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Superseding
JAXA-QTS-2060/H403
Cancelled
21 March 2025

CONNECTORS, COAXIAL, RADIO FREQUENCY, HIGH RELIABILITY, SPACE USE,

ADAPTER JACK-JACK, STRAIGHT, 4-POINT ATTACHMENT

DETAIL SPECIFICATION FOR

Prepared by Waka Manufacturing 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: 24 March 2026

Record of revisions

Rev.	Date	Description
NC	4 Mar. 2013	Original
A	21 Mar. 2025	Reflected the document (document number: JX-011 (Rev. A)) prepared by Waka Manufacturing Co., Ltd.
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Revision history

Rev.	Date	Description
NC	4 Mar. 2013	Original
A	21 Mar. 2025	• Reflected the change notice 1 (CN1) issued for the original revision. • Changed the following items in accordance with JAXA-QTS-2060 (Rev. F). 1) Changed terminology to align with the standardized nomenclature for connectors and contacts. (For Japanese version only.) 2) Changed the names of the following tests and inspections. a) Changed “corona level” to “partial discharge” in Tables 3, 4 and 8. b) Changed “force to engage/disengage” to “Connector mating and unmating forces” in Tables 4 and 6. c) Changed “mating characteristics” to “contact insertion and removal characteristics” in Tables 3 and 4. 3) Item “Coupling proof torque” of Tables 4 and 6 a) Changed the column of sample size to “Not applicable” in accordance with requirements specified in paragraph H.3.7.2, Appendix H of JAXA-QTS-2060. • Replaced supplementary figures 1 and 2 to correct following items. 1) Added dimensional measurement points “B” to “F” to correct the alphabetical part of the dimension notation to ascending order starting from A to avoid duplication. 2) Replaced the dimensions shown in the supplementary figure 2 with dimensions compliant with the applicable standard MIL-PRF-39012 (Rev. F) (or MIL-STD-348 (Rev. B)), since the dimensions shown in the supplementary figure 2 were different from those shown in figure H-3 of JAXA-QTS-2060 (Rev. F). • Supplementary figure 1 1) Corrected part of the dimension notation from upper/lower limit dimensions to plus-minus tolerance in accordance with the drawing. 2) Corrected the part of the dimension notation of columns C and D to plus-minus tolerance in accordance with the drawings maintained by Waka Manufacturing Co., Ltd. 3) Corrected the mounting hole dimension “F” from “4-Φ2.6 +0.05/0” to “4-Φ2.6 +0.08/-0.08”. • Paragraph 4.4: Change to Tests and Inspections 1) Item a) Corrected “Externals, dimensions and marking” (specified in paragraph H.3.3, Appendix H of JAXA-QTS-2060) to “Marking” (specified in paragraph H.3.3.1, Appendix H of JAXA-QTS-2060), in which ethanol immersion test was specified. 2) Item b) Deleted since the name of the test equipment was clarified in JAXA-

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Rev.	Date	Description
		QTS-2060 (Rev. F). • Table 3: Performance 1) Added “marking” to the column of item in Table 3 to clarify that the requirement for ethanol immersion was not applicable.

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Contents

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ADAPTOR JACK-JACK, STRAIGHT, 4-POINT ATTACHMENT
DETAIL SPECIFICATION FOR

1. GENERAL

1.1 Scope

This specification establishes the requirements for coaxial radiofrequency connectors, adaptor jack-jack, straight, 4-point attachment type specified in JAXA-QTS-2060, Appendix H (hereinafter referred to as “connectors”).

1.2 Part Number

The part number shall identify series, configuration, and identification number as follows. See Table 1 for details.

Example: J 2060 / HA 81 - 33K0－01

- 33K0－01: Identification number (paragraph 1.2.1 and table 1)
- 81: Configuration (table 1)
- HA: Series (table 1)

1.2.1 Identification Number

The identification number for connectors shall indicate material, finish, termination style and applicable cable using one number or one alphabet, and the last two numbers indicate performance of the connector as shown below. See Table 1 for details.

