

Registration No.1307

JAXA-QTS-2070/121D

10 February 2026

Superseding

JAXA-QTS-2070/121C

Cancelled

10 February 2026

CRYSTAL UNITS, QUARTZ
(HC-43/U, FUNDAMENTAL 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 <table> <tr> <th>Rev.</th><th>Date</th><th colspan="3">Description</th></tr> <tr> <td>NC</td><td>19 Sep. 2003</td><td colspan="3">Original</td></tr> <tr> <td>A</td><td>1 Sep. 2005</td><td colspan="3">Reflected GG-14 (Rev. A), issued by Nihon Dempa Kogyo Co., Ltd.</td></tr> <tr> <td>B</td><td>5 Jul. 2010</td><td colspan="3">Reflected GG-14 (Rev. B), issued by Nihon Dempa Kogyo Co., Ltd.</td></tr> <tr> <td>C</td><td>10 Dec. 2018</td><td colspan="3">Reflected GG-14 (Rev. C), issued by Nihon Dempa Kogyo Co., Ltd.</td></tr> <tr> <td>D</td><td>10 Feb. 2026</td><td colspan="3">Reflected GG-14 (Rev. D), issued by Nihon Dempa Kogyo Co., Ltd.</td></tr> <tr> <td></td><td></td><td colspan="3">The remainder of this page is intentionally left blank.</td></tr> </table>					Rev.	Date	Description			NC	19 Sep. 2003	Original			A	1 Sep. 2005	Reflected GG-14 (Rev. A), issued by Nihon Dempa Kogyo Co., Ltd.			B	5 Jul. 2010	Reflected GG-14 (Rev. B), issued by Nihon Dempa Kogyo Co., Ltd.			C	10 Dec. 2018	Reflected GG-14 (Rev. C), issued by Nihon Dempa Kogyo Co., Ltd.			D	10 Feb. 2026	Reflected GG-14 (Rev. D), issued by Nihon Dempa Kogyo Co., Ltd.					The remainder of this page is intentionally left blank.		
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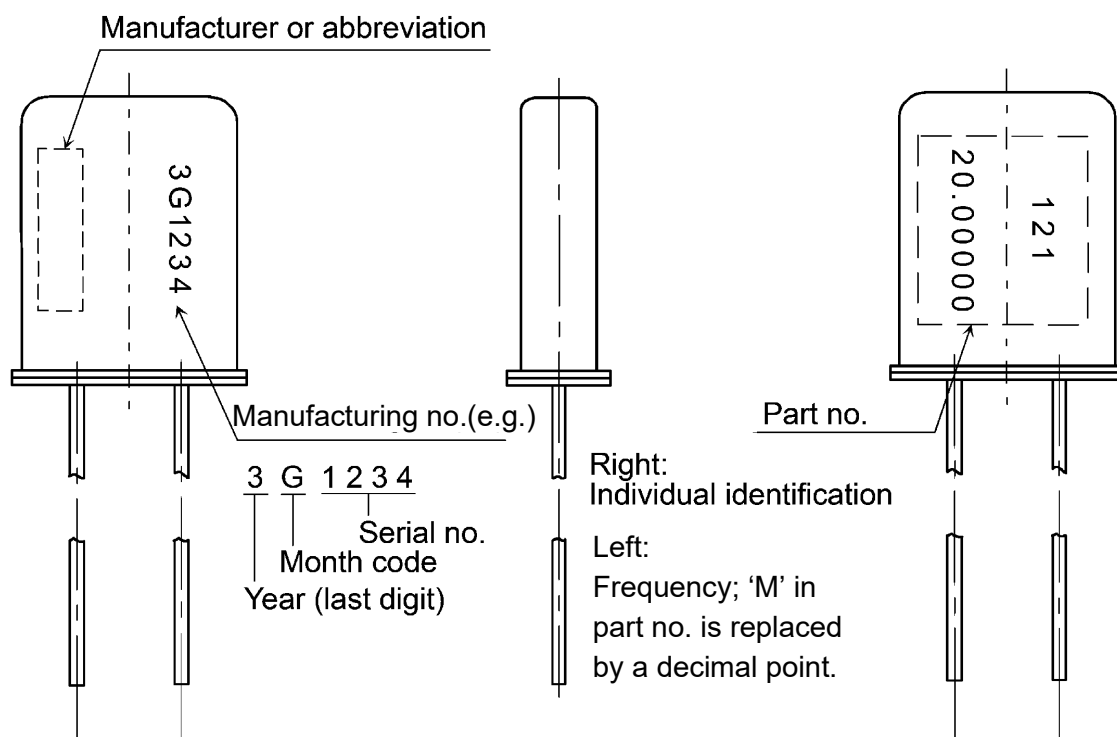
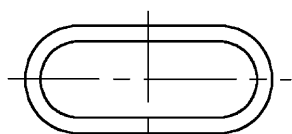
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Revision History				
Rev.	Date	Description		
NC	19 Sep. 2003	Original		
A	1 Sep. 2005	Standardized fonts (only applicable in Japanese language version) Added Revision History. Corrected editorial errors. Modified to be consistent with JAXA-QTS-2070A.		
B	5 Jul. 2010	Changed dimension in Supplementary Figure 2.		
C	10 Dec. 2018	Changes only applicable in Japanese (cover page). Added the note to paragraph 4.5.		
D	10 Feb. 2026	Added document (No.: GG-14), issued by Nihon Dempa Kogyo Co., Ltd. Corrected editorial errors. Added “b) Radiography” to paragraph 4.5, “Change in Test and Inspection”.		
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CRYSTAL UNITS, QUARTZ (HC-43/U, FUNDAMENTAL TYPE) HIGH RELIABILITY, SPACE USE, DETAIL SPECIFICATION FOR			
1. GENERAL			
1.1 Scope			
This specification establishes the detail requirements for NASDA 2070/121 (HC-43/U fundamental 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>121</u> – <u>**M*****</u> Generic Individual Frequency specification identification number The frequency of 5.0 to 20.0 MHz shall be represented as 5M000000 to 20M000000 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		5.0 ≤ f ≤ 20.0 MHz	
Overtone		Fundamental	
Drive level		25 μW ± 20 %	
Operating temperature range		-55 to +105 °C	
Load capacitance		30 ± 0.5 pF	
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.			

