

2008/3/14

Technical Data of TOKO Ceramic Resonator

CERASONATOR.® Series

TOKO Product No: DCRHTC(P)2.00LL

Renesas Product No: M38039GCHKP

RF Engineering Department. Coil Products Division.
TOKO.Inc

Approved by	Checked by	Issued by
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1.Circuit Conditions

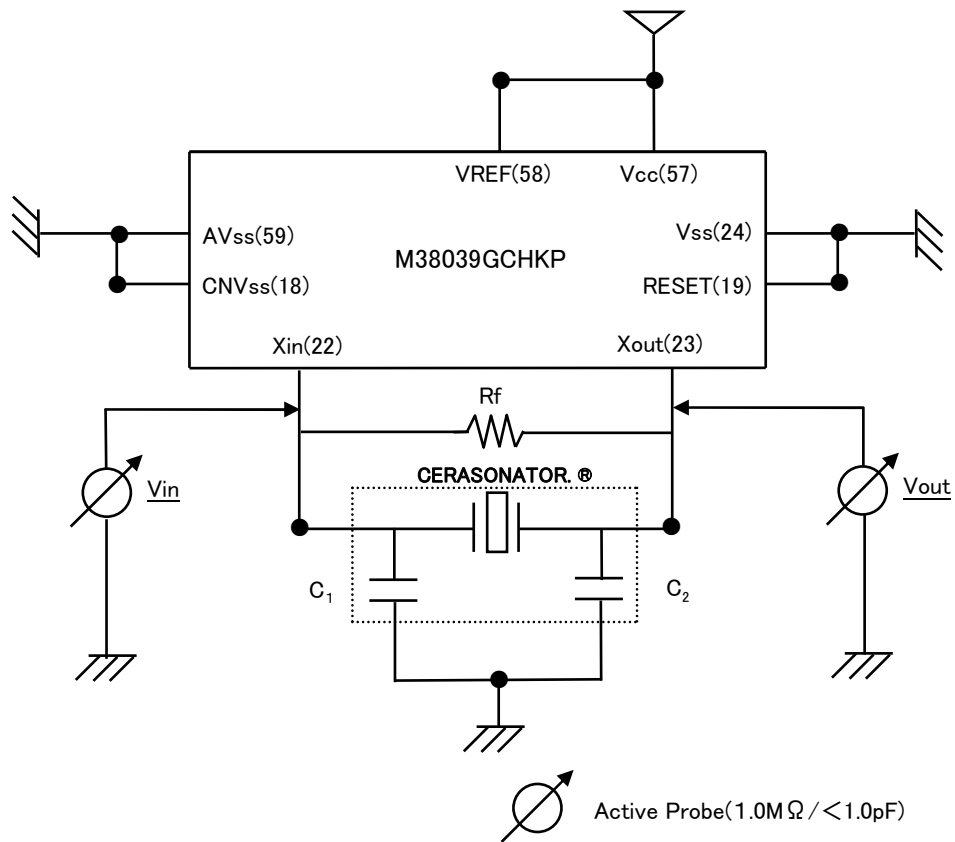


Fig.1 Test Circuit

Cerasonator [®]	Recommended Condition				
	Rf(Ω)	C1(pF)	C2(pF)	Vdd(V)	Ta(°C)
DCRHTC(P)2.00LL	—	30 (Reference Value)	30 (Reference Value)	1.9 to 5.5	-20 to +85

