

SAMSUNG

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(FCR24.0M2G)

IC S3P848AXZZ(SAMSUNG)

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APPROVED	CHECKED	CHECKED
I.Katoh		

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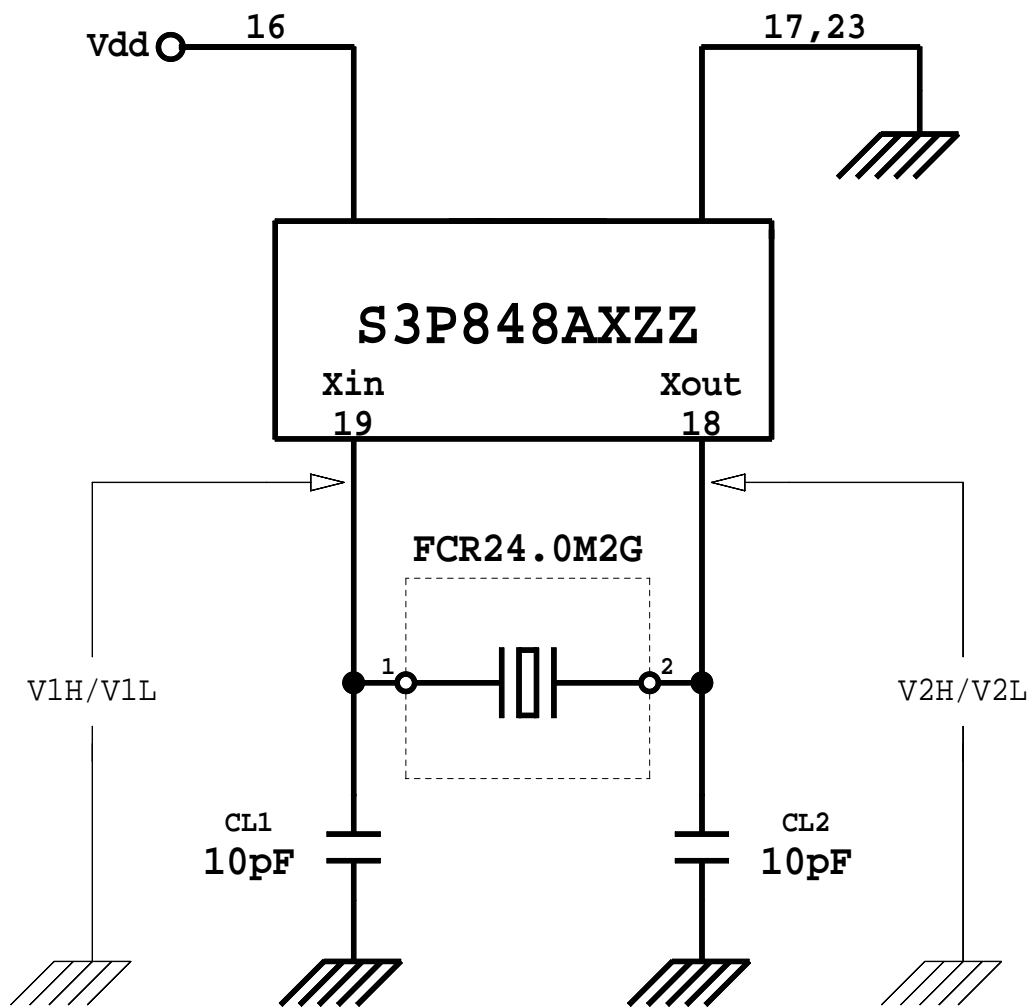
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## 2.Conclusions

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

### Test Conditions

IC	:	S3P848AXZZ (SAMSUNG)
Ceramic Resonator	:	FCR16.0M2G (Typical and worst sample are tested)
Power Supply Voltage	:	2.7(V) ~ 5.5(V)
Temperature Range	:	-25(°C) ~ 85(°C)
Loading capacitance(CL1=CL2)	:	10(pF)



