

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(CCR16.0MXC7)

IC R5F21258SNFP-LOW
(Renesas Technology)

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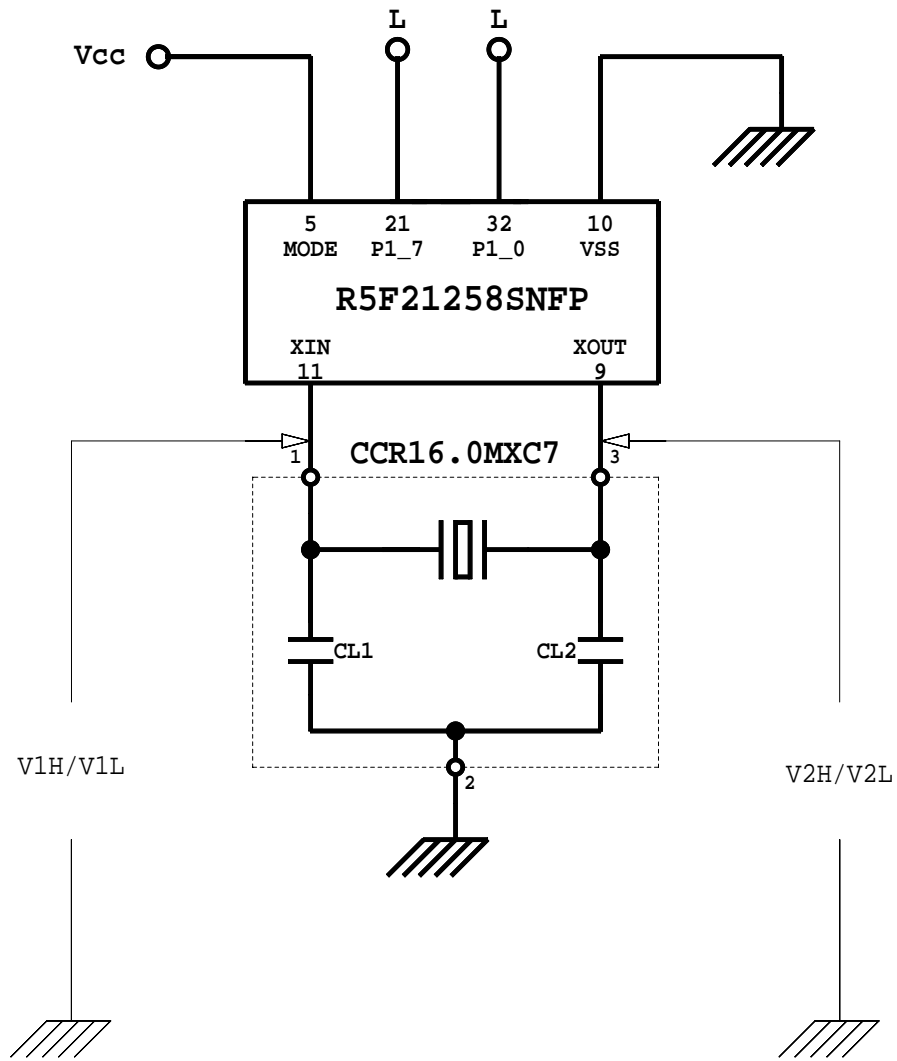
2.Test Conditions

IC	:	R5F21258SNFP-HIGH (Renesas Technology)
Ceramic Resonator	:	CCR16.0MXC7 (Typical and worst sample are tested)
Power Supply Voltage range	:	3.0(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	:	3.1(V) - 5.5(V)
Temperature Range	:	-45(degC) - +90(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=9/9pF +/-20%

