

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR10.0MXC8)

IC R5F212L4SNFP-LOW
(Renesas Technology)

Dec,14,2007

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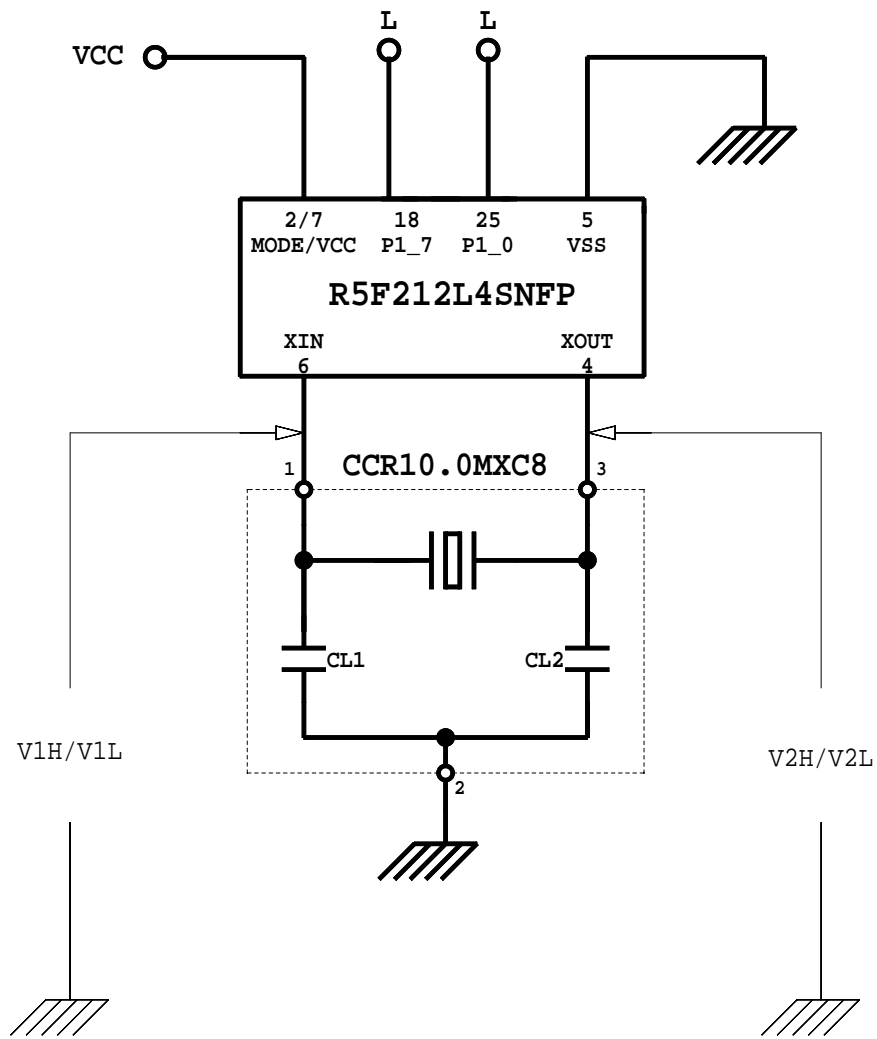
2.Test Conditions

IC	:	R5F212L4SNFP-LOW (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	:	2.3 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