Oscillating circuit for evaluation

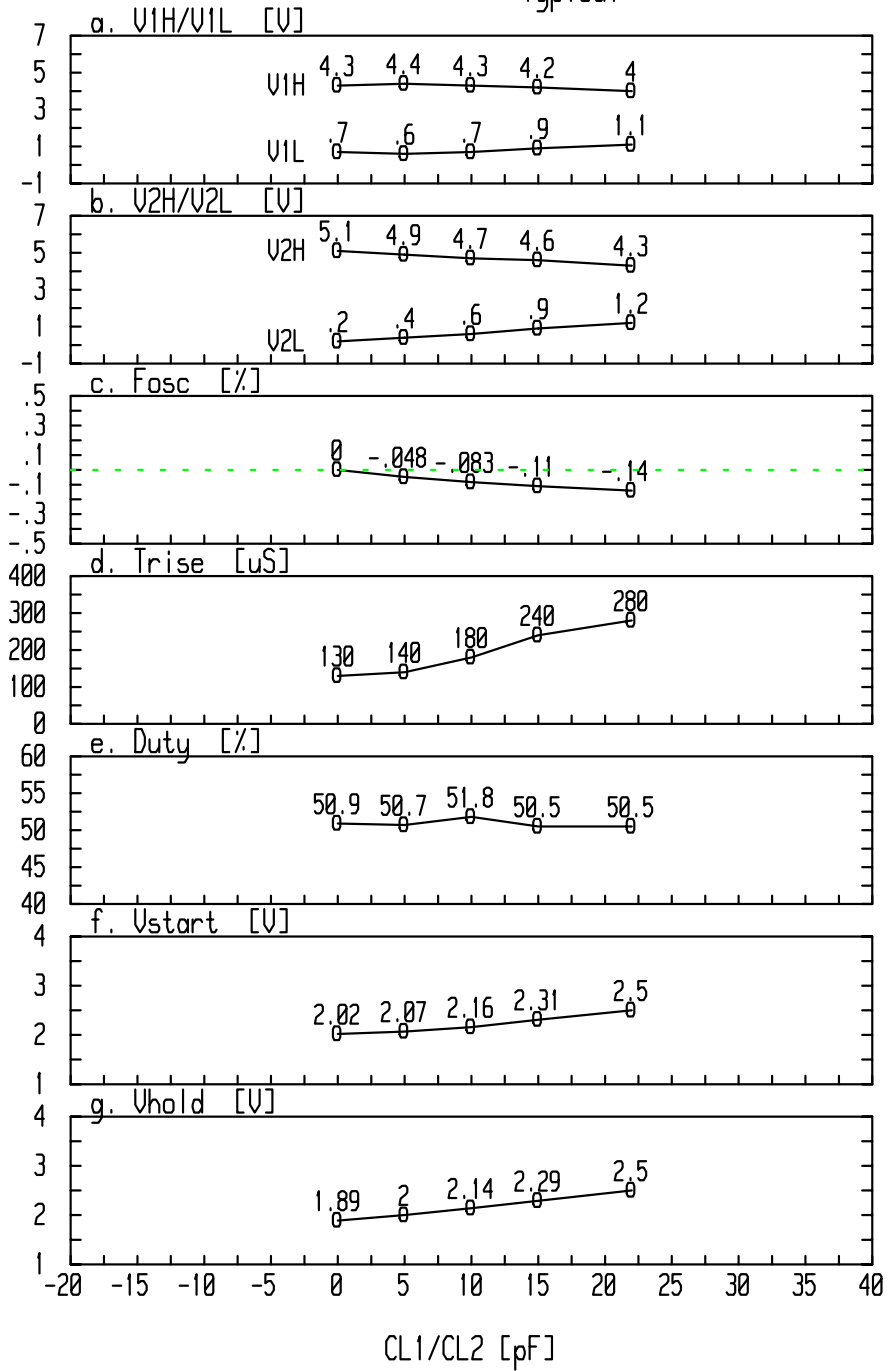
S3P848AXZZ - 1

FCR24.0M2G

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

$T_a = 20$  [deg]

