

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR10.0MXC8)

IC R5F21258SNFP-HIGH
(Renesas Technology)

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Sensors & Actuators Business Group,

TDK CORPORATION

ISSUED BY Akira Suzuki

APPROVED	CHECKED	CHECKED
Y.Suzuki	Y.Haga	

1.Contents

(1) Oscillating circuit for evaluation	P.3
(2) IC dependence of oscillating characteristics	p.4
(3) Damping resistance(Rd) dependence of oscillating characteristics	p.5
(4) Power supply voltage dependence of oscillating characteristics	P.6
(5) Temperature dependence of oscillating characteristics	P.7-8
(6) Open loop characteristics	P.9-10

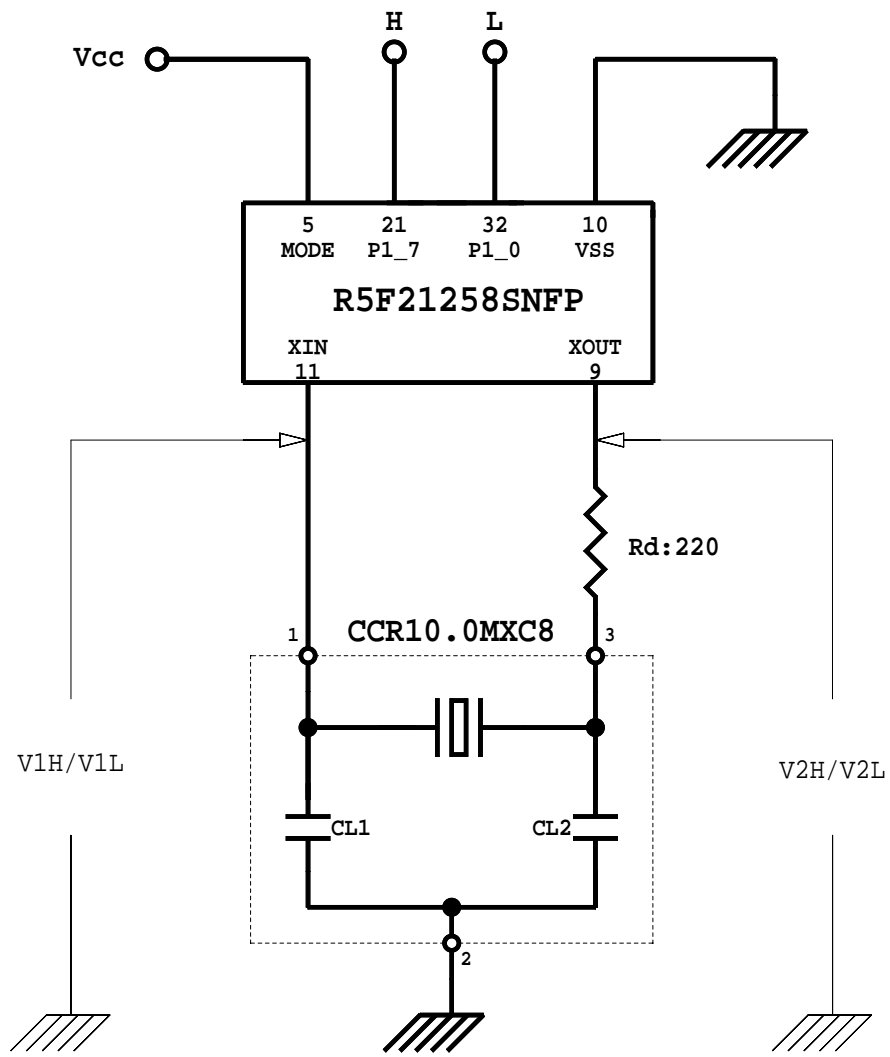
2.Test Conditions

IC	:	R5F21258SNFP-HIGH (Renesas Technology)
Ceramic Resonator	:	CCR10.0MXC8 (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 [18(pF)]
Damping resistance(Rd)	:	220(ohm)
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

