

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR4.0MUC8)

IC R5F212L4SNFP-LOW
(Renesas Technology)

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1.Contents

(1) Oscillating circuit for evaluation	P.3
(2) IC dependence of oscillating characteristics	p.4
(3) Power supply voltage dependence of oscillating characteristics	P.5
(4) Temperature dependence of oscillating characteristics	P.6-7
(5) Open loop characteristics	P.8-9

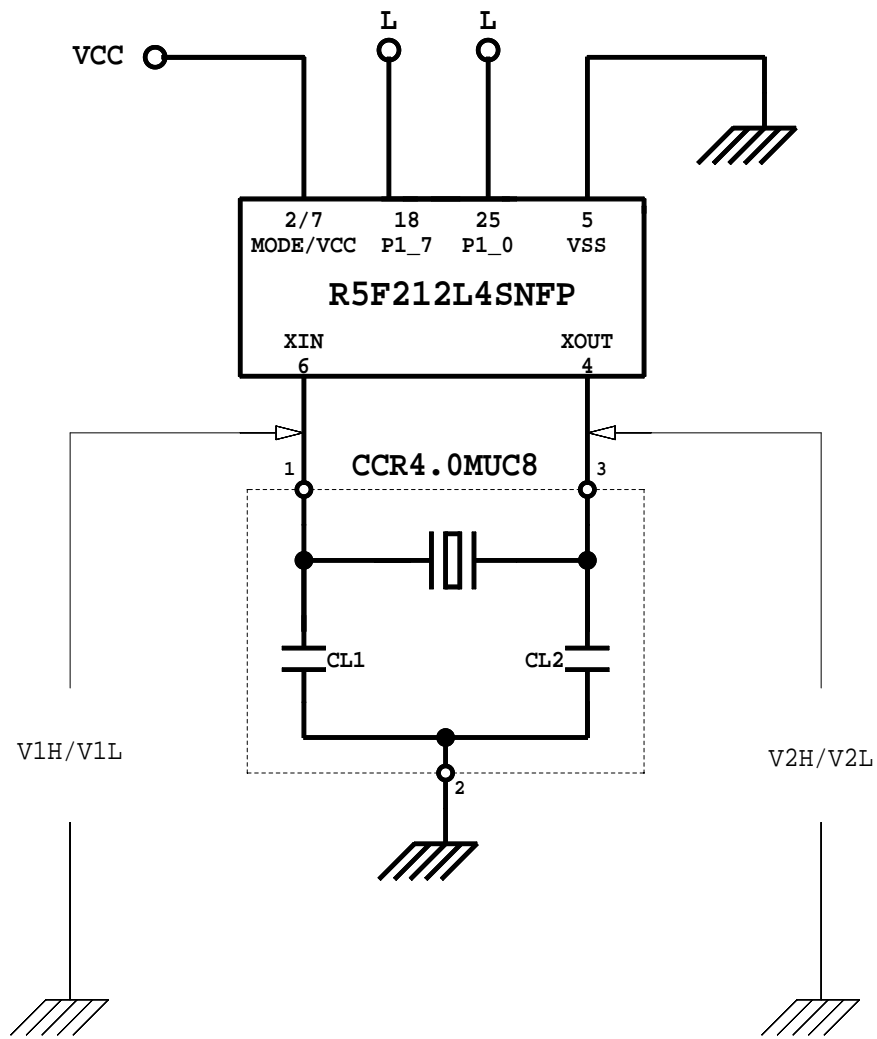
2.Test Conditions

IC	:	R5F212L4SNFP-LOW (Renesas Technology)
Ceramic Resonator	:	CCR4.0MUC8 (Typical and worst sample are tested)
Power Supply Voltage range	:	2.2 to 5.5(V)
Temperature Range	:	-45 to +110(degC)

3.Conclusions and recommendable circuit constant

We could confirm the operation satisfactory under
the following test conditions.

