

The ECX-19A SMD crystal is pin out compatible with our CSM-12. The ECX-19A covers a wide frequency range and has a 2.0 mm height profile.

## FEATURES

- Compact and low profile
- Resistance-weld sealed
- Extended Temp range available
- Tape & Reel (1,000 pcs.)
- PbFree/RoHS Compliant

## PART NUMBERING GUIDE "EXAMPLE"

MANUFACTURER	FREQUENCY (4.000 MHz)	LOAD CAPACITANCE*	PACKAGE TYPE
ECS	40	20	19A

\* Load capacitance (xx=xx pF, S=series resonance)

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		3.579545		80.000	MHz
CALIBRATION TOLERANCE	@ +25°C			±30*	PPM
FREQUENCY STABILITY ref @25°C	-10 ~ +70°C			±50*	PPM
SHUNT CAPACITANCE				7	pF
LOAD CAPACITANCE	C <sub>L</sub> (Customer Specified)	10	20.0 standard	Series	pF
DRIVE LEVEL	DL			100	µW
OPERATING TEMPERATURE	T <sub>OPR</sub> **	-10		+70	°C
STORAGE TEMPERATURE	T <sub>STG</sub>	-30		+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
3.579545 ~ 3.999	Fundamental	200	10.000 ~ 13.999	Fundamental	80
4.000 ~ 5.999	Fundamental	150	14.000 ~ 30.000	Fundamental	50
6.000 ~ 9.999	Fundamental	100	27.000 ~ 80.000	3rd O/T	80

## PACKAGE DIMENSIONS (mm)

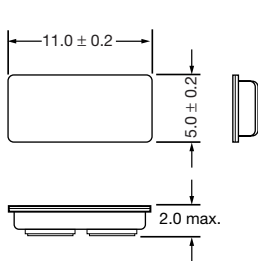


Figure 1) ECX-19A - Top, Side, Bottom and End views

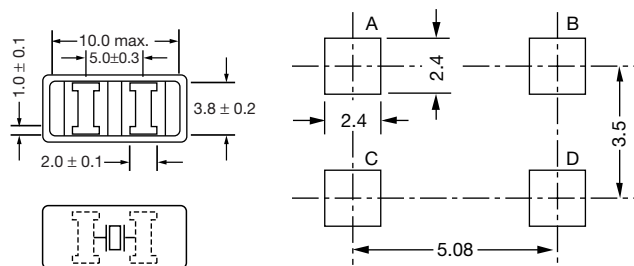


Figure 2) ECX-19A Land Pattern

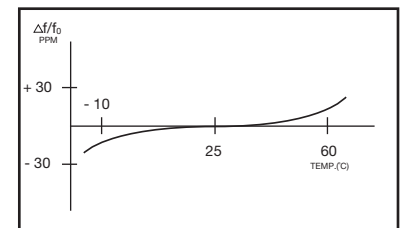


Figure 3) Frequency vs Temperature Curve