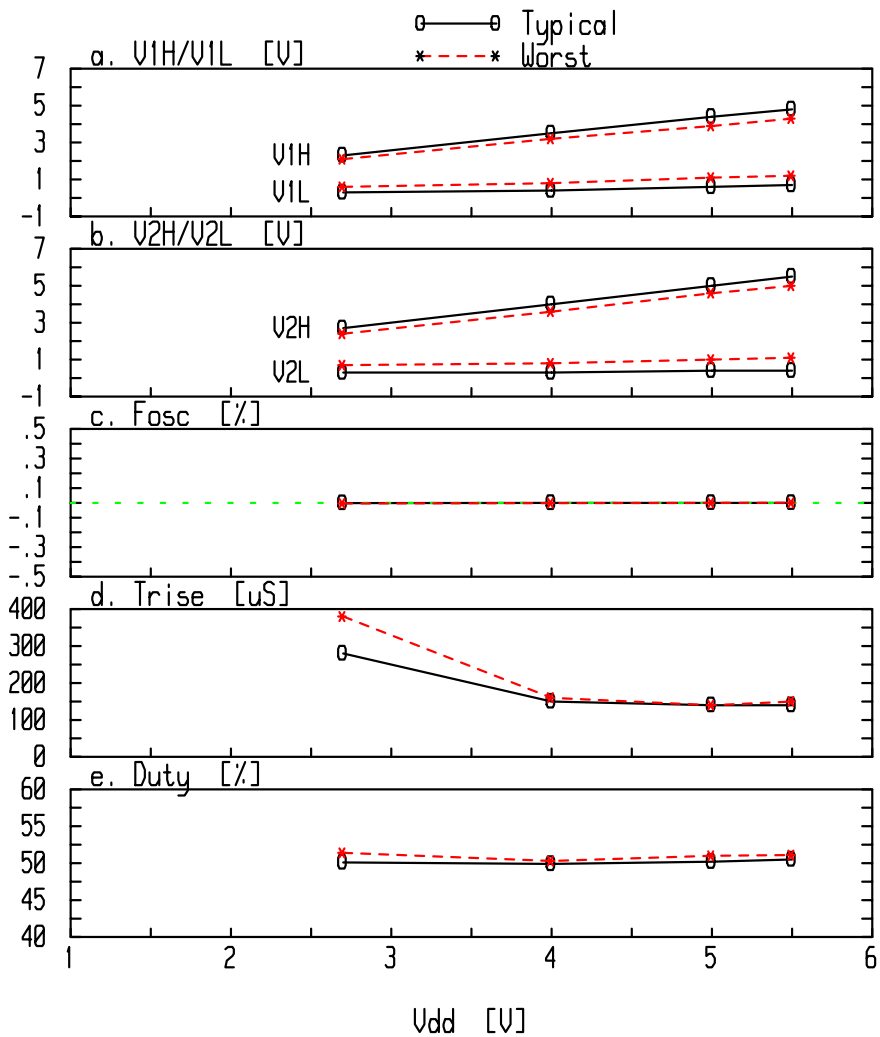
○—○ Typical



Loading capacitance dependence of oscillating characteristics ( $CL_1=CL_2$ )

S3P848AXZZ - 1  
 CL1/CL2 [pF] 10 / 10

FCR24.0M2G  
 Ta= 20 [deg]