Power Supply Voltage range	:	2.2 to 5.5(V)
Temperature Range	:	-45 to +110(degC)
Load capacitance(CL1/CL2)	:	Built-in [27(pF)]
Damping resistance(Rd)	:	short (0ohm)
Feedback resistance(Rf)	:	Built-in(IC side)



*BUILT-IN LOADING CAPACITOR
 CL1/CL2=27/27pF +/-20%

Oscillating circuit for evaluation

IC dependence of oscillating characteristics

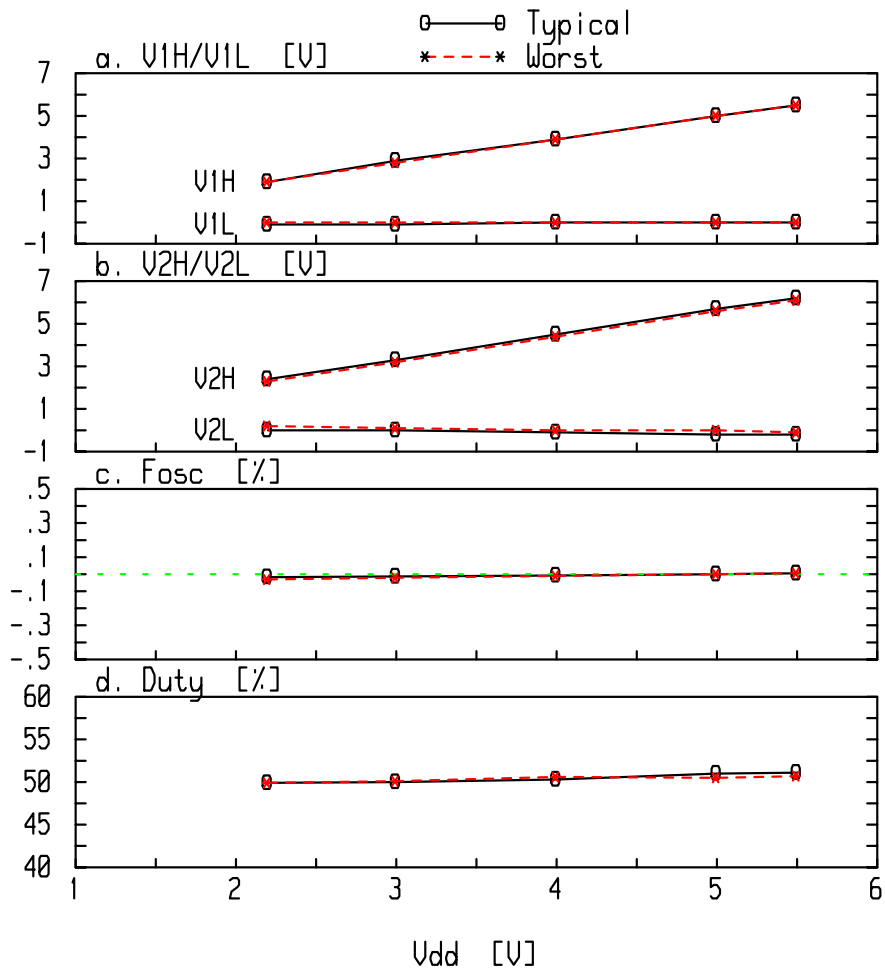
R5F212L4SNFP
CCR4.0MUC8 - S

Room Temp.
Vdd [V] 5 (item a~e)

item IC NO	a. [V] V1H/V1L	b. [V] V2H/V2L	c. [MHz] Fosc	d. [uS] Trise	e. [%] Duty	f. [V] Vstart	g. [V] Uhold
LL	4.9 0	5.7 -.2	4.00826		50.7	1.42	1.3
LH	5 0	5.7 -.1	4.00806		50.8	1.52	1.4
TYP	4.9 0	5.7 -.2	4.00817		50.7	1.52	1.42
HL	4.9 0	5.6 -.2	4.0083		50.3	1.52	1.43
HH	4.9 0	5.7 -.2	4.00794		50.6	1.66	1.51

R5F212L4SNFP - TYP(LOW)

