Renesas Technology Corp. REPORT NO. Q2007Y-198

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR10.0MXC8)

IC R5F212L4SNFP-HIGH
(Renesas Technology)

Dec,14,2007

Sensors & Actuators Business Group,

TDK CORPORATION

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APPROVED	CHECKED	CHECKED
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1.Contents

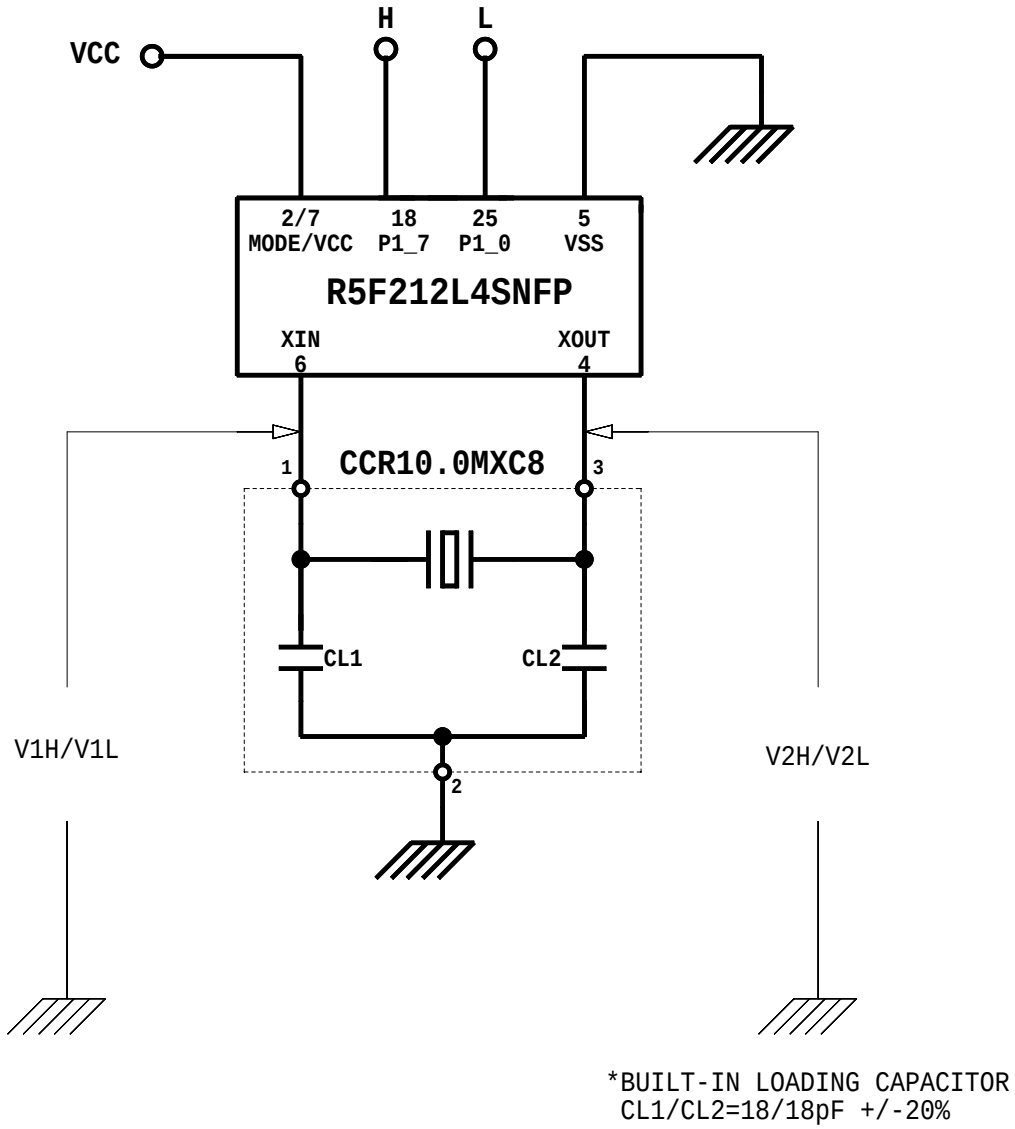
2.Test Conditions

IC	:	R5F212L4SNFP-HIGH (Renesas Technology)
Ceramic Resonator	:	CCR10.0MXC8 (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 [18(pF)]
Damping resistance(Rd)	:	short (0ohm)
Feedback resistance(Rf)	:	Built-in(IC side)



