

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR4.0MUC8)

IC R5F21258SNFP-HIGH
(Renesas Technology)

Jul,26,2007

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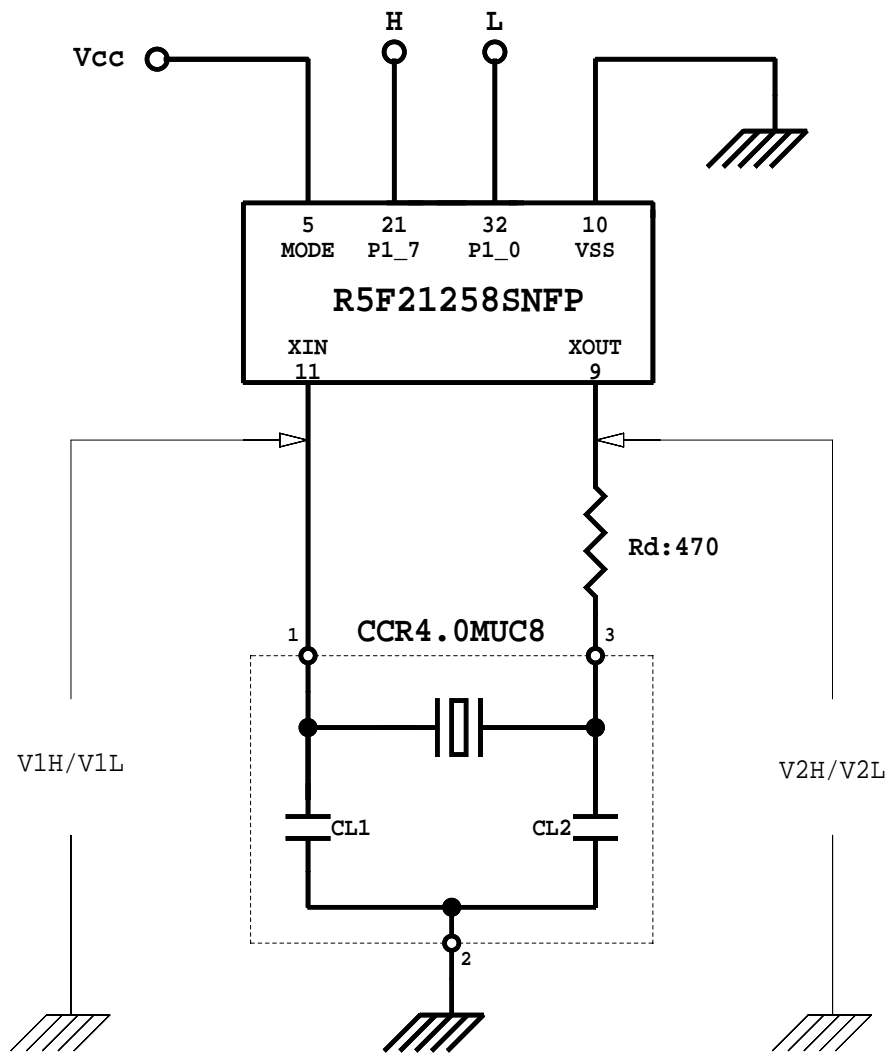
2.Test Conditions

IC	:	R5F21258SNFP-HIGH (Renesas Technology)
Ceramic Resonator	:	CCR4.0MUC8 (Typical and worst sample are tested)
Power Supply Voltage range	:	2.2(V)-5.5(V)
Temperature Range	:	-45(degC)-+90(degC)

3.Conclusions and recommendable circuit constant

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

Power Supply Voltage range	:	2.2(V)-5.5(V)
Temperature Range	:	-45(degC)-+90(degC)
Load capacitance(CL1/CL2)	:	Built-in [27(pF)]
Damping resistance(Rd)	:	470(ohm)
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

