

SAMSUNG

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(FCR16.0M2G)

IC S3F84BBXZZ (SAMSUNG)

AUG,05,2002

Sensors & Actuators Division,  
TDK CORPORATION

ISSUED BY Chikako Tomizawa

APPROVED	CHECKED	CHECKED
I.Katoh		

## 1.Contents

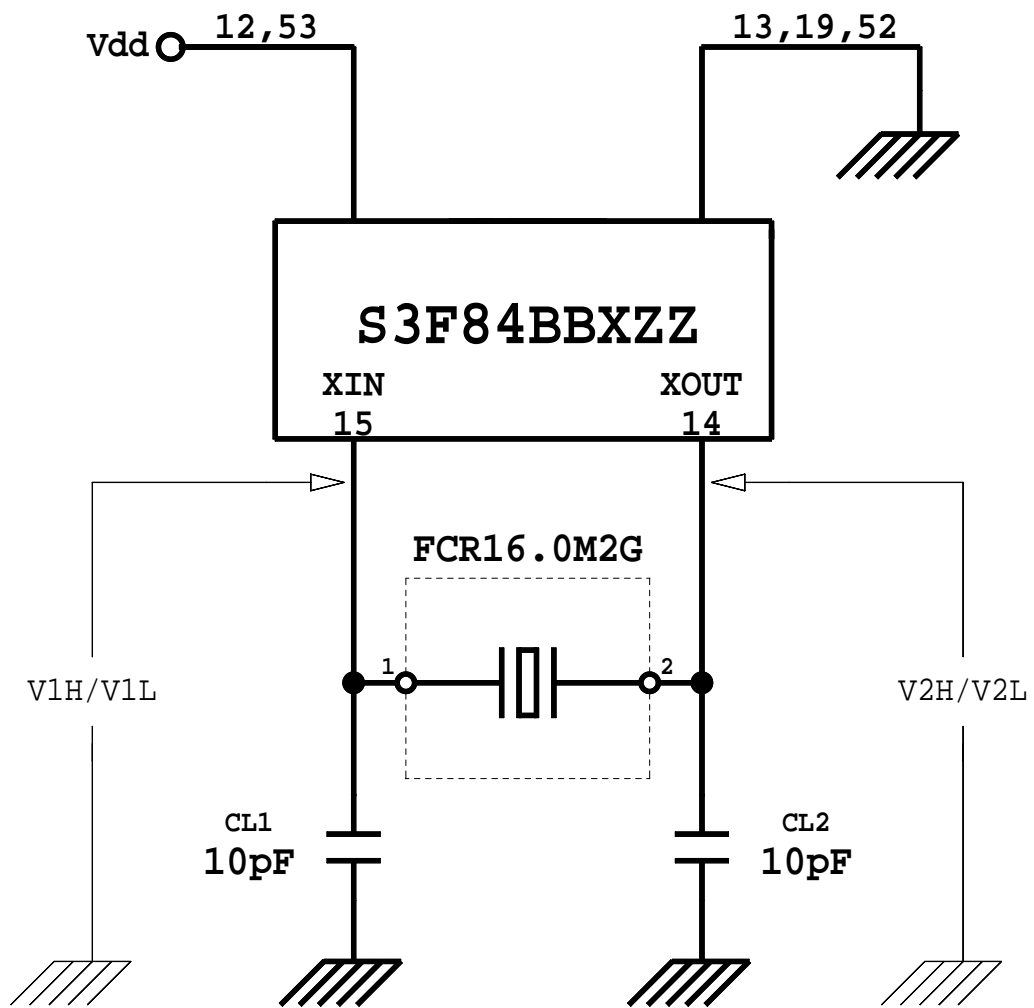
(1) Oscillating circuit for evaluation	P.3
(2) Loading capacitance dependence of oscillating characteristics (CL1=CL2)	P.4
(3) Power supply voltage dependence of oscillating characteristics	P.5
(4) Temperature dependence of oscillating characteristics	P.6-7
(5) Open loop characteristics	P.8-9