Example: 3 3 K 0 - 01

- 01: Performance
- 0: Applicable cable
- K: Termination style
- 3: Finish
- 3: Material

Table 1. Part Number

Item		Applicable paragraph of JAXA-QTS-2060, Appendix H	Description	
Part number		H.1.2	Example: J2060/HA81-33K0-01	
Series		H.1.2.1	HA: SMA	
Configuration		H.1.2.2	Connector type	8: adaptor jack-jack
			Connector configuration, attachment	1: Straight 4-point attachment
Identification number	Material	H.1.2.3	3: Stainless steel (shell)	
	Finish		3: Passivation (shell)	
	Termination style		K: No termination	
	Applicable cable		0: No applicable cable	
	Performance		01: Dimension A = 12.85 ± 0.1mm (See Supplementary table 1) 02: Dimension A = 9.55 ± 0.1mm (See Supplementary table 1)	

1.3 Rating

The rating shall be as specified in Table 2. The maximum rated power for operating temperature and frequency shall be shown in Figures 1 and 2, respectively.

Table 2. Rating

Item	Applicable paragraph of JAXA-QTS-2060, Appendix H	Description
Rated voltage (barometric)	H.3.5.1	335Vrms
Nominal impedance	H.3.5.2	50Ω
Operating frequency range	H.3.5.3	0 to 18.0GHz
Operating temperature range	H.3.5.4	-65 to +115°C

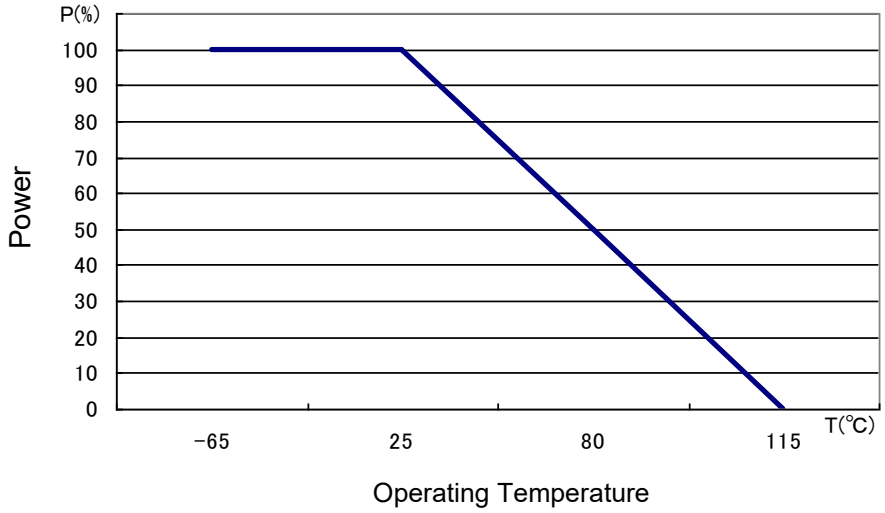
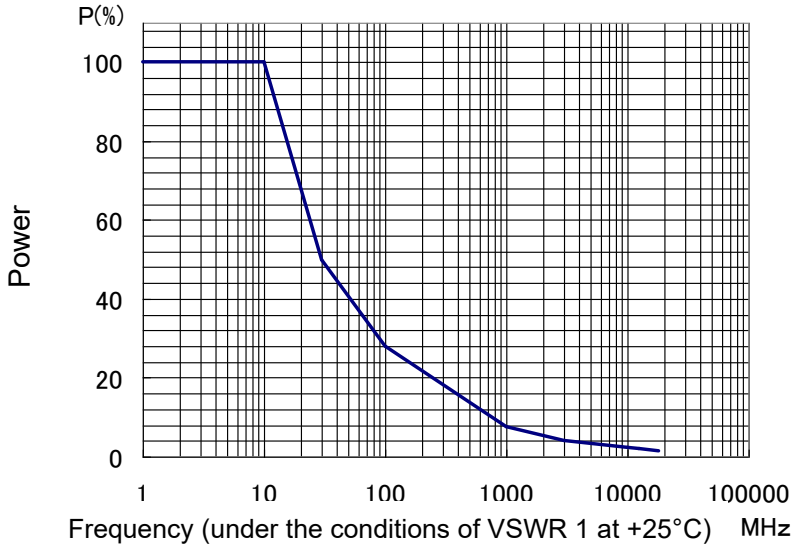


Figure 1. Maximum Rated Power in relation with Operating Temperature



(VSWR: Voltage Standing Wave Ratio)

Figure 2. Maximum Rated Power in relation with Frequency

2. APPLICABLE DOCUMENTS

The applicable documents shall be as specified in paragraph H.2.1, Appendix H of JAXA-QTS-2060.

