RL78/G15
Resonator and Oscillator Constants

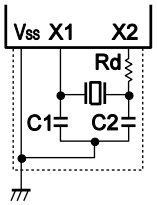
The resonators for which the operation is verified and their oscillator constants are shown below.

Cautions 1. The oscillator constants shown above are reference values based on evaluation in a specific environment by the resonator manufacturer. Be sure to apply to the resonator manufacturer for evaluation on the actual circuit before using these constants for your application.
Also apply to the resonator manufacturer for re-evaluation on the actual circuit if you have changed the make of the microcontroller or the board.

2. The oscillation voltage and oscillation frequency only indicate the oscillator characteristic. Use the RL78 microcontroller so that the internal operation conditions are within the specifications of the DC and AC characteristics.

Figure. External Oscillation Circuit Example

X1 oscillation



X1 oscillation

As of Sep. 2022

Manufacturer	Resonator	Part Number	SMD/ Lead	(MHz)	Recommended Circuit Constants Note 1 (reference)			Oscillation Voltage Range (V)		Operating ambient temperature (℃)
					C1 (pF)	C2 (pF)	Rd (Ω)	MIN.	MAX.	
Murata Manufacturing Co., Ltd. Note 2	Ceramic resonator	CSTCR4M00G55-R0	SMD	4.0	(39)	(39)	0	2.4	5.5	-40 ~ 85
		CSTCR4M00G55Z-R0								-40 ~ 125
		CSTLS4M00G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS4M00G53Z-B0								-40 ~ 125
		CSTCR4M19G55-R0	SMD	4.194	(39)	(39)	0			-40 ~ 85
		CSTCR4M19G55Z-R0								-40 ~ 125
		CSTLS4M19G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS4M19G53Z-B0								-40 ~ 125
		CSTCR4M91G53-R0	SMD	4.915	(15)	(15)	0			-40 ~ 85
		CSTCR4M91G53Z-R0								-40 ~ 125
		CSTLS4M91G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS4M91G53Z-B0								-40 ~ 125
		CSTCR5M00G53-R0	SMD	5.0	(15)	(15)	0			-40 ~ 85
		CSTCR5M00G53Z-R0								-40 ~ 125
		CSTLS5M00G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS5M00G53Z-B0								-40 ~ 125
		CSTCR6M00G53-R0	SMD	6.0	(15)	(15)	0			-40 ~ 85
		CSTCR6M00G53Z-R0								-40 ~ 125
		CSTLS6M00G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS6M00G53Z-B0								-40 ~ 125
		CSTNE8M00G520000R0	SMD	8.0	(10)	(10)	0			-40 ~ 85
		CSTNE8M00G52Z000R0								-40 ~ 125
		CSTLS8M00G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS8M00G53Z-B0								-40 ~ 125
		CSTNE10M0G520000R0	SMD	10.0	(10)	(10)	0			-40 ~ 85
		CSTNE10M0G52Z000R0								-40 ~ 125
		CSTLS10M0G53-B0	Lead		(15)	(15)	0			-20 ~ 80
		CSTLS10M0G53Z-B0								-40 ~ 125
		CSTNE12M0G520000R0	SMD	12.0	(10)	(10)	0			-40 ~ 85
		CSTNE12M0G52Z000R0								-40 ~ 125
Nihon Dempa Kogyo Co., Ltd. Note3	Crystal resonator	NX5032GA/CHP-CSK-16	SMD	8.0	2	2	0	2.4	5.5	-40 ~ 105
		NX3225SA/CHP-CQR-1	SMD	12.0	2	2	0			-40 ~ 105
		NX3225SA/CHP-CQS-1	SMD	12.0	2	2	0			-40 ~ 125
Kyocera Co., Ltd. Note4	Crystal resonator	CX3225SA	SMD	8.0	5	5	0	2.4	5.5	-40 ~ 125
		CX3225SA	SMD	12.0	5	5	0			-40 ~ 125

(Notes are listed on the next page.)

Notes 1. Values in parentheses in the C1 and C2 columns indicate an internal capacitance.

2. When using this resonator, for details about the matching, contact Murata Manufacturing Co., Ltd. (http://www.murata.com)

3. When using this resonator, for details about the matching, contact Nihon Dempa Kogyo Co., Ltd. (http://www.ndk.com/en).

4. When using this resonator, for details about the matching, contact Kyocera Co., Ltd. (http://global.kyocera.com).