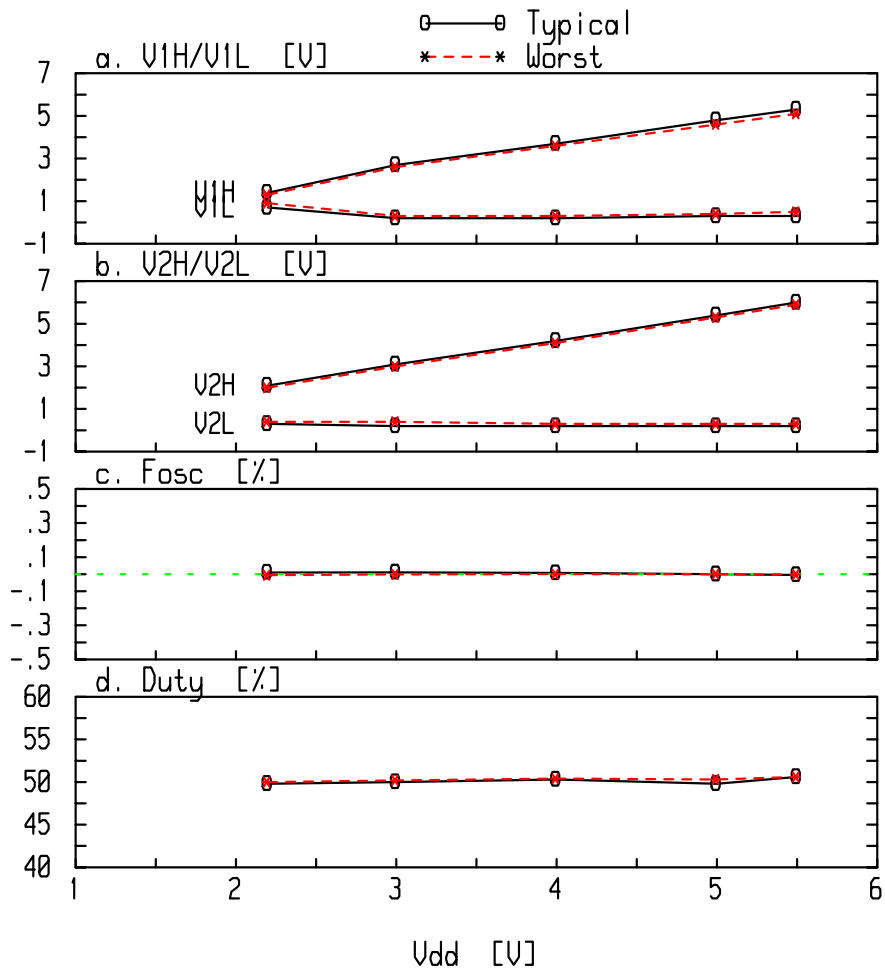
R5F212L4SNFP
CCR10.0MXC8 - S

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] Uhold
LL	4.7 .3	5.4 .1	10.0322		50.2	1.6	1.6
LH	4.8 .3	5.5 .2	10.0317		50.5	1.73	1.73
TYP	4.7 .3	5.4 .2	10.0318		50.3	1.75	1.75
HL	4.7 .2	5.4 .2	10.0318		50.4	1.75	1.75
HH	4.7 .3	5.4 .2	10.0317		50.2	1.84	1.84

R5F212L4SNFP - TYP(LOW)

CCR10.0MXC8
 $T_a = 25$ [deg]



