SaRonix

Quartz Crystal

High Frequency Fundamental AT Cut

Technical Data

HFX4 Series

ACTUAL SIZE

Description

Crystals in the HFX4 Series are rugged, very high frequency miniature AT-cut resonators housed in cold-welded tubular packages. Patented Tab-Mesa Technology (TmT), proprietary to SaRonix, is used to achieve fundamental resonators to 250 MHz.

Applications & Features

- Telecommunications
- Wireless RF Applications
- Video, graphics
- VCXO's
- Low jitter, high frequency oscillators
- Ultra low power oscillators and transmitters
- Micro-miniature modules
- Small package, cold weld seal
- AT cut

Frequency Range:	30 to 250 MHz Fundamental
Frequency Calibration Tolerance @ 25°C:	±25, ±50, ±100 ppm. Others available, contact SaRonix
Load Capacitance:	4 pF to Series
Temperature Stability:	±10, ±25, ±50, ±100 ppm over -20°C to +70°C typical. Others available, contact SaRonix
Drive Level:	25µW correlation, 500µW maximum
Quality Factor (Q):	see Typical Crystal Parameters, Chart 1
Motional Capacitance (C_1):	see Typical Crystal Parameters, Chart 2
Shunt Capacitance (C_0):	see Typical Crystal Parameters, Chart 3
Effective Series Resistance:	see Typical Crystal Parameters,Chart 4
Storage Temperature:	+85°C max
Mechanical:	
Shock:	MIL-STD-883, Method 2002, Condition B
Solderability:	MIL-STD-883, Method 2003
Terminal Strength:	MIL-STD-202, Method 211, Conditions A and C
Vibration:	MIL-STD-883, Method 2007, Condition A
Solvent Resistance:	MIL-STD-202, Method 215
Resistance to Soldering Heat:	MIL-STD-202, Method 210, Condition B
Environmental:	
Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Fine Leak Test:	MIL-STD-883, Method 1014, Condition A2 <5 x 10^{-8} ATM cc/sec
Thermal Shock:	MIL-STD-883, Method 1011, Condition A
Moisture Resistance:	MIL-STD-883, Method 1004

Part Numbering Guide

HFX4 x x – 120.0000 – xx

Type

Frequency Calibration
K = ±25 ppm
L = ±50 ppm
M = ±100 ppm

Temperature Stability
AA = ±10 ppm -20°C to +70°C
A = ±25 ppm -20°C to +70°C
B = ±50 ppm -20°C to +70°C
C = ±100 ppm -20°C to +70°C

Frequency (MHz)

Load Capacitance (pF)
(Blank = series resonant)

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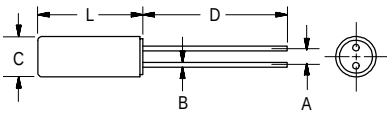
Manufacturing

HFX4 units are photolithographically produced on large wafers in a highly automated facility. Stringent process control on custom equipment results in resonator thicknesses down to 0.00033" (0.0084 mm). A proprietary combination of crystal and holder designs results in a finished crystal unit that is both rugged and extremely reliable.
Crystals are 100% leak checked and environmentally stress tested to assure reliable operation.

Ordering and Samples

The use of array processing enables large quantities of crystals to be produced economically. Smaller quantities ordered to unique frequencies may involve a setup charge. To minimize cost, it is suggested that evaluation samples be selected from the large number of frequencies that have already been produced. Please contact SaRonix for assistance.

Package Details



REF	
A	0.7±0.1 / .028±.004
B	0.2±0.05 / .008±.002
C	2.1 / .083 max
L	5.2 / .205 max
D	5.9 / .232 min

Scale: None (Dimensions in mm / inches)

Typical Crystal Parameters:

Chart 1: Typical Q-Factor Values

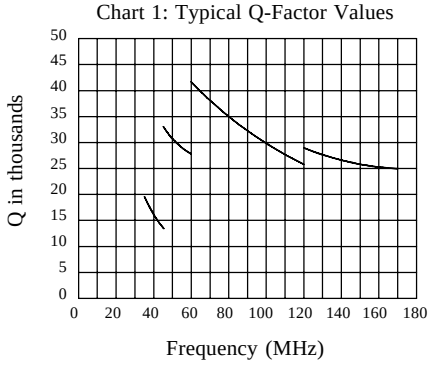


Chart 2: Typical C1 Values

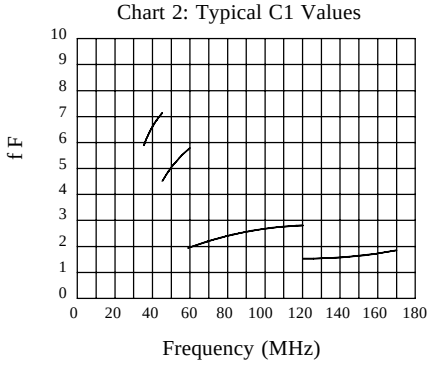


Chart 3: Typical C0 Values

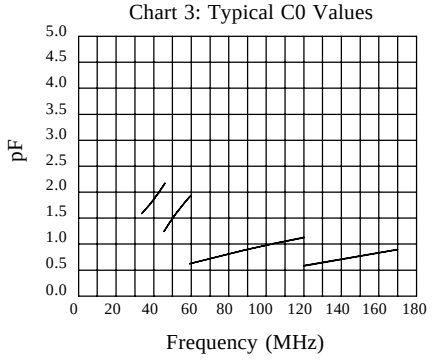
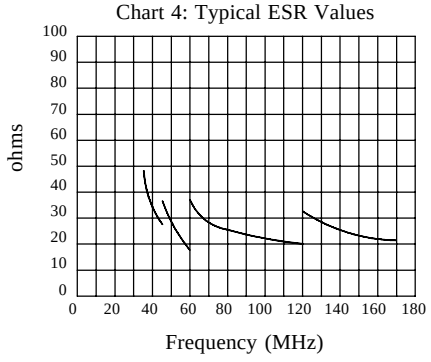


Chart 4: Typical ESR Values



Common Frequencies (MHz)

32.7680	66.6667	100.0000
34.3680	66.6670	106.2500
38.8800	74.0740	106.2600
39.3216	75.0000	125.0000
40.0000	76.0000	133.3300
50.0000	77.7600	155.5200
51.8400	80.0000	155.5355
55.2960	90.0000	160.0000
65.5360	98.3040	200.0000

All specifications are subject to change without notice.

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