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JAXA-QTS-2070/122D
10 February 2026

Superseding
JAXA-QTS-2070/122C
Cancelled
10 February 2026

CRYSTAL UNITS, QUARTZ
(HC-43/U, OVERTONE TYPE),
HIGH RELIABILITY, SPACE USE,

DETAIL SPECIFICATION FOR

Prepared and Established by Nihon Dempa Kogyo Co., Ltd.

Issued by Japan Aerospace Exploration Agency

This document is the English version of JAXA QTS/ADS which was originally written and authorized in Japanese and carefully translated into English for international users. If any question arises as to the context or detailed description, it is strongly recommended to verify against the latest official Japanese version.

The release date of the English version of this specification: 15 September 2026

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Record of Revisions				
Rev.	Date	Revised Contents		
NC	19 Sep. 2003	Original		
A	1 Sep. 2005	Reflected GG-15 (Rev. A), issued by Nihon Dempa Kogyo Co., Ltd.		
B	5 Jul. 2010	Reflected GG-15 (Rev. B), issued by Nihon Dempa Kogyo Co., Ltd.		
C	10 Dec. 2018	Reflected GG-15 (Rev. C), issued by Nihon Dempa Kogyo Co., Ltd.		
D	10 Feb. 2026	Reflected GG-15 (Rev. D), issued by Nihon Dempa Kogyo Co., Ltd.		
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Revision History			
Rev.	Date	Revised Contents	
NC	19 Sep. 2003	Original	
A	1 Sep. 2005	1. Standardized fonts (only applicable in Japanese language version). 2. Added Revision History. 3. Corrected editorial errors. 4. Modified to be consistent with JAXA-QTS-2070A.	
B	5 Jul. 2010	Changed externals and dimensions in Supplementary Figure 2.	
C	10 Dec. 2018	1. Changes only applicable in Japanese (cover page). 2. Added the note to paragraph 4.5.	
D	10 Feb. 2026	1. Added document (No.: GG-15), issued by Nihon Dempa Kogyo Co., Ltd. 2. Corrected editorial errors. 3. Added “(b) Radiography” to paragraph 4.5, “Change in Test and Inspection”.	
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CRYSTAL UNITS, QUARTZ (HC-43/U, OVERTONE TYPE) HIGH RELIABILITY, SPACE USE, DETAIL SPECIFICATION FOR

1. GENERAL

1.1 Scope

This specification establishes the detail requirements for NASDA 2070/122 (HC-43/U overtone type) that satisfies JAXA-QTS-2070, crystal units, quartz, high reliability, space use, general specification for.

1.2 Part Number

The part number of this type is identified by frequency as follows:

(Example)

NASDA ⁽¹⁾	<u>2070</u>	/	<u>122</u>	–	<u>**M*****</u>
	Generic specification number		Individual identification		Frequency
					The frequency of 20 to 130 MHz shall be represented as 20M00000 to 130M00000 by replacing the decimal point with M.

Note: ⁽¹⁾ “NASDA” indicates the common part is for space use and may be abbreviated to “N”.

1.3 Ratings

The ratings shall be as shown in Table 1.

Table 1. Ratings

Item	Rating		
Frequency range	$20 \leq f < 60$ MHz	$60 \leq f < 100$ MHz	$100 \leq f < 130$ MHz
Overtone	3rd	5th	7th
Drive level	25 μ W $\pm$ 20 %		
Operating temperature range	-55 to +105 °C		
Load capacitance	Series excitation		
Holder	HC-43/U or the equivalent		

2. APPLICABLE DOCUMENTS

2.1 Applicable Documents

The applicable documents shall be in accordance with paragraph 2.1 of JAXA-QTS-2070.

3. REQUIREMENTS

The requirements shall be as specified in paragraph 3 of JAXA-QTS-2070.

JAXA-QTS-2070/122D 10 February 2026	J A X A Parts Specification	Page	– 2 –
GG-15 3.1 Performance The requirements for performance are as specified in Table 2. 3.2 Marking Only the individual identification and the frequency value shall be marked on the products as specified in Supplementary Figure 1.			

