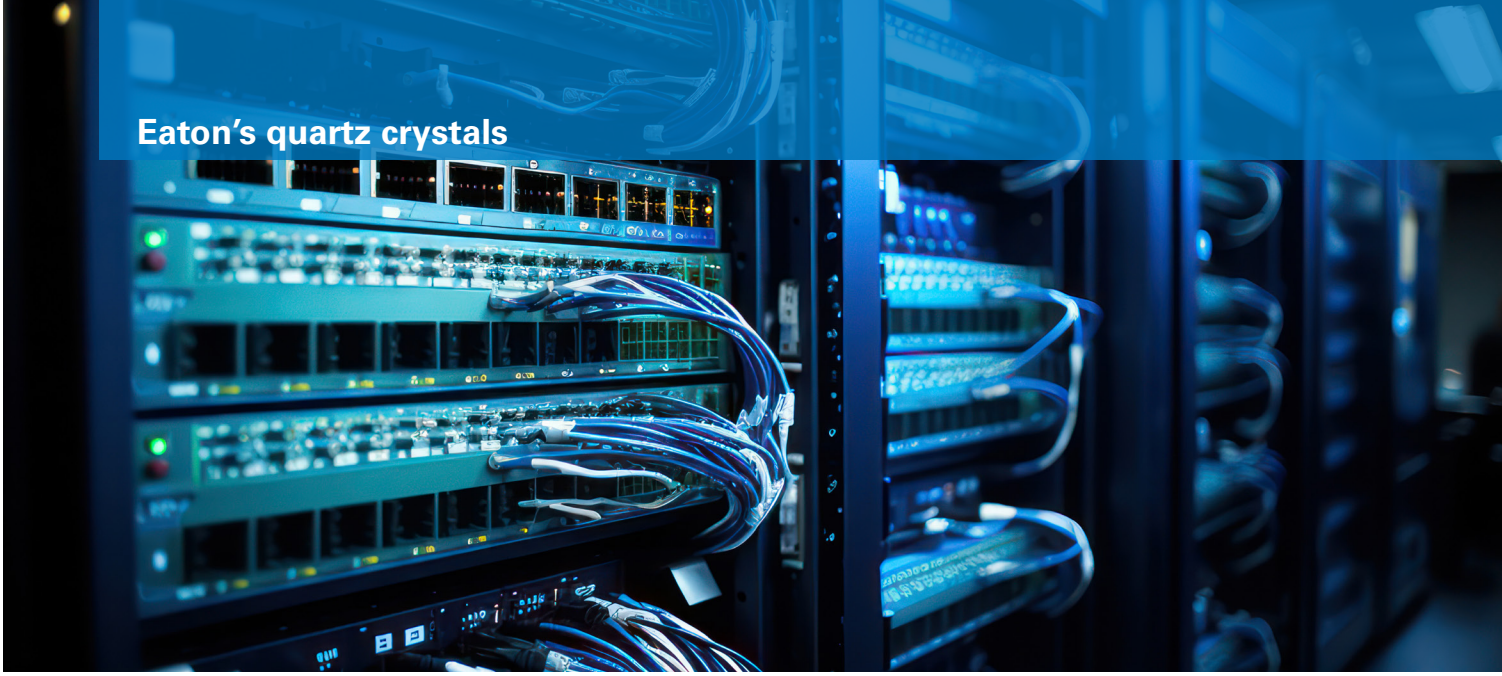
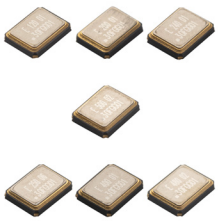


Precision timing quartz crystal solutions for miniaturized electronic applications



Eaton's quartz crystal resonators products are a range of surface-mount crystals suitable for use as time or frequency references in circuits for a broad range of electronic devices.

Product description

Eaton's quartz crystal products (E5X, E3X, E2X, E9X, E3XA, E9XA, and E3K) are a range of surface-mount crystals suitable for use as time or frequency references in circuits for a broad range of electronic devices. Eaton quartz crystals are notable for their exceptional piezoelectric properties and compact sizes, making them suitable for applications where miniaturization is crucial. Each product offers distinct features and customization in terms of nominal frequency, load capacitance, frequency stability and frequency tolerance. The Eaton quartz crystals are RoHS-compliant and are designed to perform reliably in high-temperature applications, meeting lead-free soldering requirements. The E3XA and E9XA products are AEC-Q200 qualified, extending their suitability to automotive and high-reliability applications. The E3K (standard-grade kHz quartz crystals) offers kilohertz (kHz) range crystals for applications requiring lower frequencies.

