

Hitachi,Ltd.

OPERATION TEST REPORT ON TDK CERAMIC RESONATOR

(FCR10.0MC5)

IC HD64F7144F50 (Hitachi)

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TDK CORPORATION

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APPROVED	CHECKED	CHECKED
I.Katoh		

1.Contents

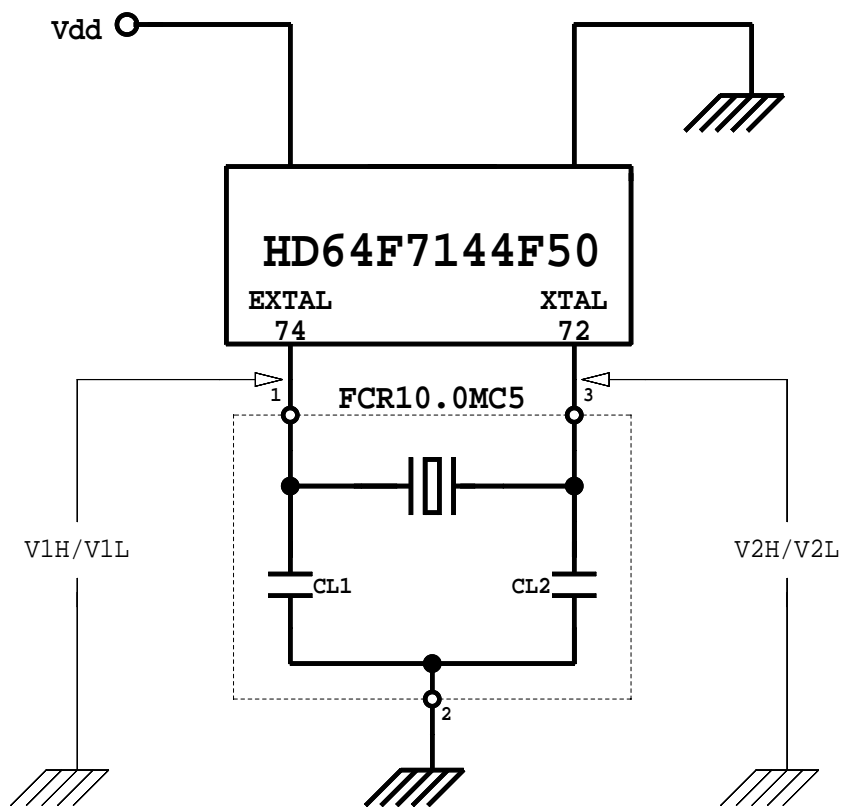
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2.Conclusions

