

The miniature ECX-16R is a very compact low ESR SMD Tuning Fork Crystal. Low ESR ideal for RTC and low power Microcontrollers.

# ECX-16R

32.768 KHz  
SMD Tuning Fork Crystal

[Request a Sample](#)

## ECX-16R SMD CRYSTAL



- Lowest in class ESR
- 1.6 x 1.0 mm Footprint
- Extended Temp. Range
- RoHS Compliant
- Applications: Wireless, COTS, Industrial, & IOT

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS                   | CONDITIONS       | ECX-16R |        |        | 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               |         |        | 60K    | Ω       |
| Motional Capacitance         |                  |         | 7.5    |        | fF      |
| Turnover Temperature         |                  | +20     | +25    | +30    | °C      |
| Temperature Coefficient      |                  | -0.02   | -0.03  | -0.040 | ppm/°C² |
| Shunt Capacitance            | Co               |         | 1.5    |        | pF      |
| Aging (First Year)           | @ +25°C ±3°C     |         |        | ±3     | ppm     |
| Operating Temperature        | T <sub>opr</sub> | -40     |        | +85    | °C      |
| Storage Temperature          | T <sub>stg</sub> | -55     |        | +125   | °C      |

## DIMENSIONS (mm)

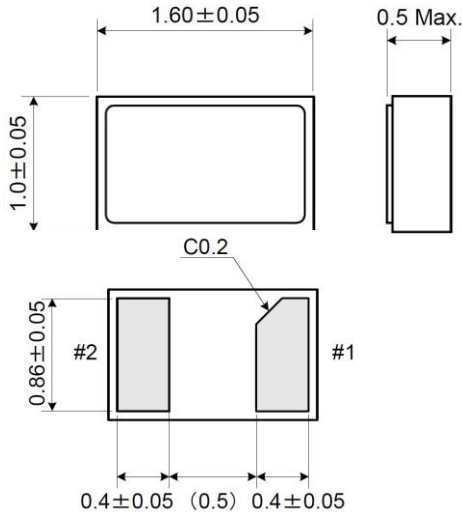
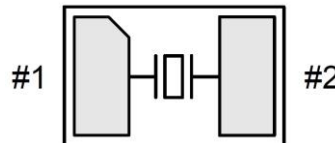


Figure 1) Top, Side, and Bottom views



### PAD CONNECTIONS

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

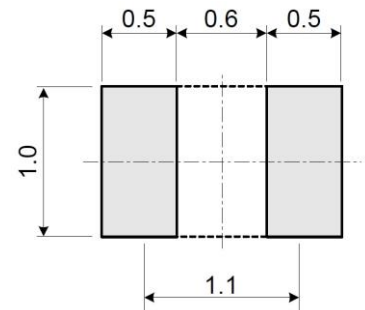


Figure 2) Suggested Land Pattern

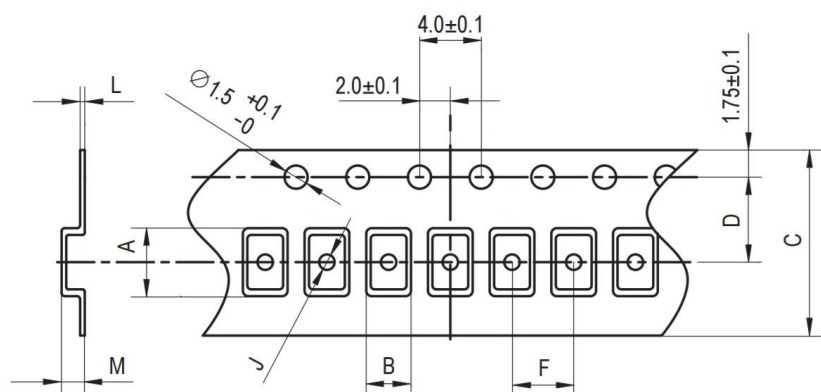
## PART NUMBERING GUIDE: Example ECS-.327-12.5-16R-TR

| ECS - FREQUENCY ABBREVIATION |                   | LOAD CAPACITANCE                                   | PACKAGE        | CUSTOM OPTIONS<br>Tolerance       | PACKAGING        |
|------------------------------|-------------------|----------------------------------------------------|----------------|-----------------------------------|------------------|
| ECS                          | .327 = 32.768 KHz | 12.5 = 12.5 pF<br>9 = 9 pF<br>7 = 7 pF<br>6 = 6 pF | -16R = ECX-16R | Blank = ±20 ppm<br>* C = ± 10 ppm | TR = Tape & Reel |

\*Contact ECS for availability

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## POCKET TAPE DIMENSIONS (mm)



| A    | B    | C   | D   | F   | J   | L    | M    | Reel Dia. | Qty/Reel |
|------|------|-----|-----|-----|-----|------|------|-----------|----------|
| 1.85 | 1.25 | 8.0 | 3.5 | 4.0 | 0.5 | 0.25 | 0.65 | 180       | 5000     |

### SOLDER PROFILE

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

2 Cycles Max.

MSL 1, Lead Finish Au

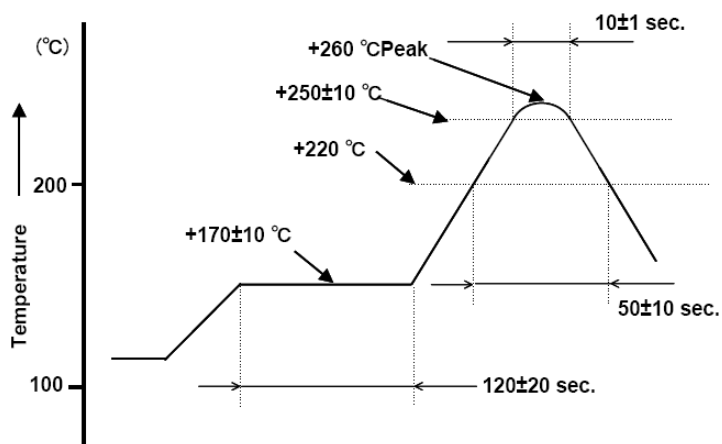


Figure 1) Suggested Reflow Profile