2. Explanation of measurement item

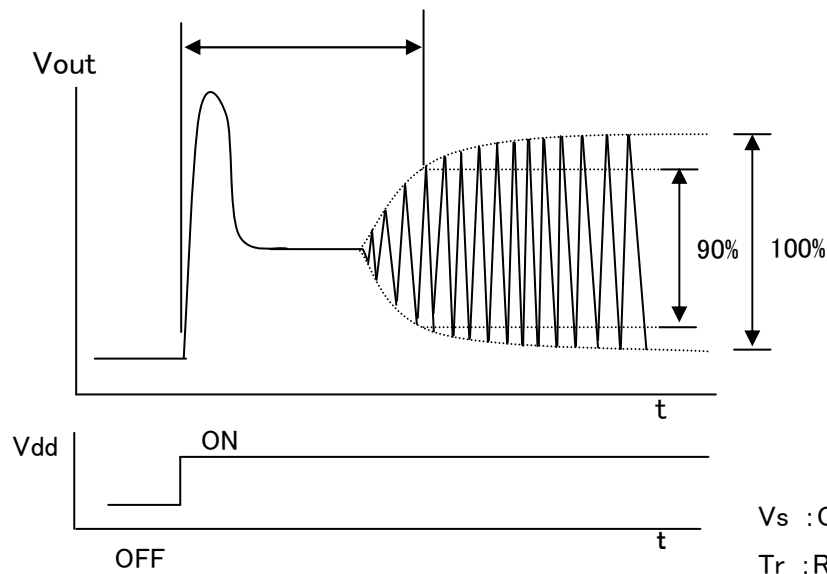


Fig.2 Rise Time

V_s : Oscillation Starting Voltage

T_r : Rise Time (Fig.2 Reference)

Δf_{osc} : Oscillation Frequency Change Rate

V_{in} : Fig.3 Reference

V_{out} : Fig.3 Reference

V_H : Fig.3 Reference

V_L : Fig.3 Reference

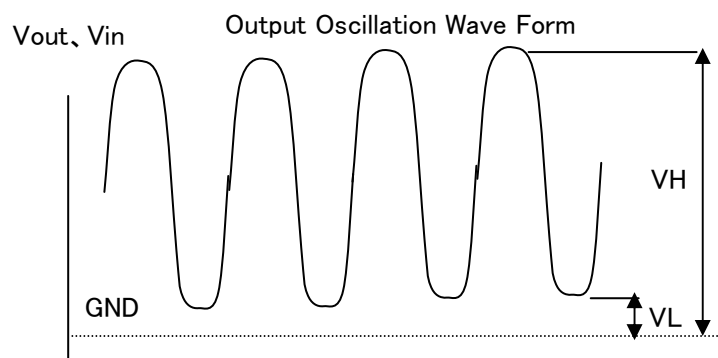


Fig.3 Output Wave Form

3. Supply Voltage Characteristics

TYPE CODE : CRHTC

SAMPLES :

