

Hitachi,Ltd.

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(FCR10.0MC5)

IC HD641F7145F50 (Hitachi)

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Sensors & Actuators Division,  
TDK CORPORATION

ISSUED BY Chikako Tomizawa

APPROVED	CHECKED	CHECKED
I.Katoh		

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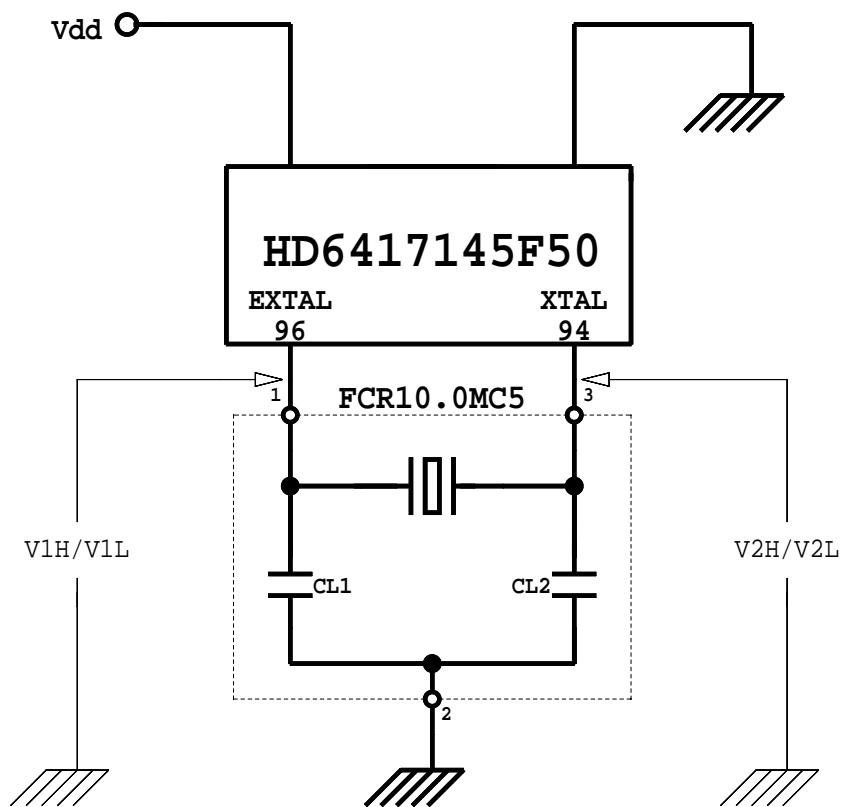
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## 2.Conclusions

