

Technical Data of Ceramic Resonator

MURATA Part No.: CSTCR5M00G55-R0

Applied to R5F21256SNFP(High)




TOYAMA MURATA MANUFACTURING CO., LTD.

Product Engineering Service Section VI

Piezoelectric Components Department I

Piezoelectric Components Division

Device Business Unit

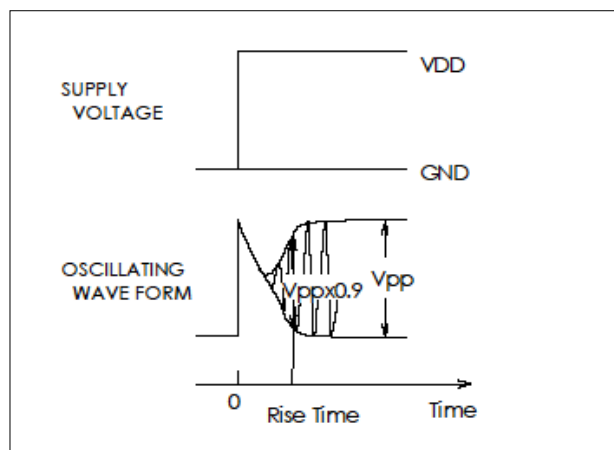
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|---|--|---|-------------|-------------|
|  K.Maruno |  R.Miyamae |  T.Morita | Jul 6, 2006 | TCD-06-1385 |

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Note : Rise Time

"Rise time" is defined as the time when oscillation voltage reaches 90% of full voltage swing after Vdd(Vset) is supplied.

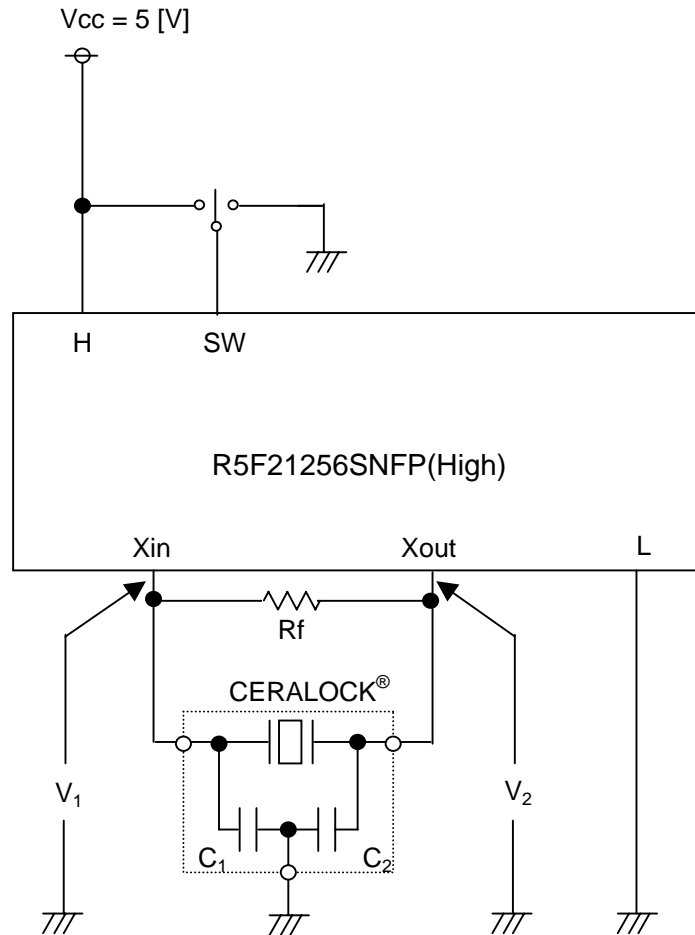


In the case that rising time of Vdd(Vset) is slow comparing to resonator's rise time due to the bypass capacitor, resonator's rise time is also slow because it depends on rising time of Vdd(Vset).