R5F21258SNFP
CCR10.0MXC8 - S

Room Temp.
Vdd [V] 5 (item a~e)
Rd [ohm] 220

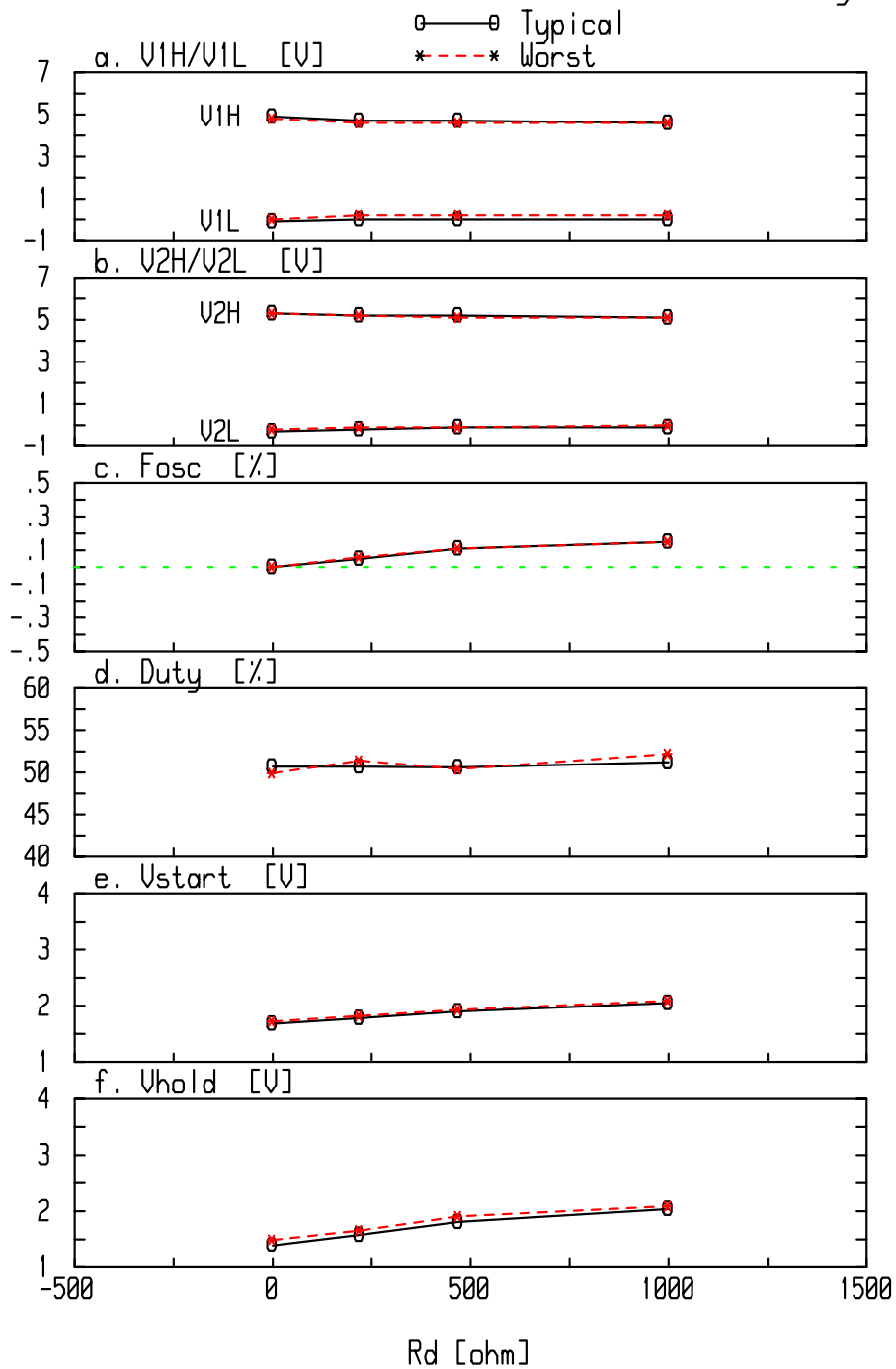
item IC NO	a. [V] V1H/V1L	b. [V] V2H/V2L	c. [MHz] Fosc	d. [uS] Trise	e. [%] Duty	f. [V] Vstart	g. [V] Uhold
LL	4.7 0	5.3 -.2	10.03303	12	50.9	1.67	1.5
LH	4.7 0	5.3 -.2	10.03266	10	50.7	1.78	1.58
TYP	4.7 0	5.2 -.2	10.03281	12	51.3	1.78	1.58
HL	4.7 0	5.2 -.2	10.03248	11	49.9	1.8	1.61
HH	4.7 .1	5.2 -.2	10.03205	13	50.7	1.9	1.68

