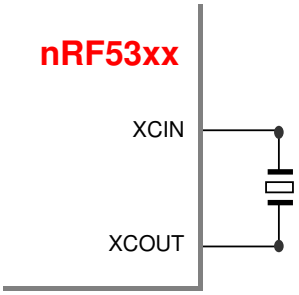
# Nordic Semiconductor nRF53 Series Matching Data Details

## ◆Evaluation items and evaluation data of oscillation circuit characteristics

・Circuit Diagram




Evaluation item

| No | Item | Symbol | Recommended conditions |
|---|---|---|---|
| 1 | Negative resistance | RL | The value shall be at least 5 times the product R1 specification value. |
| 2 | Oscillation margin | M | |
| 3 | Drive Level | D.L | Must be within product specifications. |

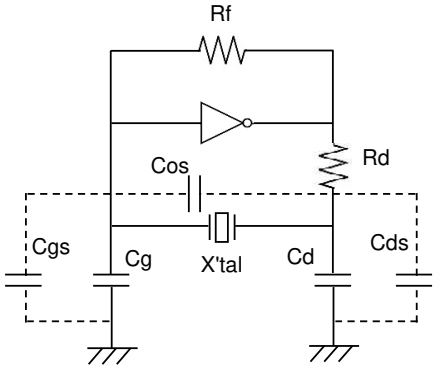
To ensure safe use by our customers,
We recommend an oscillation margin of 5 times or more.

・Product and recommended circuit constants

| IC Type | 32kHz Crystal unit | | | Internal Capacity | Oscillation characteristics | | | Supply voltage (V) |
|---|---|---|---|---|---|---|---|---|
| | Product name | R1Max. (kΩ) | CL (pF) | Cg/Cg (pF) | RL (kΩ) | M (times) | D.L (μW) | |
| nRF5340 | SC-32S | 70 | 7 | 6 | -441 | 6.3 | 0.01 | 3 |
| | | | 9 | 7 | -378 | 5.4 | 0.01 | |
| | SC-20S | 70 | 7 | 6 | -451 | 6.4 | 0.01 | 3 |
| | | | 9 | 7 | -386 | 5.5 | 0.01 | |
| | SC-16S | 90 | 7 | 6 | -469 | 5.2 | 0.01 | 3 |
| | | | 9 | 7 | -453 | 5.0 | 0.01 | |
| | SC-12S | 90 | 6 | 6 | -457 | 5.1 | 0.01 | 3 |

For other products and CL, please contact us.

**◆About circuit load capacitance**




The oscillation circuit has stray capacitance.
The CL value is set considering stray capacitance.
CL = Cg×Cd / (Cg + Cd) + Cs (pF)

Cs≒Circuit stray capacitance
What is floating capacity?
Cos : 32kHz_IN-32kHz_OUT Stray capacitance
Cgs : 32kHz_IN-Vss Stray capacitance
Cds : 32kHz_OUT-Vss Stray capacitance
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**◆Circuit board design considerations**

Place the crystal unit, capacitors, and resistors as close to the Chip as possible to shorten the wiring.
To prevent interference with other signal lines, do not place other signal lines in the area where the crystal unit is mounted (underside).
The oscillation circuit design is described on our website.
In addition, please use our circuit matching service. For details, please contact our sales representatives or visit our website.

**◆Caution**

The above evaluation results are reference values evaluated on specific samples and "IC manufacturer's evaluation board",
They are subject to change depending on the customer's board design.
Please note that the capacitance values and characteristics of external elements may vary depending on differences in stray capacitance and other factors in actual circuit boards.

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