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

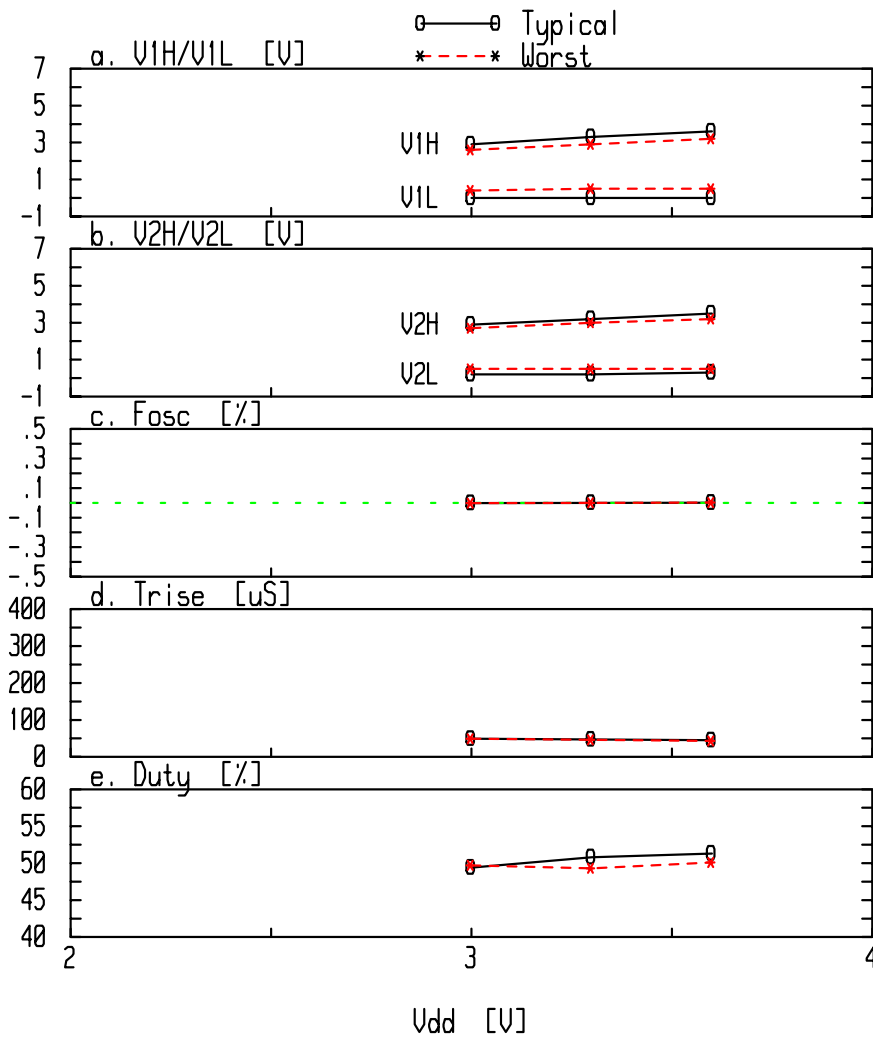
### Test Conditions

IC	:	HD6417145F50 (Hitachi)
Ceramic Resonator	:	FCR10.0MC5 (Typical and worst sample are tested)
Power Supply Voltage	:	3.0(V) ~ 3.6(V)
Temperature Range	:	-20(°C) ~ 75(°C)



