

The ECX-64AEN & ECX-64CEN are subminiature SMD crystals with 3.5 X 6 mm footprint. This 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 (16.0000 MHz)	LOAD CAPACITANCE*	PACKAGE TYPE**
ECS	160	20	23AEN

\* Load capacitance (xx=xx pF, S=series resonance). \*\*Package Type Examples (23AEN=ECX-64AEN, 23CEN=ECX-64CEN)  
 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	-40 ~ +85°C			±50*	PPM
SHUNT CAPACITANCE				7	pF
LOAD CAPACITANCE	C <sub>L</sub> (Customer Specified)	10	16.0 standard	Series	pF
DRIVE LEVEL	DL			100	µW
OPERATING TEMPERATURE	T <sub>OPR</sub> **	-40		+85	°C
STORAGE TEMPERATURE	T <sub>STG</sub>	-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)

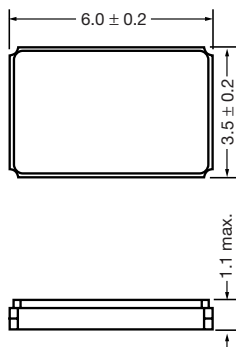


Figure 1) ECX-64AEN & 64CEN - Top and side views

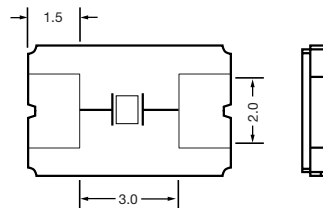


Figure 2) ECX-64AEN - Pad Configuration Bottom and End views

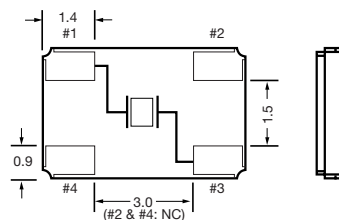


Figure 3) ECX-64CEN - Pad Configuration Bottom and End views

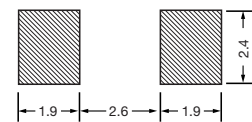


Figure 4) ECX-64AEN - Recommended Solder Pad Layout

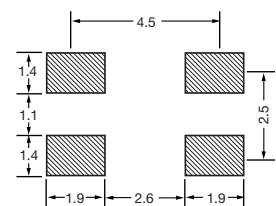


Figure 5) ECX-64CEN - Recommended Solder Pad Layout