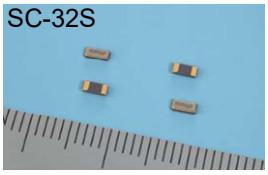
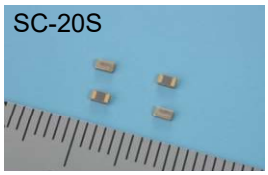
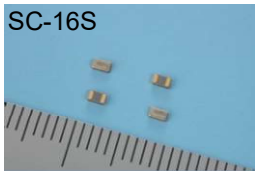
TEXAS INSTRUMENTS cc26xx series Matching data

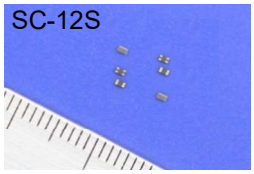
◆Specification for Quartz Crystal

	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

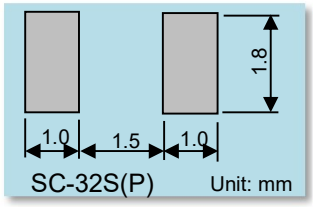


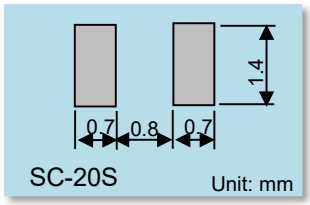


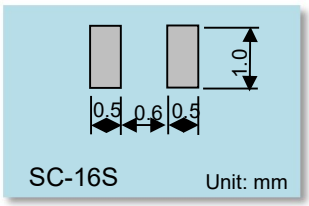


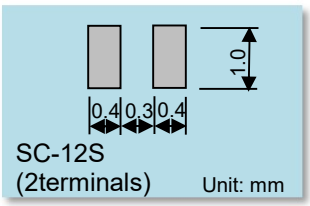


RECOMMENDED SOLDERING PATTERN

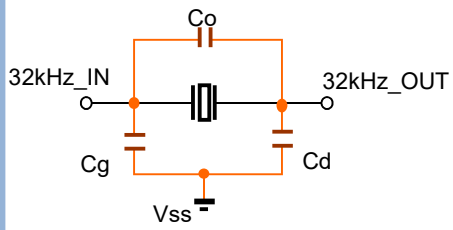








◆Approximate expression for Circuit load capacitance



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 Texas Instruments 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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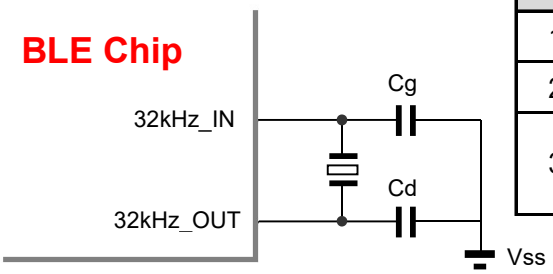
TEXAS INSTRUMENTS cc26xx series Matching data

◆Circuit matching constant for Oscillation circuit

Product	32kHz Quartz Crystal		External condensor		Oscillation Characteristics			Supply
	Product	R1Max. (kΩ)	CL (pF)	Cg (pF)	Cd (pF)	RL (kΩ)	M (Times)	D.L (μW)	Vdd (V)
CC26xx Series	SC-32S	70	6	10	10	-1,670	24	0.01	3
			9	16	16	-1,064	15	0.01	
			12.5	22	22	-710	10	0.01	
	SC-20S	70	7	12	12	-1,567	22	0.01	3
			9	16	16	-1,064	15	0.01	
			12.5	22	22	-710	10	0.01	
	SC-16S	90	7	12	13	-1,567	17	0.01	3
			9	16	18	-974	11	0.01	
			12.5	27	22	-590	7	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 SC-16S: 0.5μW 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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