\*BUILT-IN LOADING CAPACITOR  
 CL1/CL2=20/20pF +/-20%

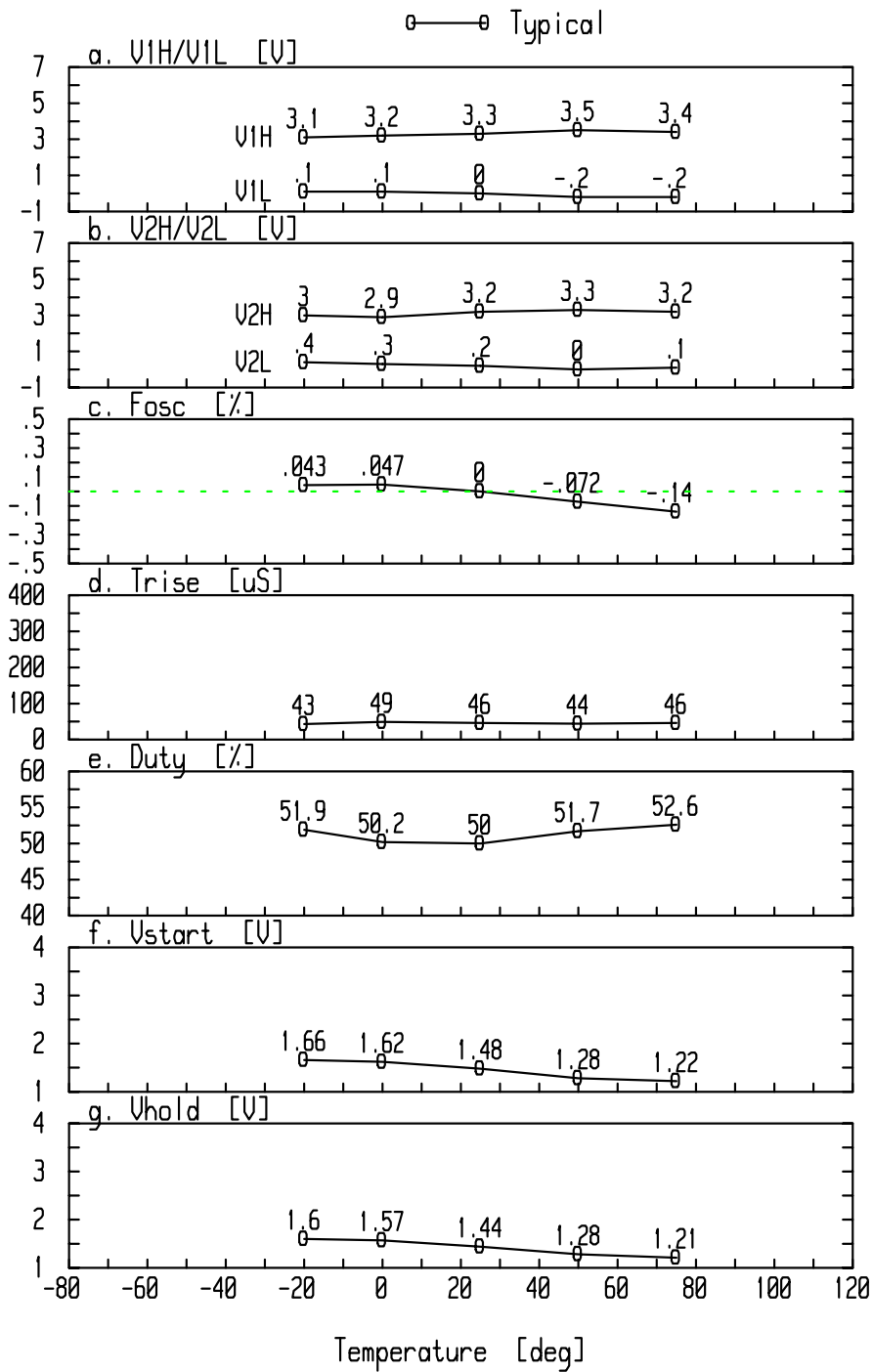