Also, in the case that the time supplying voltage to the oscillator circuit takes a certain time by reset time etc after Vdd(Vset) is applied, resonator's rise time is also slow.

In these case, we will describe "Unable to measure" in rise time data, because we can not measure resonator's rise time correctly.

Test Circuit

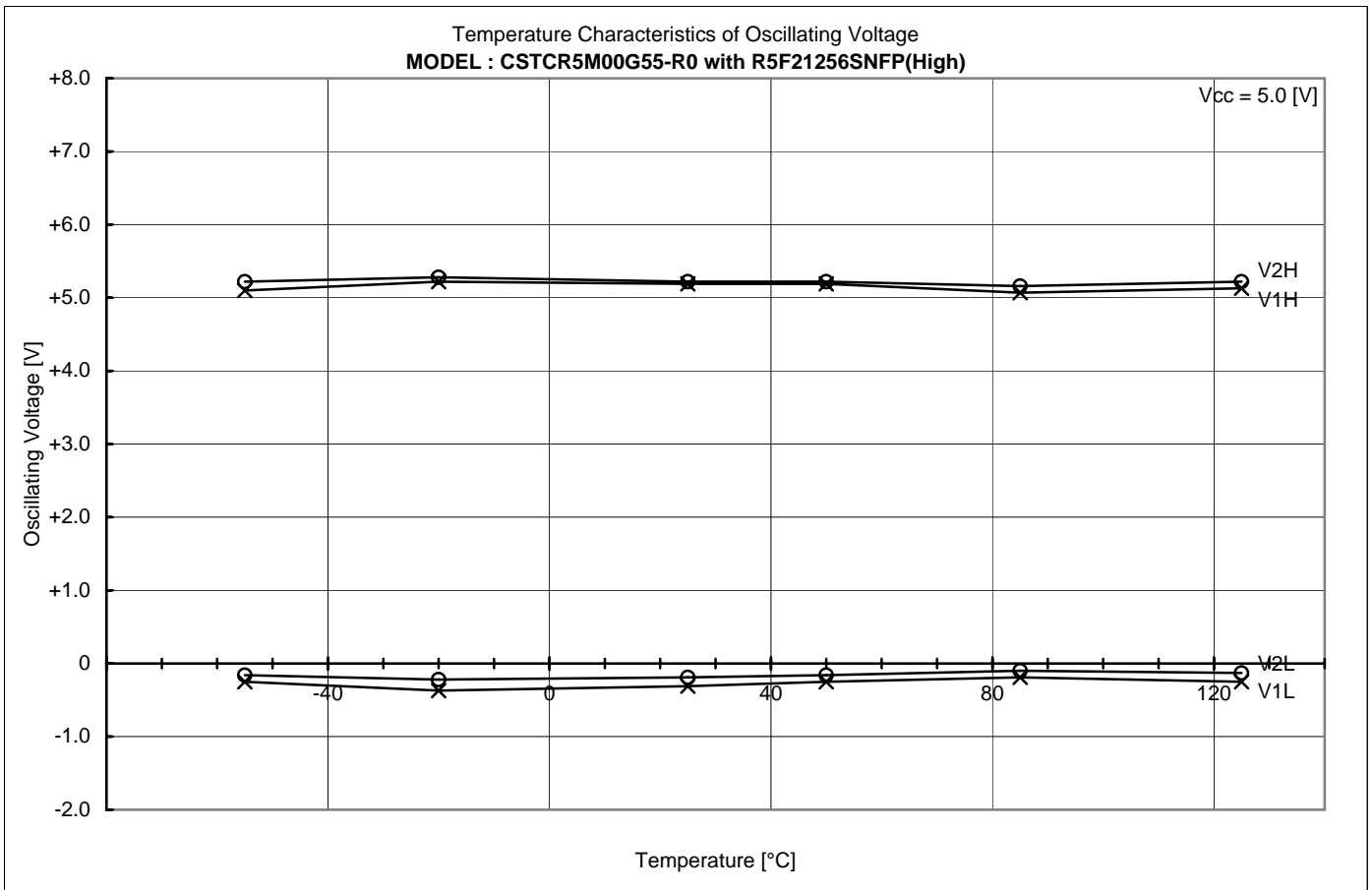
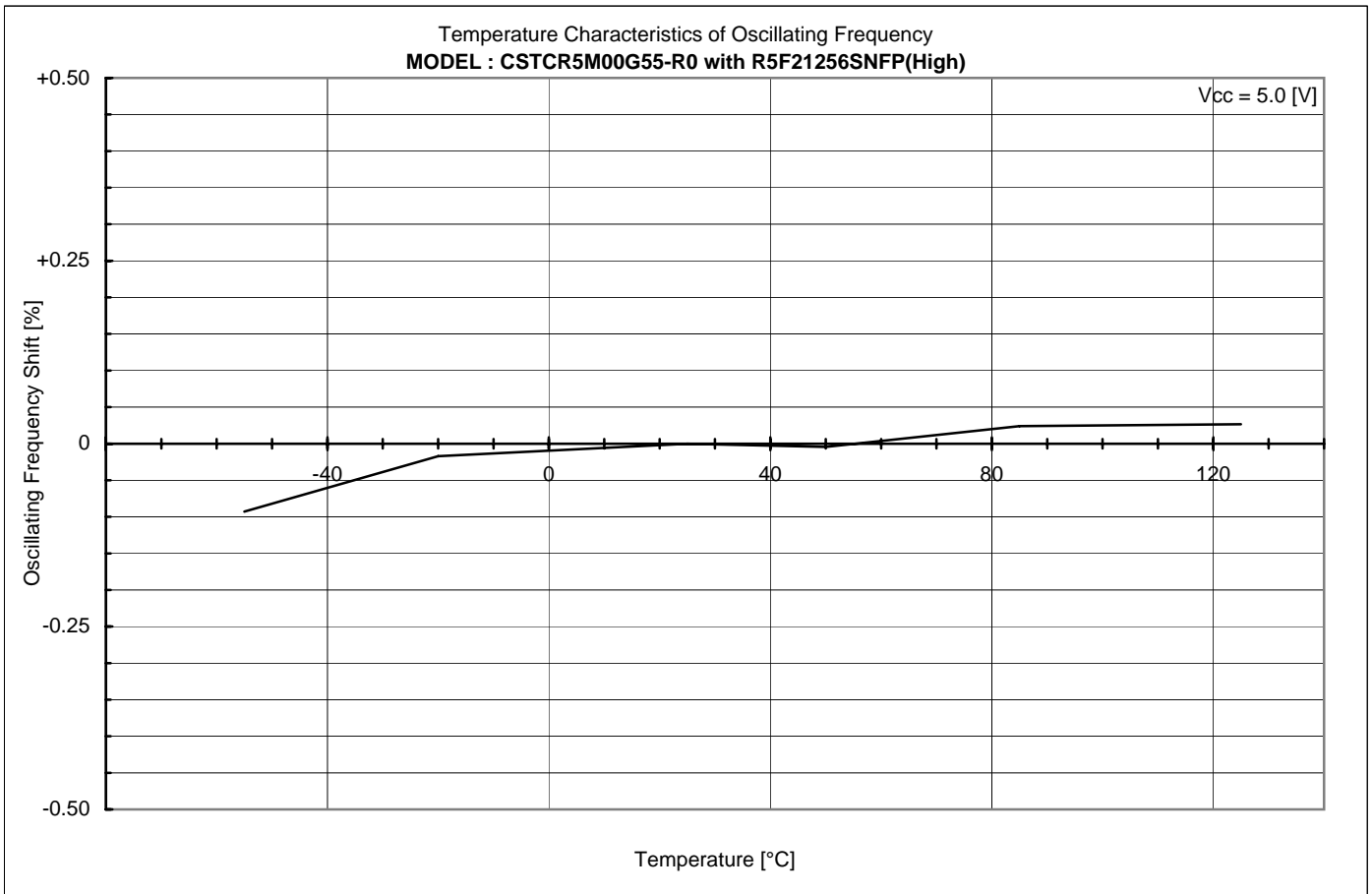