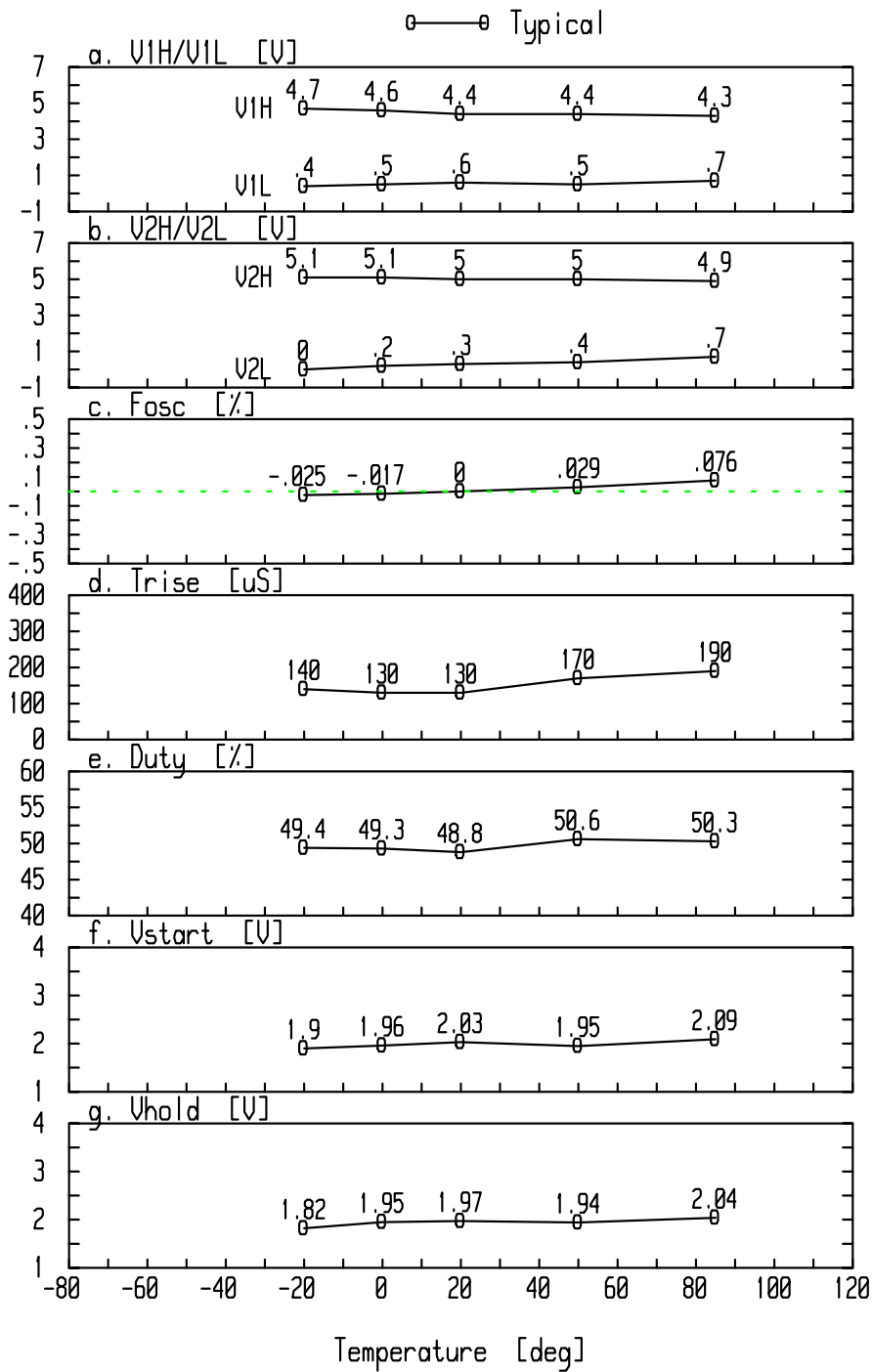
f. V<sub>start</sub> [V]  
 Typical = 2.07  
 Worst = 2.38

