

The miniature ECX-16 is a very compact SMD Tuning Fork Crystal perfect for LoRa Wan technology. Low ESR part recommended by STMicroelectronics for the STM32 Microcontrollers.

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS



- Low Power RTC Applications such as STM32 [AN2867](#)
- 1.6 x 1.0 mm Footprint
- Extended Temp. Range
- RoHS Compliant
- Applications: Automotive, COTS, Industrial, IOT

PARAMETERS	CONDITIONS	ECX-16			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			0.5	µW
Equivalent Series Resistance	R1			90K	Ω
Motional Capacitance			6.5		fF
Turnover Temperature		+20	+25	+30	°C
Temperature Coefficient		-0.02	-0.03	-0.040	ppm/°C <sup>2</sup>
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)

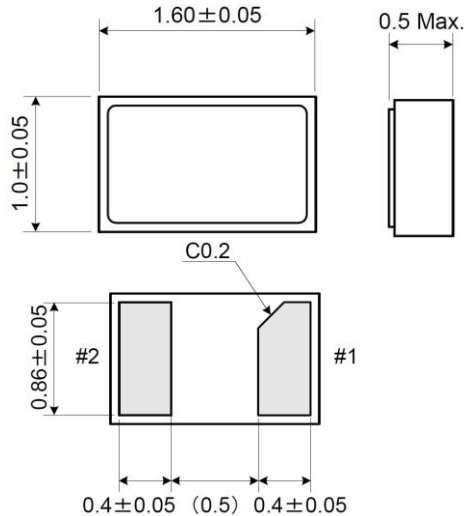
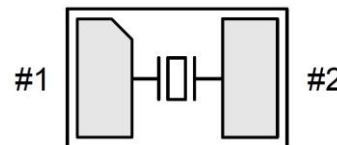


Figure 1) Top, Side, and Bottom views



PAD CONNECTIONS	
1	In/Out
2	Out/In

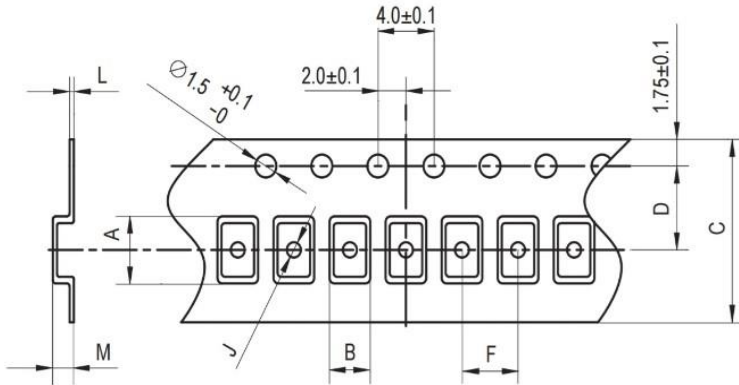
Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-.327-12.5-16-TR

ECS - FREQUENCY ABBREVIATION	LOAD CAPACITANCE	PACKAGE	CUSTOM OPTIONS Tolerance (@+25°C) Max.	PACKAGING
ECS	.327 = 32.768 KHz	-16 = ECX-16	Blank = ±20 ppm * C = ± 10 ppm * 7 = ± 7 Max.	TR = 5K/Reel TR3 = 3K/Reel
	12.5 = 12.5 pF 9 = 9 pF 7 = 7 pF 6 = 6 pF 5 = 5 pF			

\*Contact ECS for availability

**POCKET TAPE DIMENSIONS (mm)**



A	B	C	D	F	J	L	M	Reel Dia.
1.85	1.25	8.0	3.5	4.0	0.5	0.25	0.65	180

**SOLDER PROFILE**

Peak solder Temp +260°C Max 10 sec Max.

2 Cycles Max.

MSL 1, Lead Finish Au

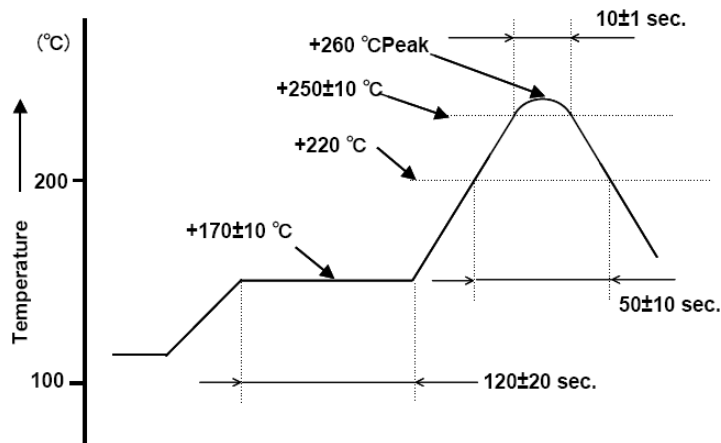


Figure 1) Suggested Reflow Profile

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