Features and benefits

- Wide frequency range allows versatile application in electronic devices and compatibility with a broad spectrum of product requirements:
  - E5X: 8 MHz to 48 MHz
  - E3X: 12 MHz to 54 MHz
  - E2X:16 MHz to 54 MHz
  - E9X: 16 MHz to 60 MHz
  - E3XA: 12 MHz to 48 MHz
  - E9XA: 16 MHz to 50 MHz
  - E3K: 32.768 kHz
- Wide operating temperature range:
  - E5X: -40 °C to +85 °C
  - E3X: -40 °C to +85 °C
  - E2X: -40 °C to +85 °C
  - E9X: -40 °C to +85 °C
  - E3XA: -40 °C to +125 °C
  - E9XA: -40 °C to +125 °C
  - E3K: -40 °C to +85 °C
- Compact footprint 0806 (2016 metric) to 2012 (5032 metric), suitable for miniaturized or space-constrained electronic applications
- High-frequency density
- Hermetically sealed for long-term reliability
- Suitable for high-density surface mounting
- High shock and heat resistance
- Suitable for use with lead-free soldering and high-temperature reflow processes
- Customizable options offer a variety of choices in nominal frequency, load capacitance, frequency stability, and frequency tolerance to suit diverse application needs
- Lead-free and RoHS-compliant
- AEC-Q200 qualified options to meet industry standards for automotive and high-reliability electronic applications

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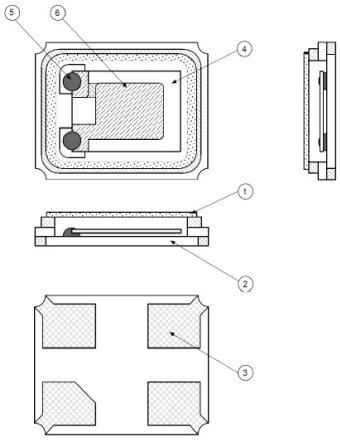
Product specifications

Product number	Size code	Product category	Frequency range	Load capacitance	Frequency tolerance	Frequency stability	Temperature range
E5X	5 = 5032 metric, 2012 imperial	X = crystal	8 MHz - 48 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	G = ±15 ppm X = ±20 ppm Z = ±50 ppm	-40 °C to +85 °C
E3X	3 = 3225 metric, 1210 imperial	X = crystal	12 MHz - 54 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	G = ±15 ppm X = ±20 ppm Z = ±50 ppm	-40 °C to +85 °C
E3XA (automotive grade)	3 = 3225 metric, 1210 imperial	X = crystal	12 MHz - 48 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	Z = ±50 ppm Q = ±100 ppm	-40 °C to +125 °C
E2X	2 = 2520 metric, 1008 imperial	X = crystal	16 MHz - 54 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	G = ±15 ppm X = ±20 ppm Z = ±50 ppm	-40 °C to +85 °C
E9X	9 = 2016 metric, 0806 imperial	X = crystal	16 MHz - 60 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	G = ±15 ppm X = ±20 ppm Z = ±50 ppm	-40 °C to +85 °C
E9XA (automotive grade)	9 = 2016 metric, 0806 imperial	X = crystal	16 MHz - 50 MHz	8, 10, 12 pF or specify	1 = ±10 ppm 7 = ±15 ppm 2 = ±20 ppm 4 = ±30 ppm 5 = ±50 ppm	Z = ±50 ppm Q = ±100 ppm	-40 °C to +125 °C
E3K	3=3215 metric, 1206 imperial	K=kHz	327= 32.768 kHz	6, 7, 9, 12.5 pF or specify	1= ±10ppm 7= ±15ppm 2= ±20ppm	4= -0.04ppm/°C2	-40 °C to +85 °C

Construction



Item number	Component	Description
1	Cap (lid)	Kovar (Fe-Ni-Co)
2	Base (package)	Alumina Ceramic (Al_2O_3)
3	Pad (package)	Ni + Au
4	Crystal blank	SiO_2
5	Conductive adhesive	Ag
6	Electrode	Cr+Au (automotive grade)

See data sheets for complete product details.

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