R5F21258SNFP
CCR4.0MUC8 - S

Room Temp.
Vdd [V] 5 (item a~e)
Rd [ohm] 470

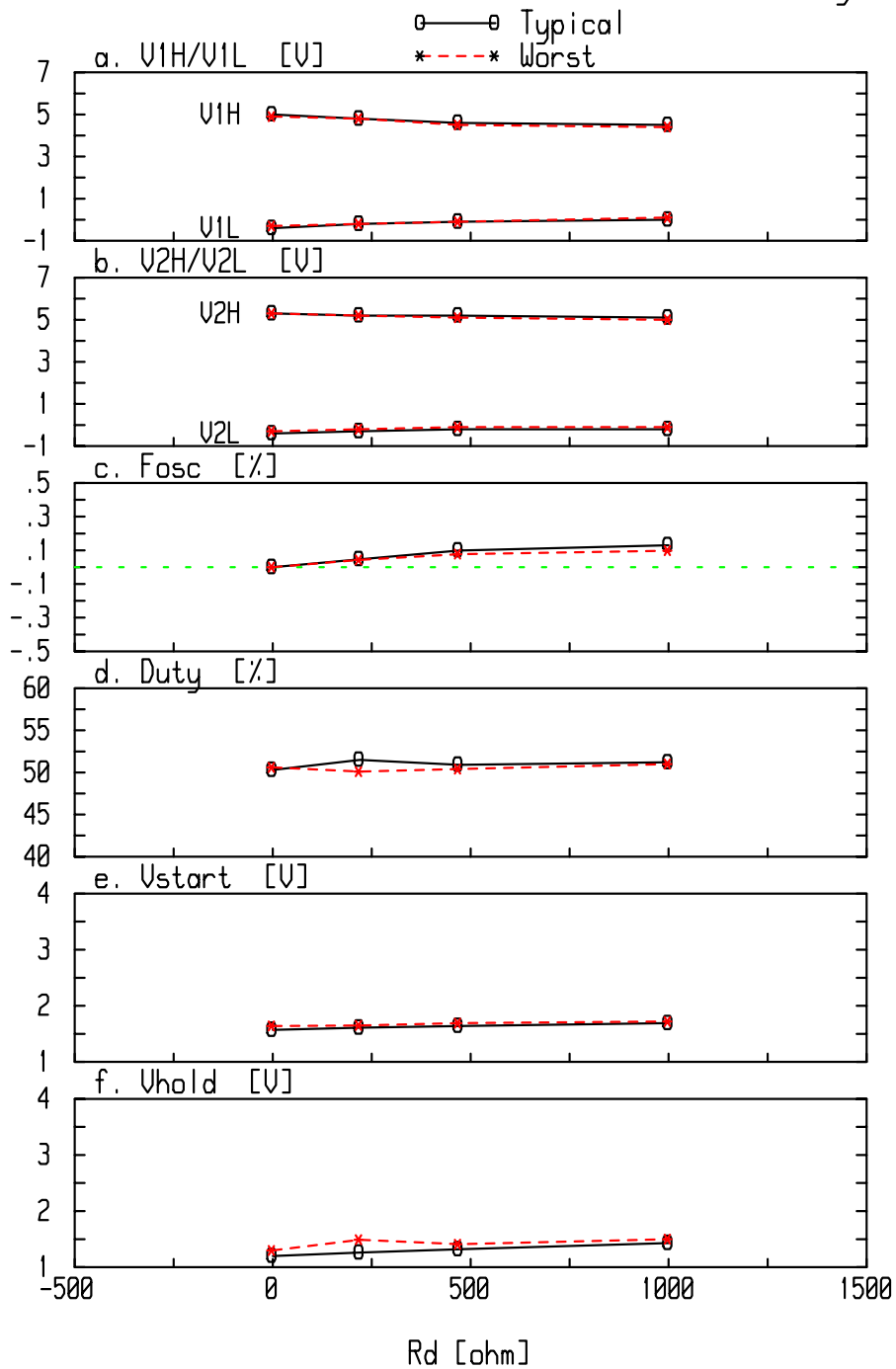
item IC NO	a. [V] V1H/V1L	b. [V] V2H/V2L	c. [MHz] Fosc	d. [uS] Trise	e. [%] Duty	f. [V] Vstart	g. [V] Uhold
LL	4.6 0	5.2 -.2	4.01122	11	51	1.53	1.25
LH	4.6 0	5.2 -.2	4.01082	12	51.5	1.63	1.32
TYP	4.6 -.1	5.2 -.2	4.01111	12	51.1	1.64	1.32
HL	4.6 -.1	5.2 -.2	4.01105	10	49.8	1.66	1.36
HH	4.6 -.1	5.2 -.2	4.01061	11	50.9	1.76	1.41