R5F21258SNFP - TYP(HIGH)

CCR10.0MXC8

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

T_a = 25 [deg]



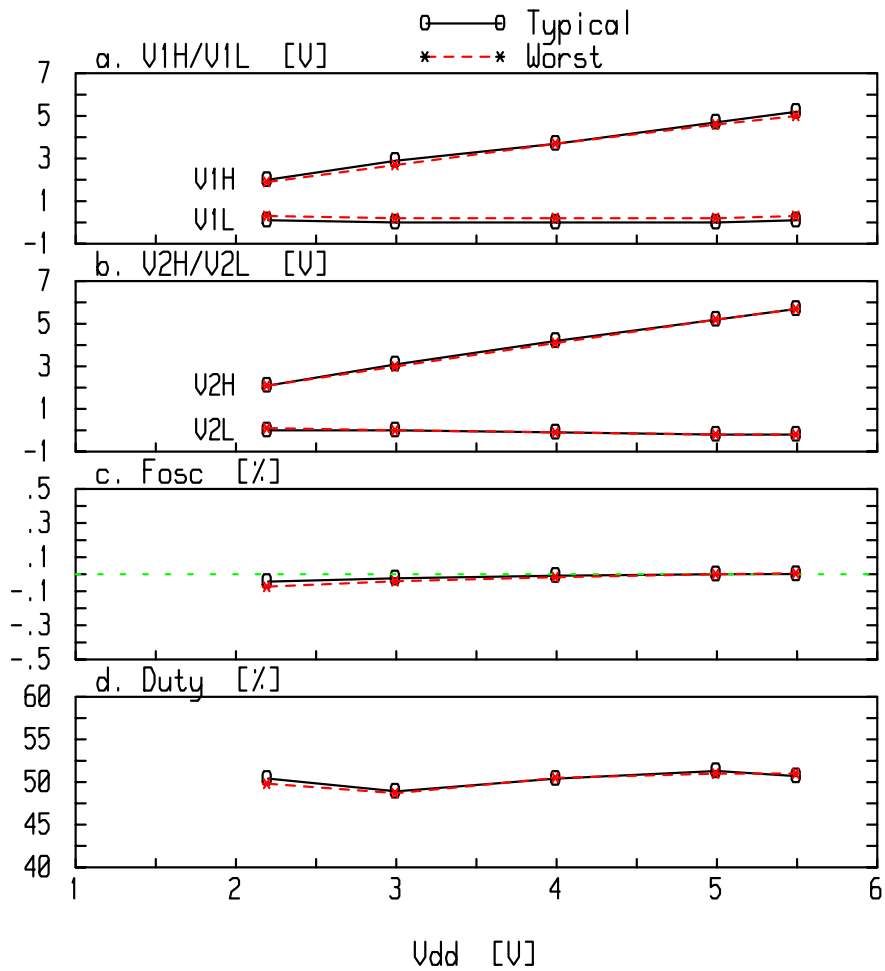
Damping resistance(Rd) dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 220

CCR10.0MXC8

Ta= 25 [deg]