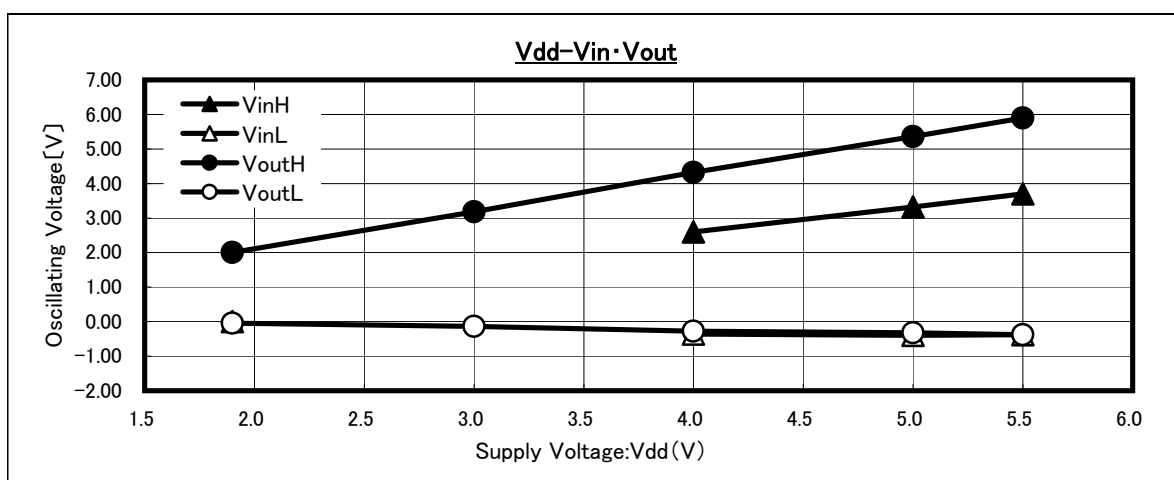
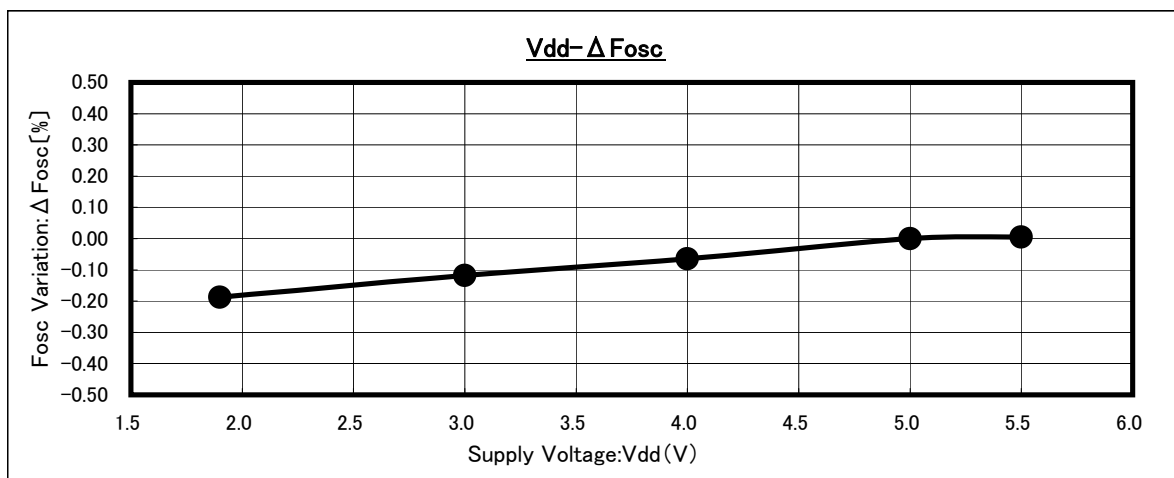
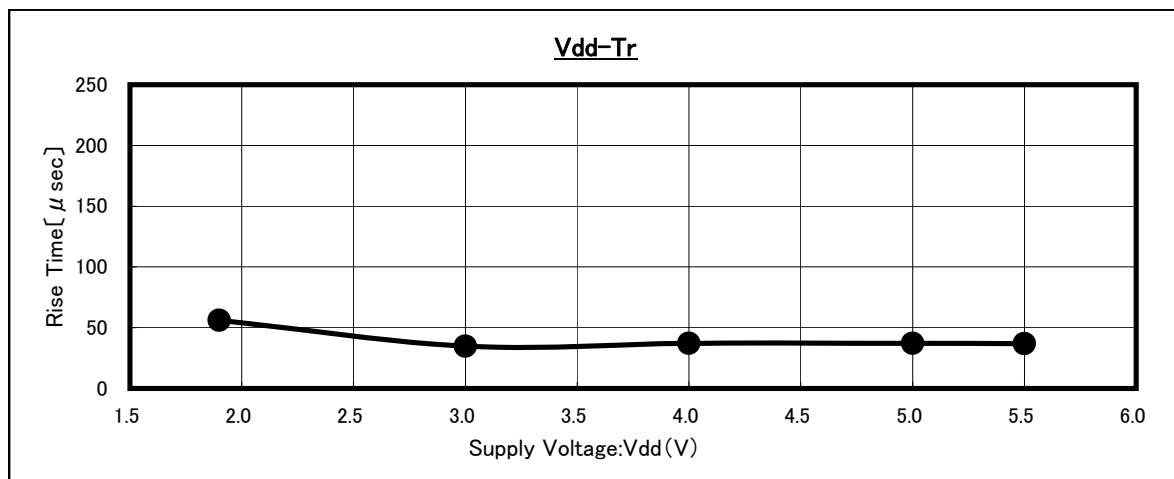
DCRHTC2.00LL-Limit
M38039GCHKP
IC : No.1

n = 1

CONDITIONS :

- Rise Time : Tr
- Fosc Variation : ΔF_{osc}
- Oscillating Voltage : Vin · Vout

Vdd:1.9·3.0·4.0·5.0·5.5V



MEASURED BY : Y.Ookawara
DATE : 2008.02.12

CHECKED BY : M.Hirayama
DATE : 2008.02.14

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RESISTER No.