R5F21258SNFP - TYP(HIGH)

CCR4.0MUC8

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

T_a = 25 [deg]



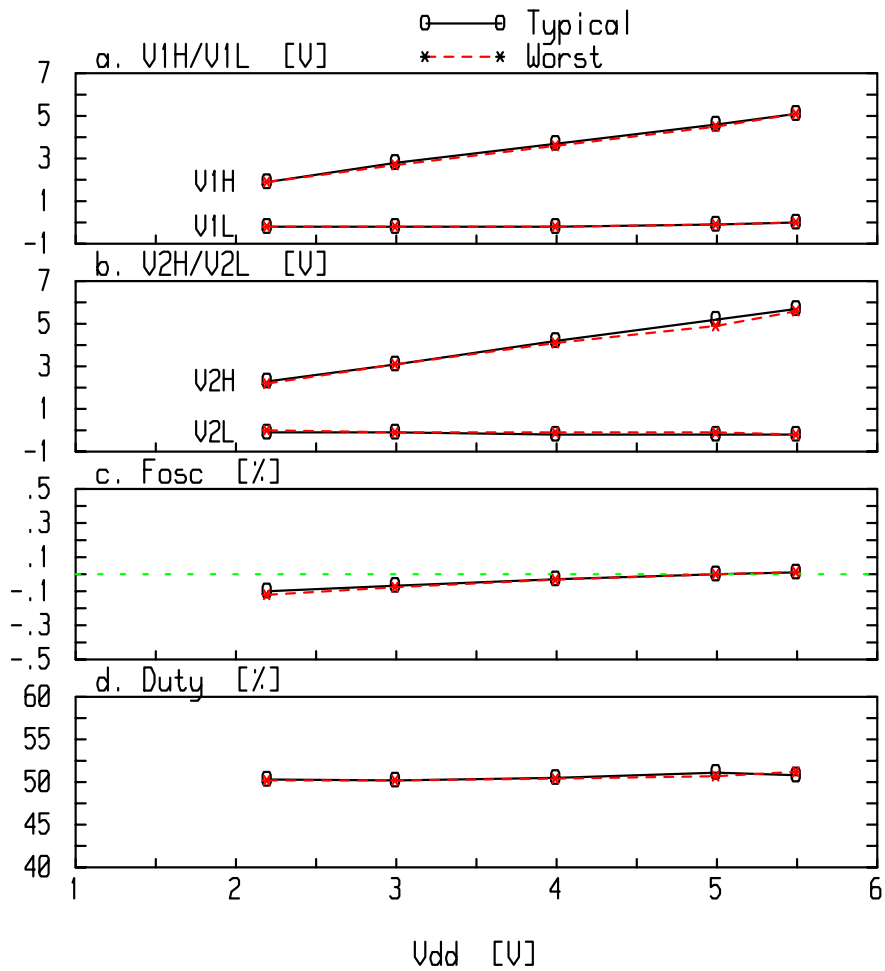
Damping resistance(Rd) dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 470

CCR4.0MUC8

Ta= 25 [deg]



