

The ECX-64 delivers unmatched frequency stability with a frequency range from 12MHz to 100MHz with an operating temperature of -10° to +70°C. Aging characteristics are exceptional utilizing advanced cold-sealing processes with a ceramic housing/metal cover. These specifications along with a dimensional height of only 1.1mm make this SMD crystal the perfect choice for compact wireless communication applications.

## FEATURES

- 1.1 mm height
- Wide frequency range availability
- Excellent aging characteristics
- High frequency fundamental capability
- Ultra miniature design
- Tape & Reel (1,000 pcs)
- PbFree/RoHS Compliant



## PART NUMBERING GUIDE "EXAMPLE"

MANUFACTURER	FREQUENCY (16.0000 MHz)	LOAD CAPACITANCE*	PACKAGE TYPE
ECS	- 160 -	20	23B

\* Load capacitance (xx=xx pF, S= series resonance)  
 Note: See Product Selection Guide for additional options.

## OPERATING CONDITIONS/ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
FREQUENCY RANGE		12.0		100.0	MHz
CALIBRATION TOLERANCE	@ +25°C	-30		+30	PPM
FREQUENCY STABILITY ref. 25°C	-10~ +70°C	-50	See Table 1	+50	PPM
SHUNT CAPACITANCE	C <sub>0</sub>			7.0	pF
LOAD CAPACITANCE	C <sub>L</sub> (Customer Specified)	10.0	20.0 standard	Series	pF
DRIVE LEVEL	D <sub>L</sub>			0.1	mW
OPERATING TEMPERATURE	T <sub>OPR</sub>	-10		+70	°C
STORAGE TEMPERATURE	T <sub>STG</sub>	-40		+85	°C
AGING CHARACTERISTICS (FIRST YEAR)	@ +25°C	-2.0		+2.0	PPM

## EQUIVALENT SERIES RESISTANCE / MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE OF OSC.	MAX. ESR Ω	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω
12.000 ~ 15.999	Fundamental	80	20.000 ~ 49.999	Fundamental	40
16.000 ~ 19.999	Fundamental	60	27.000 ~ 100.000	3rd OT	100

## PACKAGE DIMENSIONS (mm)

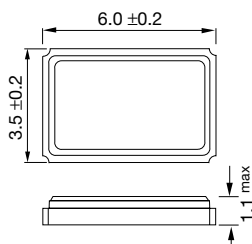


Figure 1) ECX-64 - Top and Side views

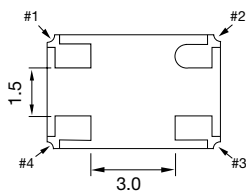


Figure 2) Land Pattern - Bottom view

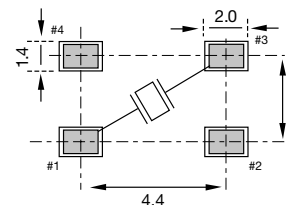


Figure 3) Recommended Solder Pad Layout - Top view

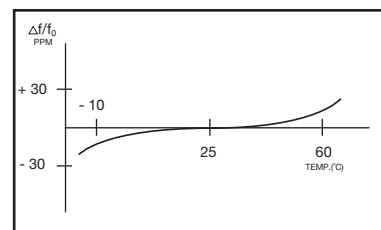


Figure 4) Frequency vs Temperature Curve