## 2.Conclusions

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

### Test Conditions

IC	:	S3F84BBXZZ (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

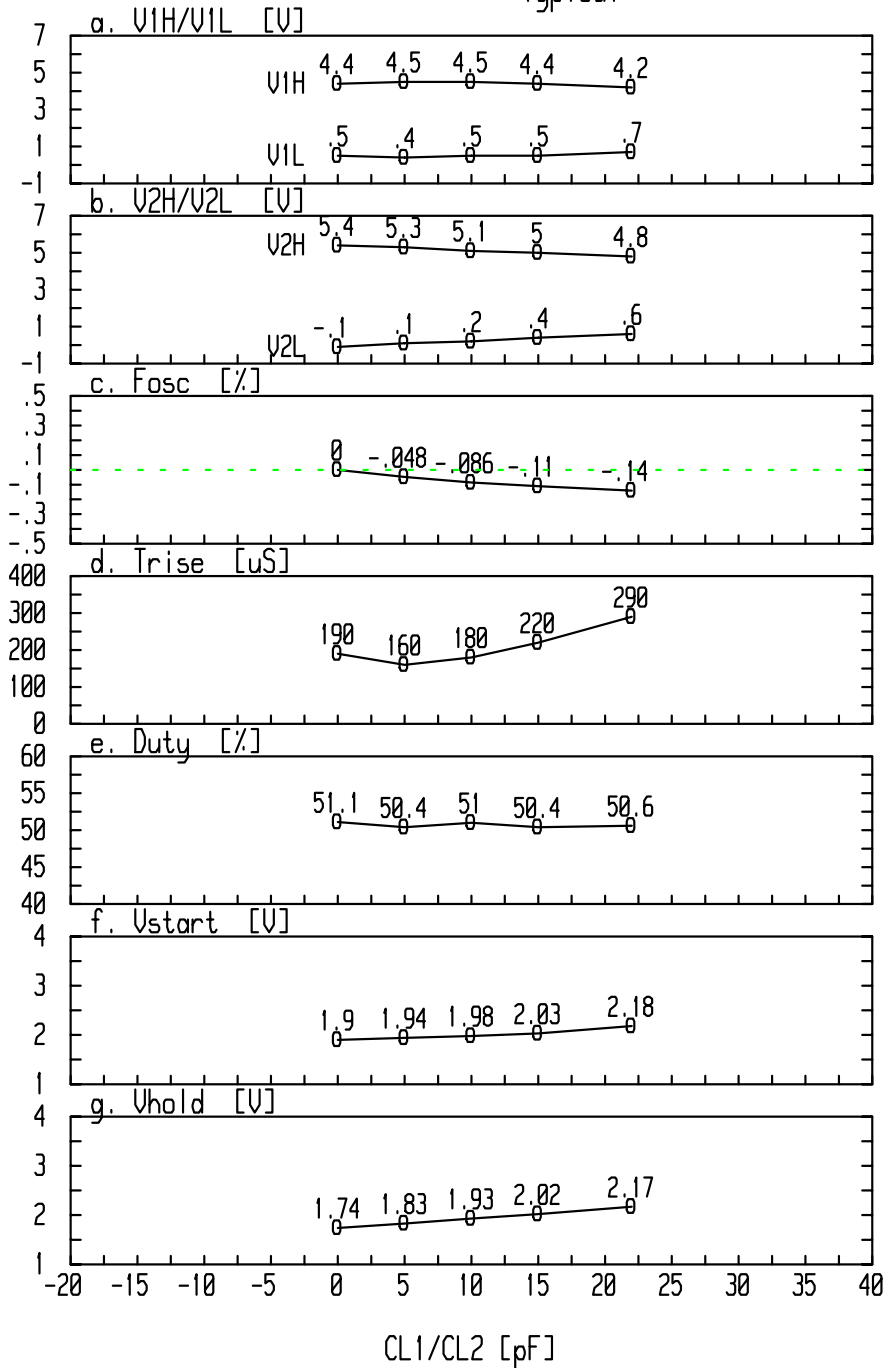
S3F84BBXZZ - 1

FCR16.0M2G

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

$T_a = 20$  [deg]

