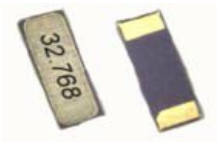
EUROQUARTZ

X3215 SERIES CRYSTALS

3.2 x 1.5 x 0.8mm Micro-miniature SMD — 32.768kHz

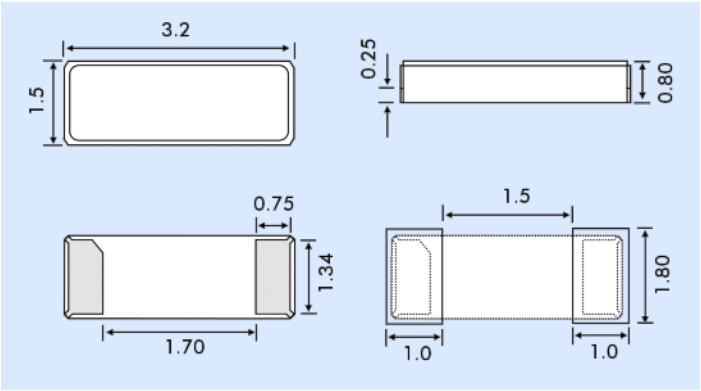
- **Ultra-miniature ceramic package 3.2 x 1.5 x 0.8mm**
- **Frequency tolerance from ±5ppm at 25°C**
- **RoHS compliant and lead free**
- **Low ageing, high shock and vibration resistance**
- **Uses include real-time clocks and battery operated devices**



DESCRIPTION

X3215 crystals provide 32.768kHz in an ultra-miniature package. The part is designed to provide the smallest possible component size for real-time clock applications. The micro-miniature size and rugged construction make them ideal for real time clocks and battery powered, hand-held equipment.

OUTLINE & DIMENSIONS



SPECIFICATION

Nominal Frequency:	32.7680kHz
Calibration Tolerance at 25°C: (*drive level at 0.1µW*)	±20ppm standard, ±5ppm & ±10ppm available (For 9pF = ±20ppm)
Crystal Cut:	X-cut
Load Capacitance (CL):	12.5pF
Equivalent Series Resistance (ESR):	50kΩ typical, 70kΩ max.
Drive level:	0.1µW typical, 0.5µW max.
Temperature Coefficient:	-0.035±0.008ppm/°C² max. (*Parabolic function*)
Turnover Temperature:	+25°±5°C
Shunt Capacitance:	1.5pF typical, 2.0pF max.
Ageing:	±3ppm/year max.
Insulation Resistance:	500MΩ minimum @100VDC
Operating Temperature Range:	-40° to +85°C
Storage Temerature Range:	-55° to +125°C
Packaging:	8.0mm EIA tape and reel, 4.0mm pitch, 180mm diameter reel. 3k pieces/reel

PART NUMBER AND SPECIFICATION

Example: **X3215 - 32.768K - 12.5** - 5***

- **X3215** — Crystal Package
- **32.768K** — Frequency 32.768kHz
- **12.5**** — Load Capacitance: 9 = 9pF**, 12.5 = 12.5pF
- **5*** — Frequency Tolerance: 5 = ±5ppm, 10 = ±10ppm, 20 = ±20ppm

This part number example given will provide a 32.768kHz crystal in X3215 package with ±5ppm calibration tolerance at 25°C and a load capacitance of 12.5pF.

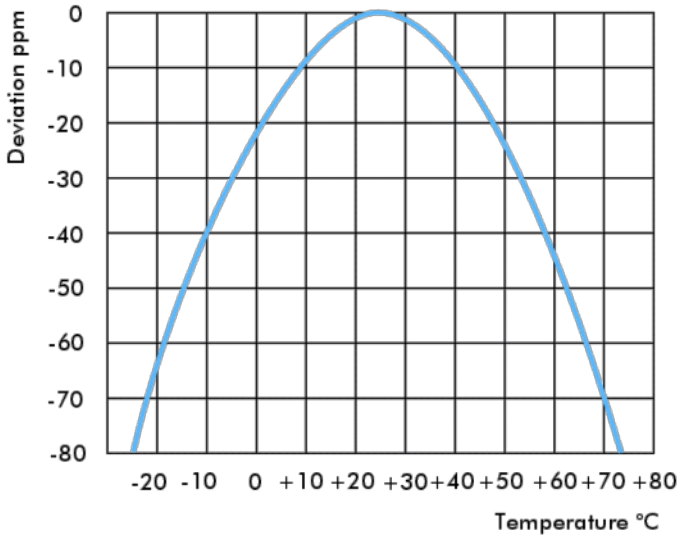
* Frequency tolerance is that frequency measured at 25°±5°C
If a frequency tolerance value is not given ±20ppm is assumed.

** For 9pF load capacitance only ±20ppm calibration tolerance is offered.

ENVIRONMENTAL SPECIFICATION

RoHS Status:	RoHS Compliant and lead free
Operable Temperature Range:	-40° to +85°C
Storage temperature Range:	-55° to +125°C
Shock:	±5ppm max. freq. deviation. Free drop onto a hard wooden board from a height of 75cm. x 3.
Vibration:	±5ppm max. freq. deviation 3000g, ½ sine wave, 0.3ms. Duration 2 hours each direction, three mutually - perpendicular planes.
Solder Heat Resistance:	±5ppm max. 260° for 10 seconds, two times.
Temperature Cycling:	±10ppm max. 100 cycles of -40 to +85°C, 30 minutes soak time at each temperature extreme.
High and Low Temperature Operating Life:	±7ppm max. +85°C for 500 hours, ±10ppm max., -40°C for 500 hours.
Highly Accelerated Stress Test:	±10ppm max. +60°C, 90 to 95% relative humidity for 500 hours.

STABILITY OVER TEMPERATURE
X-Cut Crystal



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