e. V_{start} [V]
Typical = 1.78
Worst = 1.82

f. V_{hold} [V]
Typical = 1.58
Worst = 1.66

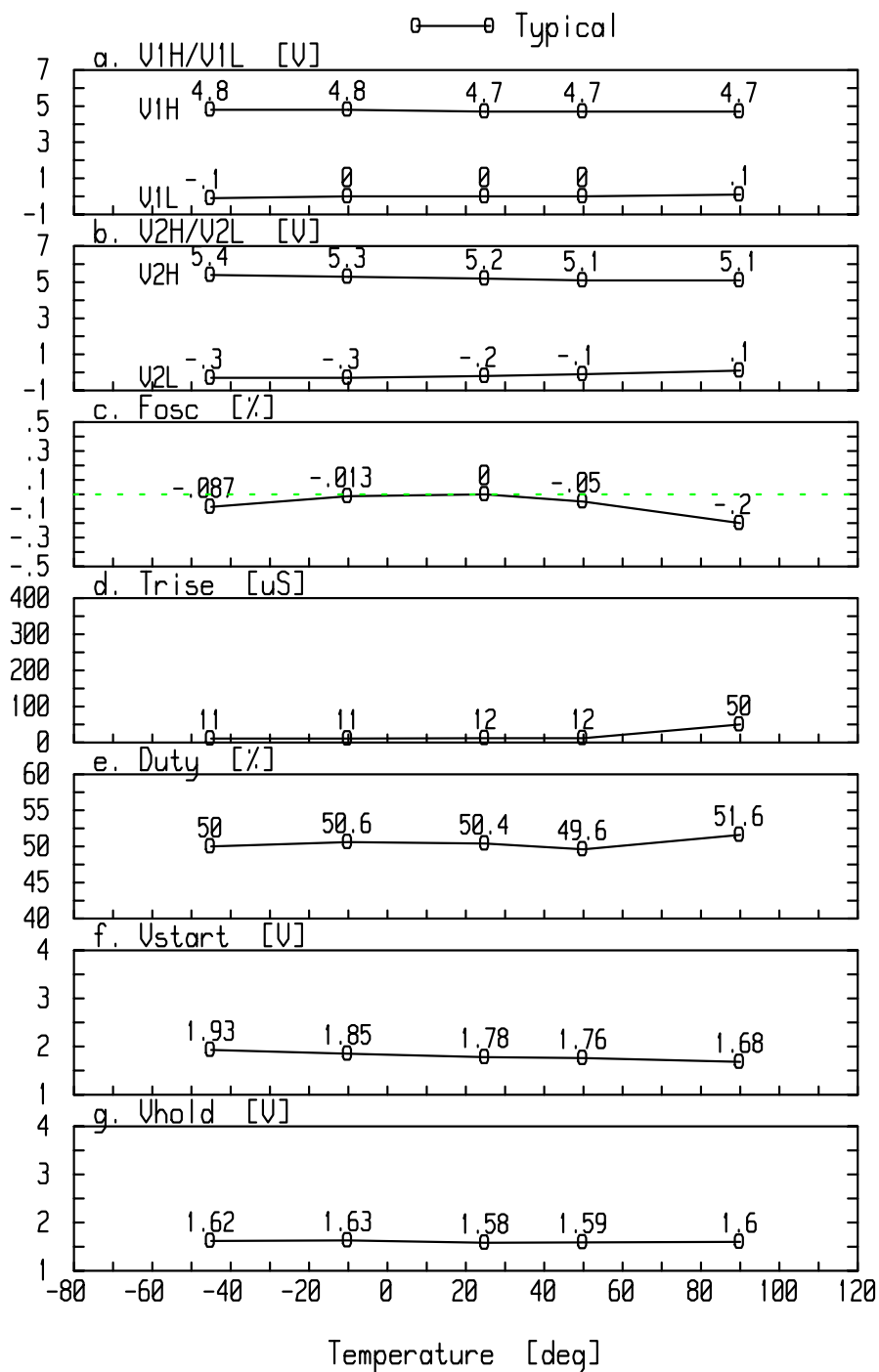
Power supply voltage dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 220

