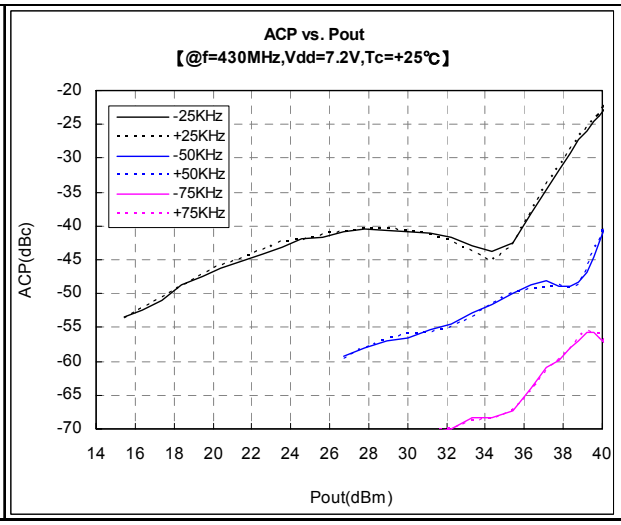


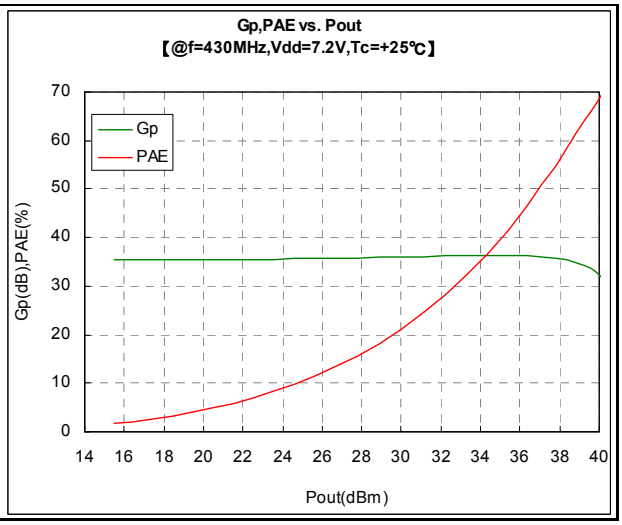


■ACP vs. Pout(f=430MHz)　　■ PAE vs. Pout(f=430MHz)