3. REQUIREMENTS

The requirements shall be in accordance with paragraph H.3, Appendix H of JAXA-QTS-2060 and as follows.

3.1 Performance

The performances shall be as shown in table 3.

Table 3. Performance

Item	Requirement of JAXA-QTS-2060	Performance
Material	H.3.2	As specified in Appendix H of JAXA-QTS-2060.
Externals, dimensions and marking	H.3.3	As specified in Supplementary figures 1 and 2.
Marking	H.3.3.1	Ethanol immersion shall not be performed due to laser marking.
Plating	H.3.4	As specified in Appendix H of JAXA-QTS-2060.
Traceability	H.3.3.2	As specified in Appendix H of JAXA-QTS-2060.
Workmanship	H.3.3.3	As specified in Appendix H of JAXA-QTS-2060.
Electrical performance	H.3.6	As specified in Appendix H of JAXA-QTS-2060. However, VSWR, partial discharge, RF withstanding voltage, RF leakage, and RF insertion loss shall be as follows.
Partial discharge	H.3.6.5	Not applicable
RF High potential withstanding voltage	H.3.6.6	Not applicable
Voltage Standing Wave Ratio (VSWR)	H.3.6.2	Not applicable
RF Leakage	H.3.6.7	Not applicable
RF Insertion loss	H.3.6.8	Not applicable
Mechanical performance	H.3.7	As specified in Appendix H of JAXA-QTS-2060. However, contact insertion and removal characteristics, coupling mechanism retention, center contact retention, center contact crimp tensile strength, and solderability shall be as follows.
Contact insertion and removal characteristics	H.3.7.3	For mating dimension, contact and insulation protrusion dimension shall be measured from the electrical, mechanical reference surface (See Supplementary figure 2)
Coupling Mechanism Retention	H.3.7.4	Not applicable
Center contact retention	H.3.7.5	Not applicable
Cable Retention	H.3.7.6	Not applicable
Center Contact Crimp Tensile Strength	H.3.7.8	Not applicable
Solderability	H.3.7.9	Not applicable
Environmental Performance	H.3.8	As specified in Appendix H of JAXA-QTS-2060. However, thermal shock shall be specified as follows.
Thermal shock	H.3.8.3	In quality conformance inspection, the maximum temperature shall be 115°C.

3.1.1 Coupling Proof Torque

When the connectors are mated in each test, the recommended torque for screws shall be 78.94 {8.05} to 112.88N· cm {11.51Kgf· cm}.

4. QUALITY ASSURANCE PROVISIONS

4.1 Qualification Test

The qualification test for the connectors shall be performed in accordance with paragraph H.4.1, Appendix H of JAXA-QTS-2060 and Tables 4 and 5.

Table 4. Qualification Test (Connector)