CCR10.0MXC8

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



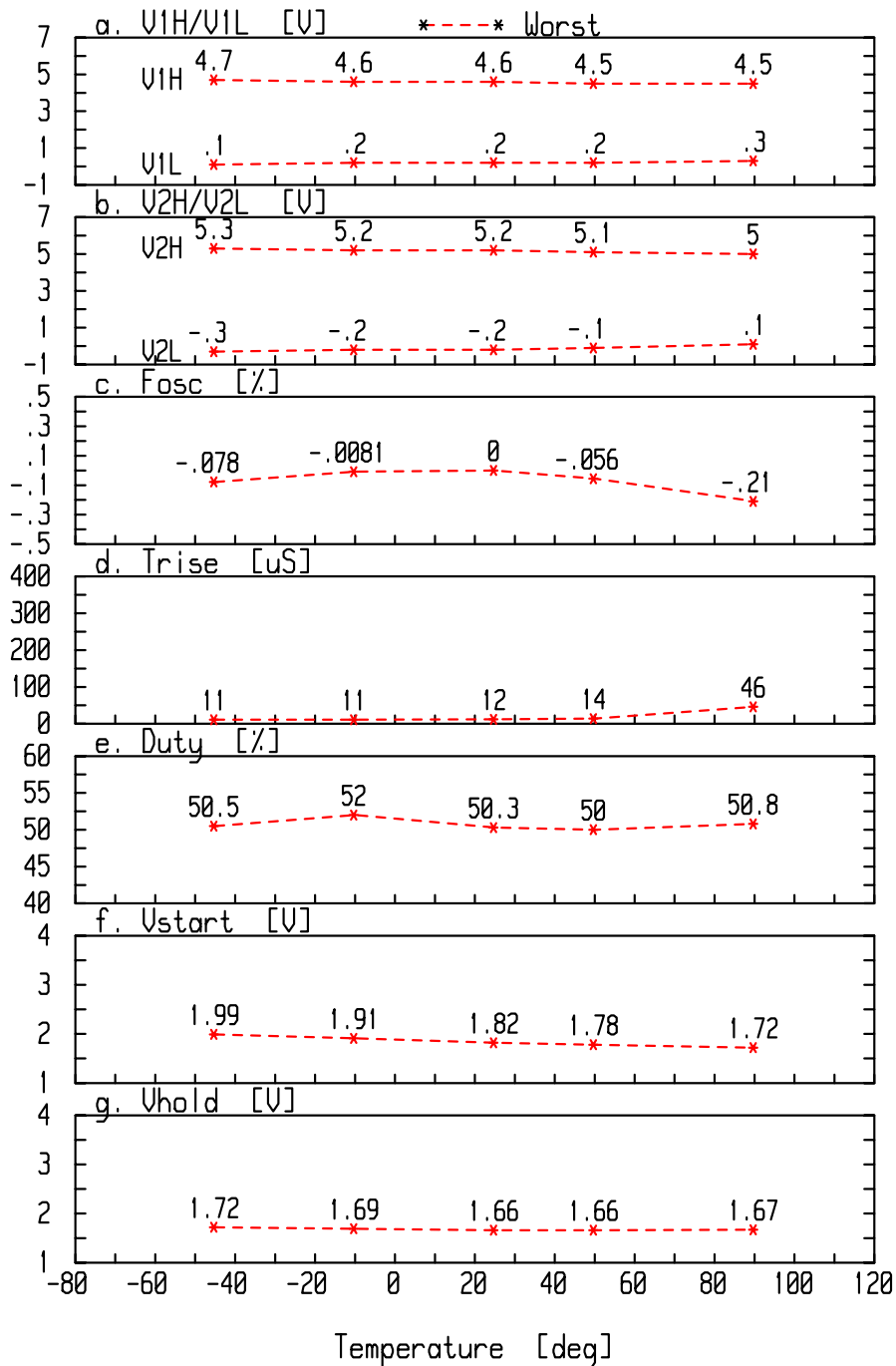
Temperature dependence of oscillating characteristics

R5F21258SNFP - TYP(HIGH)