e. Vstart [V]
Typical = 1.64
Worst = 1.68

f. Vhold [V]
Typical = 1.32
Worst = 1.4

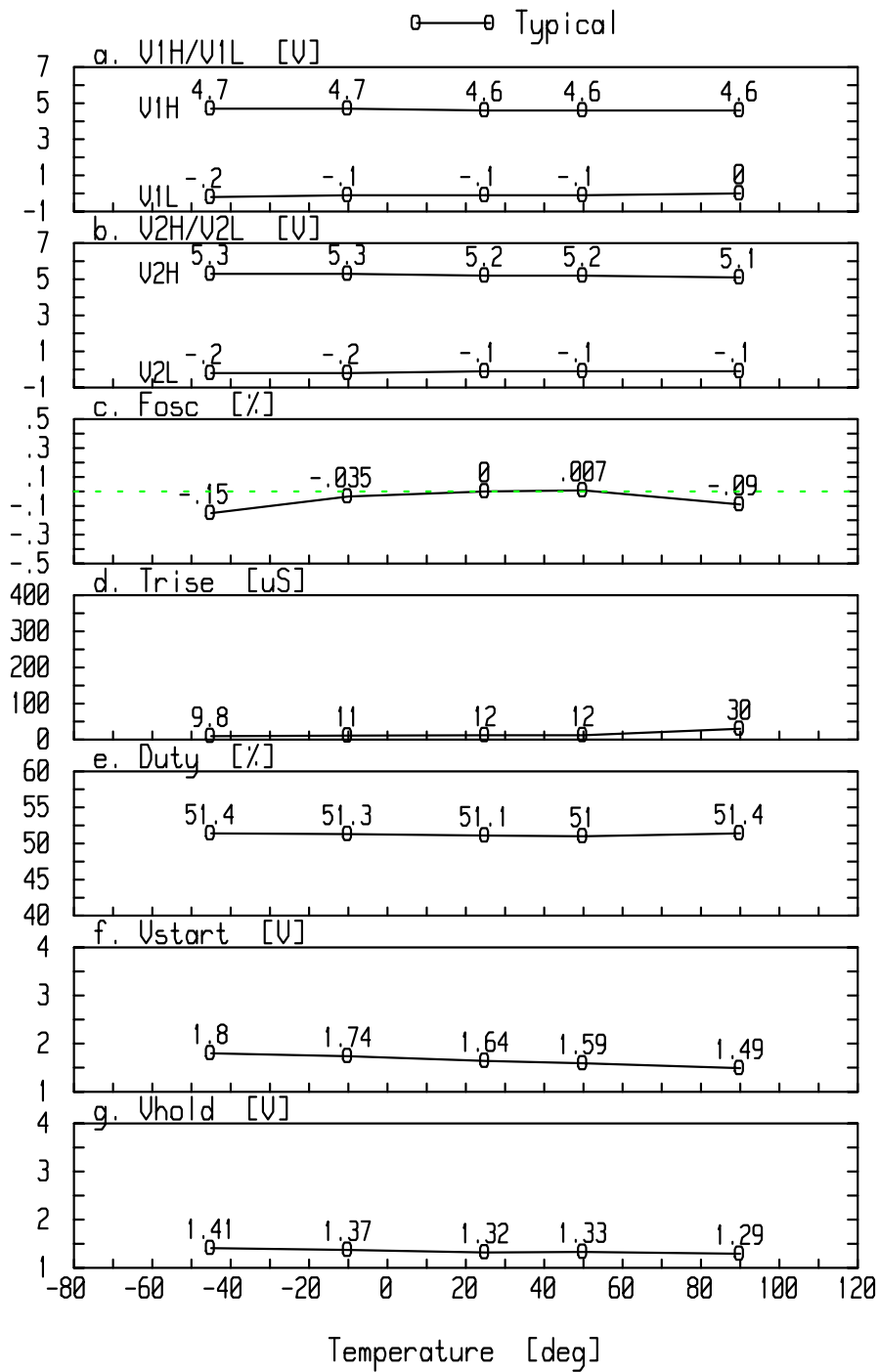
Power supply voltage dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 470