e. Vstart [V]
 Typical = 1.74
 Worst = 1.89

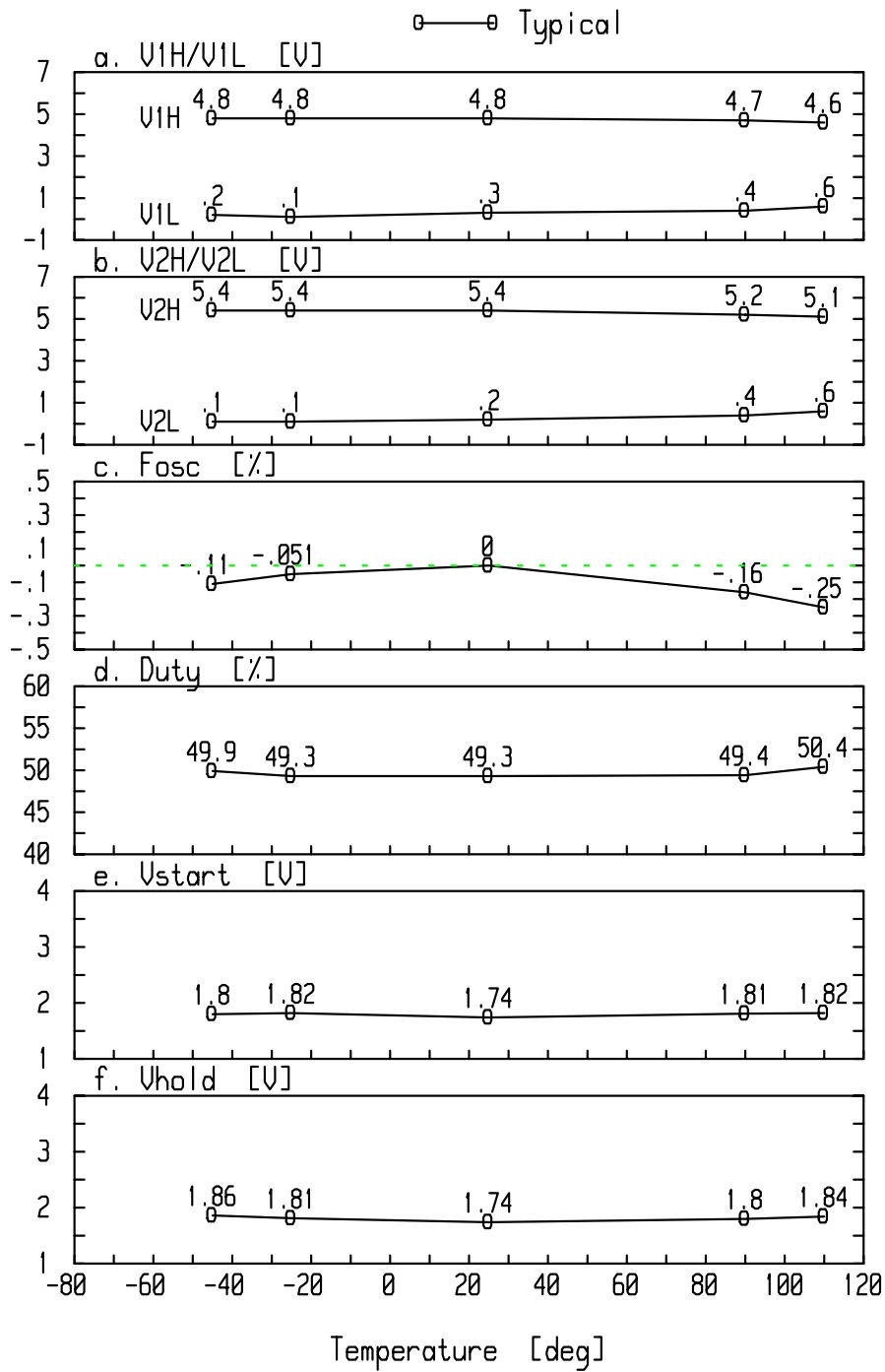
f. Vhold [V]
 Typical = 1.74
 Worst = 1.89

Power supply voltage dependence of oscillating characteristics

R5F212L4SNFP - TYP(LOW)