*BUILT-IN LOADING CAPACITOR
CL1/CL2=18/18pF +/-20%

Oscillating circuit for evaluation

IC dependence of oscillating characteristics

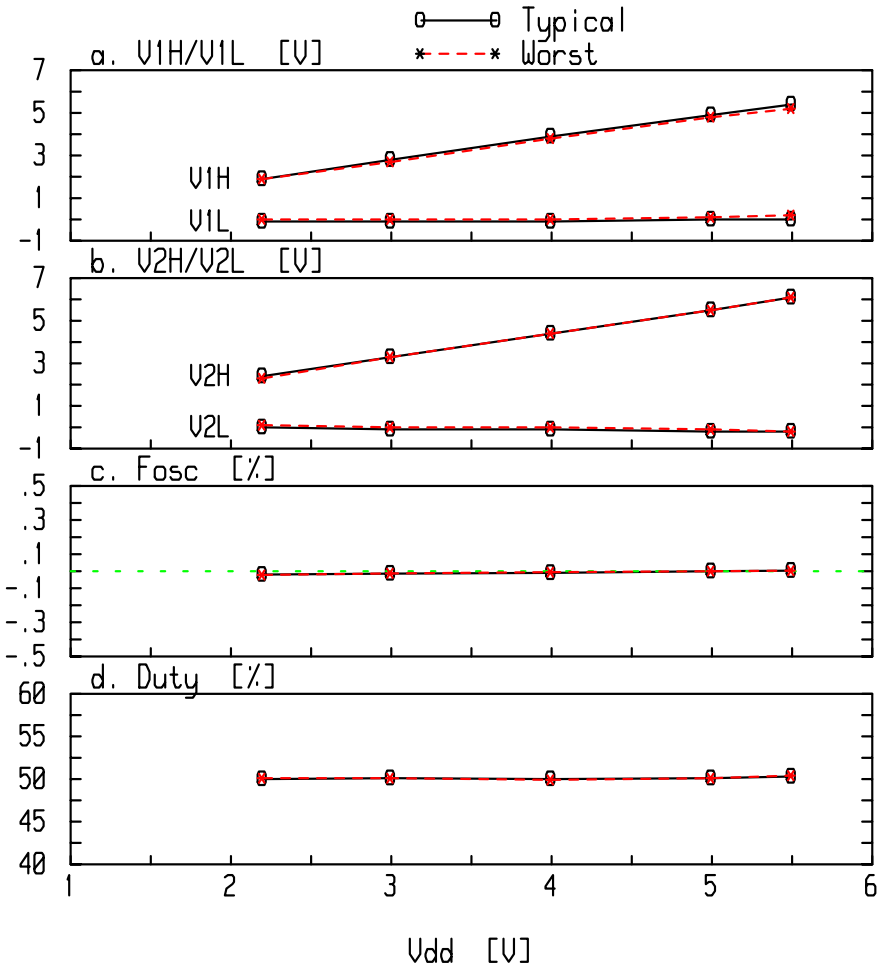
R5F212L4SNFP
CCR10.0MXC8 - S

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] Vhold
LL	4.9 / -.1	5.5 / -.2	10.0351	14	50.4	1.5	1.49
LH	4.9 / 0	5.6 / -.1	10.0354	15	50.6	1.61	1.35
TYP	4.9 / 0	5.6 / -.2	10.0351	13	50.4	1.63	1.37
HL	4.8 / -.1	5.3 / .1	10.0524	14	50.8	1.63	1.4
HH	4.9 / -.1	5.5 / -.1	10.0343	13	50.4	1.76	1.46

R5F212L4SNFP - TYP(HIGH)

CCR10.0MXC8
Ta= 25 [deg]