Rd [ohm] 220

CCR10.0MXC8

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



Temperature dependence of oscillating characteristics

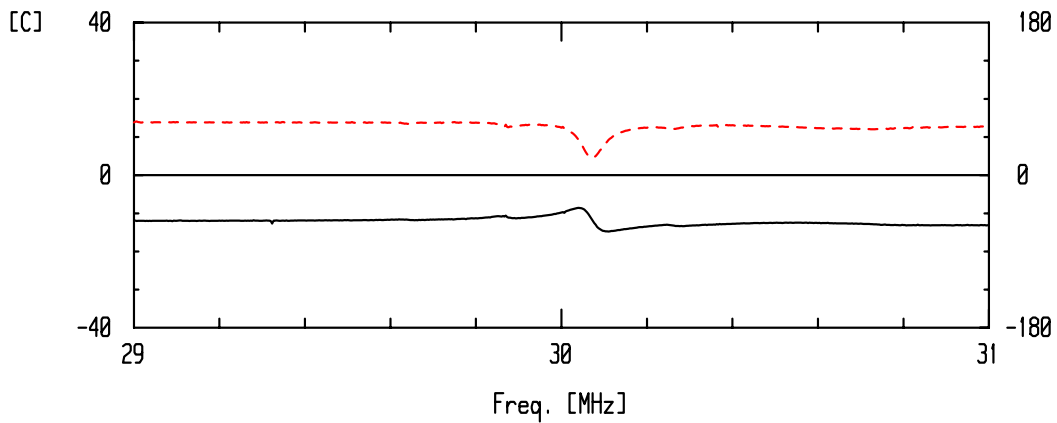
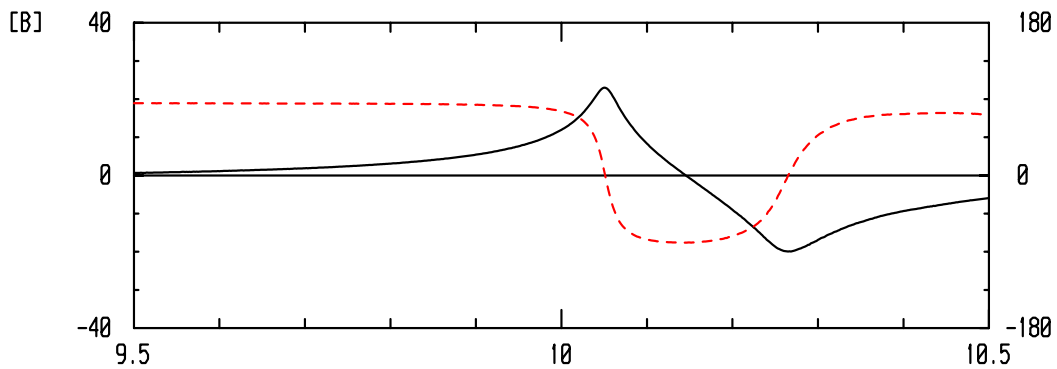
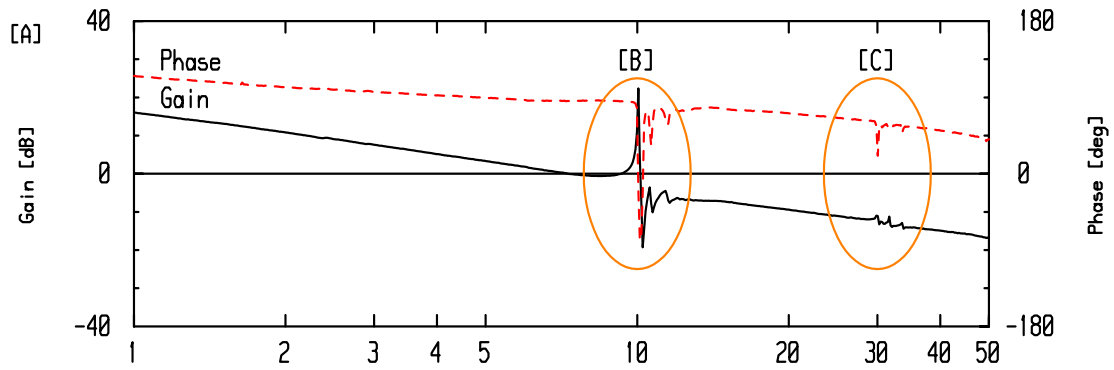
R5F21258SNFP - TYP(HIGH)

CCR10.0MXC8 - Typical

Vdd [V] 5

Rd [ohm] 220

Gmax [dB]	[B] 23	[C] -8.6
LGM [dB]	23	0
FLGM [MHz]	10.0519	0
LPM [deg]	-79.3	37.5



Open loop characteristics (Typical Sample)