4. Temperature Characteristics

TYPE CODE : CRHTC

SAMPLES :

DCRHTC2.00LL-Limit
M38039GCHKP
IC: No.1

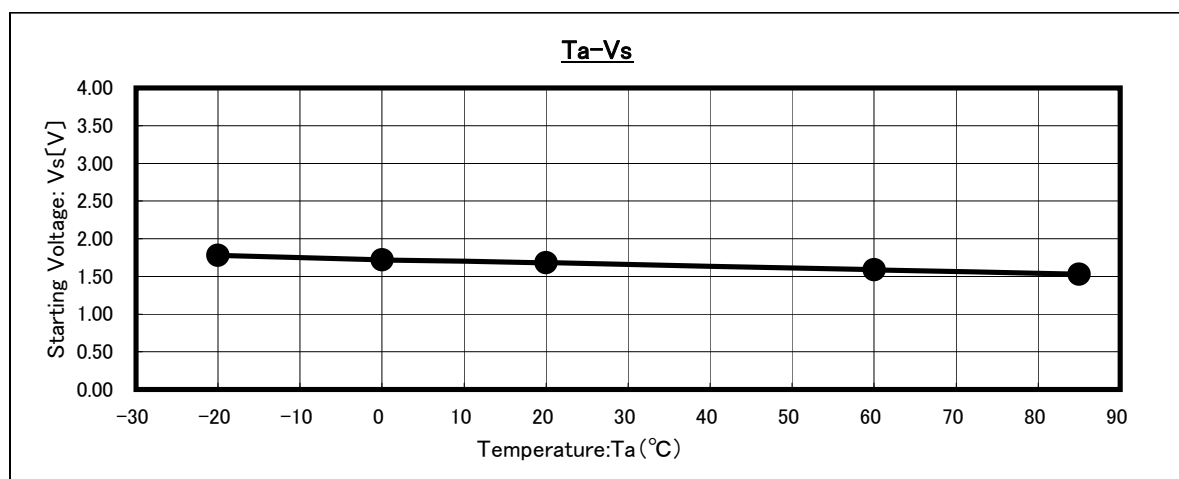
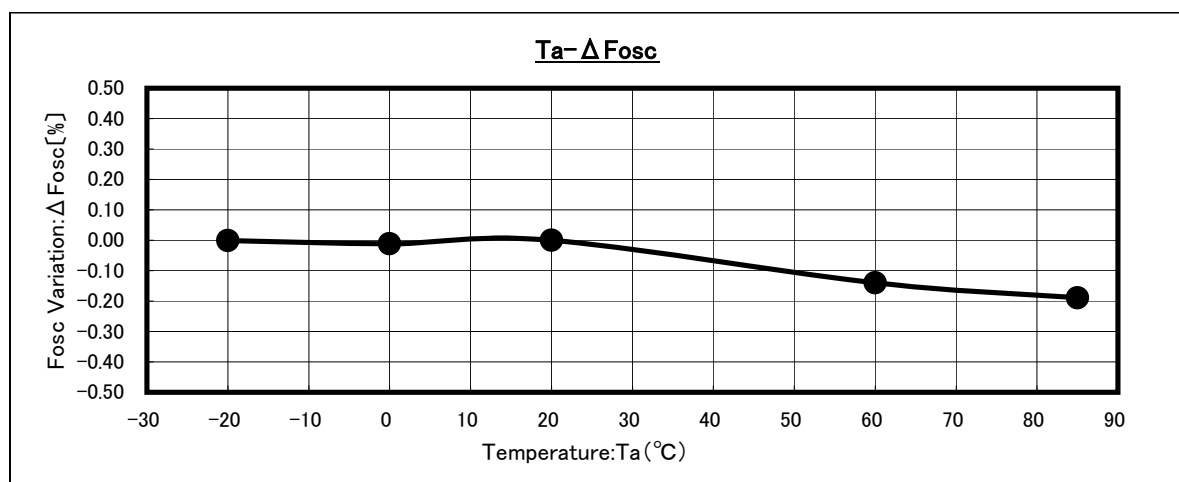
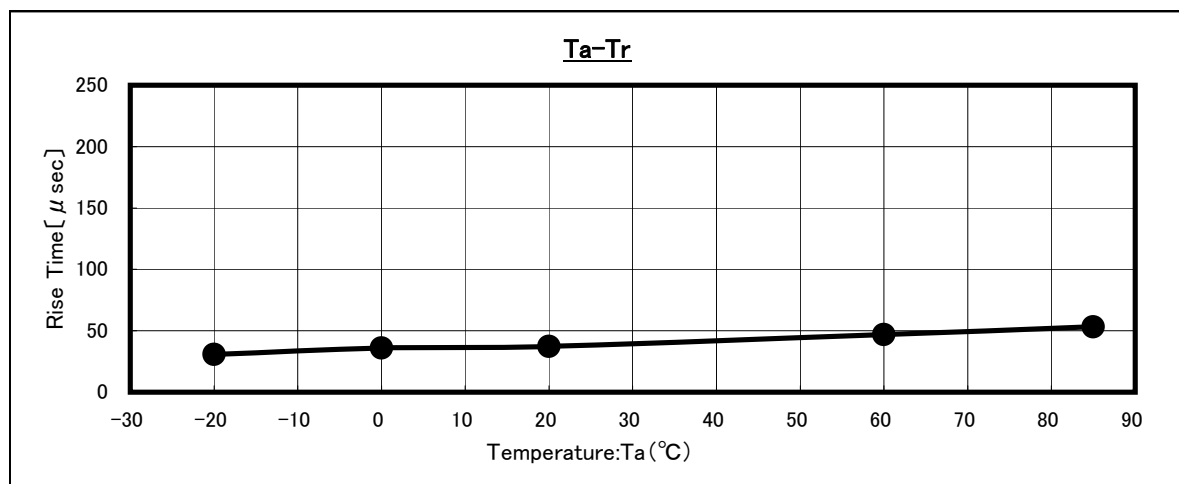
n = 1