CCR4.0MUC8
 $T_a = 25$ [deg]



e. V_{start} [V]
Typical = 1.52
Worst = 1.59

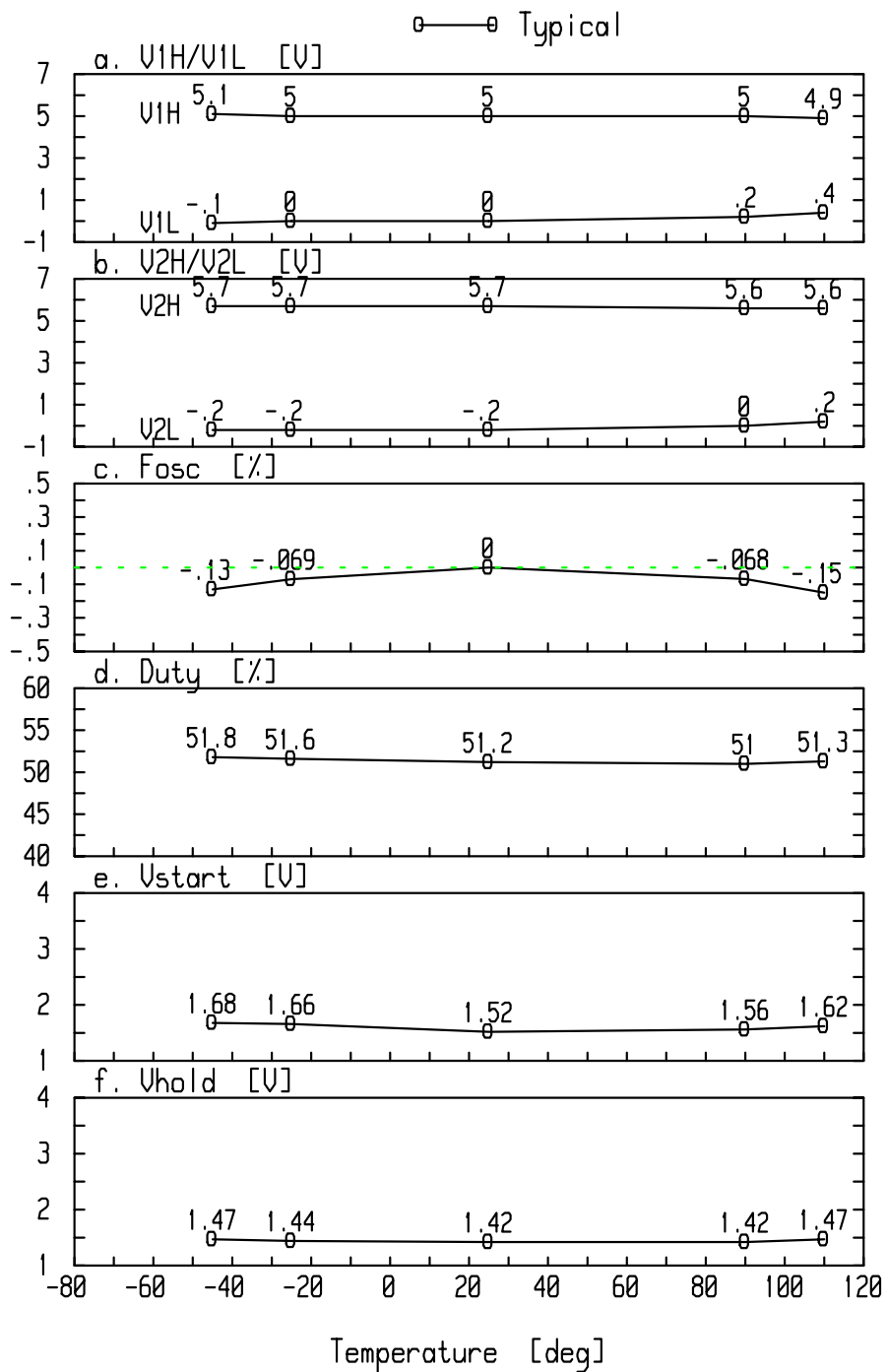
f. V_{hold} [V]
Typical = 1.42
Worst = 1.59

Power supply voltage dependence of oscillating characteristics

R5F212L4SNFP - TYP(LOW)

CCR4.0MUC8

V_{dd}= 5 [V] (Fig.a~e)