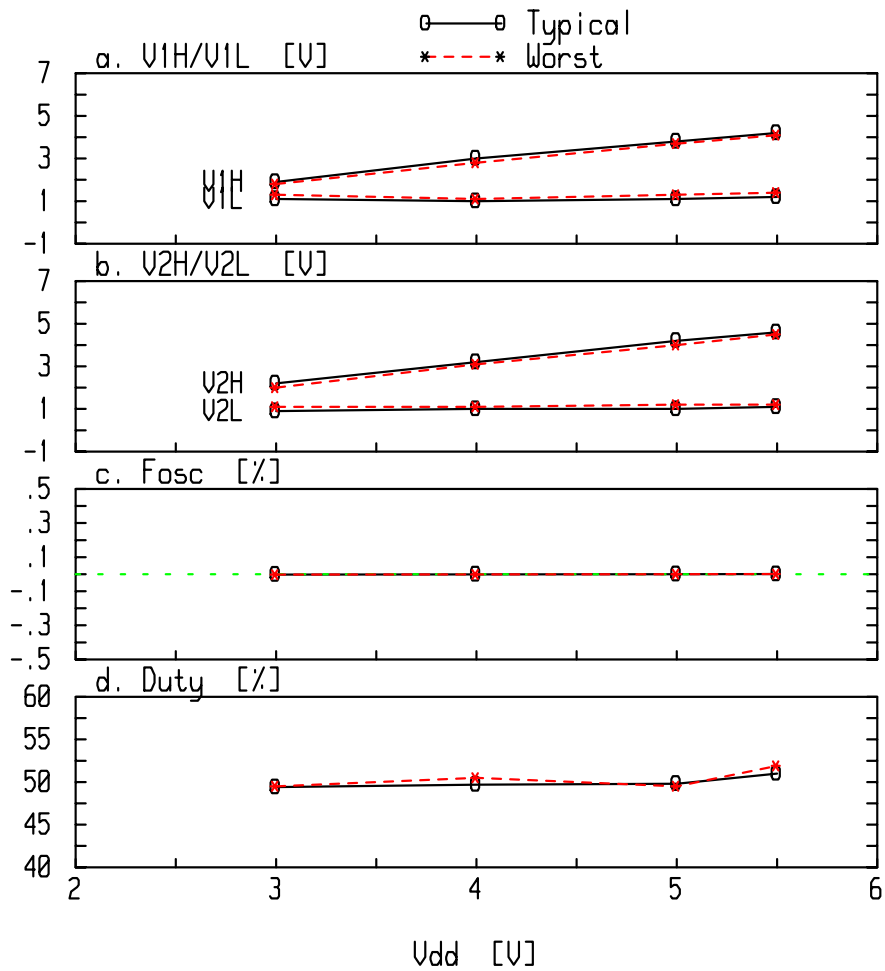
Oscillating circuit for evaluation

IC dependence of oscillating characteristics

R5F21258SNFP
CCR16.0MXC7 - 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	3.8 1.1	4.3 1	16.00365		48.2	2.48	2.45
LH	3.8 1	4.3 1.1	16.00352		50.2	2.54	2.53
TYP(LOW)	3.8 1.1	4.2 1	16.00326		49.8	2.56	2.55
HL	3.8 1	4.3 1.1	16.0036		50.9	2.57	2.57
HH	3.8 1.1	4.3 1	16.00354		51	2.71	2.68