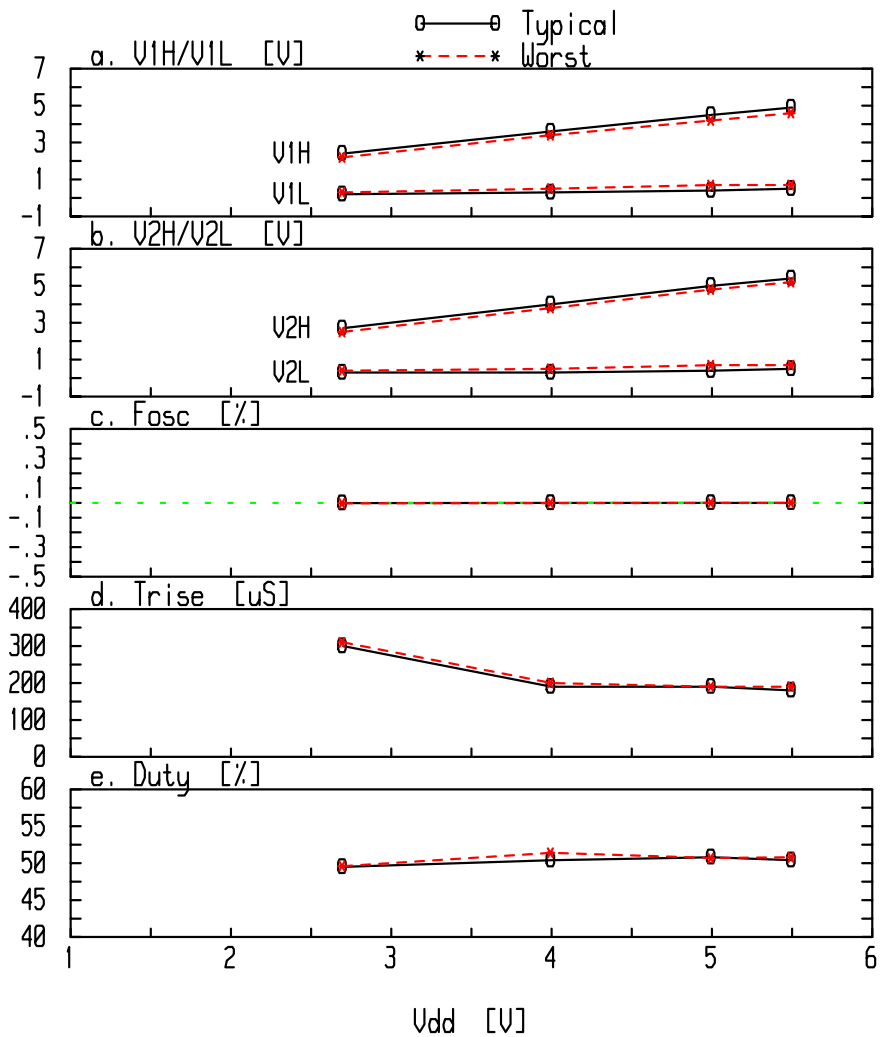
○—○ Typical



Loading capacitance dependence of oscillating characteristics ( $CL1=CL2$ )

S3F84BBXZZ - 1  
 CL1/CL2 [pF] 10 / 10

FCR16.0M2G  
 Ta= 20 [deg]