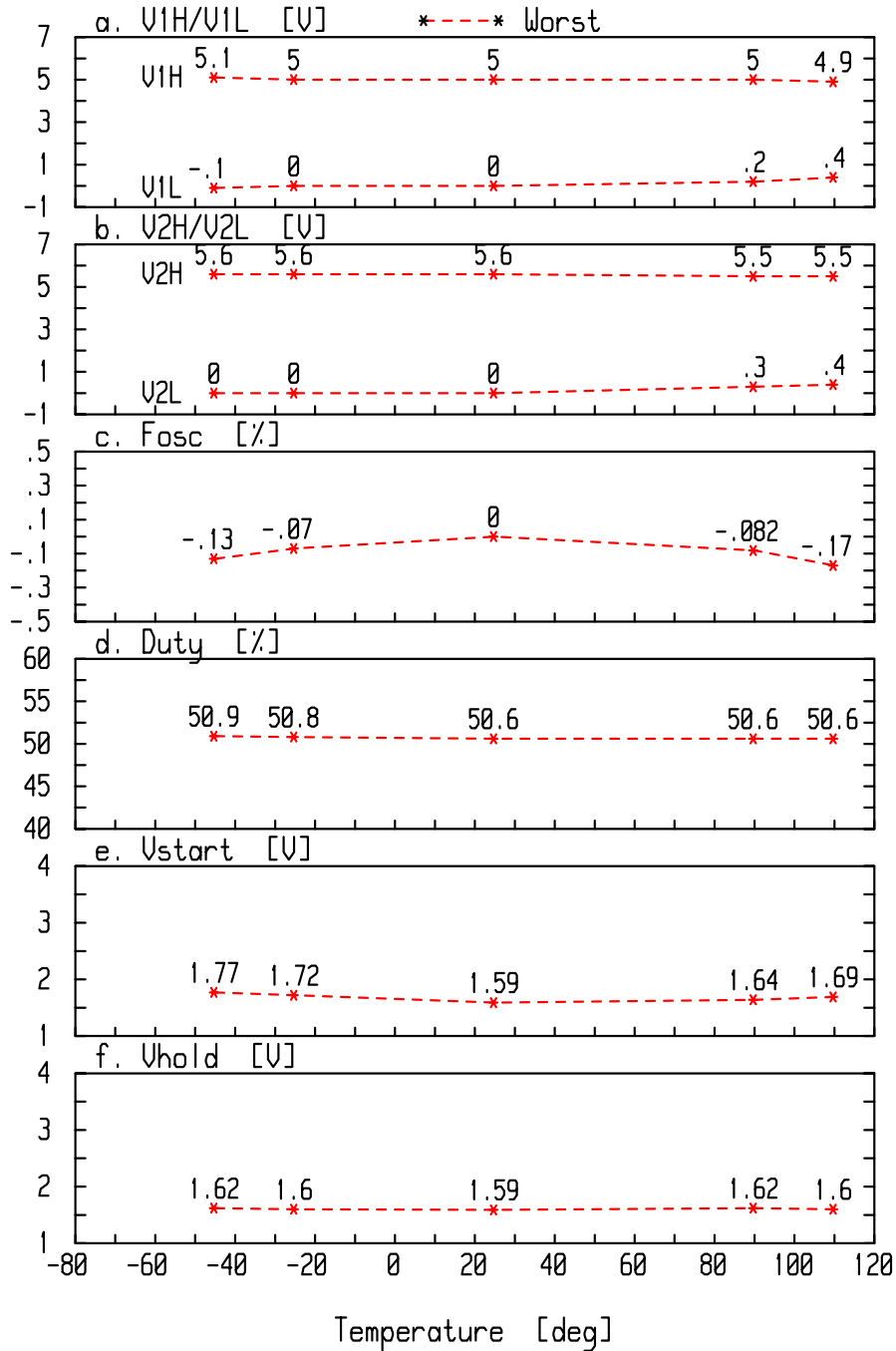


Temperature dependence of oscillating characteristics

R5F212L4SNFP - TYP(LOW)