Oscillating circuit for evaluation



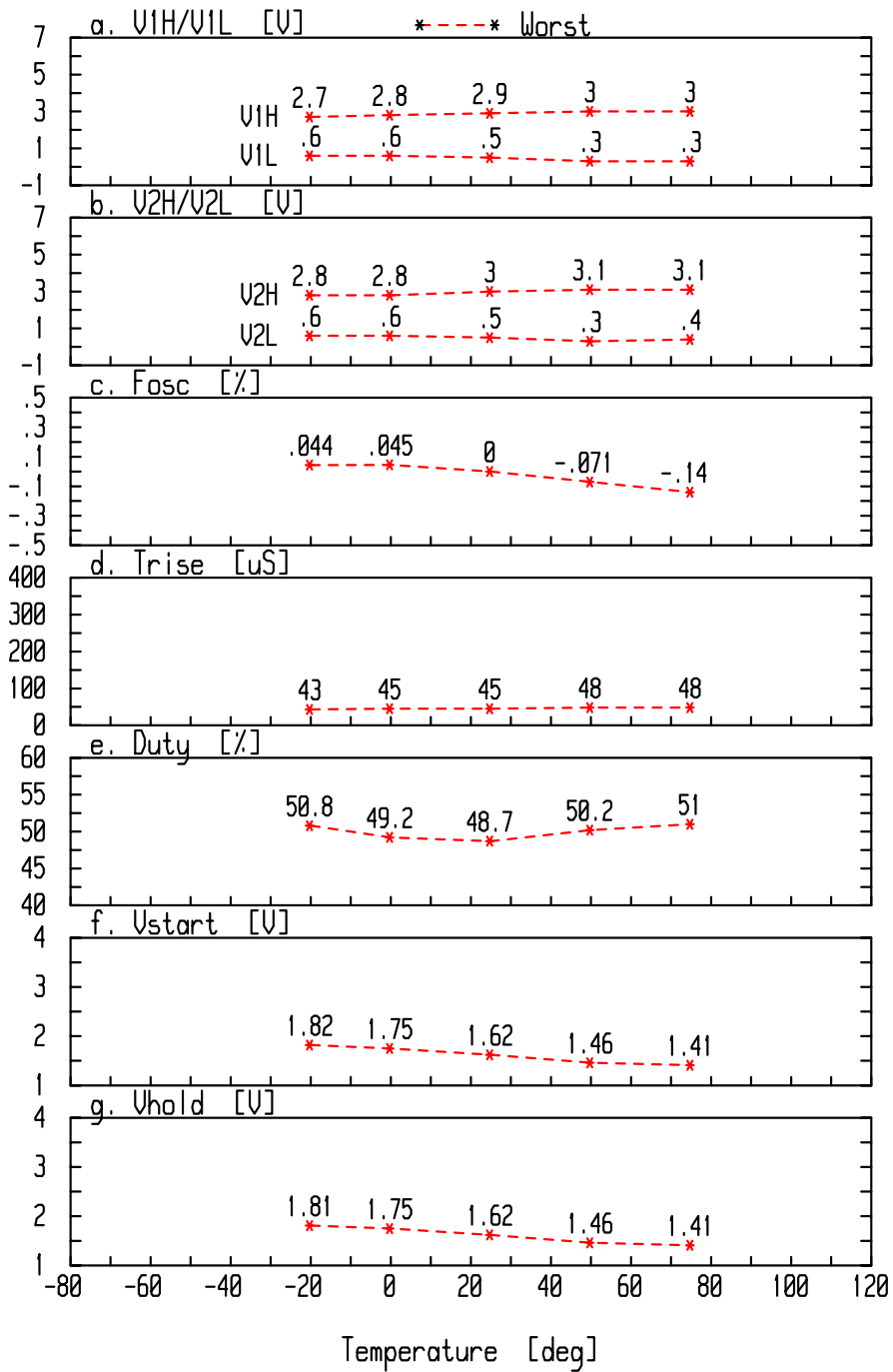
f. Vstart [V]  
 Typical = 1.45  
 Worst = 1.61