CCR4.0MUC8

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



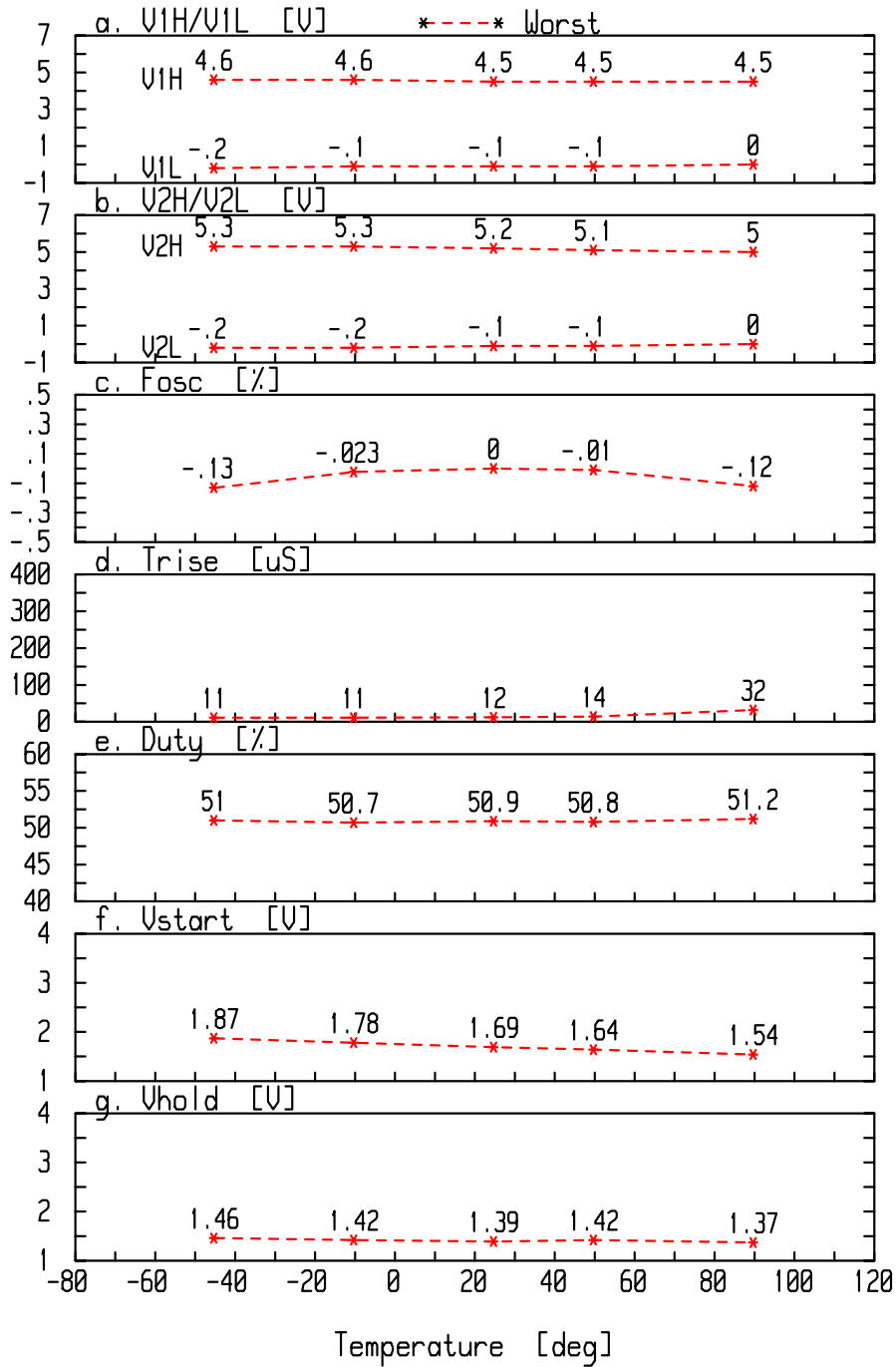
Temperature dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 470