CCR4.0MUC8

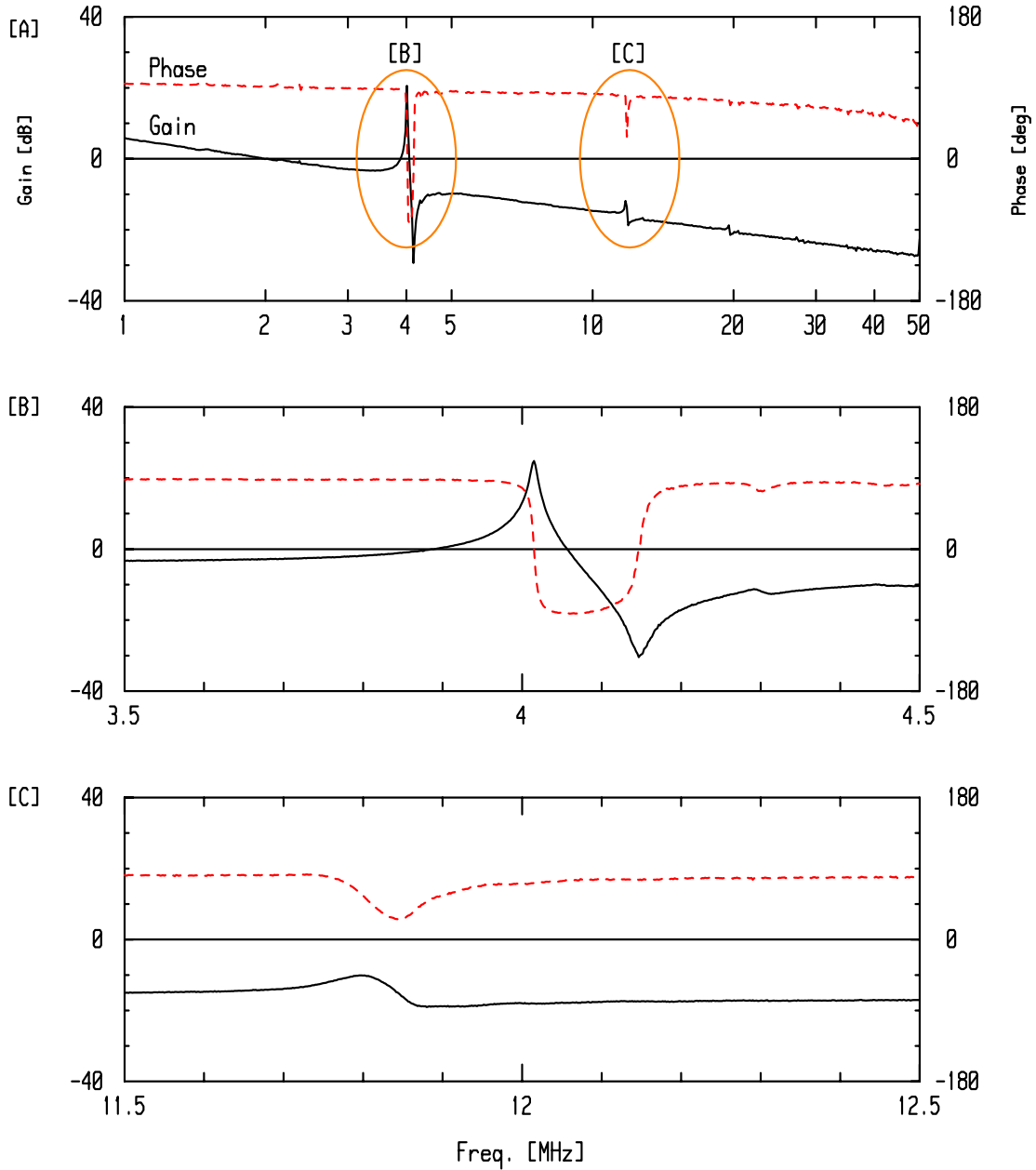
V_{dd}= 5 [V] (Fig.a~e)