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

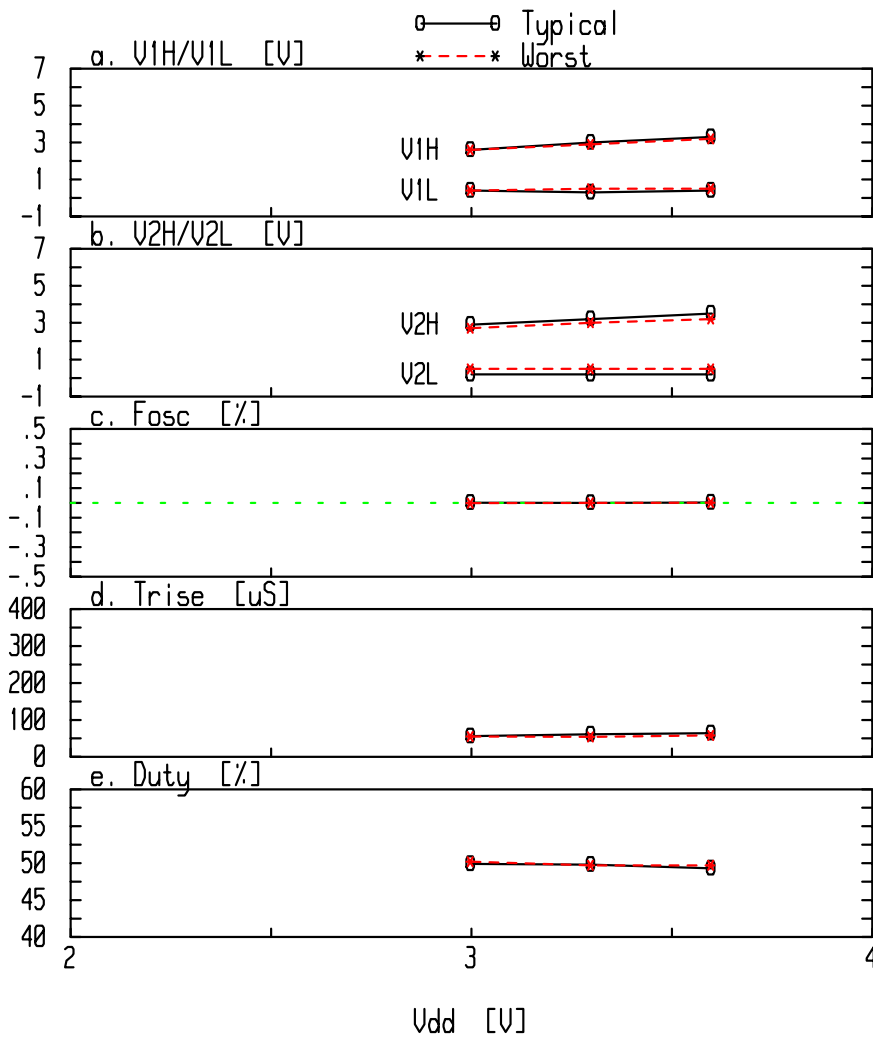
Test Conditions

IC	: HD64F7144F50 (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 = 1.59
 Worst = 1.71

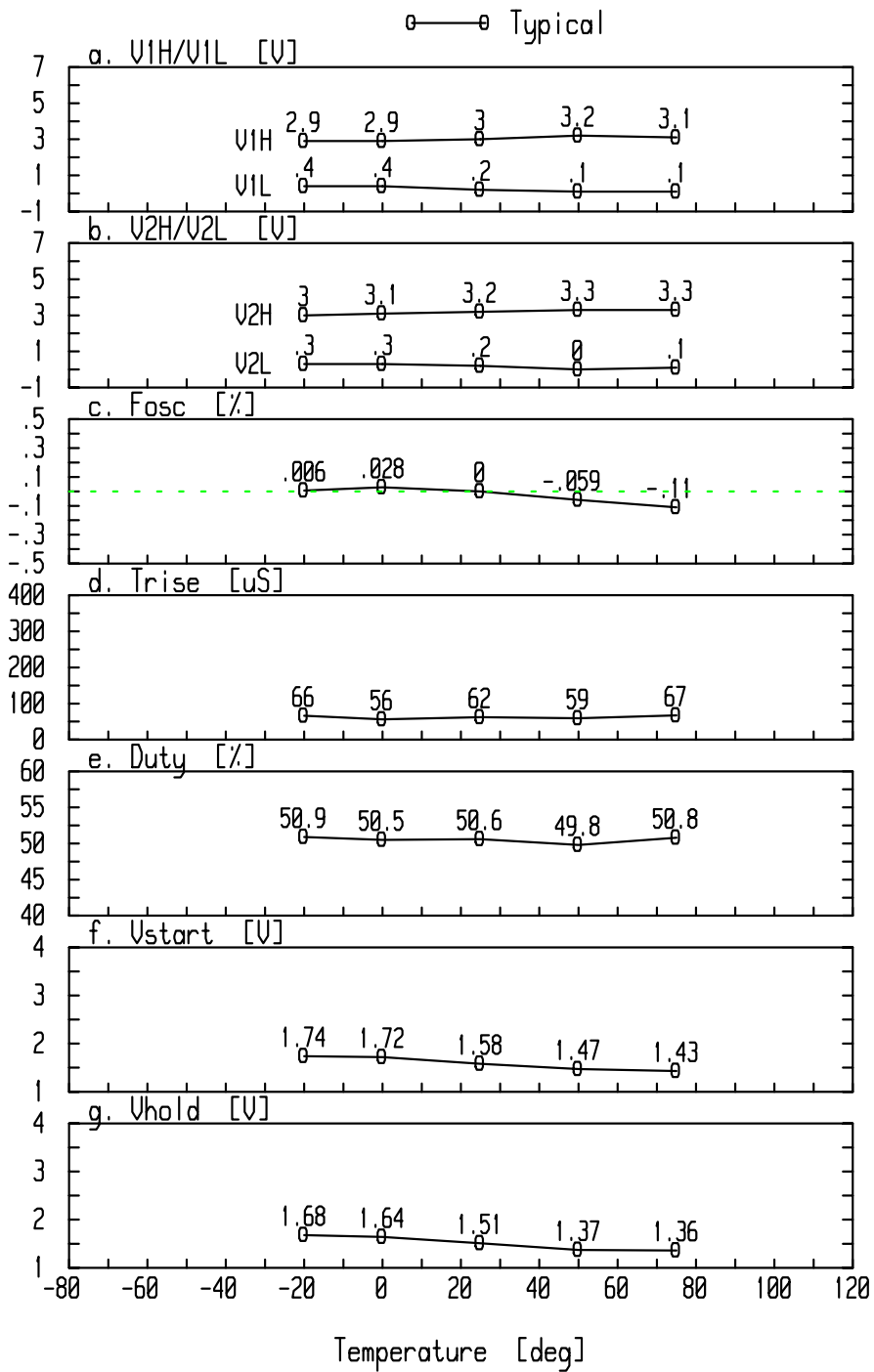
g. Uhold [V]
 Typical = 1.52
 Worst = 1.69