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3. REQUIREMENTS			GG-14
The requirements shall be as specified in paragraph 3 of JAXA-QTS-2070.			
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.			
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 ± 0.5 g 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: $\pm 10 \times 10^{-6}$ Maximum equivalent resistance: $5 \leq f < 6 \text{ MHz}$ 100 Ω $6 \leq f \leq 20 \text{ MHz}$ 50 Ω	
Frequency and equivalent resistance (within the operating temperature range)	3.10.1	Maximum frequency shift: Measurement at the reference temperature $\pm 25 \times 10^{-6}$ max. Maximum equivalent resistance: $5 \leq f < 6 \text{ MHz}$ 100 Ω $6 \leq f \leq 20 \text{ MHz}$ 50 Ω (The operating temperature range: -55 to +105 °C)	
Parallel capacitance	3.10.2	7.0 pF max.	
Hermeticity	3.11.1	1×10^{-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: $\pm 5 \times 10^{-6}$ Maximum equivalent resistance shift: 2 Ω or ± 15 %, whichever is greater.	
Random vibration	3.11.5	Maximum frequency shift: $\pm 5 \times 10^{-6}$ Maximum equivalent resistance shift: 2 Ω or ± 15 %, whichever is greater.	
Shock	3.11.6	Maximum frequency shift: $\pm 5 \times 10^{-6}$ Maximum equivalent resistance shift: 2 Ω or ± 15 %, whichever is greater.	
Thermal shock	3.12.1	Maximum frequency shift: $\pm 5 \times 10^{-6}$ Maximum equivalent resistance shift: 2 Ω or ± 15 %, whichever is greater.	
Radiation hardness	3.12.3	Maximum frequency shift: $\pm 5 \times 10^{-6}$ Maximum equivalent resistance shift: 2 Ω or ± 15 %, whichever is greater.	
Operating aging	3.13.1.1	Maximum frequency shift: 30 days continuously $\pm 2 \times 10^{-6}$ 90 days continuously $\pm 2.5 \times 10^{-6}$	
Non-operating aging	3.13.1.2	Temperature: 85 ± 2 °C Maximum frequency shift: $\pm 2 \times 10^{-6}$	

