

Voltage Controlled Crystal Oscillators (VCXOs) give a stable clock output waveform which can be changed via an analogue voltage input. The technology makes use of the pullability of the crystal, its change in frequency due to change in load capacitance. The voltage input is used to vary the load capacitance of the crystal circuit within the oscillator, this gives a very controllable change in output frequency which can be used to tune the device to match the exact frequency required while the circuit is active. We use the code VCXO to denote our Voltage Controlled Crystal Oscillator part numbers.

The electrical parameters are given on the specification to facilitate the correct circuit design. Our Application Support team can provide assistance if required; please contact one of our sales offices.

The limits given in the following specifications are indicative of the standard VCXO oscillator design, in the event that a specification is needed which is outside the standard VCXO oscillator designs offered please contact one of our Sales offices.

A typical VCXO specification reads like this:

20.0MHz CFPV-43
HCMOS ± 25 ppm -10 to 70°C 5.0V ± 100 ppm min

The data in the example above is translated in the following order

- Frequency
- Model
- Output
- Frequency Stability (over operating temperature range)
- Operating Temperature Range
- Supply Voltage
- Pullability

Frequency

Frequency is normally specified in kilohertz (kHz) up to 999.999kHz and in megahertz (MHz) from 1.0MHz. All our computer-generated transaction documents follow this standard convention automatically.

The VCXO frequency should be described to seven significant figures. If seven significant figures are not used, we assume that any figure that might follow those given may be taken as zero. Thus a frequency given as 16.6MHz will be taken as 16.60, not 16.6666.

Model Number

The model number incorporates information which describes holder style, output compatibility and supply voltage.

Frequency Stability

The frequency stability of a VCXO includes the initial adjustment tolerance at room temperature (with the control pin set to centre trim voltage: e.g. 2.5V) and the stability over the operating temperature range. This value is specified as 'parts per million' (ppm) and is available in ranges of for example; ± 25 ppm, ± 50 ppm and ± 100 ppm.

Frequency Pullability

The pullability is specified as the change in output frequency when the voltage control input is varied. This value is specified in 'parts per million' (ppm) and is available in various ranges, please see individual models for details. Large pullability figures give a greater tuneable range, while smaller pullability figures give greater control. The pullability may be specified as either relative pulling or APR (absolute pulling range).

Relative pulling defines the actual ppm change which will be seen on the output when the voltage control line is varied from one extreme to the other and all other factors are held constant. Since no allowance is made for frequency shift due to other factors, this ppm change may not always be attainable when referenced to the nominal frequency.

APR defines the pulling which will always be available to the customer when referenced to the nominal frequency. An allowance is made for the shift in frequency due to factors such as temperature, ageing, supply voltage variations etc, these are subtracted from the relative pulling to give the Absolute Pullability Range.

Operating Temperature Range

Standard operating temperature ranges for VCXO's are:

- 0 to 70°C
- -10 to 70°C
- -40 to 85°C

Although in general oscillators will continue to operate outside their normal temperature range with a degradation in frequency stability, damage can result if the temperatures reached are excessive.

For other temperature ranges please contact one of our Sales offices.

Additional Text Code

If the product is non-standard, the letter 'T' will appear at the end of the product specification. This refers to additional text on the data sheet to identify the non-standard elements of the specification.

Packaging

Tape and Reel packaging is standard for most of our products. Unless individual data sheets state Tape and Reel packaging, items will be Bulk packed. Only complete reels are sold.

- Bulk = Bulk packed
- Reel = Tape and Reel packed
- Cutt = Cut Tape
- Tray = Tray packed

Outline Drawings

All dimensions are shown in mm and are nominal unless otherwise stated.

Marking

Where space is limited some or all of the information will be omitted/truncated at our discretion. Full product description will be found on the individual batch packaging.

Ordering Information

See individual data sheets

Contact Details:

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