Test			Requirement paragraph of JAXA-QTS-2060	Test method paragraph of JAXA-QTS-2060	Pass/Fail criteria	
Group	Order	Item			Sample size	Quantity of allowable defectives
I	1	Material ([1])	H.3.2	H.4.3.2	-	-
	2	Externals, Dimensions and Marking	H.3.3	H.4.3.3	25	0
	3	Connector mating and unmating forces	H.3.7.1	H.4.3.5.1		
	4	Coupling proof torque	H.3.7.2	H.4.3.5.2	Not applicable	
	5	Contact insertion and removal characteristics	H.3.7.3	H.4.3.5.3	25	0
	6	Residual magnetization ([2])	H.3.2.2	H.4.3.2.4		
	7	Workmanship	H.3.3.3	H.4.3.3		
	8	Insulation resistance	H.3.6.3	H.4.3.4.3		
II	1	Center contact retention	H.3.7.5	H.4.3.5.5	Not applicable	
	2	Salt spray	H.3.8.5	H.4.3.6.5	5	
III	1	Voltage Standing Wave Ratio (VSWR)	H.3.6.2	H.4.3.4.2	Not applicable	
	2	Durability	H.3.7.7	H.4.3.5.7	5	0
IV	1	Contact resistance (between center contacts)	H.3.6.4	H.4.3.4.4	5	0
	2	Dielectric withstanding voltage	H.3.6.1	H.4.3.4.1		
	3	Vibration	H.3.8.1	H.4.3.6.1		
	4	Shock	H.3.8.2	H.4.3.6.2		
	5	Thermal shock	H.3.8.3	H.4.3.6.3.1		
	6	Moisture resistance	H.3.8.4	H.4.3.6.4		
	7	Partial discharge	H.3.6.5	H.4.3.4.5	Not applicable	
	8	RF High potential withstanding voltage	H.3.6.6	H.4.3.4.6	Not applicable	
	9	Cable retention	H.3.7.6	H.4.3.5.6	Not applicable	
	10	Coupling mechanism retention	H.3.7.4	H.4.3.5.4	Not applicable	
V	1	RF Leakage	H.3.6.7	H.4.3.4.7	Not applicable	
VI	1	RF Insertion Loss	H.3.6.8	H.4.3.4.8	Not applicable	
VII	1	Contact resistance	H.3.6.4	H.4.3.4.4	5	0
VIII	1	Solderability	H.3.7.9	H.4.3.5.9	Not applicable	
IX	1	Outgassing	H.3.2.6	H.4.3.2.5	-	-

Notes: ([1]) The document shall be submitted to prove the design specification is satisfied.
([2]) The measurement results shall be listed in application datasheet.

Table 5. Qualification Test (Contact)

Test			Requirements paragraph of JAXA-QTS-2060	Test method paragraph of JAXA-QTS-2060	Pass/Fail criteria	
Group	Order	Items			Sample size	Quantity of allowable defects
I	1	Center contact crimp tensile strength	H.3.7.8	H.4.3.5.8	Not applicable	
II	1	Plating porosity	H.3.4.1	H.4.3.2.2	4	0
III	1	Plating thickness	H.3.4.2	H.4.3.2.3	4	0

4.2 Quality Conformance Inspection

Quality conformance inspection shall be as specified in paragraph H.4.2, Appendix H of JAXA-QTS-2060 and Tables 6, 7, and 8.

Table 6. Quality Conformance Inspection (Group A)

Inspection			Requirements paragraph of JAXA-QTS-2060	Test method paragraph of JAXA-QTS-2060	Pass/Fail criteria	
Group	Order	Item			Sample size	Quantity of allowable defects
A1	1	Materials	H.3.2	H.4.3.2	All	0
	2	Externals, dimensions and marking (1)	H.3.3	H.4.3.3		
	3	Thermal shock	H.3.8.3	H.4.3.6.3.2		
	4	Insulation resistance	H.3.6.3	H.4.3.4.3		
	5	Dielectric withstanding voltage	H.3.6.1	H.4.3.4.1		
	6	Contact insertion and removal characteristics	H.3.7.3	H.4.3.5.3		
A2	1	Surface finish	H.3.2.5	H.4.3.2.1	AQL=2.5% (2)	
	2	Connector mating and unmating forces	H.3.7.1	H.4.3.5.1	AQL=2.5% (2)	
	3	Coupling proof torque	H.3.7.2	H.4.3.5.2	AQL=2.5% (2)	

Notes: (1) Connectors fail marking inspection only when the marking is unreadable or incorrect in external view. The acceptance or rejection of the dimensions and mass shall be based on 1.0% of the acceptable quality level (AQL) in "Single sampling plan for normal inspection" specified in JIS Z 9015, Attachment Table 2-A.

(2) The acceptance quality level (AQL) is based on "Single sampling plan for normal inspection", specified in JIS Z 9015-1, Attachment Table 2-A.

