

INCH POUND

MIL-PRF-3098/4G
05 March 2010
SUPERSEDING
MIL-PRF-3098/4F
19 December 2003

PERFORMANCE SPECIFICATION SHEET

CRYSTAL UNIT, QUARTZ, CR19/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 sheet and [MIL-PRF-3098](#).

Pertinent characteristics: 0.8 MHz to 20 MHz; fundamental; noncontrolled; series resonance.

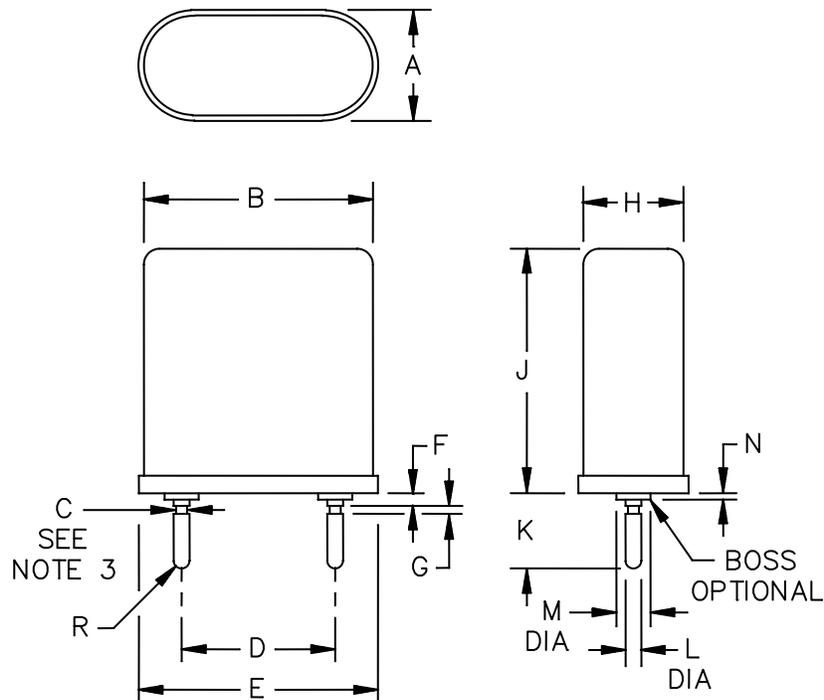


FIGURE 1. Crystal unit - CR19/U.

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Ltr	Inches		mm	
	Min	Max	Min	Max
A	---	.352	---	8.94
B	---	.725	---	18.42
C	.030	.037	0.76	0.94
D	.478	.494	12.14	12.55
E	---	.757	---	19.23
F	.030	.040	0.76	1.02
G	.015	.025	0.38	0.64
H	---	.317	---	8.05
J	---	.775	---	19.69
K	.223	.248	5.66	6.30
L	.048	.052	1.22	1.32
M	.075	.141	1.91	3.58
N	.015	.025	0.38	0.64

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 - CR19/U - Continued.

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REQUIREMENTS:

Dimensions, marking, and configuration: See figure 1.

Frequency range: 0.8 MHz to 20 MHz, inclusive.

Frequency tolerance: ± 50 parts per million (ppm).

Equivalent resistance: See table I.

Mode of oscillation: Fundamental.

Resonance: Series.

Operating temperature range (noncontrolled): -55°C to $+105^{\circ}\text{C}$, inclusive.

Rated drive level: 1.0 mW, maximum.

Capacitance, shunt: 7 pF, maximum.

Shock (specified pulse):

Frequency change permitted: 0.8 MHz to 2.0 MHz: ± 10 ppm
2.0+ MHz to 20 MHz: ± 5 ppm

Equivalent resistance change permitted: 0.8 MHz to 2.0 MHz: ± 15 percent
2.0+ MHz to 20 MHz: ± 10 percent

Thermal shock:

Frequency change permitted: 0.8 MHz to 2.0 MHz: ± 10 ppm
2.0+ MHz to 20 MHz: ± 5 ppm

Equivalent resistance change permitted: 0.8 MHz to 2.0 MHz: ± 15 percent
2.0+ MHz to 20 MHz: ± 10 percent

Vibration: [Method 201 of MIL-STD-202](#).

Frequency change permitted: 0.8 MHz to 2.0 MHz: ± 10 ppm
2.0+ MHz to 20 MHz: ± 5 ppm

Equivalent resistance change permitted: 0.8 MHz to 2.0 MHz: ± 15 percent
2.0+ MHz to 20 MHz: ± 10 percent

Low temperature storage:

Resistance: See table I.

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Temperature run:

Frequency change permitted: 0.8 MHz to 2.0 MHz: ± 10 ppm
 2.0+ MHz to 20 MHz: ± 5 ppm

Equivalent resistance change permitted: 0.8 MHz to 2.0 MHz: ± 15 percent
 2.0+ MHz to 20 MHz: ± 10 percent

Aging:

Frequency change permitted: ± 5 ppm.

TABLE I. Equivalent resistance.

Frequency range, inclusive	Maximum resistance	Frequency range, inclusive	Maximum resistance
<u>MHz</u>	<u>Ohms</u>	<u>MHz</u>	<u>Ohms</u>
0.80 to 0.85	520	2.12+ to 2.25	150
0.85+ to 0.90	480	2.25+ to 2.60	130
0.90+ to 1.00	440	2.60+ to 3.00	90
1.00+ to 1.12	400	3.00+ to 3.40	70
1.12+ to 1.25	380	3.40+ to 3.75	52
1.25+ to 1.37	340	3.75+ to 4.00	45
1.37+ to 1.50	300	4.00+ to 5.00	37
1.50+ to 1.62	280	5.00+ to 7.00	25
1.62+ to 1.75	250	7.00+ to 10.00	20
1.75+ to 1.87	220	10.00+ to 15.00	18
1.87+ to 2.00	190	15.00+ to 20.00	15
2.00+ to 2.12	170		

Part or Identifying Number (PIN): CR19/U (followed by specified frequency), see 1.2 of [MIL-PRF-3098](#).

Referenced documents. In addition to [MIL-PRF-3098](#), this document references the following:

[MIL-STD-202](#).

The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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Custodians:

Army - CR
Navy - EC
Air force - 99
DLA - CC

Preparing activity:

Army - CR

Agent:

DLA - CC

Review activities:

Army - AR, MI
Navy - AS, MC, SH
Air Force - 19, 84

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NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.daps.dla.mil/>.