g. Uhold [V]  
 Typical = 1.41  
 Worst = 1.6

Power supply voltage dependence of oscillating characteristics



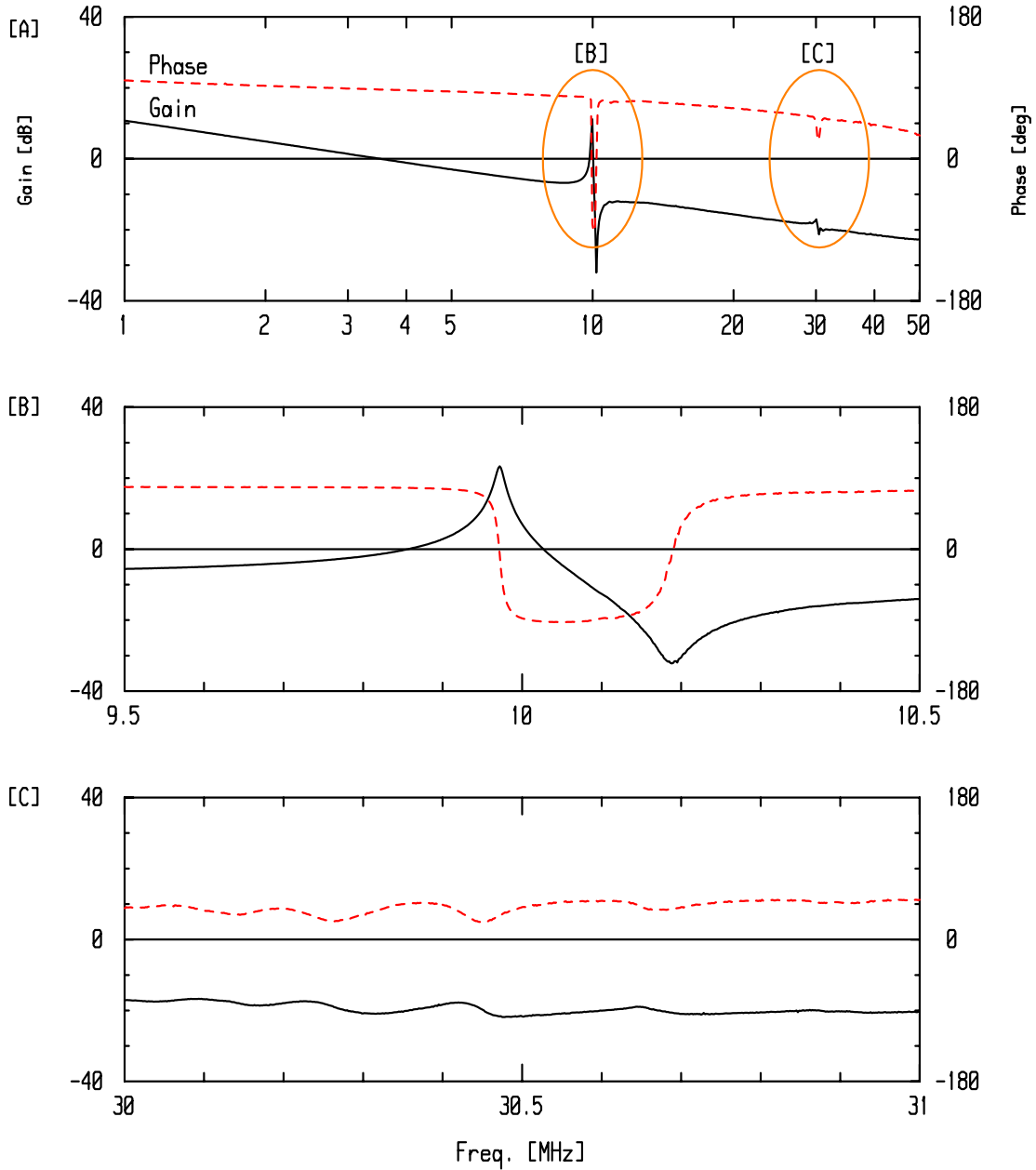
Temperature dependence of oscillating characteristics