e. Vstart [V]
 Typical = 2.56
 Worst = 2.71

f. Vhold [V]
 Typical = 2.55
 Worst = 2.7

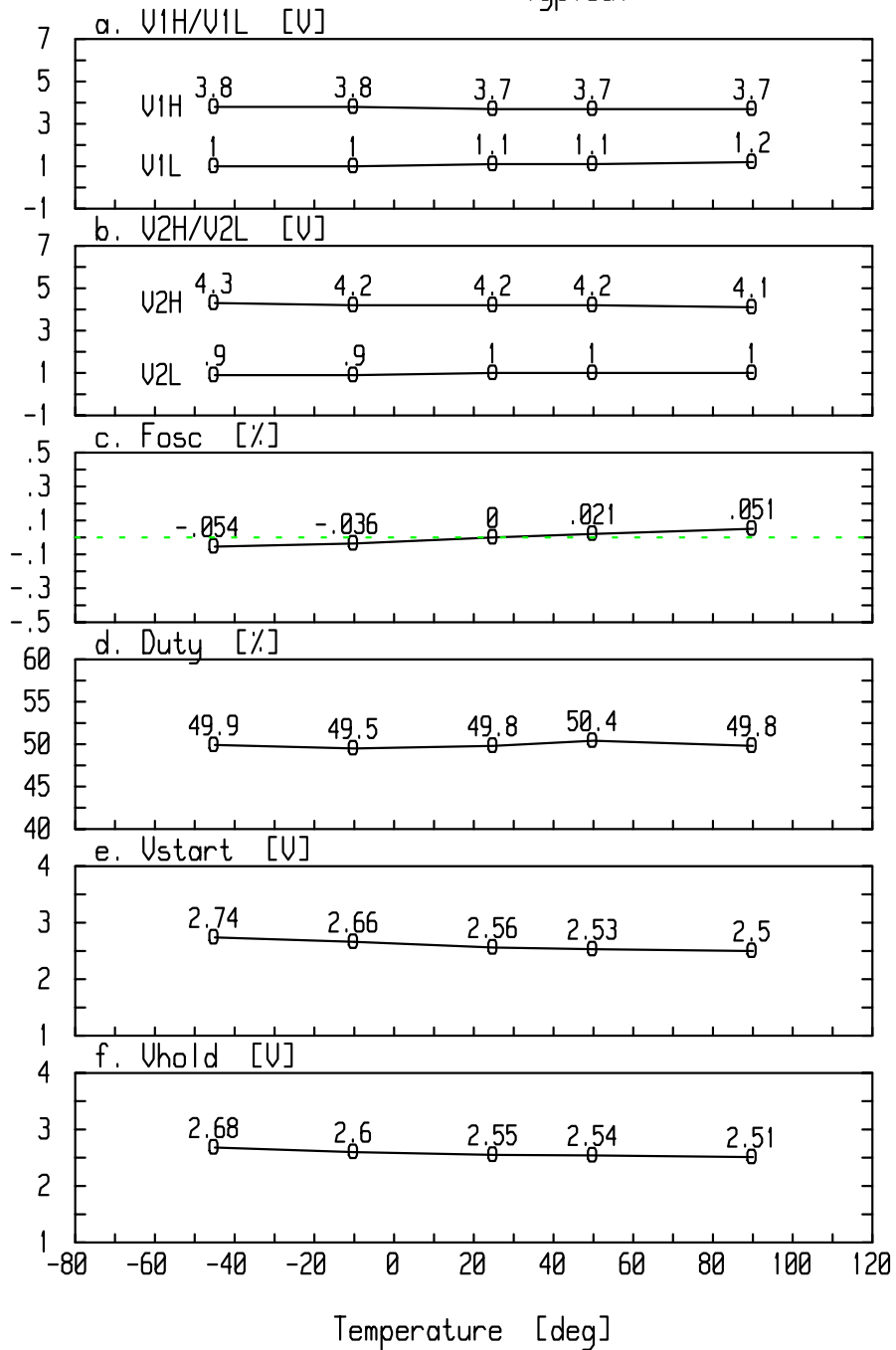
Power supply voltage dependence of oscillating characteristics

R5F21258SNFP - TYP (LOW)