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Table 2. Performance		
Item	Requirement paragraph of JAXA-QTS-2070	Requirement
Marking	3.5.1	As specified in Supplementary Figure 1.
Externals, Construction and Dimensions	3.5.2	As specified in Supplementary Figure 2.
Mass	3.5.2	1.0±0.5g max.
DPA	3.8	(1) Qualification test The crystal units shall conform to the requirements specified in the quality assurance program. (2) Quality conformance inspection Product construction shall conform to qualification requirements.
Frequency and equivalent resistance (at the reference temperature)	3.10.1	Maximum frequency: ±10 x 10 ⁻⁶ Maximum equivalent resistance 3rd: 20 ≤ f < 60 MHz 40 Ω 5th: 60 ≤ f < 100 MHz 60 Ω 7th: 100 ≤ f < 130 MHz: 100 Ω
Frequency and equivalent resistance (within the operating temperature range)	3.10.1	Maximum frequency shift: Measurement at the reference temperature ±25 x 10 ⁻⁶ Maximum equivalent resistance: 3rd: 20 ≤ f < 60 MHz 40 Ω 5th: 60 ≤ f < 100 MHz 60 Ω 7th: 100 ≤ f < 130 MHz 100 Ω (The operating temperature range: -55 to +105 °C)
Parallel capacitance	3.10.2	7.0 pF max.
Drive level	3.10.5	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever is greater.
Hermeticity	3.11.1	1x10 ⁻⁹ Pam ³ /sec max.
Terminal strength	3.11.2	Tensile applied: 10 N min., Bending applied: 5 N min.
High-frequency vibration	3.11.4	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever is greater.
Random vibration	3.11.5	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever is greater.
Shock	3.11.6	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever is greater.
Thermal shock	3.12.1	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever greater value.
Radiation hardness	3.12.3	Maximum frequency shift: ±5 x 10 ⁻⁶ Maximum equivalent resistance shift: 2 Ω or ±15%, whichever is greater.
Operating aging	3.13.1.1	Maximum frequency shift: 30 days continuously ±2 x 10 ⁻⁶ 90 days continuously ±2.5 x 10 ⁻⁶
Non-operating aging	3.13.1.2	Temperature: 85±2 °C Maximum frequency shift: ±2 x 10 ⁻⁶

4. QUALITY ASSURANCE PROVISIONS

The quality assurance provisions shall be as specified in paragraph 4 of JAXA-QTS-2070.

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4.1

In-Process Inspection

The in-process inspection shall be in accordance with paragraph 4.3 of JAXA-QTS-2070.

4.2

Qualification Test

The qualification test shall be in accordance with paragraph 4.4 of JAXA-QTS-2070.

4.3

Quality Conformance Inspection

The quality conformance inspection shall be in accordance with paragraph 4.5 of JAXA-QTS-2070.

4.4

Long-Term Storage

The long-term storage shall be in accordance with paragraph 4.7 of JAXA-QTS-2070.

4.5

Change of Tests and Inspections

Exceptions and changes to tests and inspections with respect to the requirements of JAXA-QTS-2070 are as follows.

(a) Radiation hardness

There is no change in the tests or inspections for requirements specified in JAXA-QTS-2070.

Note the relative humidity and atmospheric pressure stated in paragraph 4.6.1.1 are the reference for radiation hardness test.

(b) Radiography

(Changes)

Paragraphs 4.6.4.1 and 4.6.4.2 are revised to comply with method 209 of MIL-STD-202.

(Rationale)

Due to a change from radiographic film-based imaging to digital image-based imaging.

5.

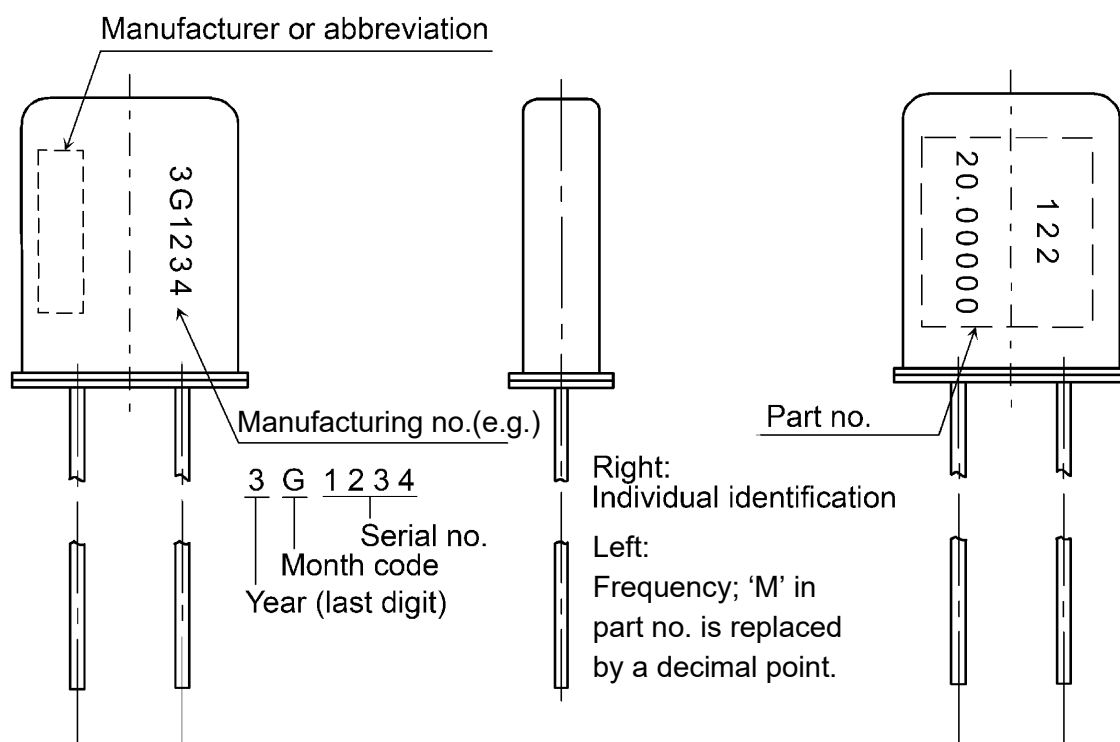
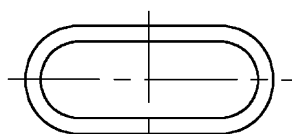
PREPARATION FOR DELIVERY