Temperature dependence of oscillating characteristics

HD6417145F50 - S#209  
 FCR10.0MC5 - Typical  
 Vdd [V] 3.3

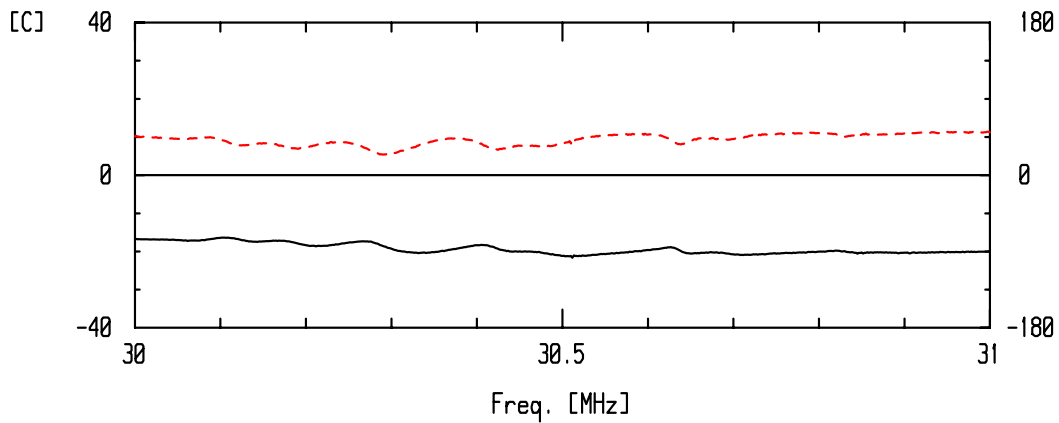
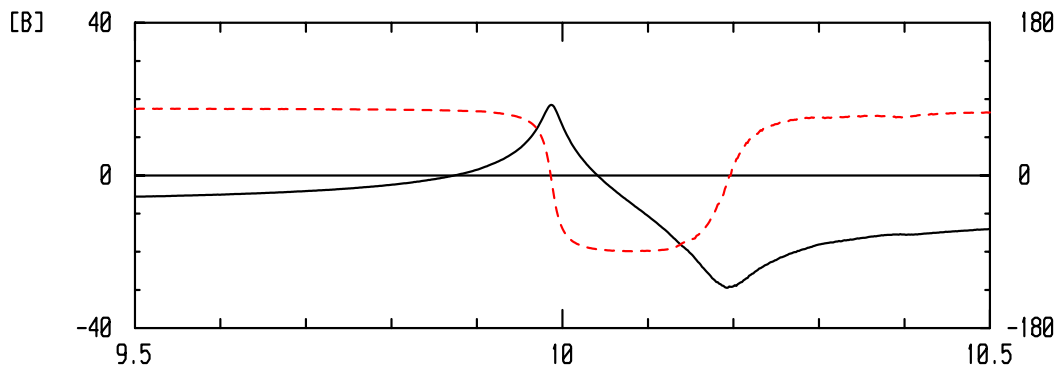
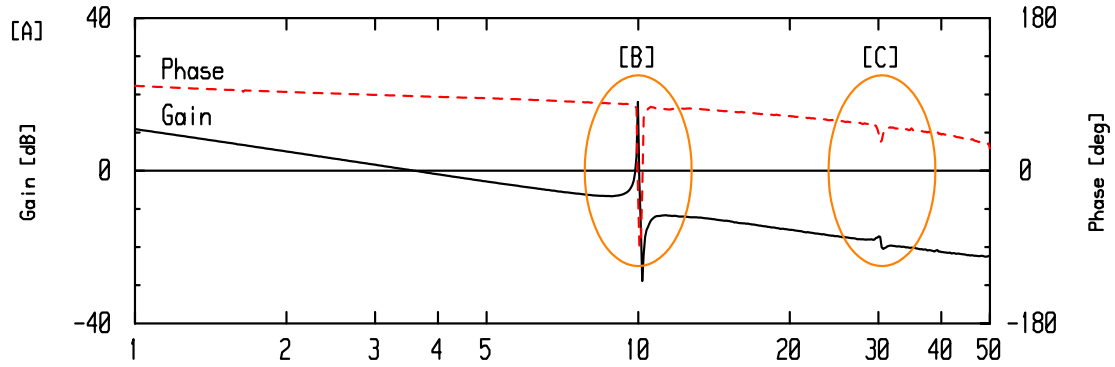
	[B]	[C]
Gmax [dB]	23.33	-16.73
LGM [dB]	23.03	0
FLGM [MHz]	9.972	0
LPM [deg]	-91.83	30.64



Open loop characteristics (Typical Sample)

HD6417145F50 - S#209  
 FCR10.0MC5 - Worst  
 Vdd [V] 3.3

	[B]	[C]
Gmax [dB]	18.5	-16.36
LGM [dB]	18.34	0
FLGM [MHz]	9.9871	0
LPM [deg]	-87.05	34.33



Open loop characteristics (Worst Sample)