Power supply voltage dependence of oscillating characteristics

HD64F7144F50 - 1

FCR10.0MC5

V_{dd} = 3.3 [V] (Fig. a~e)

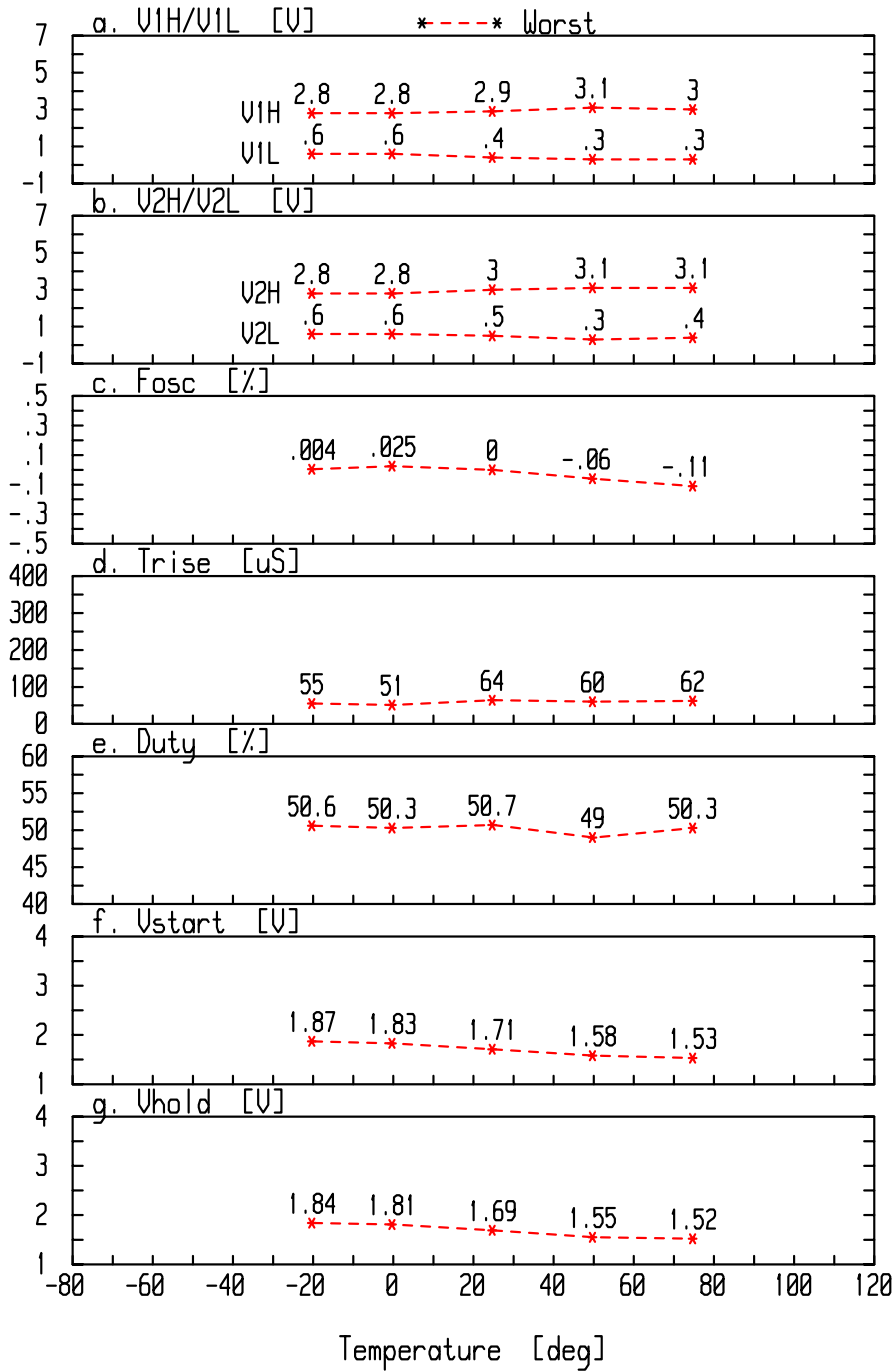


Temperature dependence of oscillating characteristics