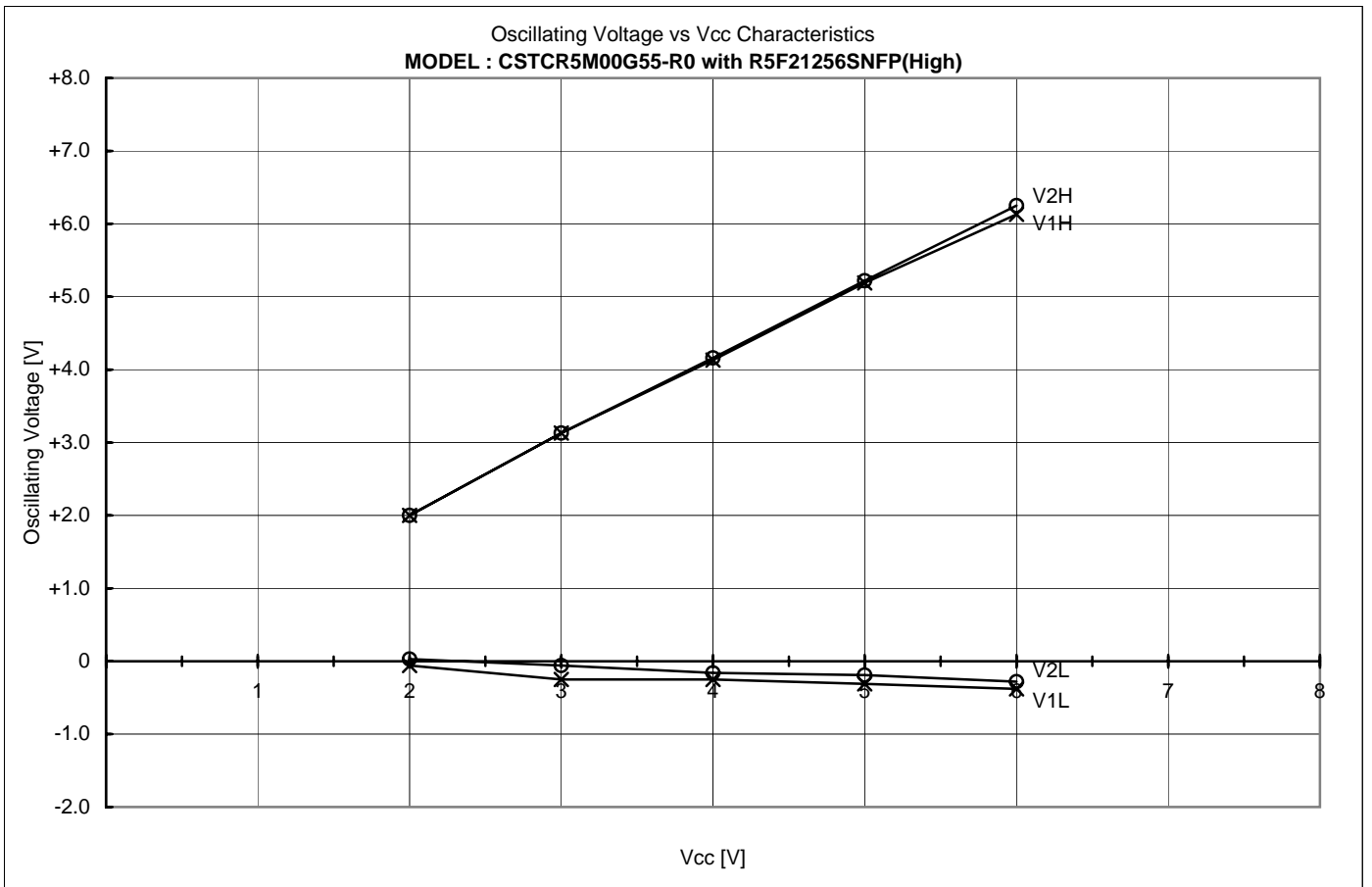
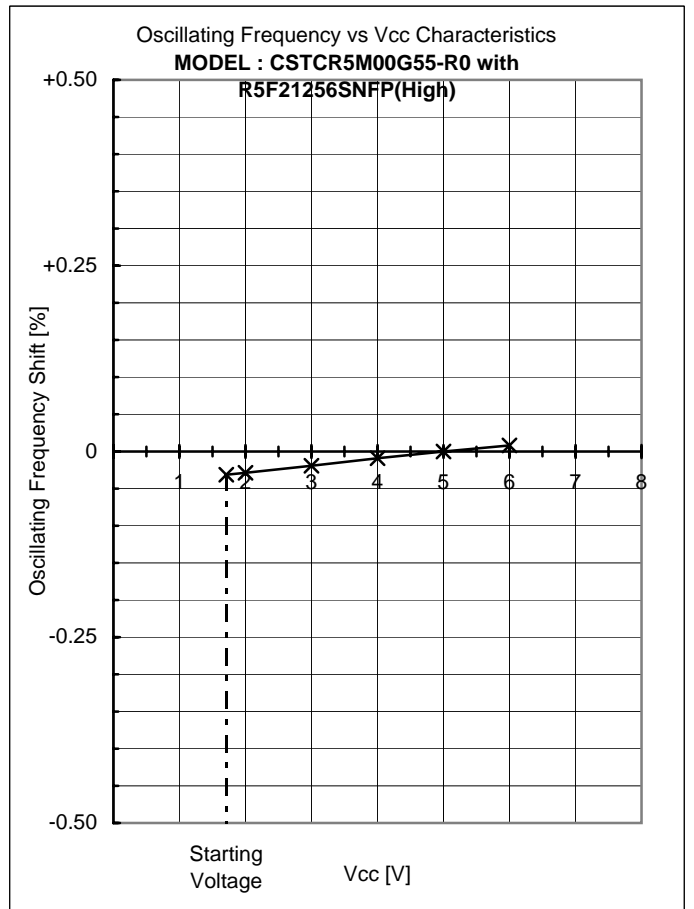
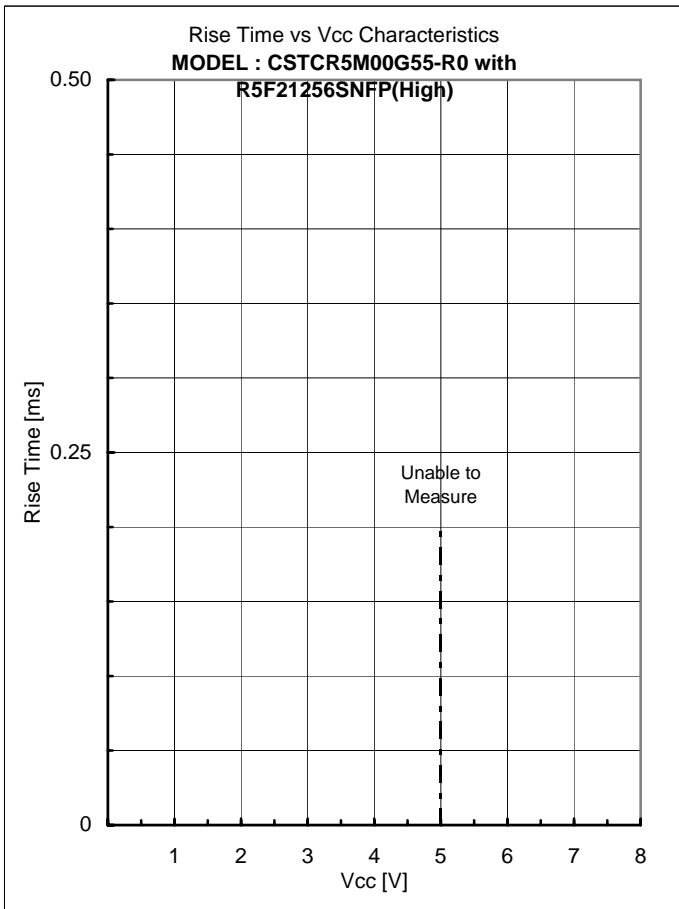
| SEL | RESET 8pin | P1_7/TRAI0/INT1 21pin | P4_5/INTO 27pin |
|-----|---------------|--------------------------|--------------------|
| SW | L→H | H | H→L |