Temperature dependence of oscillating characteristics

R5F212L4SNFP - TYP(LOW)
 CCR4.0MUC8 - Typical
 Vdd [V] 5

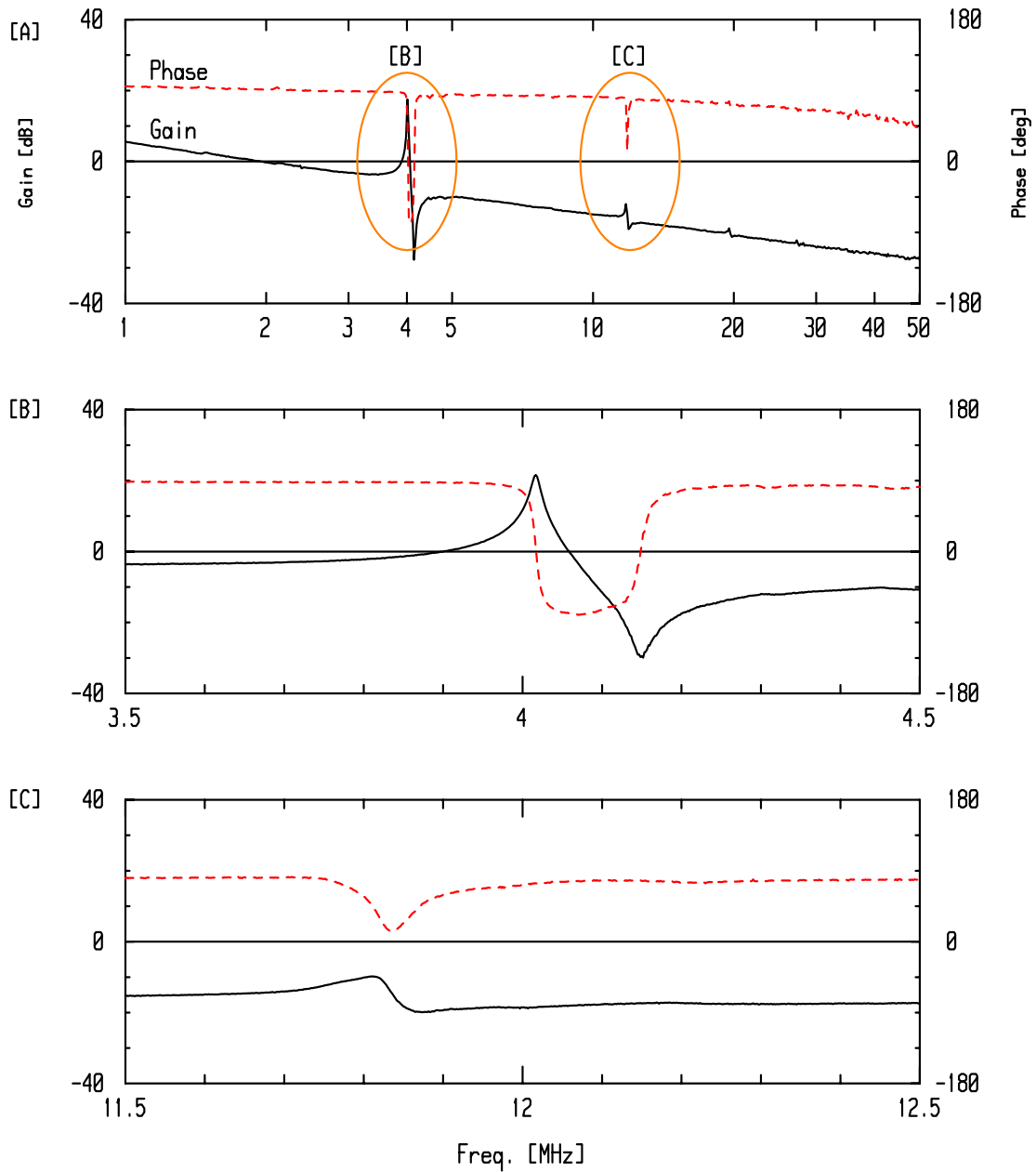
	[B]	[C]
Gmax [dB]	24.8	-10.1
LGM [dB]	24.2	0
FLGM [MHz]	4.0158	0
LPM [deg]	-81.5	71.6



Open loop characteristics (Typical Sample)

R5F212L4SNFP - TYP(LOW)
 CCR4.0MUC8 - Worst
 Vdd [V] 5

	[B]	[C]
Gmax [dB]	21.6	-9.8
LGM [dB]	21.2	0
FLGM [MHz]	4.0179	0
LPM [deg]	-78.3	73.7



Open loop characteristics (Worst Sample)