HD64F7144F50 - 1

FCR10.0MC5

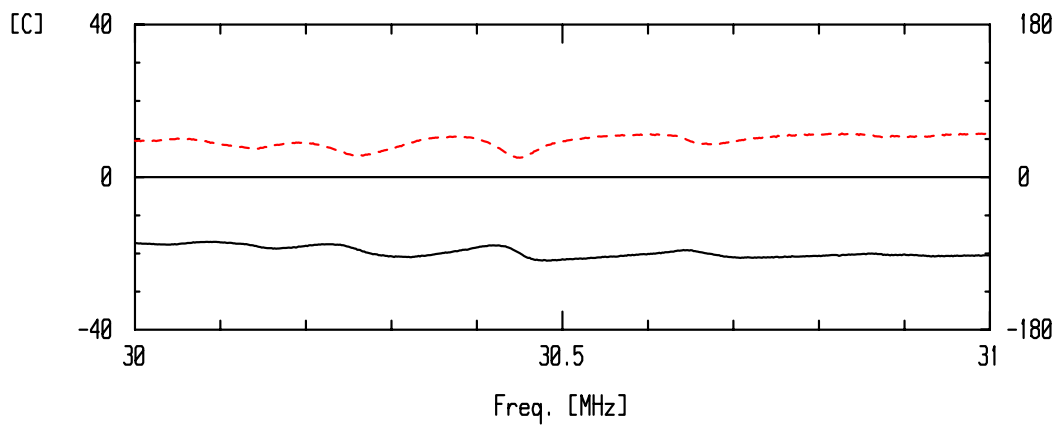
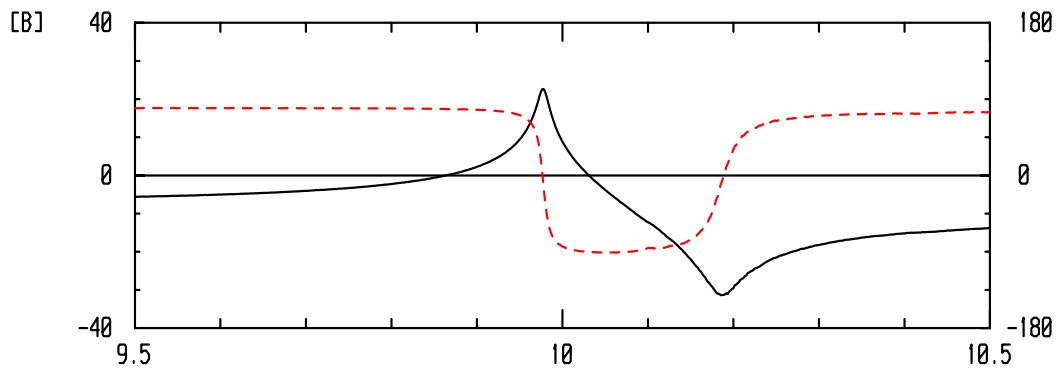
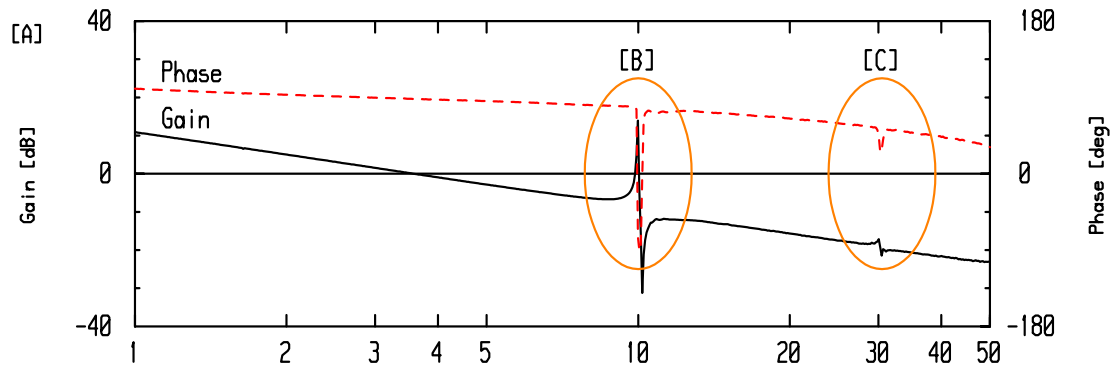
V_{dd} = 3.3 [V] (Fig. a~e)