CCR10.0MXC8

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

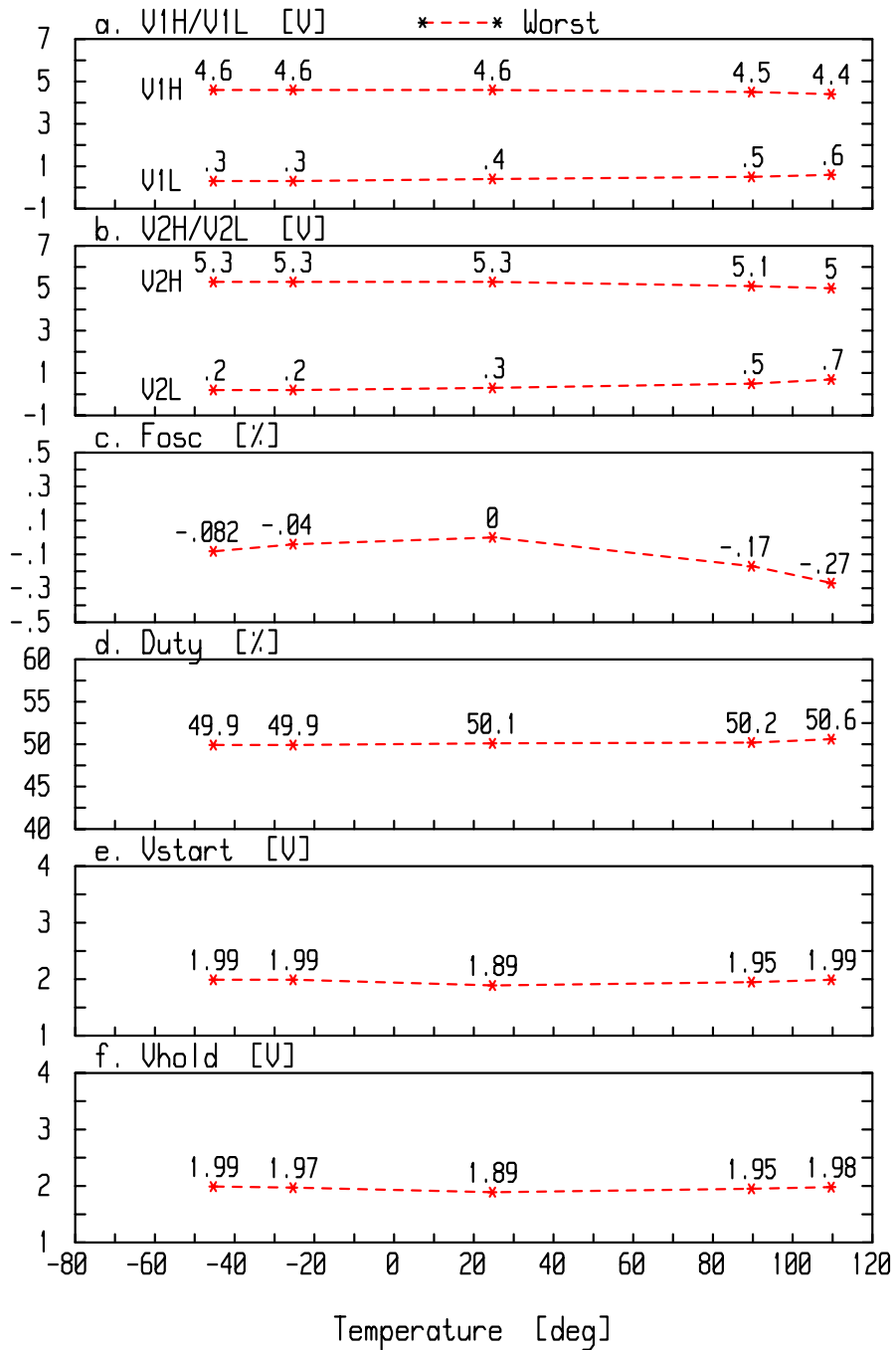


Temperature dependence of oscillating characteristics

R5F212L4SNFP - TYP(LOW)