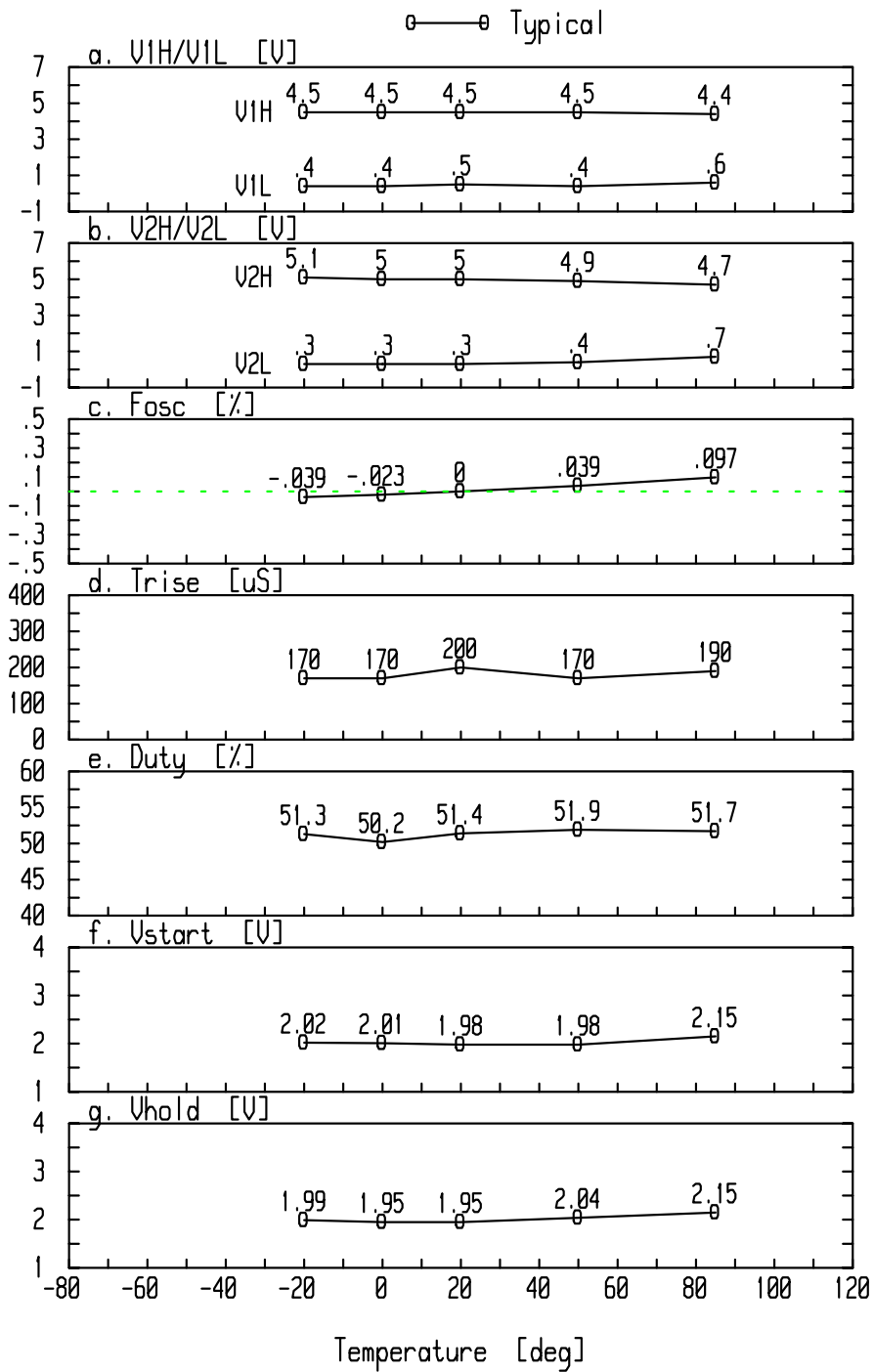
f. Ustart [V]  
 Typical = 1.98  
 Worst = 2.14