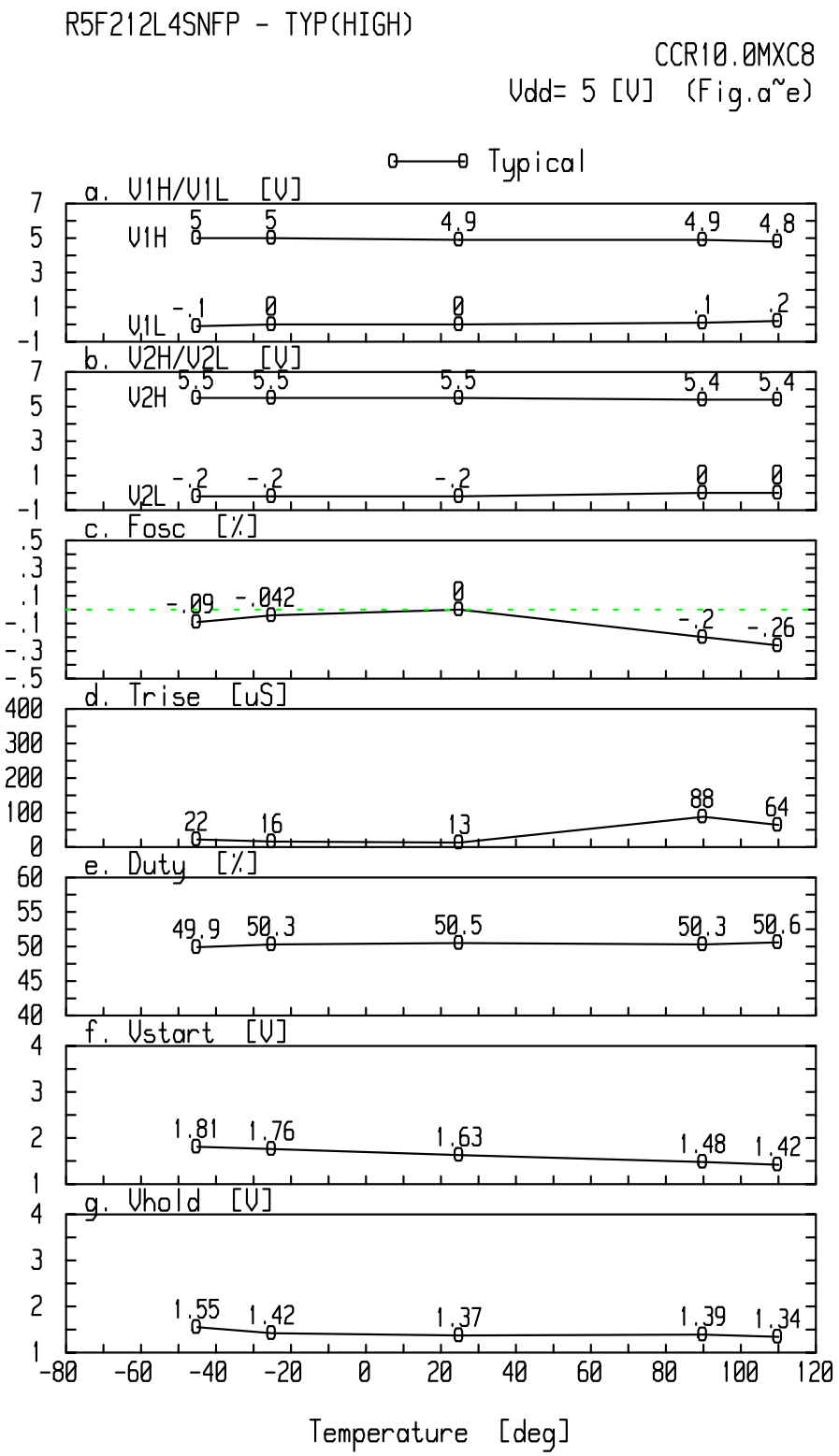
e. Vstart [V]

Typical = 1.63
Worst = 1.69

f. Vhold [V]