CCR4.0MUC8

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



Temperature dependence of oscillating characteristics

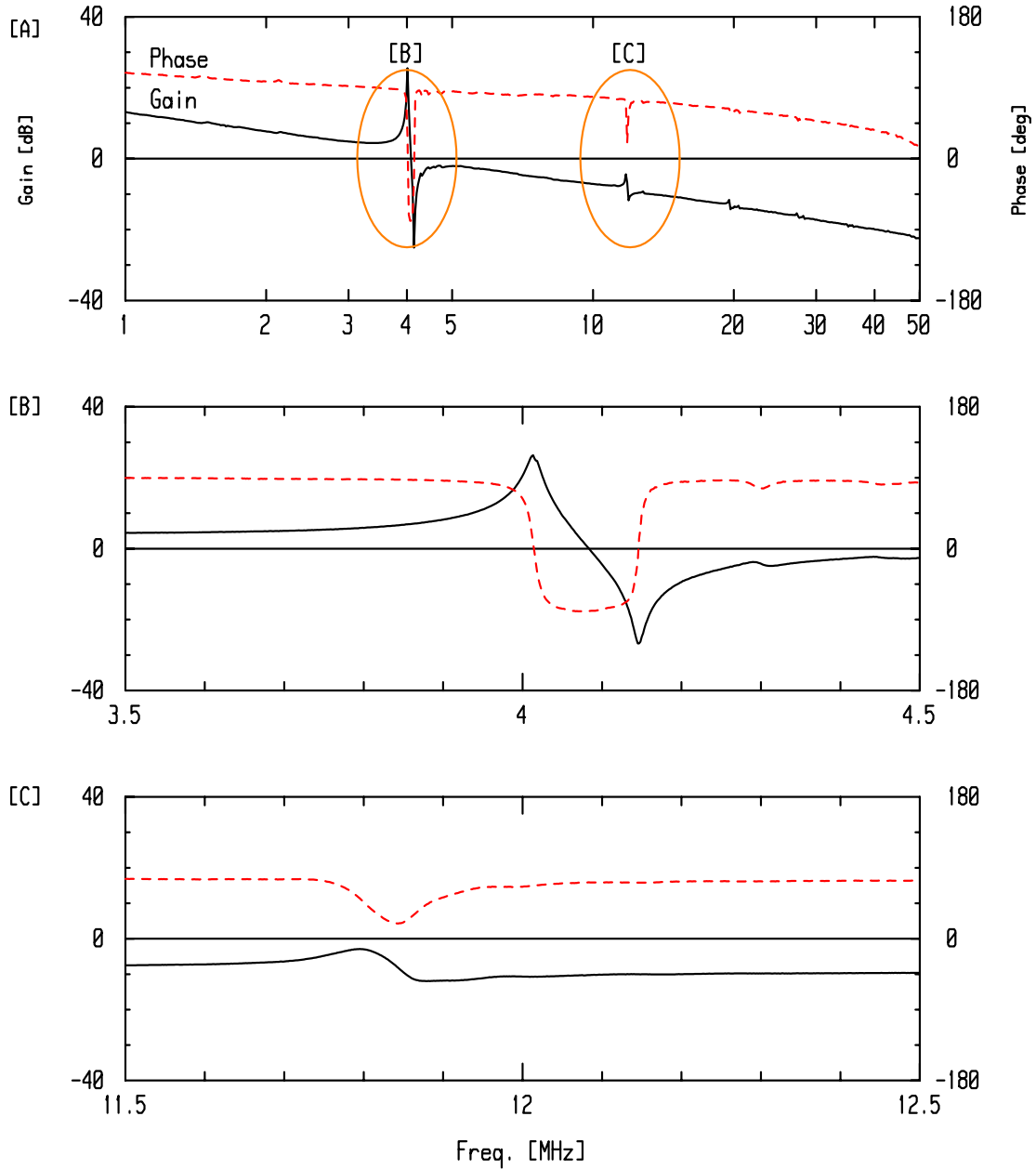
R5F21258SNFP - TYP(HIGH)

CCR4.0MUC8 - Typical

Vdd [V] 5

Rd [ohm] 470

Gmax [dB]	[B]	[C]
26.4	26.4	-2.9
LGM [dB]	26	0
FLGM [MHz]	4.0151	0
LPM [deg]	-79.5	67.5



Open loop characteristics (Typical Sample)

