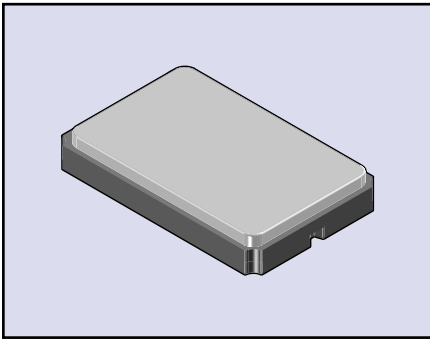


ECX-64A/64C SMD QUARTZ CRYSTAL



The ECX-64A and ECX-64C are subminiature SMD crystals with 3.5 X 6 mm footprint. The cost effective all ceramic package is available in 2 and 4 pad versions. The package height measures 1.1 mm max. which is ideal for densely populated PCB applications.

FEATURES

- Compact and low profile
- Glass sealed ceramic package
- Tape & Reel (1,000 pcs)

PART NUMBERING GUIDE *"EXAMPLE"*

| MANUFACTURER | FREQUENCY (16.000 MHz) | LOAD CAPACITANCE* | PACKAGE TYPE** |
|--------------|------------------------|-------------------|----------------|
| ECS | - 160 - | 20 | 23A |

* Load capacitance (xx=xx pF, S=series resonance). **Package Type Examples (23A=ECX-64A, 23C=ECX-64C)
 Note: See Product Selection Guide for additional options including tighter tolerances or extended temperature range.

OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | MINIMUM | TYPICAL | MAXIMUM | UNITS |
|----------------------------------|-------------------------------------|---------|---------------|---------|-------|
| FREQUENCY RANGE | | 12.600 | | 100.000 | MHz |
| CALIBRATION TOLERANCE | @ +25°C | | | ±30* | PPM |
| FREQUENCY STABILITY ref @25°C | -10 ~ +70°C | | | ±50* | PPM |
| SHUNT CAPACITANCE | | | | 7 | pF |
| LOAD CAPACITANCE | C _L (Customer Specified) | 10 | 16.0 standard | Series | pF |
| DRIVE LEVEL | DL | | | 100 | µW |
| OPERATING TEMPERATURE | T _{OPR} ** | -10 | | +70 | °C |
| STORAGE TEMPERATURE | T _{STG} | -40 | | +85 | °C |
| AGING CHARACTERISTICS (Per Year) | @ +25°C ± 3°C per year | | | ±5 | PPM |

* Tighter specifications are available. **Extended temperature range available.

EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

| FREQUENCY RANGE (MHz) | MODE OF OSC | MAX ESR Ω | FREQUENCY RANGE (MHz) | MODE OF OSC | MAX ESR Ω |
|-----------------------|-------------|-----------|-----------------------|-------------|-----------|
| 12.600 - 15.999 | Fundamental | 80 | 20.000 - 49.999 | Fundamental | 40 |
| 16.000 - 19.999 | Fundamental | 60 | 50.000 - 100.000 | 3rd O/T | 100 |

PACKAGE DIMENSIONS (mm)

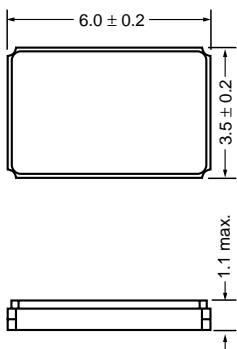


Figure 1) ECX-64A & 64C - Top and side views

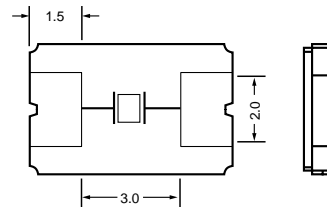


Figure 2) ECX-64A - Pad Configuration Bottom and End views

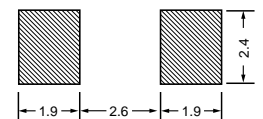


Figure 4) ECX-64A - Recommended Solder Pad Layout

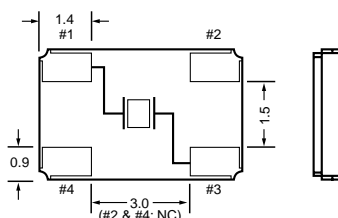


Figure 3) ECX-64C - Pad Configuration Bottom and End views

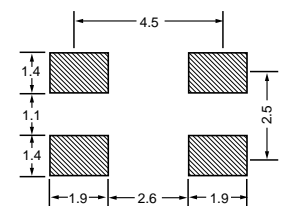


Figure 5) ECX-64C - Recommended Solder Pad Layout