Table 7 Quality Conformance Inspection (Group B)

Inspection			Requirements paragraph of JAXA-QTS-2060	Test method paragraph of JAXA-QTS-2060	Pass/Fail criteria	
Group	Order	Item			Sample size	Quantity of allowable defects
B1	1	RF leakage	H.3.6.7	H.4.3.4.7	Not applicable	
B2	1	RF insertion loss	H.3.6.8	H.4.3.4.8	Not applicable	
B3	1	Contact resistance	H.3.6.4	H.4.3.4.4	2	0
B4	1	Solderability	H.3.7.9	H.4.3.5.9	Not applicable	
B5	1	Center contact retention	H.3.7.5	H.4.3.5.5	Not applicable	
B6	1	Voltage Standing Wave Ratio (VSWR)	H.3.6.2	H.4.3.4.2	Not applicable	
B7	1	Center contact crimp tensile strength	H.3.7.8	H.4.3.5.8	Not applicable	
B8	1	Plating porosity ([1])	H.3.4.1	H.4.3.2.2	4	0
B9	1	Plating thickness ([1])	H.3.4.2	H.4.3.2.3	4	0

Note: ([1]) Applicable for contacts.

Table 8. Quality Conformance Inspection (Group C)

Inspection			Requirements paragraph of JAXA-QTS-2060	Test method paragraph of JAXA-QTS-2060	Pass/Fail criteria	
Group	Order	Item			Sample size	Quantity of allowable defects
C1	1	Center contact retention	H.3.7.5	H.4.3.5.5	Not applicable	
	2	Salt spray	H.3.8.5	H.4.3.6.5	2	0
C2	1	Voltage Standing Wave Ratio (VSWR)	H.3.6.2	H.4.3.4.2	Not applicable	
	2	Durability	H.3.7.7	H.4.3.5.7	2	0
C3	1	Contact resistance (between center contacts)	H.3.6.4	H.4.3.4.4	2	0
	2	Vibration	H.3.8.1	H.4.3.6.1		
	3	Shock (waveform specified)	H.3.8.2	H.4.3.6.2		
	4	Thermal shock	H.3.8.3	H.4.3.6.3		
	5	Moisture resistance	H.3.8.4	H.4.3.6.4		
	6	Partial discharge	H.3.6.5	H.4.3.4.5	Not applicable	
	7	RF high potential withstanding voltage	H.3.6.6	H.4.3.4.6	Not applicable	
	8	Cable retention	H.3.7.6	H.4.3.5.6	Not applicable	
	9	Coupling mechanism retention	H.3.7.4	H.4.3.5.4	Not applicable	

4.3 Long-Term Storage

The long-term storage shall be in accordance with paragraph H.4.4, Appendix H of JAXA-QTS-2060.

4.4 Change to Tests and Inspections

The changes from the qualification test and quality conformance inspections specified in Appendix H of JAXA-QTS-2060 shall be as follows.

a) Marking

Change: Ethanol immersion test shall not be performed.

Reason: Laser marking are provided.

b) (Deleted)

c) Contact insertion and removal characteristics

Change: The mating dimension shall be measured from the electrical and mechanical base surface of contact and Teflon.

Reason: The internal dimension cannot be measured after connectors are mated.

d) Vibration

Change: The method of securing the test equipment to the table and the cable length are different from the specification.

Reason: The securing method is designed in conformity with the flange for SMA connectors and the test fixture or jig for testing on each XYZ direction. The flex cable attached to the standard test connector shall be used.

e) RF high potential withstanding voltage

Change: RF voltage shall be measured by an oscilloscope.

Reason: For RF voltmeter, the oscilloscope capable of measuring more than 1000V, 5MHz shall be used. The current shall be measured by a resistor.

5. PREPARATION FOR DELIVERY

Preparation for delivery shall be in accordance with paragraph H.5, Appendix H of JAXA-QTS-2060 and as follows.

5.1 Packaging

The connectors shall be placed in a heat-sealed transparent polyethylene bag. If the packaging method is specified in the purchase specification, the connectors shall be packaged in such way to satisfy the requirement.

5.2 Marking on Package

Marking on package shall be as specified in Table 9.