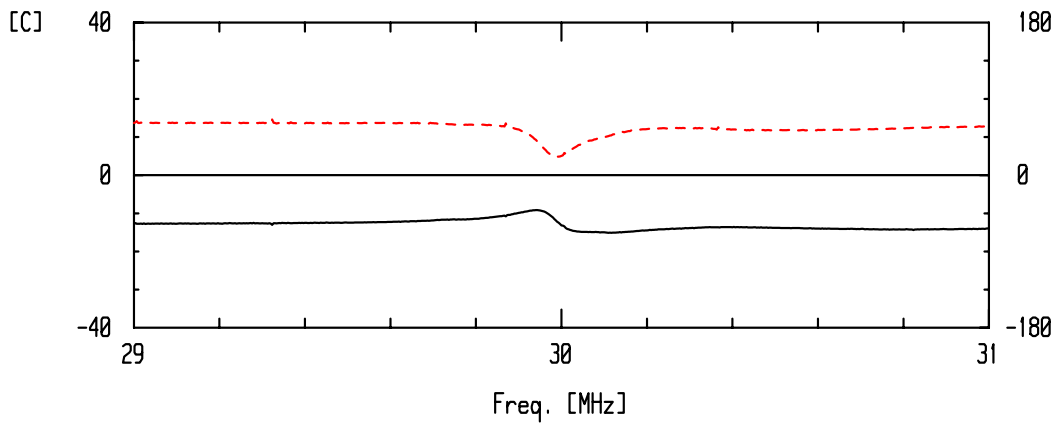
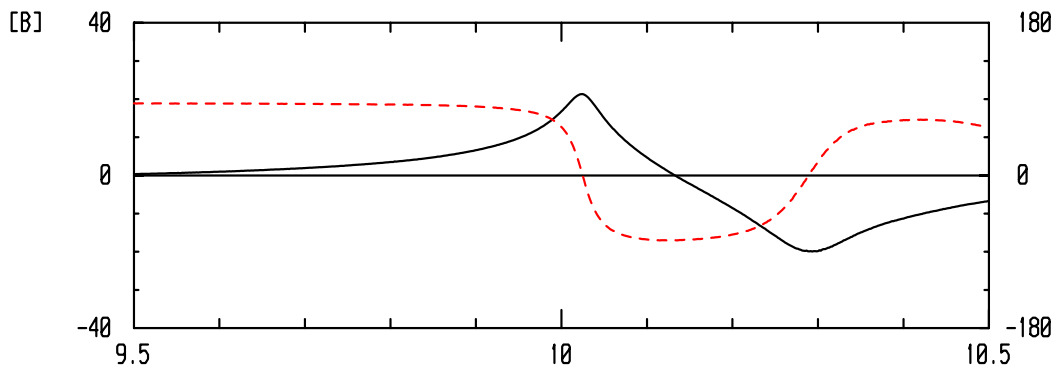
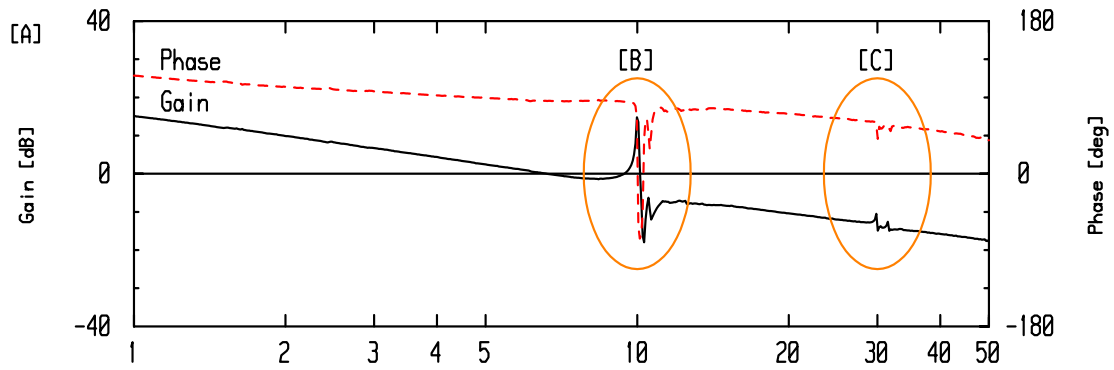
R5F21258SNFP - TYP(HIGH)

CCR10.0MXC8 - Worst

Vdd [V] 5

Rd [ohm] 220

Gmax [dB]	[B] 21.3	[C] -9.2
LGM [dB]	21.3	0
FLGM [MHz]	10.0256	0
LPM [deg]	-76.7	37.7



Open loop characteristics (Worst Sample)