g. Uhold [V]  
 Typical = 1.96  
 Worst = 2.14

Power supply voltage dependence of oscillating characteristics

S3F84BBXZZ - 1  
 CL1/CL2 [pF] 10 / 10

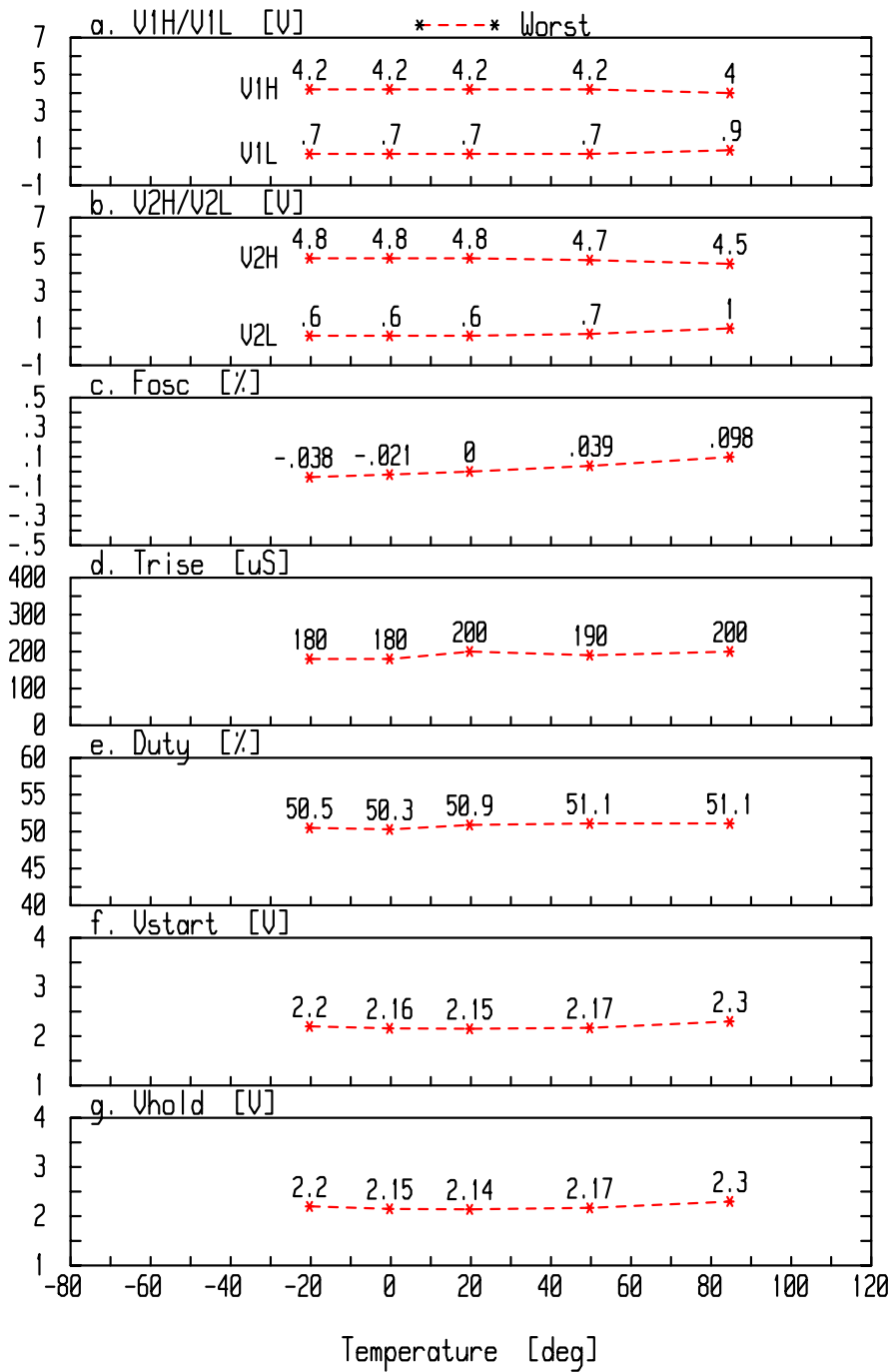
FCR16.0M2G  
 U<sub>dd</sub> = 5 [V] (Fig. a~e)