Preparation for delivery shall be as specified in paragraph 5 of JAXA-QTS-2070.

6.

NOTES

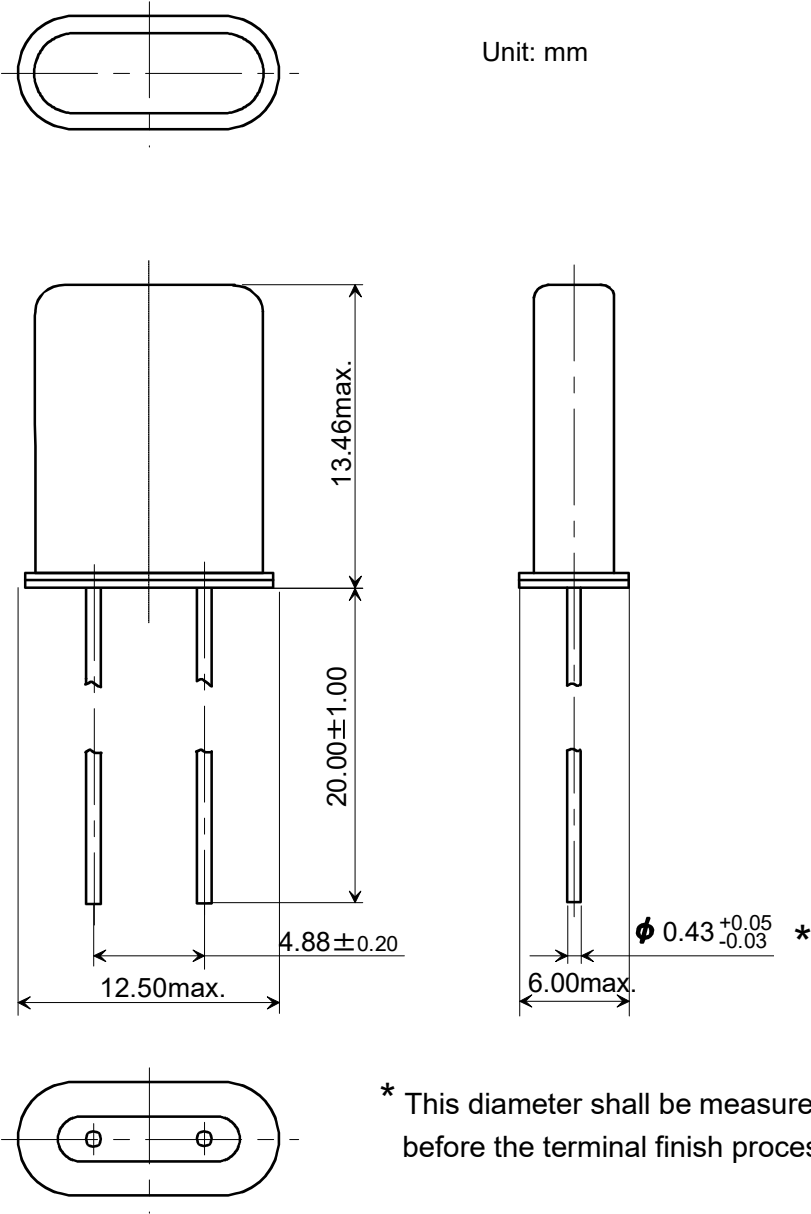
The notes shall be as specified in paragraph 6 of JAXA-QTS-2070.



Month Code

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Code	A	B	C	D	E	F	G	H	J	K	L	M

Supplementary Figure 1. Marking



Supplementary Figure 2. Externals and Dimensions