g. V<sub>hold</sub> [V]  
 Typical = 2  
 Worst = 2.36

Power supply voltage dependence of oscillating characteristics

S3P848AXZZ - 1  
 CL1/CL2 [pF] 5 / 5

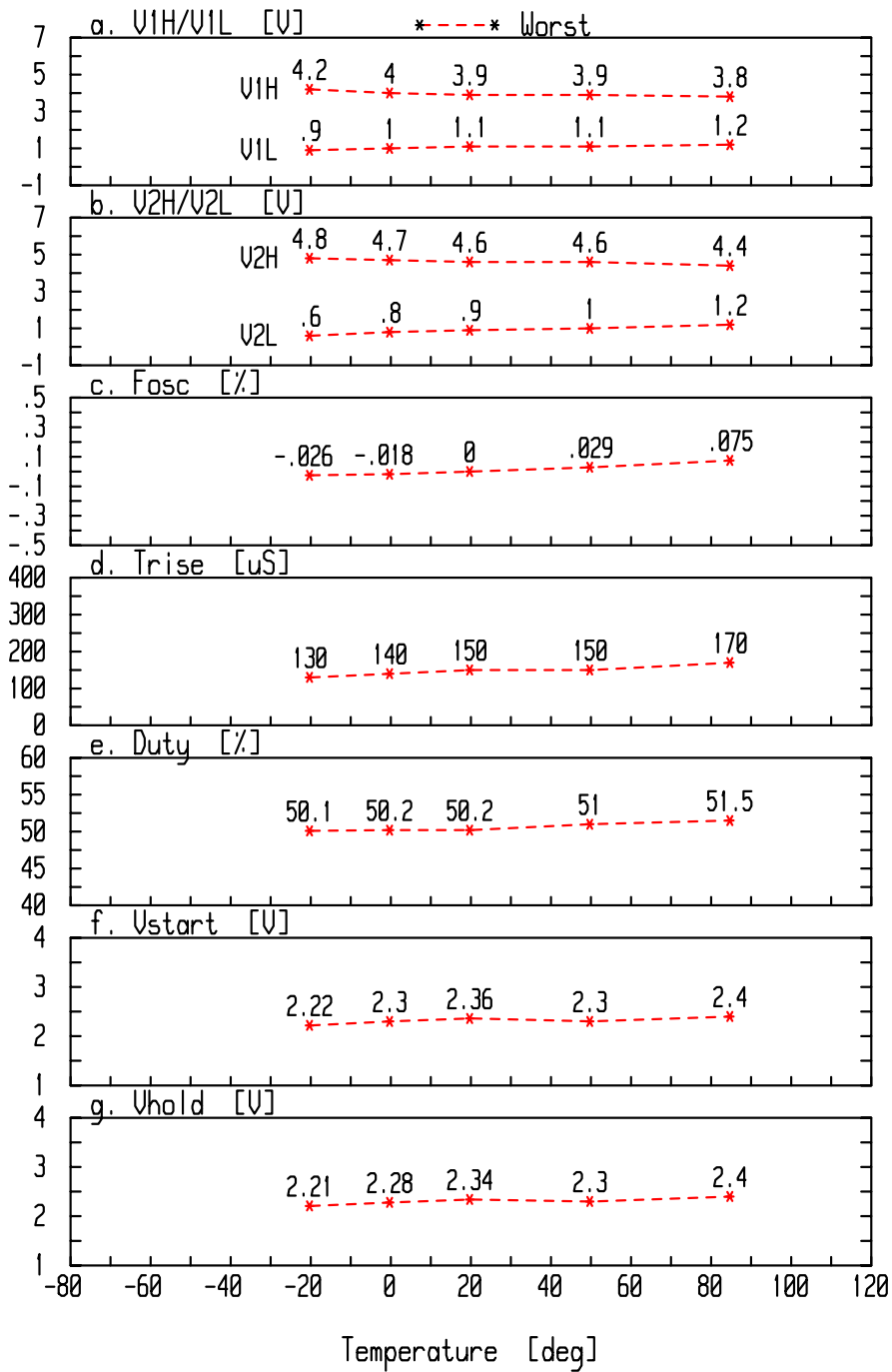
FCR24.0M2G  
 U<sub>dd</sub> = 5 [V] (Fig. a~e)