Typical = 1.37
Worst = 1.46

Power supply voltage dependence of oscillating characteristics

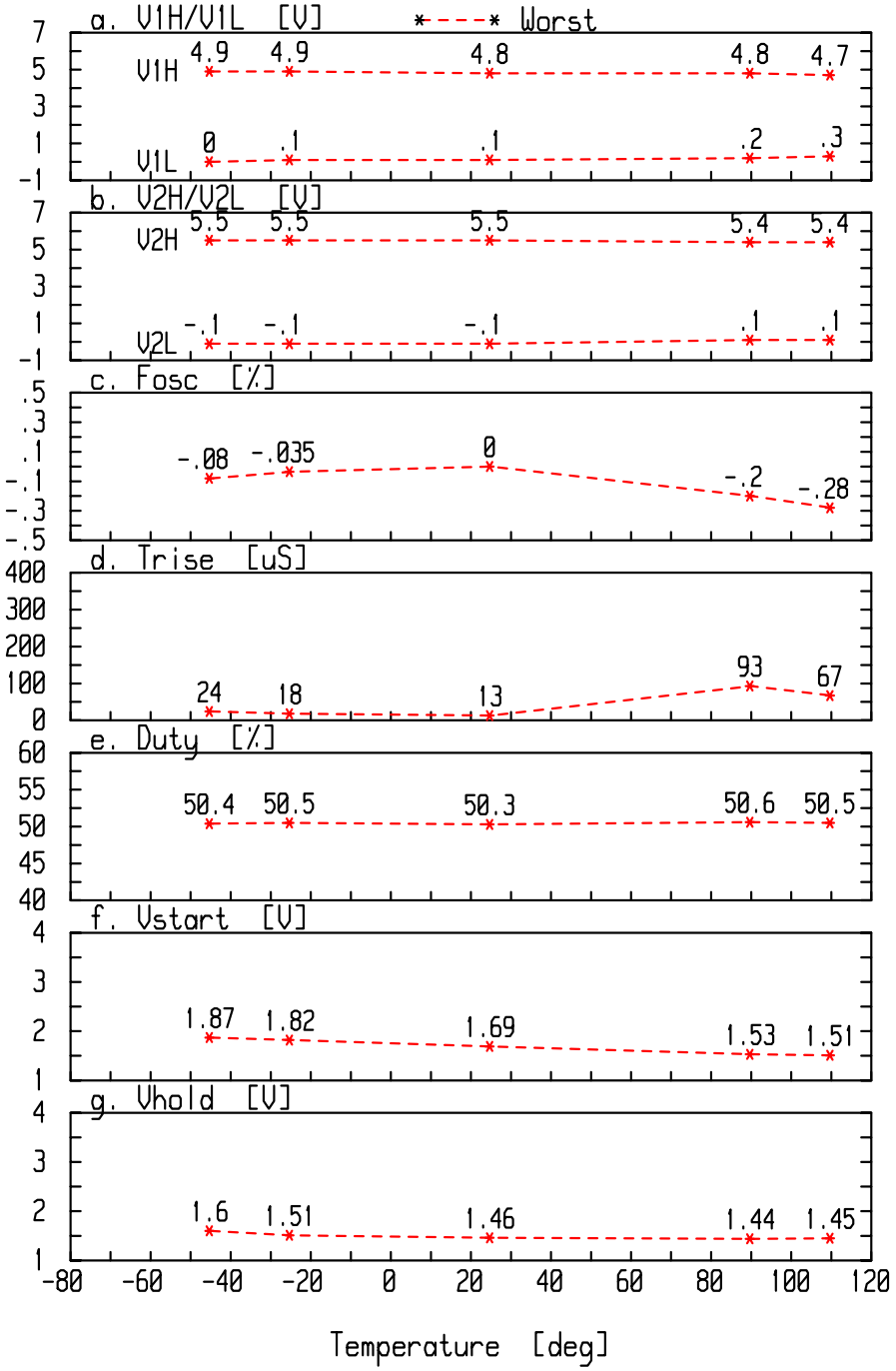


Temperature dependence of oscillating characteristics

R5F212L4SNFP - TYP(HIGH)