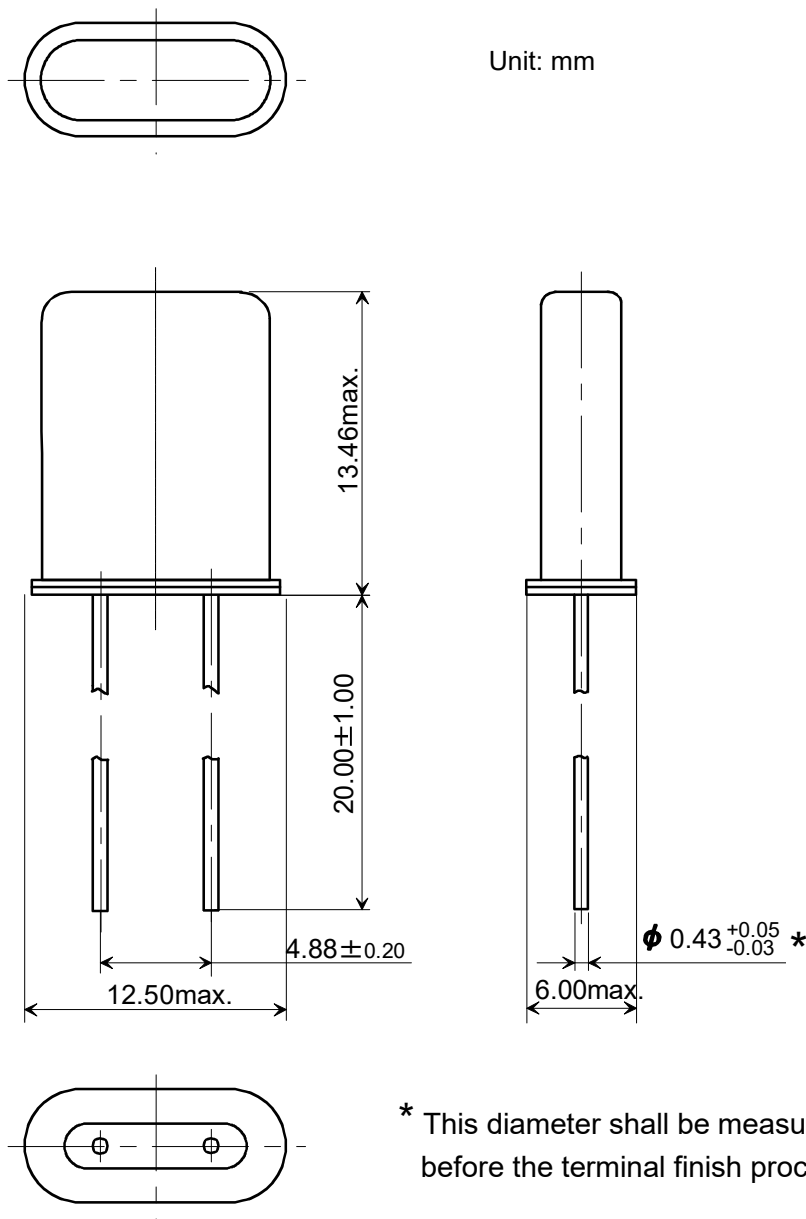
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GG-14 4. QUALITY ASSURANCE PROVISIONS The quality assurance provisions shall be as specified in paragraph 4 of JAXA-QTS-2070. 4.1 In-Process Inspection The in-process inspection shall be in accordance with paragraph 4.3 of JAXA-QTS-2070. 4.2 Qualification 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 and 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