Temperature dependence of oscillating characteristics

S3P848AXZZ - 1  
 CL1/CL2 [pF] 5 / 5

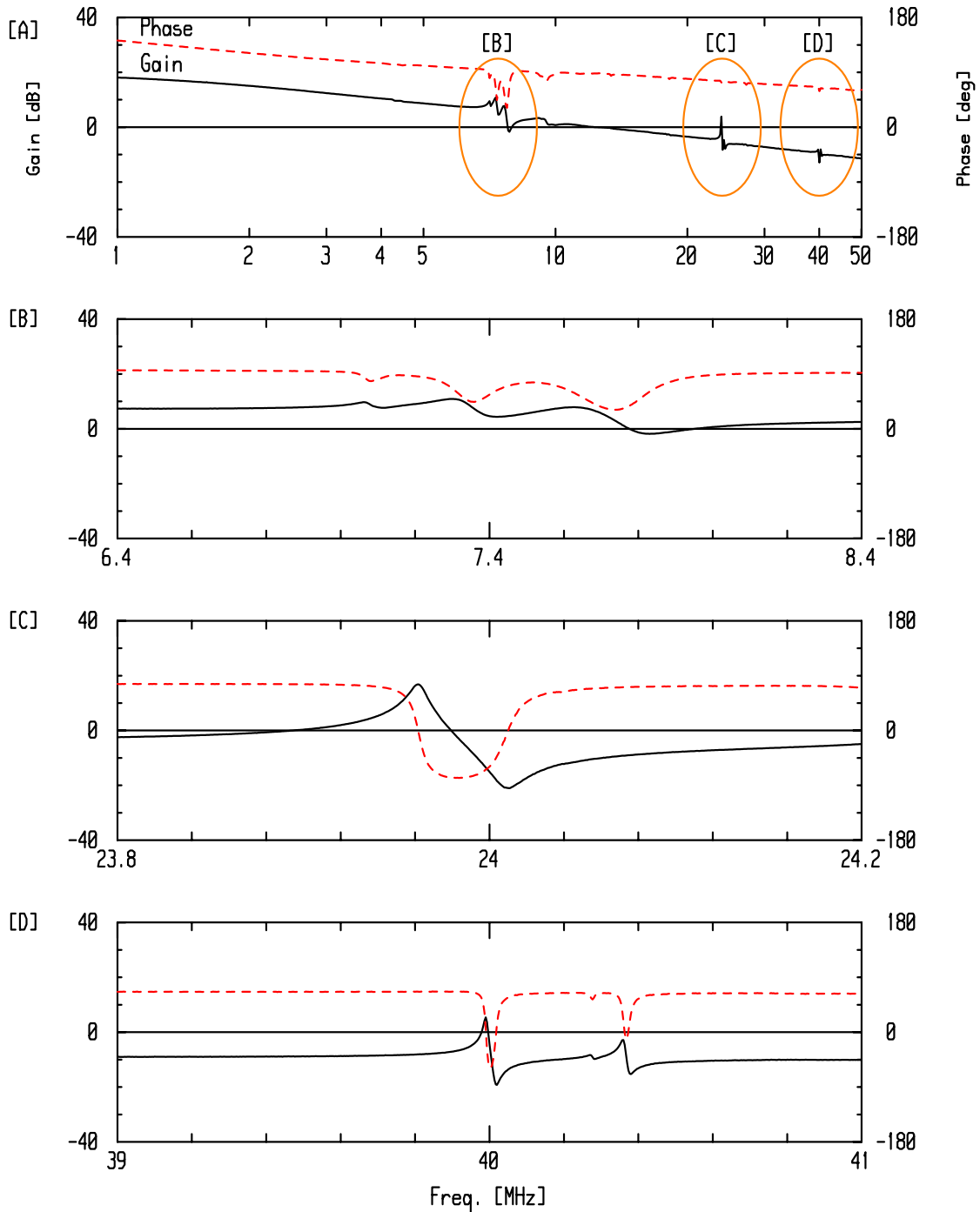
FCR24.0M2G  
 U<sub>dd</sub> = 5 [V] (Fig. a<sup>o</sup>e)



Temperature dependence of oscillating characteristics

S3P848AXZZ - 1  
 FCR24.0M2G - Typical  
 Vdd [V] 5  
 CL1/CL2 [pF] 5 / 5

	[B]	[C]	[D]
Gmax [dB]	10.91	16.83	5.41
LGM [dB]	0	16.82	3.86
Pmin [deg]	31.26	-77.84	-58.66
LPM [deg]	31.26	-77.2	0