Temperature dependence of oscillating characteristics

S3F84BBXZZ - 1  
CL1/CL2 [pF] 10 / 10

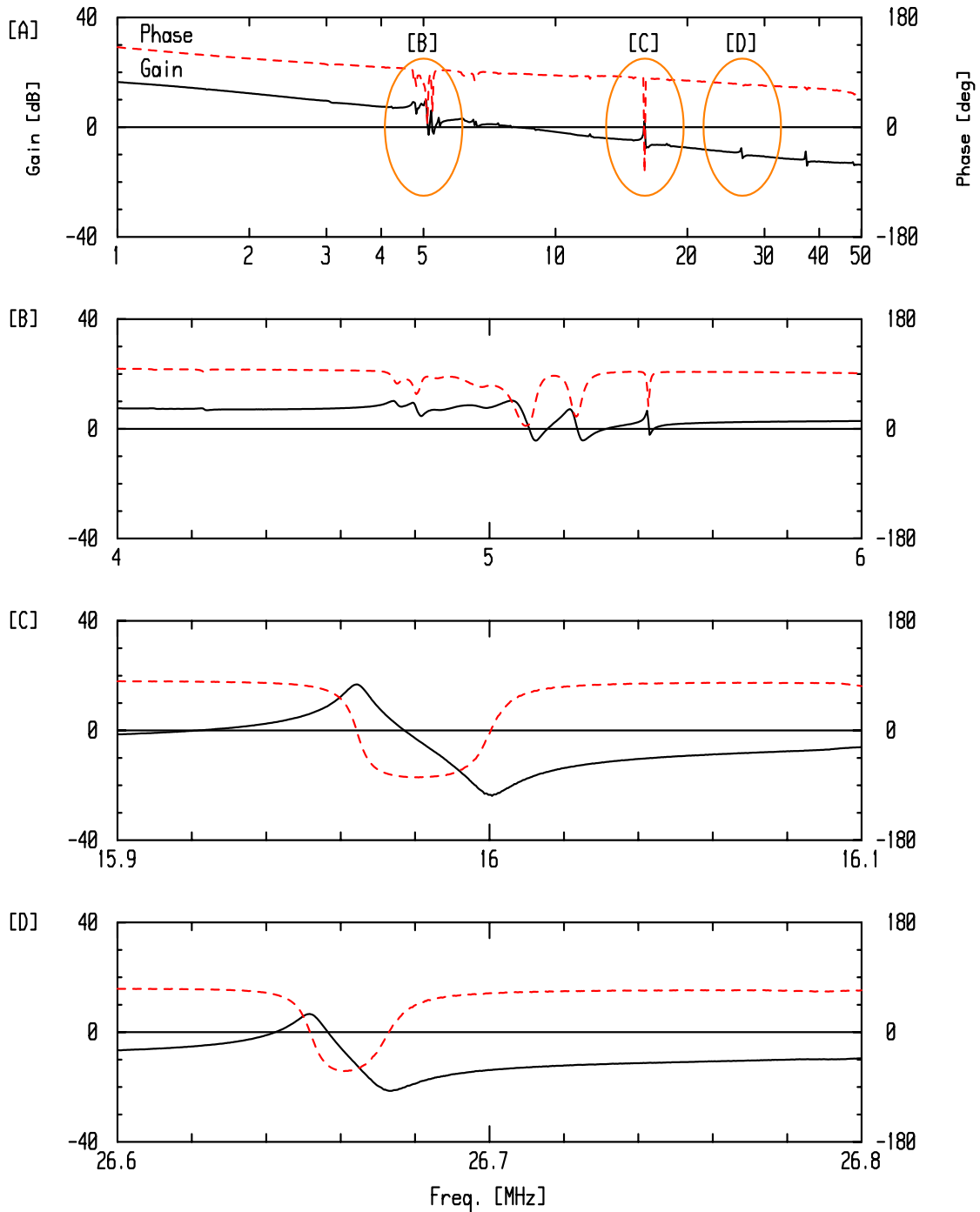
FCR16.0M2G  
Udd = 5 [V] (Fig. a~e)



Temperature dependence of oscillating characteristics

S3F84BBXZZ - 1  
 FCR16.0M2G - Typical  
 Vdd [V] 5  
 CL1/CL2 [pF] 10 / 10

	[B]	[C]	[D]
Gmax [dB]	10.31	16.8	6.62
LGM [dB]	0	16.78	6.57
Pmin [deg]	4.83	-76.96	-63.78
LPM [deg]	4.83	-75.83	-53.24

