

The ultra-miniature ECX-12L is a very compact SMD Tuning Fork Crystal. The 2.0 x 1.2 x 0.38 mm **low profile** ceramic package is ideal for smart cards, mobile devices, and industrial applications.

# ECX-12L

## 32.768 KHz

### SMD Tuning Fork Crystal

[Request a Sample](#)

#### ECX-12L SMD CRYSTAL



- **Low Profile 0.38 mm H**
- 2.0 x 1.2 mm Footprint
- Extended Temp. Range
- RoHS Compliant
- Applications: Automotive, COTS, Industrial, IOT

#### DIMENSIONS (mm)

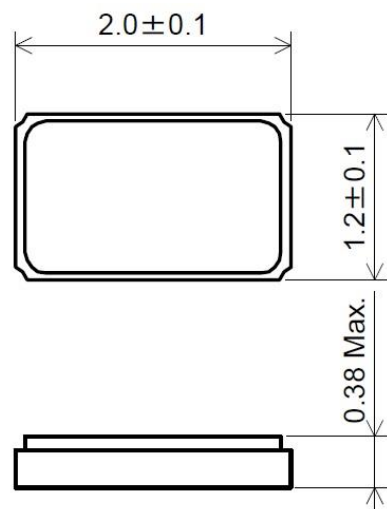
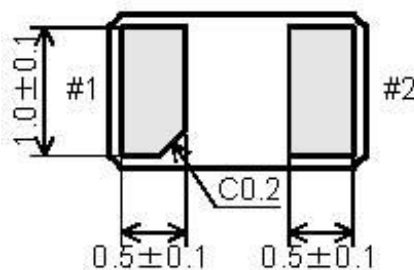


Figure 1) Top, Side, and Bottom views



#### PAD CONNECTIONS

|   |        |
|---|--------|
| 1 | In/Out |
| 2 | Out/In |

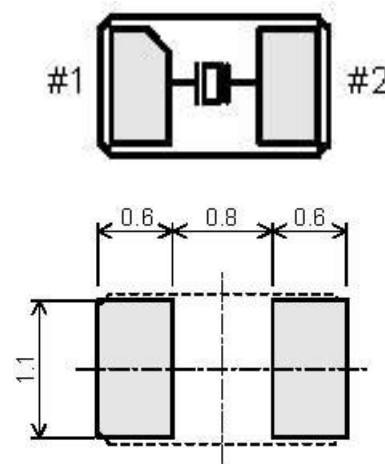


Figure 2) Suggested Land Pattern

#### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS                   | CONDITIONS     | ECX-12L |        |        | 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             |         |        | 100K   | Ω       |
| Motional Capacitance         |                |         | 7.0    |        | fF      |
| Turnover Temperature         |                | +20     | +25    | +30    | °C      |
| Temperature Coefficient      |                | -0.02   | -0.03  | -0.040 | 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      |

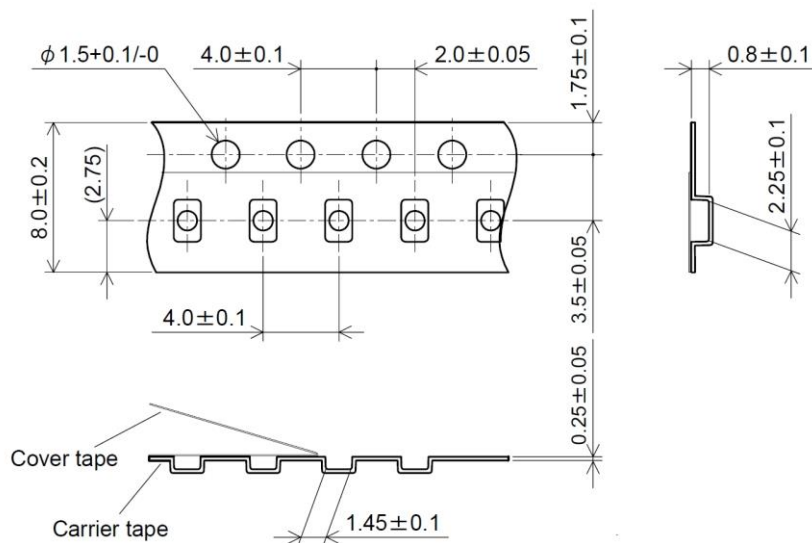
#### PART NUMBERING GUIDE: Example ECS-.327-12.5-12L-TR

| ECS - FREQUENCY ABBREVIATION | LOAD CAPACITANCE                                   | PACKAGE        | CUSTOM OPTIONS<br>Tolerance       | PACKAGING                   |
|------------------------------|----------------------------------------------------|----------------|-----------------------------------|-----------------------------|
| ECS                          | .327 = 32.768 KHz                                  | -12L = ECX-12L | Blank = ±20 ppm<br>* C = ± 10 ppm | TR = Tape & Reel<br>5K/Reel |
|                              | 12.5 = 12.5 pF<br>9 = 9 pF<br>7 = 7 pF<br>6 = 6 pF |                |                                   |                             |

\*Contact ECS for availability

Rev.2017

## 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

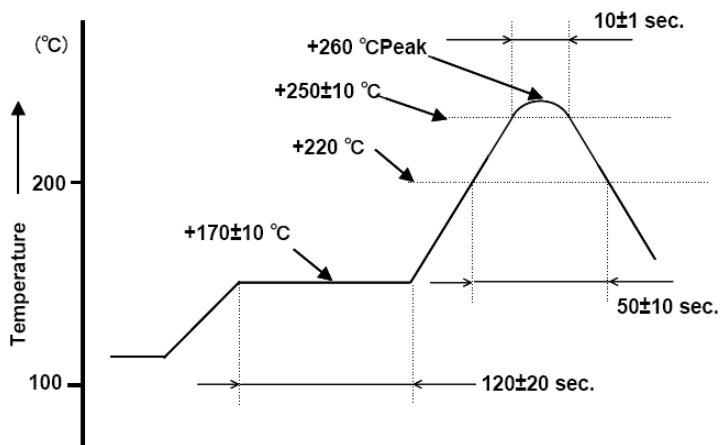


Figure 1) Suggested Reflow Profile

# Mouser Electronics

Authorized Distributor

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

ECS:

[ECS-.327-12.5-12L-TR](#)