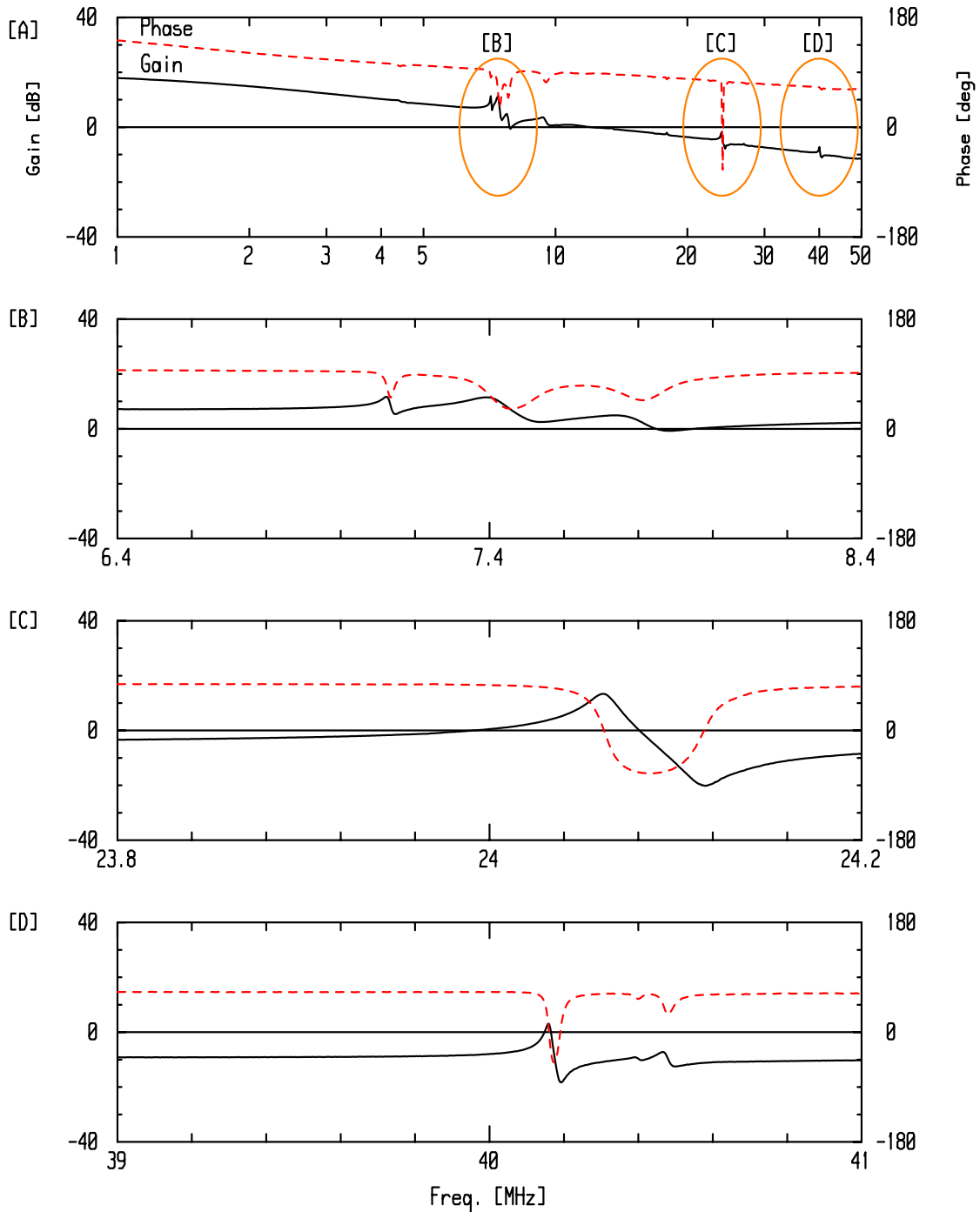


Open loop characteristics (Typical Sample)



S3P848AXZZ - 1  
 FCR24.0M2G - Worst  
 Vdd [V] 5  
 CL1/CL2 [pF] 5 / 5

	[B]	[C]	[D]
Gmax [dB]	11.71	13.36	3.03
LGM [dB]	0	13.29	3.01
Pmin [deg]	32.87	-70.43	-49.84
LPM [deg]	32.87	-68.45	-24.63



Open loop characteristics (Worst Sample)