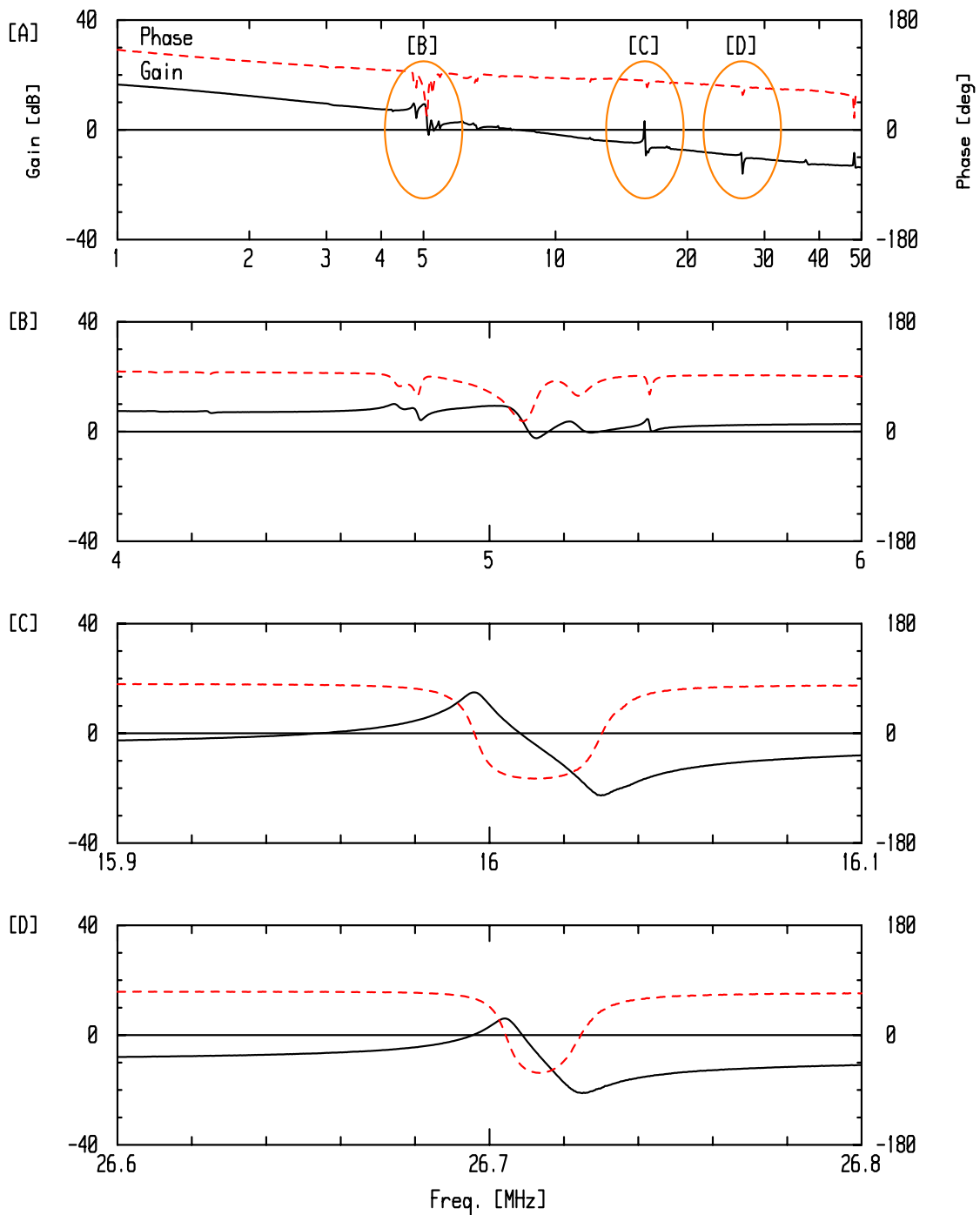


Open loop characteristics (Typical Sample)



S3F84BBXZZ - 1  
 FCR16.0M2G - Worst  
 Vdd [V] 5  
 CL1/CL2 [pF] 10 / 10

	[B]	[C]	[D]
Gmax [dB]	10.09	14.95	6.05
LGM [dB]	0	14.95	5.92
Pmin [deg]	17.19	-74.26	-62.04
LPM [deg]	17.19	-72.54	-50.55



Open loop characteristics (Worst Sample)