CCR10.0MXC8

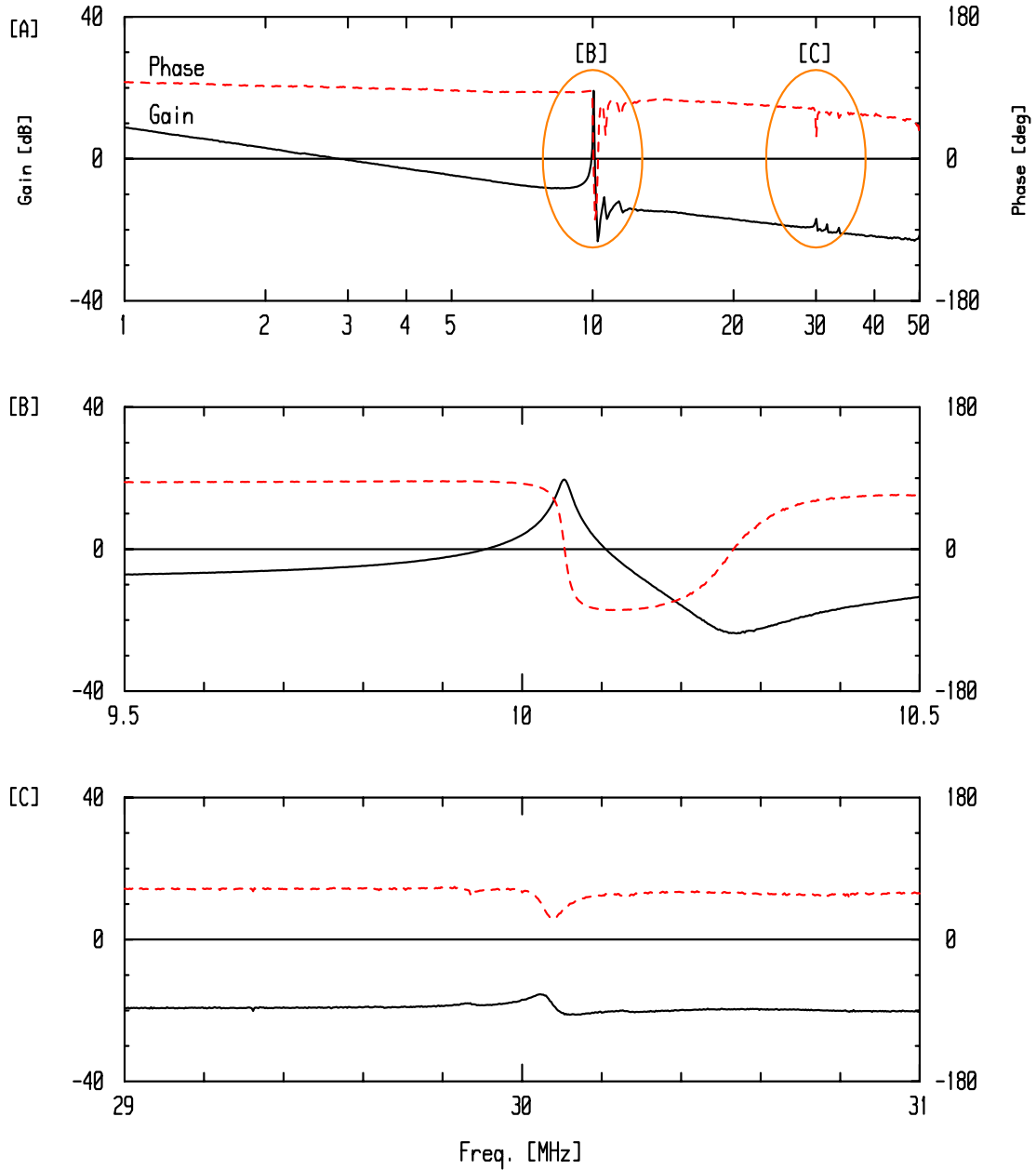
V_{dd}= 5 [V] (Fig.a~e)



