



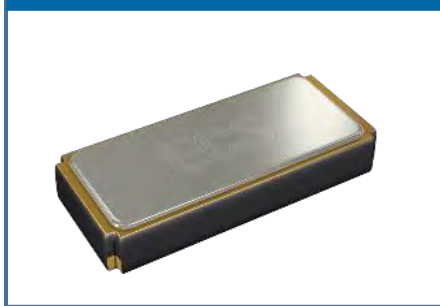
The ultra-miniature ECX-12L is a very compact SMD Tuning Fork Crystal. The 2.0 x 1.2 x 0.38 mm ceramic package is ideal for today's SMD manufacturing environment.

ECX-12L

32.768 KHz
SMD Tuning Fork Crystal



ECX-31B 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

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/°C ² |
| 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)

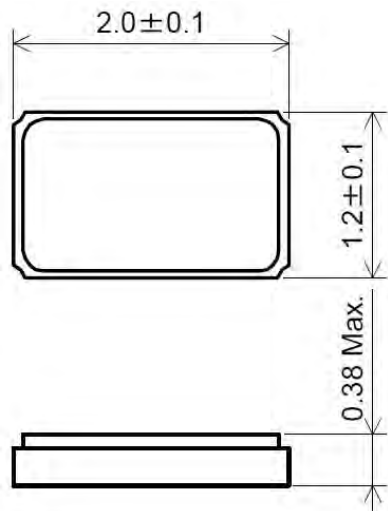
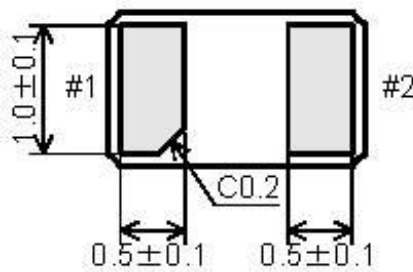


Figure 1) Top, Side, and Bottom views



PAD CONNECTIONS

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

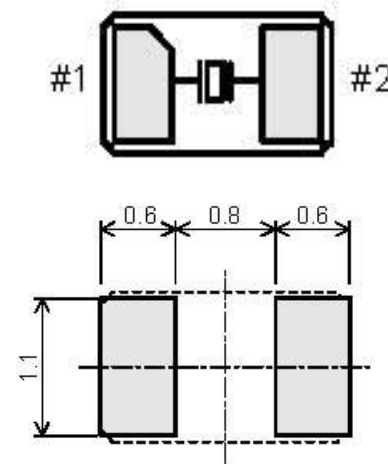


Figure 2) Suggested Land Pattern