CCR10.0MXC8

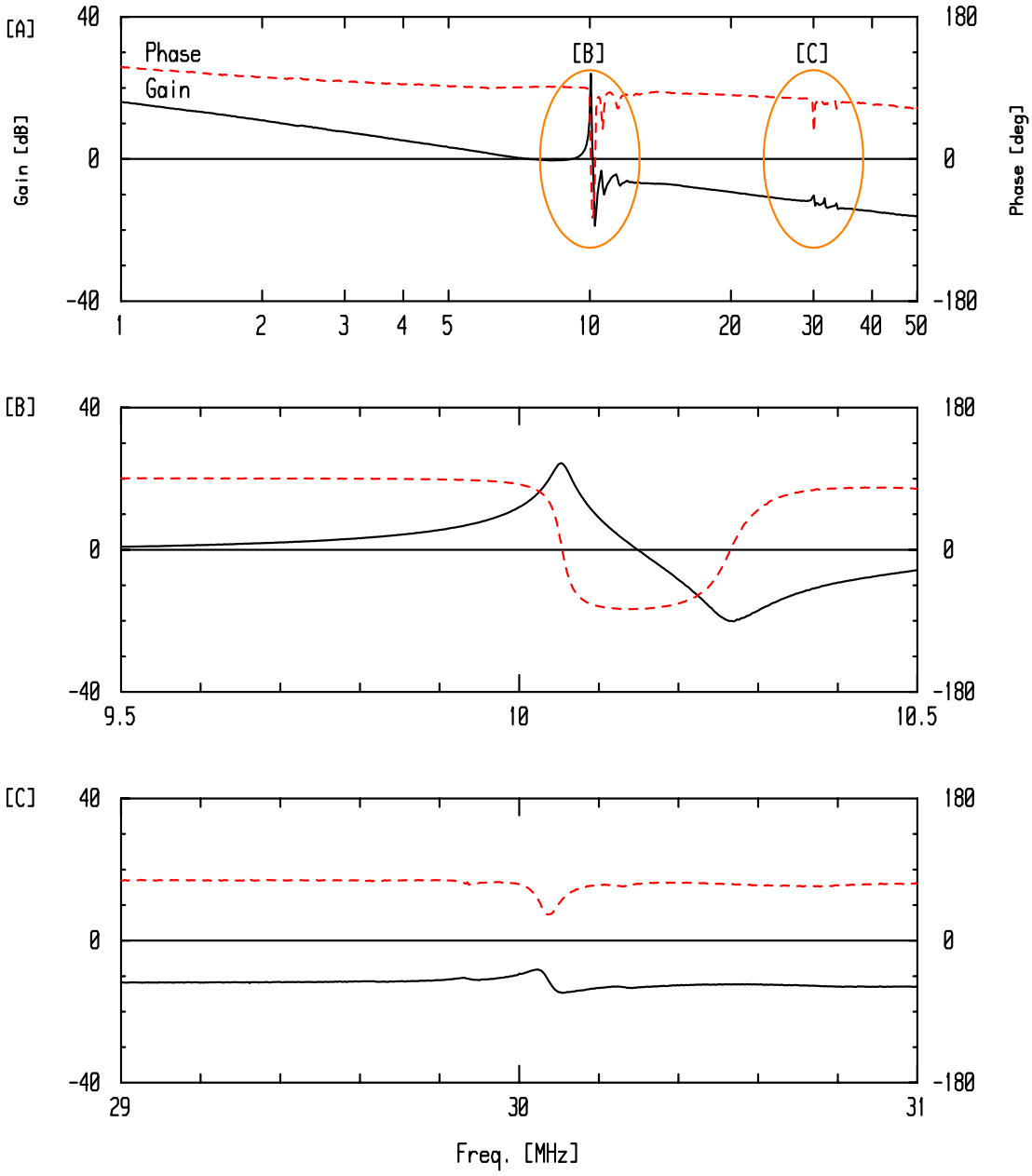
Vdd= 5 [V] (Fig.a~e)