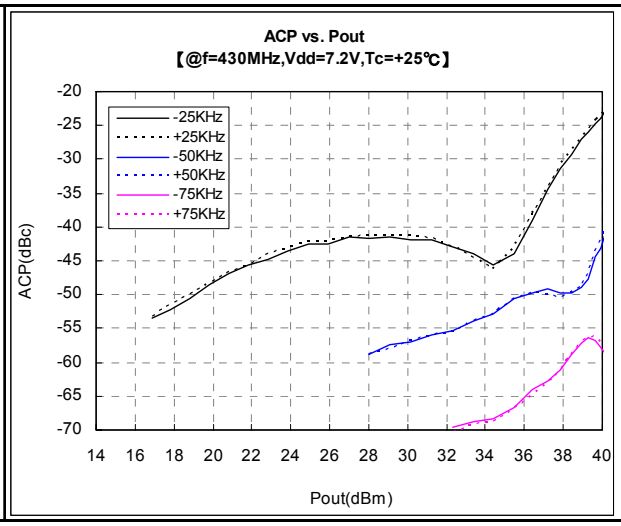
*RD01MUS2B + RD07MUS2B

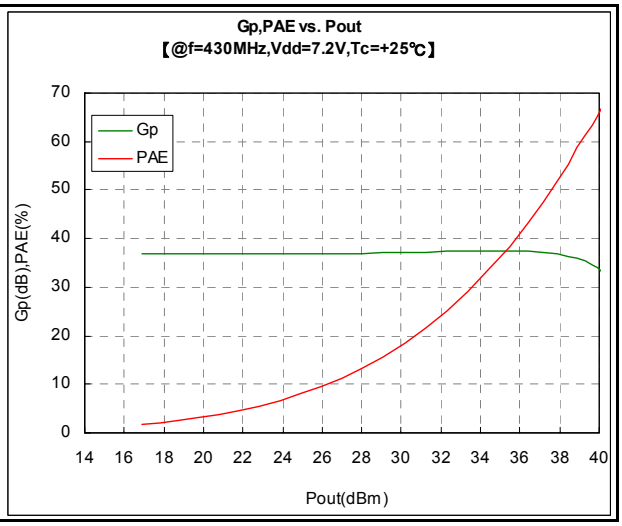
RD01MUS2B Idq1=40mA





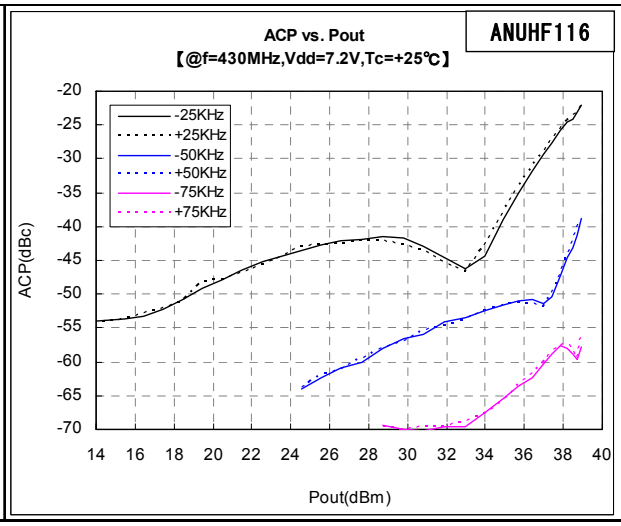
RD01MUS2B Idq1=150mA

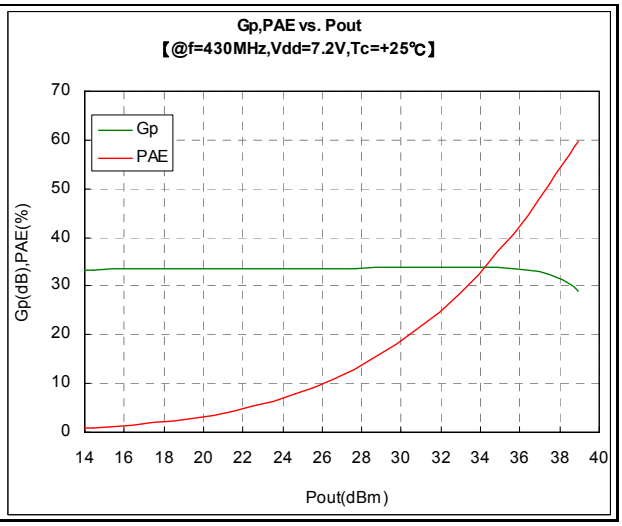




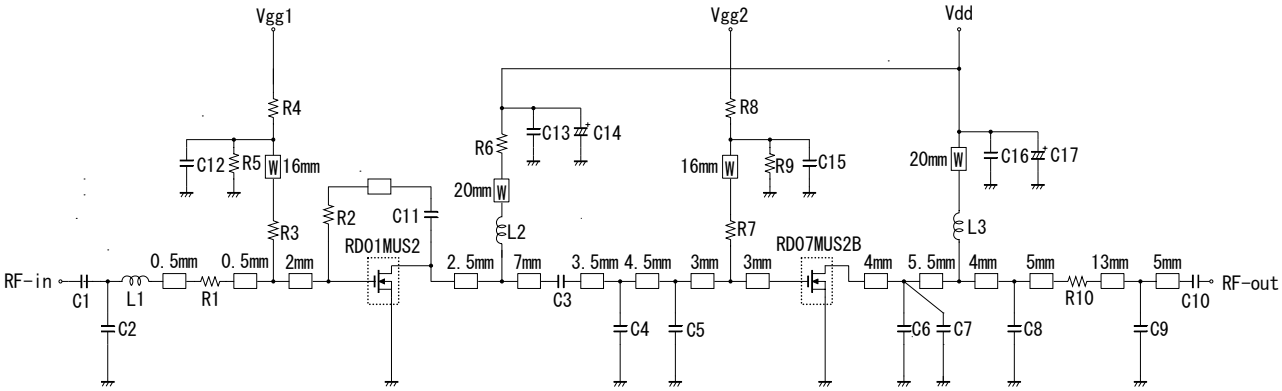
*RD01MUS2+RD07MUS2B

RD01MUS2 Idq=150mA



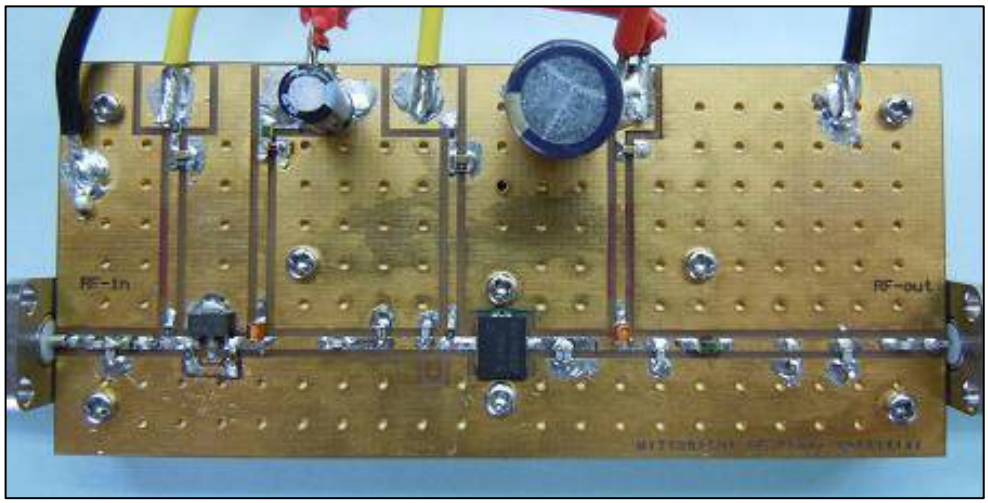


■RD01MUS2B & RD07MUS2B TETRA 2stage amplifier equivalent circuit



W:Line width=1.0mm
Note:Board material- Glass-Epoxy Substrate
Micro strip line width=1.3mm/50ohm,er:4.8,t=0.8mm

Parts Type		Value	Type name	Vender
Capacitor	C1,C10	100pF	GRM1882C1H101JA01D	Murata Manufacturing Co.,Ltd.
	C2	15pF	GRM1882C1H150JA01D	Murata Manufacturing Co.,Ltd.
	C3	200pF	GRM1882C1H201JA01D	Murata Manufacturing Co.,Ltd.
	C4,C8	24pF	GRM1882C1H240JA01D	Murata Manufacturing Co.,Ltd.