Xin : 11
 Xout: 9
 H : 5, 12
 L : 10

Recommended Value

- CERALOCK[®] : CSTCR5M00G55-R0
- Vcc = 2.2 to 5.5 [V]
- C1 = 39 [pF] (Typ.)
- C2 = 39 [pF] (Typ.)
- Rf = 1 [Mohm]
- Ta = -40 to 85 [°C]





Appendixes

4. Comparison Table

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Comparison Table

| IC : No | V1H [V] | V1L [V] | V1p-p [V] | V2H [V] | V2L [V] | V2p-p [V] | Fosc [kHz] | Trise [ms] | Vstart [V] |
|---------|---------|---------|-----------|---------|---------|-----------|------------|------------|------------|
| WS | 5.19 | -0.31 | 5.50 | 5.22 | -0.19 | 5.41 | 5040.328 | Unable to | 1.71 |
| LL | 5.19 | -0.31 | 5.50 | 5.19 | -0.18 | 5.37 | 5041.134 | Measure | 1.56 |
| LH | 5.19 | -0.31 | 5.50 | 5.22 | -0.19 | 5.41 | 5040.811 | | 1.66 |
| HH | 5.22 | -0.31 | 5.53 | 5.22 | -0.19 | 5.41 | 5040.500 | | 1.70 |
| HL | 5.19 | -0.38 | 5.57 | 5.19 | -0.25 | 5.44 | 5040.715 | | 1.69 |

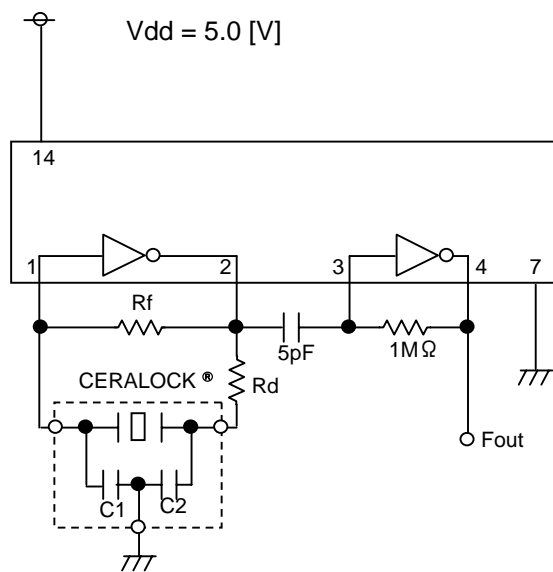
Ref.

Performance described page 2 to 3 were measured with IC No. WS

Frequency Correlation Data

| Sample No. | R5F21256SNFP(High) Fosc [kHz] | TC74HCU04AP Fosc [kHz] | Shift [%] |
|------------|-------------------------------|------------------------|-----------|
| 1 | 4998.461 | 4999.646 | -0.0237 |
| 2 | 4999.081 | 5000.098 | -0.0203 |
| 3 | 4998.632 | 5000.347 | -0.0343 |
| 4 | 5004.757 | 5006.797 | -0.0407 |
| 5 | 4998.420 | 4999.693 | -0.0255 |
| - | | | |
| X | 4999.870 | 5001.316 | -0.0289 |

muRata Standard Circuit



CERALOCK[®] : CSTCR5M00G55-R0

C1 = 39 [pF]

C2 = 39 [pF]

Rf = 1 [Mohm]

Rd = 680 [ohm]