

The ECX-32 SMD is our smallest sub-miniature SMD crystal with 3.2 x 2.5 mm footprint. This package is ideal for today's compact wireless applications where board space is critical.

## FEATURES

- Compact and low profile
- Seam-welded package
- Tape & Reel (1,000 pcs.)
- PbFree/RoHS Compliant

## PART NUMBERING GUIDE "EXAMPLE"

MANUFACTURER	FREQUENCY (16.000 MHz)	LOAD CAPACITANCE*	PACKAGE TYPE**
ECS	160	20	33

\* Load capacitance (xx=xx pF, S=series resonance) \*\*Package Type Examples (33=ECX-32)  
 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		16.000		60.000	MHz
CALIBRATION TOLERANCE	@ +25°C			±50*	PPM
FREQUENCY STABILITY ref @25°C	-20 ~ +70°C			±50*	PPM
SHUNT CAPACITANCE				5	pF
LOAD CAPACITANCE	C <sub>L</sub> (Customer Specified)	12	16.0 standard	Series	pF
DRIVE LEVEL	DL			100	µW
OPERATING TEMPERATURE	T <sub>OPR</sub> **	-20		+70	°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
16.000 ~ 29.999	Fundamental	100	30.000 ~ 60.000	Fundamental	50

## PACKAGE DIMENSIONS (mm)

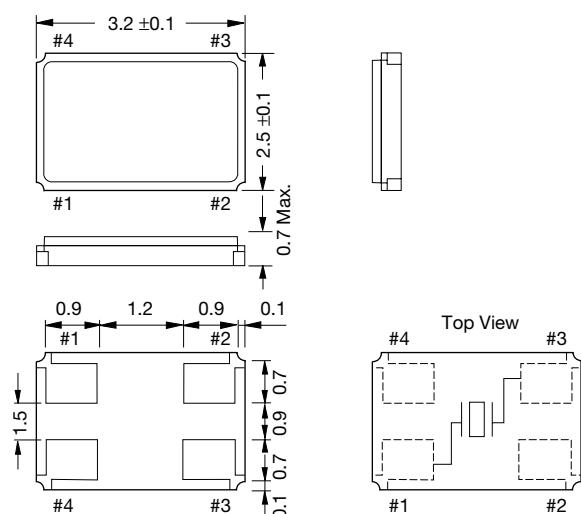


Figure 1) ECX-32 - Top, Side, Bottom and End views

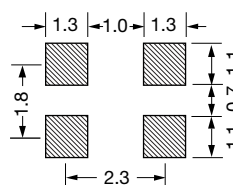


Figure 2) ECX-32 Land Pattern

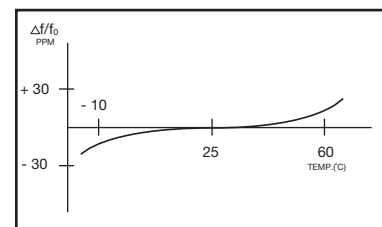


Figure 3) Frequency vs Temperature Curve