CONDITIONS :

- Rise Time: Tr
- Fosc Variation: $\Delta Fosc$
- Oscillating Start: Vs

Vdd: 5.0V

Ta: -20 to +85°C



MEASURED BY : Y.Ookawara
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SAMPLES :

DCRHTC2.00LL-Limit
M38039GCHKP
IC : No.1

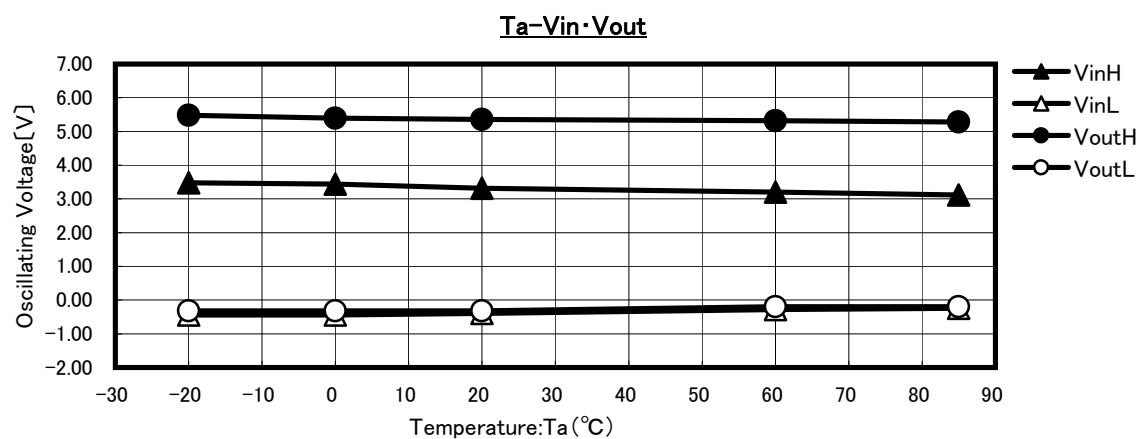
n = 1

CONDITIONS :

· Oscillating Voltage : Vin, Vout

Vdd:5.0V

Ta:-20 to +85°C

MEASURED BY : Y.Ookawara
DATE : 2008.02.13CHECKED BY : M.Hirayama
DATE : 2008.02.14

TOKO,INC

RESISTER No.

6. Oscillating Frequency Correlation

Oscillating Frequency Correlation Data
(M38309GCHKP Vs μ PD4069UBC)

Sample No.	M38309GCHKP Fosc[MHz]	μ PD4069UBC Fosc[MHz]	Shift[%]
1	2.0067	1.9990	0.387
2	2.0079	2.0012	0.337
3	2.0101	2.0036	0.325
4	2.0058	1.9994	0.321
5	2.0048	1.9979	0.344
6	2.0076	2.0009	0.334
7	2.0120	2.0049	0.353
8	2.0049	1.9987	0.312
9	2.0115	2.0053	0.307
10	2.0097	2.0028	0.346
AVG	2.0081	2.0014	0.337

※M38309GCHKP : Vdd=5.0(V)

TOKO Standard Circuit

