

The ultra-miniature ECX-12R 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-12R

32.768 KHz  
SMD Tuning Fork Crystal  
Low ESR

## ECX-12R SMD CRYSTAL



- Low ESR 70K 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-12R			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			1.0	μW
Equivalent Series Resistance	R1			70K	Ω
Turnover Temperature		+20	+25	+30	°C
Temperature Coefficient		-0.03	-0.033	-0.036	ppm/°C²
Shunt Capacitance	Co		1.3		pF
Aging (First Year)	@ +25°C ±3°C			±3	ppm
Operating Temperature	Topr	-40		+85	°C
Storage Temperature	Tstg	-55		+125	°C

## DIMENSIONS (mm)

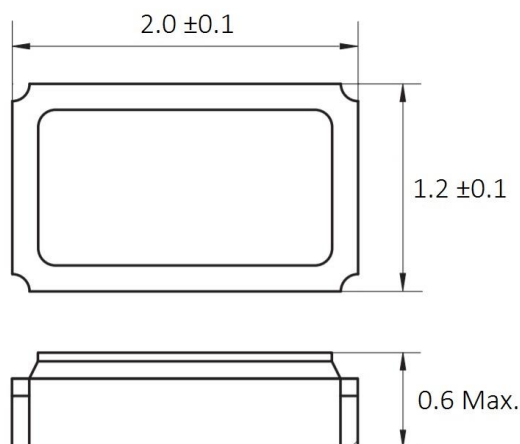


Figure 1) Top, Side, and Bottom views

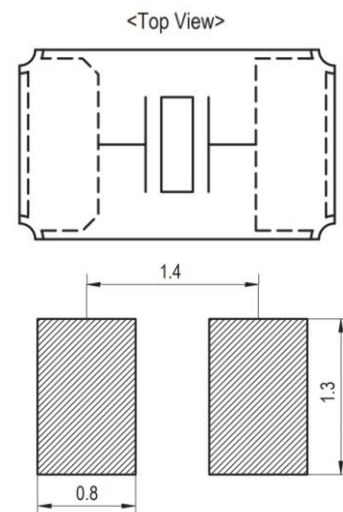
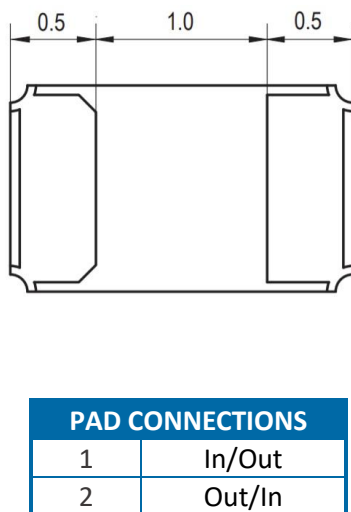


Figure 2) Suggested Land Pattern

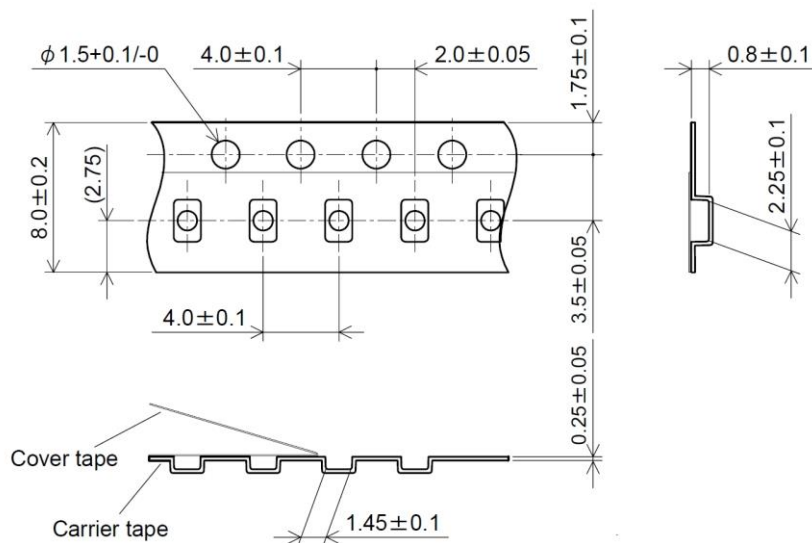
## PART NUMBERING GUIDE: Example ECS-.327-12.5-12R-TR

ECS - FREQUENCY ABBREVIATION		LOAD CAPACITANCE	PACKAGE	CUSTOM OPTIONS Tolerance	PACKAGING
ECS	.327 = 32.768 KHz	12.5 = 12.5 pF 9 = 9 pF 7 = 7 pF 6 = 6 pF	-12R = ECX-12R	Blank = ±20 ppm * C = ± 10 ppm	TR = Tape & Reel 3K/Reel

\*Contact ECS for availability

Rev.2018

## POCKET TAPE DIMENSIONS (mm)



### SOLDER PROFILE

Peak solder Temp  $+260^{\circ}\text{C}$  Max 10 sec Max.

2 Cycles Max.

MSL 1, Lead Finish Au

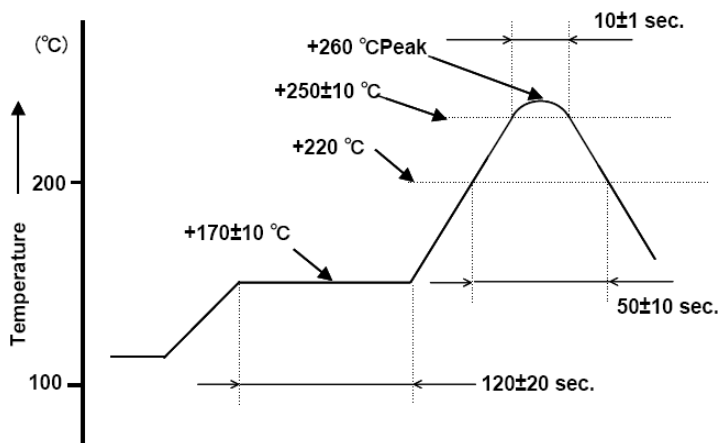


Figure 1) Suggested Reflow Profile

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ECS:

[ECS-.327-7-12R-TR](#) [ECS-.327-9-12R-C-TR](#) [ECS-.327-9-12R-TR](#) [ECS-.327-6-12R-TR](#) [ECS-.327-12.5-12R-TR](#)  
[ECS-.327-12.5-12R-C-TR](#)