CCR16.0MXC7

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

○—○ Typical

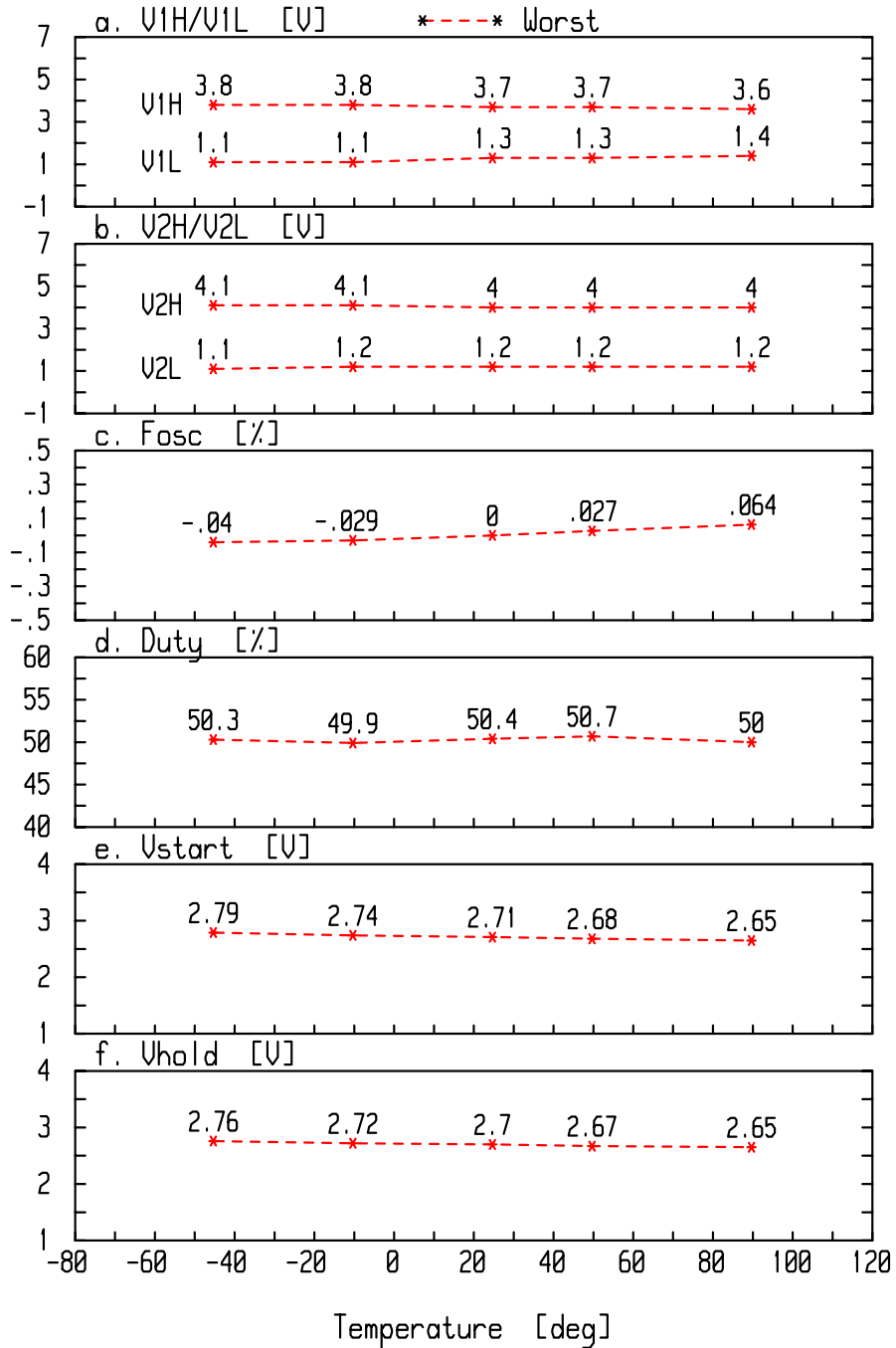


Temperature dependence of oscillating characteristics

R5F21258SNFP - TYP(LOW)

