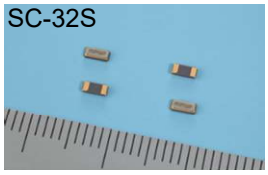
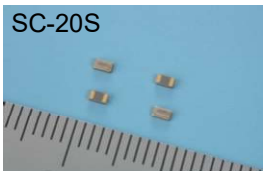
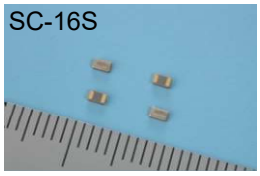
# Dialog Semiconductor DA14583 Matching data

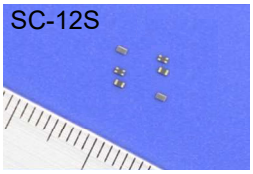
## ◆Specification for Quartz Crystal

| | SC-32S | SC-20S | SC-16S | SC-12S |
|---|---|---|---|---|
| Nominal Frequency | 32.768kHz | 32.768kHz | 32.768kHz | 32.768kHz |
| Frequency Tolerance | +/-20x10$^{-6}$ | +/-20x10$^{-6}$ | +/-20x10$^{-6}$ | +/-20x10$^{-6}$ |
| Load capacitance：CL | 6pF～12.5pF | 7pF～12.5pF | 7pF～12.5pF | 7pF～12.5pF |
| Motional Resistance：R1 | 70kΩmax | 70kΩmax | 90kΩmax | 90kΩmax |
| Absolute Maximum Drive Level | 1.0μW max | 1.0μW max | 0.5μW max | 0.3μW max |
| Dimensions（Thickness: Max.Value） | 3.2×1.5×0.85mm | 2.0×1.2×0.6mm | 1.6×1.0×0.5mm | 1.2×1.0×0.5mm |

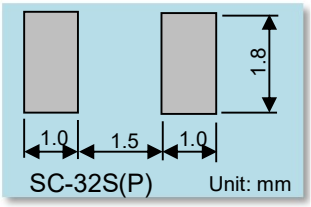


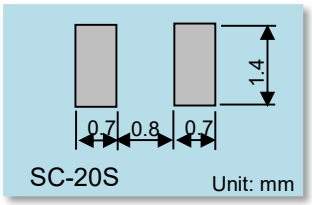



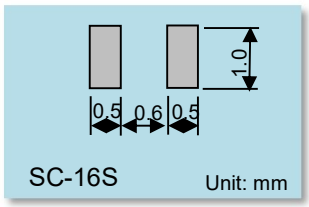



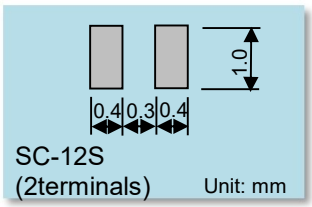




RECOMMENDED SOLDERING PATTERN

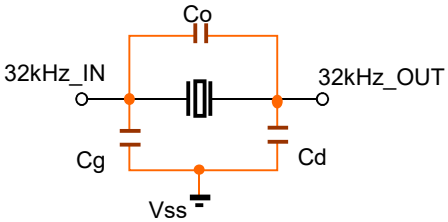



## ◆Approximate expression for Circuit load capacitance




CL = Cg × Cd / (Cg + Cd) + Cs (pF)

Cos : 32kHz_IN-32kHz_OUT Stray capacitance
Cgs : 32kHz_IN-Vss Stray capacitance
Cds : 32kHz_OUT-Vss Stray capacitance

## ◆Notes for the design of Circuit board

Please keep the wiring short and place Quartz Crystal, Condensor, and Resistance close as possible to Dialog microcontroller. In order to prevent interference with other signal lines, do not provide other signal lines, please do not provide other signal lines on the crystal mounting part (bottom surface).



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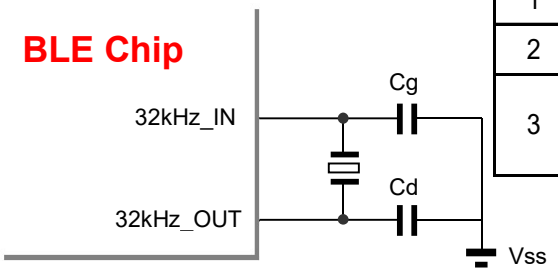
# Dialog Semiconductor DA14583 Matching data

◆**Circuit matching constant for Oscillation circuit**

| 製品名 | 32kHz水晶振動子 | | | 外付け素子 | | 発振特性 | | | 電源電圧 |
|---|---|---|---|---|---|---|---|---|---|
| | 製品名 | R1Max.（kΩ） | CL（pF） | Cg（pF） | Cd（pF） | RL（kΩ） | M（倍） | D.L（μW） | Vdd（V） |
| DA14580<br>DA14581<br>DA14585<br>DA14586<br>DA14583 | SC-32S | 70 | 7 | - | - | -1,467 | 21 | 0.01 | 3 |
| | SC-20S | 70 | 7 | - | - | -1,471 | 21 | 0.01 | |
| | SC-16S | 90 | 7 | - | - | -1,489 | 17 | 0.01 | |

◆Qualification item for Oscillation circuit characteristics




| No | Items | Symbol | Recommendation |
|---|---|---|---|
| 1 | Negative Resistance | RL | |
| 2 | Oscillation allowance | M | more than 5 times of R1Max. |
| 3 | Absolute Maximum Drive Level | D.L | SC-32S/SC-20S： 1μW<br>SC-16S：0.5μW<br>SC-12S：0.3μW |

◆**Notes**

The above evaluation results are reference values evaluated in the specific sample, and the contents are not guaranteed.
Please note that in the actual circuit board, the value of the external element capacitance and the characteristics may change depending on the difference in stray capacitance and so on.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