

The ultra-miniature ECX-12RR is a very compact SMD Tuning Fork Crystal. The 2.0 x 1.2 x 0.6 mm ceramic package with reduced ESR is ideal for IoT and Wearable technology.

# ECX-12RR

32.768 KHz  
SMD Tuning Fork Crystal  
Low ESR

## ECX-12RR SMD CRYSTAL

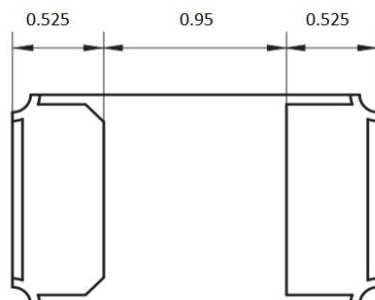
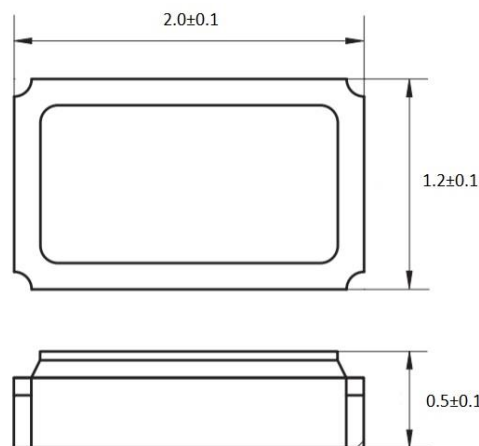


- Low ESR 50K Ohms Max.
- 2.0 x 1.2 mm Footprint
- Low Power RTC Applications such as STM32 [AN2867](#)
- RoHS Compliant
- Applications: Metering, Automotive, Industrial, IOT and Wearables.

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	ECX-12RR			UNITS
		MIN	TYP	MAX	
Frequency			32.768		KHz
Frequency Tolerance	@ +25°C			± 20	ppm
Load Capacitance	Specify in P/N		12.5		pF
Drive Level	DL		0.1	0.5	μW
Equivalent Series Resistance	R1		35K	50K	Ω
Turnover Temperature		+20	+25	+30	°C
Temperature Coefficient			-0.030	-0.040	ppm/°C <sup>2</sup>
Shunt Capacitance	Co		1.7	2.0	pF
Aging (First Year)	@ +25°C ±3°C			±3	ppm
Operating Temperature	T <sub>opr</sub>	-40		+85	°C
Storage Temperature	T <sub>stg</sub>	-40		+85	°C

## DIMENSIONS (mm)



### PAD CONNECTIONS

1	In/Out
2	Out/In

Figure 1) Top, Side, and Bottom views

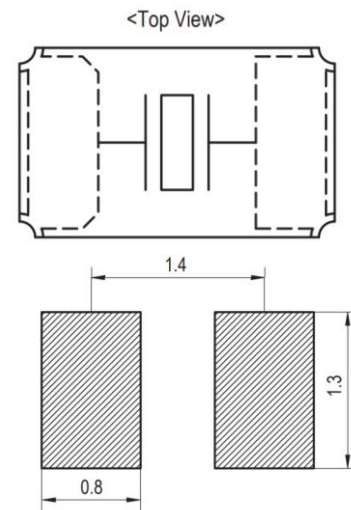


Figure 2) Suggested Land Pattern

## PART NUMBERING GUIDE: Example ECS-.327-12.5-12RR-TR

ECS	FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	PACKAGING
ECS	.327 = 32.768 KHz	12.5 = 12.5 pF 9 = 9 pF 6 = 6 pF	-12RR = ECX-12RR	TR = Tape & Reel 3K/Reel