CCR16.0MXC7

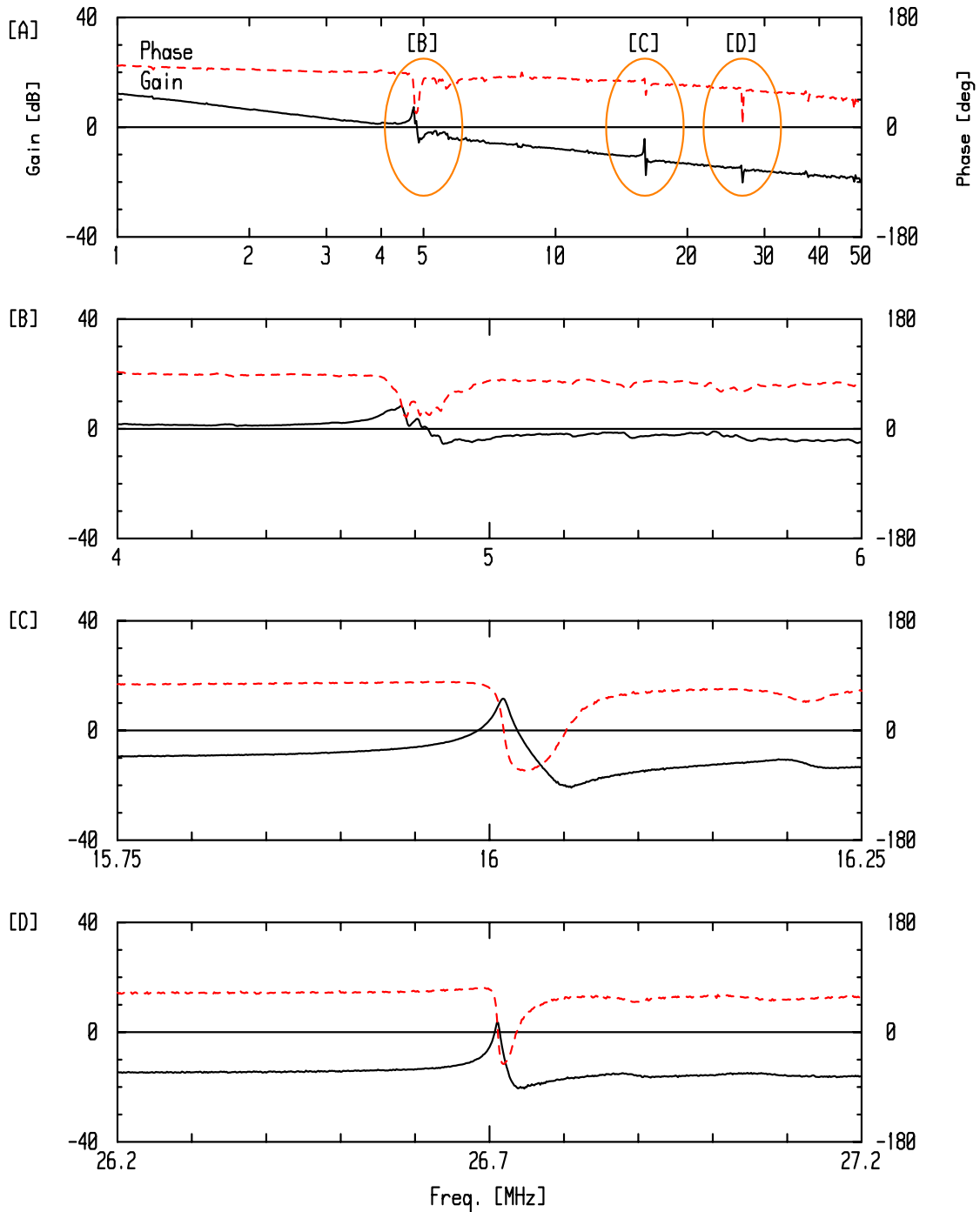
V_{dd}= 5 [V] (Fig.a~e)