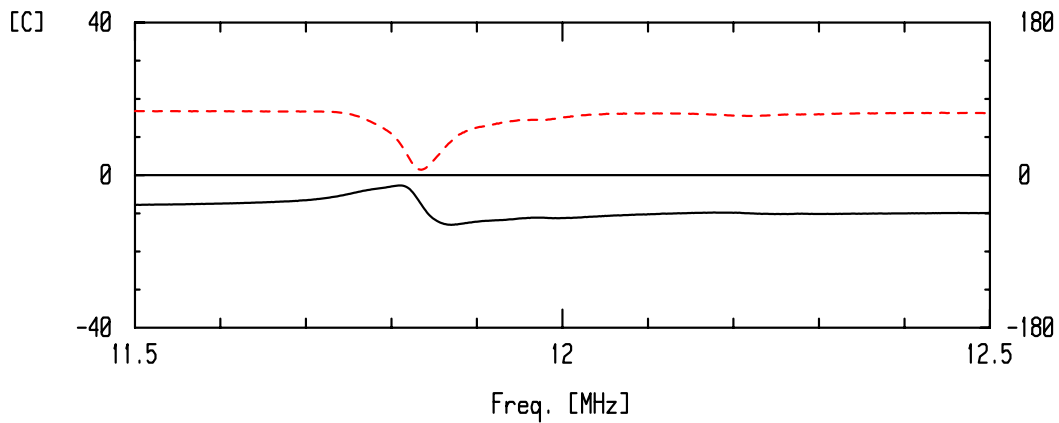
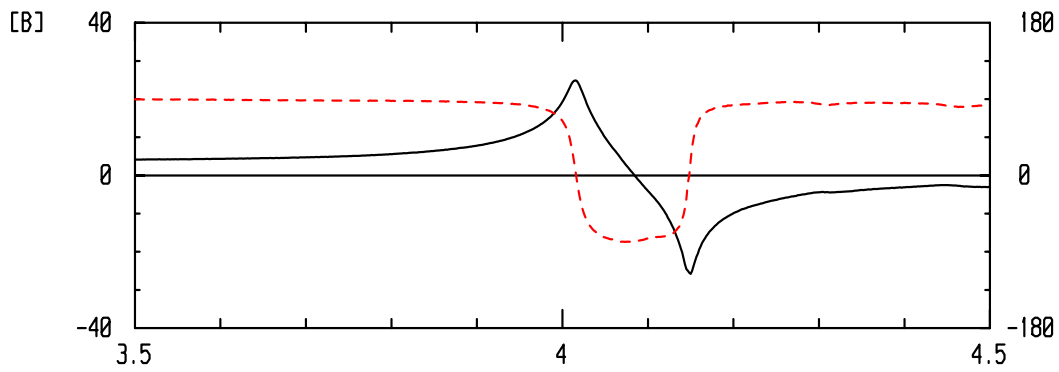
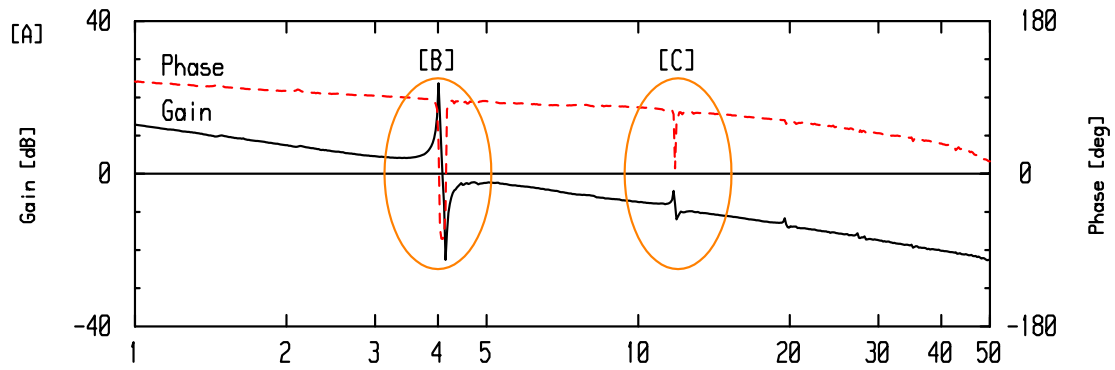
R5F21258SNFP - TYP(HIGH)

CCR4.0MUC8 - Worst

Vdd [V] 5

Rd [ohm] 470

	[B]	[C]
Gmax [dB]	24.9	-2.7
LGM [dB]	24.9	0
FLGM [MHz]	4.0168	0
LPM [deg]	-78.5	70



Open loop characteristics (Worst Sample)