Table 9. Marking on Package

Item	Applicable paragraph of JAXA-QTS-2060	Description
Part name	–	Coaxial radiofrequency connectors, adaptor jack-jack, straight 4-point attachment type
Part number	H.1.2	Example: J2060/HA81-33K0-01
Applicable specification number	–	JAXA-QTS-2060/H403
Lot identification code	H.3.3.1	Example: 13 12 - 01
Purchaser	–	–
Certified manufacturer	–	Waka Manufacturing Co., Ltd.
Quantity of packaged products	–	Pcs.
Date of inspection	–	Year-month-day
Inspection result	–	“Pass” or “good”

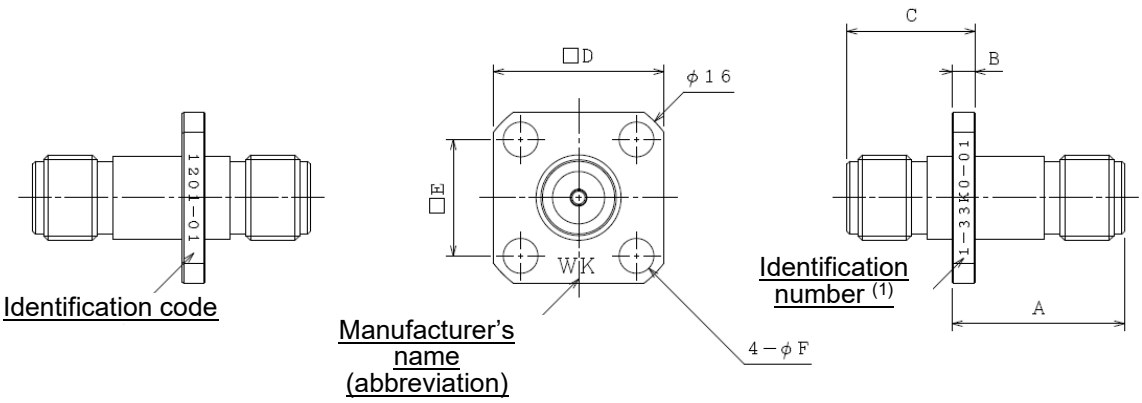
6. NOTES

As specified in paragraph H.6, Appendix H of JAXA-QTS-2060.

7. EXTERNALS, DIMENSIONS AND MARKING

The externals, physical dimensions and marking of connectors shall be specified in supplementary Figures 1 and 2.

