

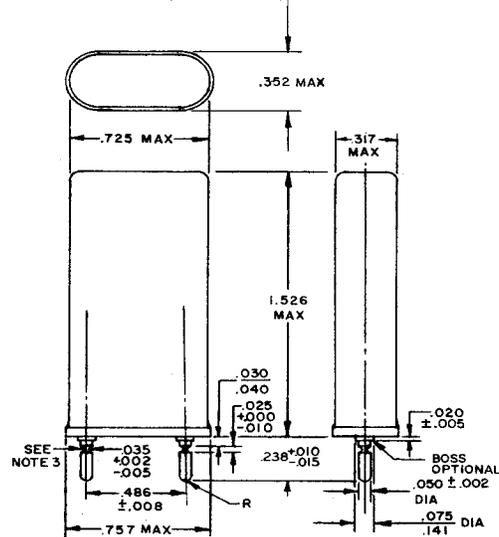
PERFORMANCE SPECIFICATION SHEET

CRYSTAL UNIT, QUARTZ, CR42/U

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-3098.

Pertinent characteristics: 90 kHz to 250 kHz; fundamental; controlled; antiresonance.



Inches	mm	Inches	mm	Inches	mm	Inches	mm
.002	.05	.020	.51	.050	1.27	.352	8.94
.005	.13	.025	.64	.075	1.91	.486	12.34
.008	.20	.030	.76	.141	3.58	.725	18.42
.010	.25	.035	.89	.238	6.05	.757	19.23
.015	.38	.040	1.02	.317	8.05	1.526	38.76

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. The pin undercut may be omitted.
4. Marking to be in accordance with MIL-PRF-3098.

FIGURE 1. Crystal unit - CR42/U.

REQUIREMENTS:

Dimensions, marking, and configuration: See figure 1.

Frequency range: 90 kHz to 250 kHz, inclusive.

Capacitance, shunt: See table I.

Frequency tolerance:

Operating temperature range: ± 30 parts per million (ppm).

Frequency stability: ± 20 ppm.

Equivalent resistance: 90 kHz to 170 kHz: 4,500 ohms, maximum.
170+ kHz to 250 kHz: 5,000 ohms, maximum.

Mode of oscillation: Fundamental.

Rated drive level: 1.0 mW, maximum.

Antiresonance, load capacitance: 32.0 pF ± 0.5 pF.

Temperature ranges:

Operable: -55°C to $+70^{\circ}\text{C}$, inclusive.

Operating (controlled): $+70^{\circ}\text{C}$ to $+80^{\circ}\text{C}$, inclusive.

Reference temperature: $+75^{\circ}\text{C} \pm 1^{\circ}\text{C}$.

Shock (specified pulse):

Frequency change permitted: +5 ppm, -10 ppm.

Equivalent resistance change permitted: ± 15 percent.

Vibration: Method 201 of MIL-STD-202, amplitude 0.015 inch (0.030 inch total excursion).

Frequency change permitted: +5 ppm, -10 ppm.

Equivalent resistance change permitted: ± 15 percent.

Thermal shock:

Frequency change permitted: +5 ppm, -10 ppm.

Equivalent resistance change permitted: ± 15 percent.

Bond strength: 90 kHz to 170 kHz: 800 grams, minimum.
170+ kHz to 250 kHz: 700 grams, minimum.

TABLE I. Capacitance, shunt.

Frequency range, inclusive	Capacitance
<u>kHz</u> 90 to 170	<u>pF</u> $\frac{1}{f}$ <u>450</u> + 1.2
170+ to 250	f <u>322</u> + 1.2 f

1/ The letter “f” represents specified frequency in kHz. A capacitance tolerance of $\pm 15\%$ is permitted.

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
 Army - CR
 Navy - EC
 Air Force - 11
 DLA - CC

Preparing activity:
 Army - CR

Agent:
 DLA - CC

Review activities:
 Army - AR, MI
 Navy - AS, MC, SH
 Air Force - 19

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