Temperature dependence of oscillating characteristics

R5F212L4SNFP - TYP(HIGH)
CCR10.0MXC8 - Typical
Vdd [V] 5

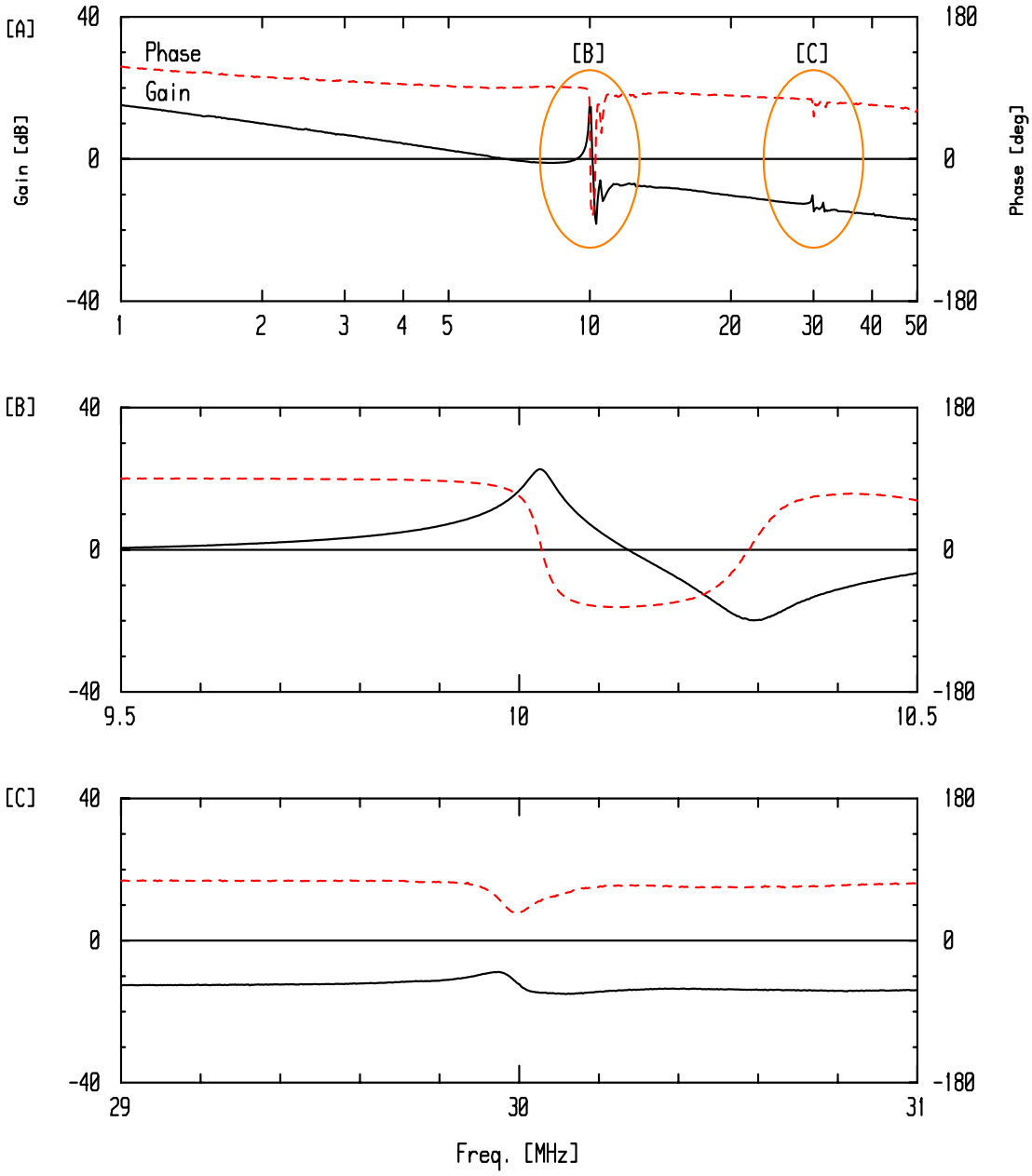
		[B]	[C]
Gmax	[dB]	24.4	-8.1
LGM	[dB]	24.2	0
FLGM	[MHz]	10.0548	0
LPM	[deg]	-74.8	53.1



Open loop characteristics (Typical Sample)

R5F212L4SNFP - TYP(HIGH)
CCR10.0MXC8 - Worst
Vdd [V] 5

		[B]	[C]
Gmax	[dB]	22.7	-8.8
LGM	[dB]	22.4	0
FLGM	[MHz]	10.0292	0
LPM	[deg]	-72.5	51.9



Open loop characteristics (Worst Sample)