Temperature dependence of oscillating characteristics

HD64F7144F50 - 1
 FCR10.0MC5 - Typical
 Vdd [V] 3.3

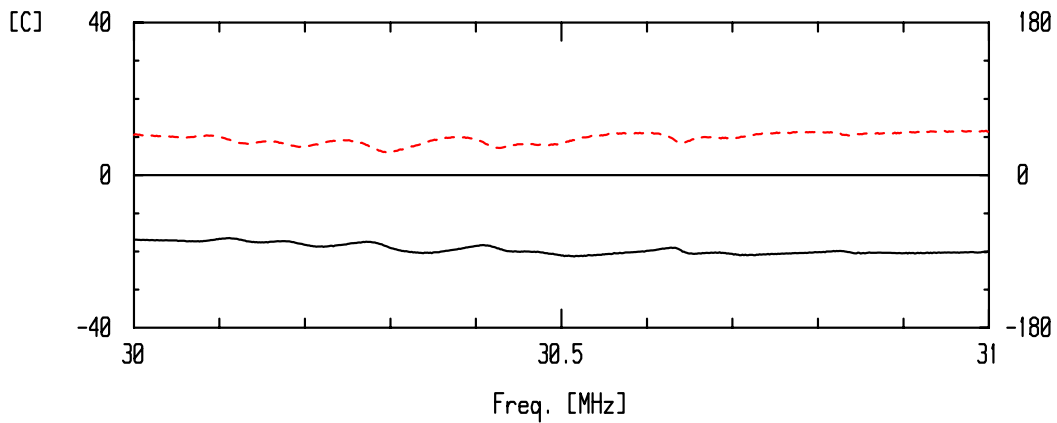
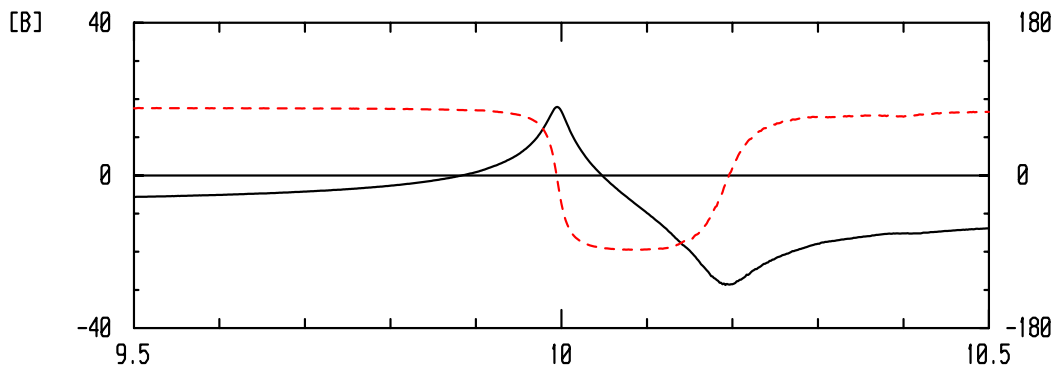
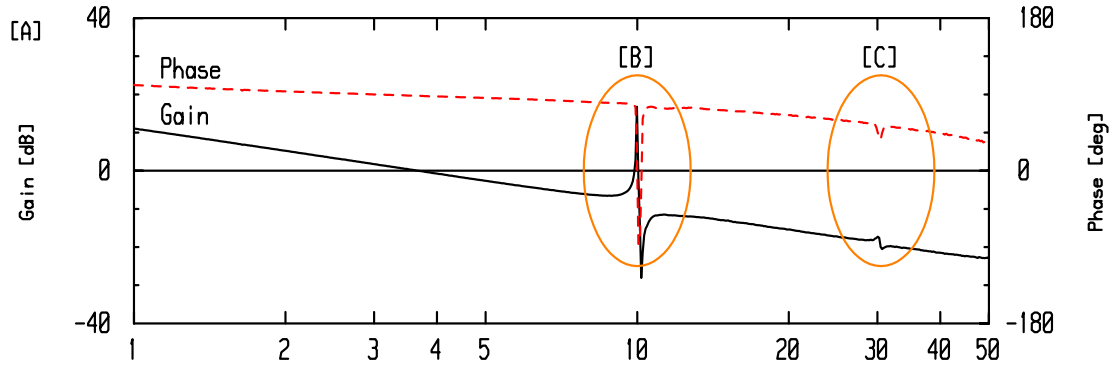
	[B]	[C]
Gmax [dB]	22.68	-16.95
LGM [dB]	22.59	0
FLGM [MHz]	9.9776	0
LPM [deg]	-90.23	35.84



Open loop characteristics (Typical Sample)

HD64F7144F50 - 1
 FCR10.0MC5 - Worst
 Vdd [V] 3.3

	[B]	[C]
Gmax [dB]	17.99	-16.47
LGM [dB]	17.89	0
FLGM [MHz]	9.9952	0
LPM [deg]	-85.25	35.97



Open loop characteristics (Worst Sample)