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REEVES-HOFFMAN DIVISION DYNAMICS CORPORATION OF AMERICA

## **Precision Crystal Specification**

1. Frequency Range:

10.000 Mhz

2. Type:

3rd Overtone SC Cut

3. Circuit Operation:

Parallel

4. Finish Point:

22 pF ± 0.1 pF

5. Motional Parameters:

a. Motional Capacity:

0.00024 pF ±10%

b. Series Resistance:

65 ohms max.

c. Minimum Q:

900K

d. Shunt Capacity:

3.4 pF nominal

6. Resistance Variation:

Less than 0.1 dB for a Drive Level change from 1 to 100 uW.

7. Setting Tolerance:

0 to +3 PPM at 22pF and Turnover Temperature.

8. Temperature Performance:

a) Turnover temperature: Between +60°C and +80°C.

- b) Perturbations: Not to exceed 5x10<sup>-10</sup> within ±5°C of Turn Point Temperature.
- 9. Operating Temperature Range:

-20 Deg. C. to +100 Deg. C

10. Retrace:

Crystal units shall retrace to within 1x10<sup>-9</sup> of the frequency at turn-off within 20 minutes after turn-on following a 24 hour off period.

11. Aging Restabilization: N/A

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## **Precision Crystal Specification**

12. Aging Rate:

Long Term: ± 5x10<sup>-10</sup>/Day after 7 Days

± 5x10-8/Year

± 1 PPM / 20 Years operation maximum

13. G Sensitivity:

< 2x10<sup>-9</sup> per G each axis (2 G Tipover test)

14. Phase Noise:

The design of the resonator should optimize low offset frequency (<1 Hz) phase noise performance. Blank preparation should include processing steps for good surface finish and stress relief to minimize "phase pops".

15. Holder Type:

TO-8 size coldweld, high vacuum enclosure.

16. Blank Orientation and Mount

All crystal blanks will be mounted consistently with respect to their principle axes and a reference point on the enclosure within TBD degrees. Crystal will be mounted using a conventional 3 point mount with blank oriented for optimal thermal transient performance.

17. Solderability:

All crystal leads will be solderable to within .025" of the base.

18. Marking:

Each crystal will be marked with the Part Number 04-35650-001, S/N, Turn Point, and Date Code.

19. Change Control:

No changes to the crystal design or process after initial qualification is to be made without prior approval of the RH Oscillator Engineering Department.

20. Test Data

Test data is required on all units for items 5a,5b, 5d, 7, and 8a.

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## **Precision Crystal Specification**

## 21. Approved Sources:

Identification of a source of supply is not to be construed as a guarantee of continued availability.

Manufacturer

Manufacturer's P/N

Bliley Crystal Corporation

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