	C5.C6,C7	36pF	GRM1882C1H360JA01D	Murata Manufacturing Co.,Ltd.
	C9	13pF	GRM1882C1H130JA01D	Murata Manufacturing Co.,Ltd.
	C11	47pF	GRM1882C1H470JA01D	Murata Manufacturing Co.,Ltd.
	C12,C15,C13,C16	4700pF	GRM188R11H472KA01D	Murata Manufacturing Co.,Ltd.
	C14	22μF	A0603	NICHICON CORPORATION
	C17	220μF	03MA	Panasonic
Resistance	R1	10 ohm	RPC05-100	TAIYOSHA ELECTRIC Co.,Ltd.
	R2	390 ohm	RPC05-391	TAIYOSHA ELECTRIC Co.,Ltd.
	R3,R7	100 ohm	RPC05-101	TAIYOSHA ELECTRIC Co.,Ltd.
	R4,R5,R9	10K ohm	RPC05-103	TAIYOSHA ELECTRIC Co.,Ltd.
	R6,R10	0 ohm	RPC10-0	TAIYOSHA ELECTRIC Co.,Ltd.
	R8	27K ohm	RPC05-273	TAIYOSHA ELECTRIC Co.,Ltd.
Inductance	L1	15nH	LQG18HN15NJ00D	Murata Manufacturing Co.,Ltd.
	L2,L3	30.9nH Enameled wire 6Turns, Diameter:0.23mm,φ1.62mm(the out side diameter)	2306C	yc corporation Co.,Ltd.



■TEST BLOCK DIAGRAM