Unit: mm



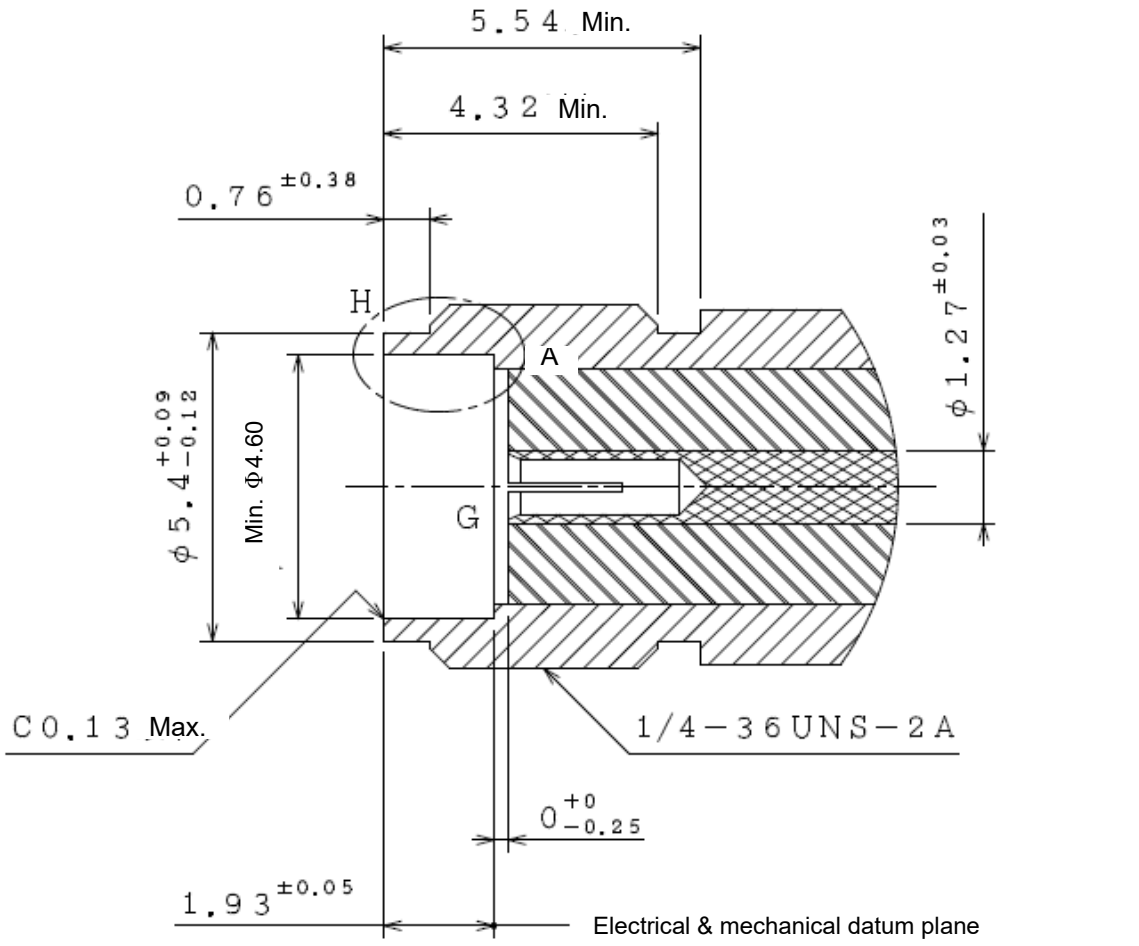
Identification number	A	B	C	D	E	F	Mass (g)
33K0-01	12.86±0.1	1.70±0.05	9.55±0.3	12.7±0.2	8.64±0.05	2.6±0.08	3.9 to 4.1
33K0-02	9.55±0.1	1.70±0.05	9.55±0.3	12.7±0.2	8.64±0.05	2.6±0.08	3.4 to 3.6

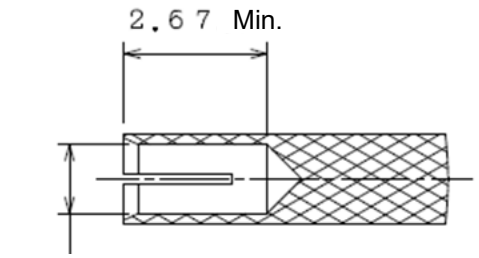
Note: (1) The number identifying the connector configuration, attachment style and identification number shall be marked.

Identification code example : 13 (The last two digits of the number of the year) 12 (The two digits indicating the calendar week of the year) - 01 (Production lot number (series))

Supplementary Figure 1. Externals, Dimensions, and Marking

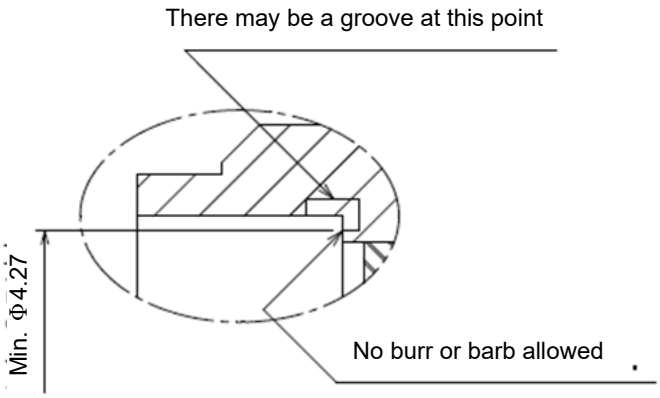
Unit: mm





When Φ0.90 to 0.94 pin is inserted, this dimension shall satisfy the requirements of contact insertion and removal characteristics and durability.

Point G enlarged view



Point H enlarged view

Supplementary Figure 2. Detailed Dimensions of Connector