Temperature dependence of oscillating characteristics

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

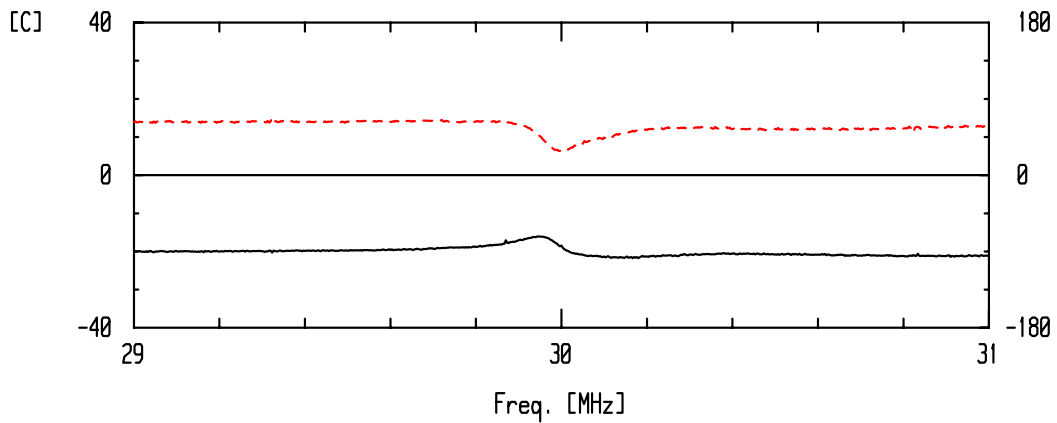
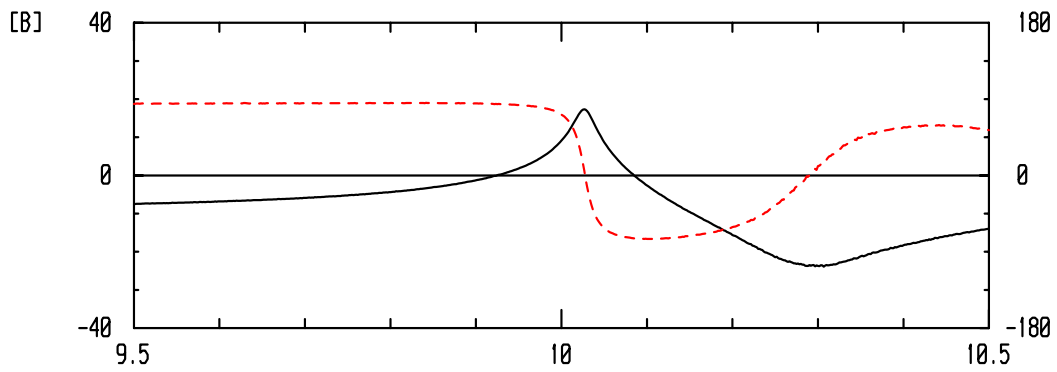
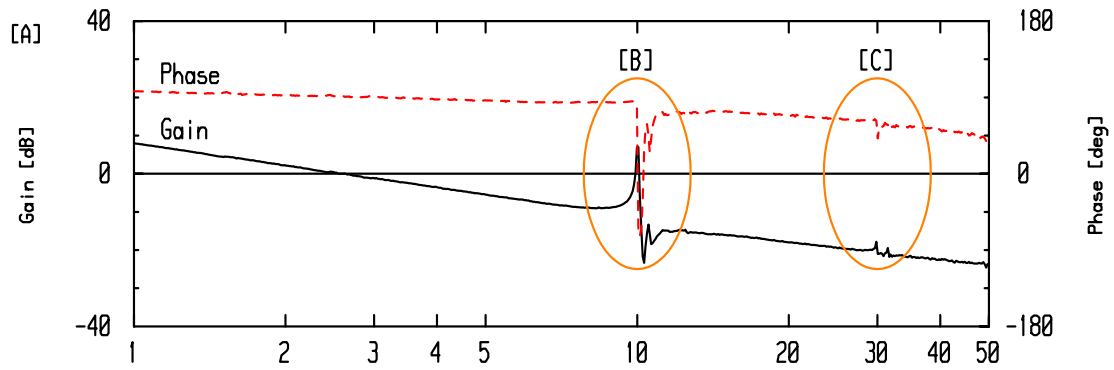
	[B]	[C]
Gmax [dB]	19.6	-15.4
LGM [dB]	19.3	0
FLGM [MHz]	10.0542	0
LPM [deg]	-76.9	40.7



Open loop characteristics (Typical Sample)

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

	[B]	[C]
Gmax [dB]	17.4	-16.1
LGM [dB]	17.3	0
FLGM [MHz]	10.0284	0
LPM [deg]	-74	39.1



Open loop characteristics (Worst Sample)