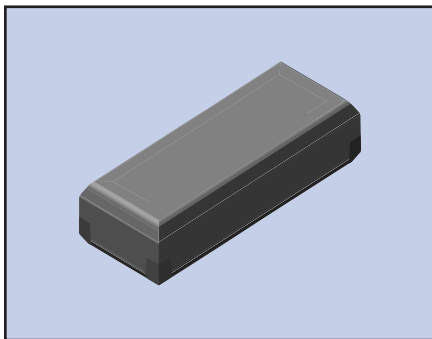




The ultra-miniature ECX-31 is a very compact SMD Tuning Fork Crystal. The 3.2 x 1.2 x 1 mm package is ideal for applications where real estate is at a premium.

## FEATURES

- Low profile
- long term stability
- 1mm height max.
- Tape and Reel (3,000 pcs)

## PART NUMBERING GUIDE "EXAMPLE"

| MANUFACTURER | FREQUENCY (32.768 KHz) | LOAD CAPACITANCE | PACKAGE TYPE |
|--------------|------------------------|------------------|--------------|
| ECS          | — .327 —               | 12.5             | — 32         |

Part Number: ECS-.327-12.5-32

## OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

| PARAMETERS                   | CONDITIONS        | MINIMUM | TYPICAL | MAXIMUM | UNITS               |
|------------------------------|-------------------|---------|---------|---------|---------------------|
| FREQUENCY                    | F <sub>0</sub>    |         | 32.768  |         | KHz                 |
| FREQUENCY TOLERANCE          | Δf/f <sub>0</sub> |         |         | ±20     | PPM                 |
| LOAD CAPACITANCE             |                   |         | 12.5    |         | pF                  |
| DRIVE LEVEL                  | D <sub>L</sub>    |         |         | 1.0     | μW                  |
| EQUIVALENT SERIES RESISTANCE | R <sub>L</sub>    |         |         | 50K     | Ω                   |
| TURNOVER TEMPERATURE         |                   | +20     | +25     | +30     | °C                  |
| TEMPERATURE COEFFICIENT      | β                 |         | -0.035  | -0.043  | ppm/°C <sup>2</sup> |
| SHUNT CAPACITANCE            | C <sub>0</sub>    |         | 1.7     |         | pF                  |
| OPERATING TEMPERATURE RANGE  | T <sub>OPR</sub>  | -40     |         | +85     | °C                  |
| STORAGE TEMPERATURE RANGE    | T <sub>STG</sub>  | -55     |         | +125    | °C                  |
| INSULATION RESISTANCE        | @ 100v DC ±15v    | 500M    |         |         | Ω                   |

## PACKAGE DIMENSIONS (mm)

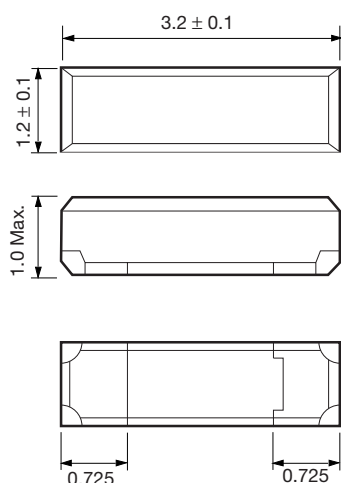


Figure 1) ECX-32 - Top, Side Bottom & End views

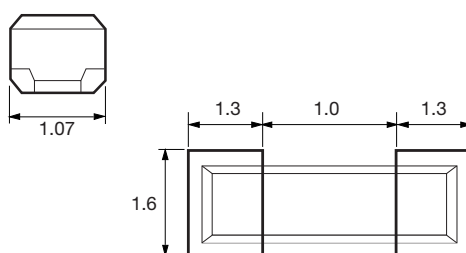


Figure 2) ECX-32 Land Pattern



Figure 3) ECX-32 Crystal Connection