Temperature dependence of oscillating characteristics

R5F21258SNFP - TYP(LOW)
 CCR16.0MXC7 - Typical
 Vdd [V] 5

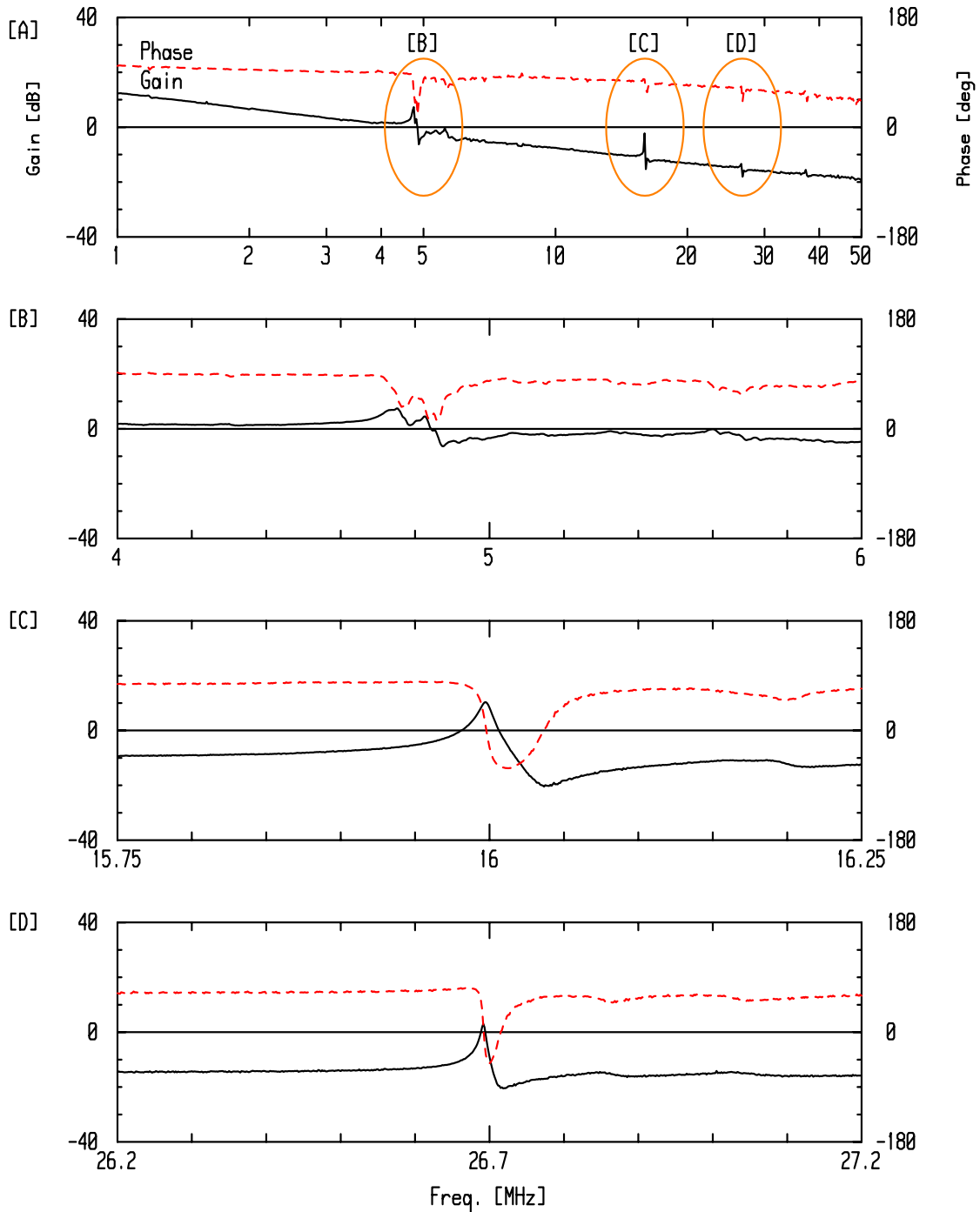
	[B]	[C]	[D]
Gmax [dB]	8.3	11.6	3.5
LGM [dB]	0	11.5	3.5
Pmin [deg]	19	-65.8	-52.3
LPM [deg]	19	-62.9	-39.9



Open loop characteristics (Typical Sample)

R5F21258SNFP - TYP(LOW)
 CCR16.0MXC7 - Worst
 Vdd [V] 5

	[B]	[C]	[D]
Gmax [dB]	7.4	10.4	3
LGM [dB]	0	10.2	2.3
Pmin [deg]	14.6	-61.9	-51.1
LPM [deg]	14.6	-58.1	-24.6



Open loop characteristics (Worst Sample)