COMMON PARTS/MATERIALS, SPACE USE, APPLICATION DATA SHEET FOR

Part Description	COILS
Part Number and Type	JAXA2110/A250-L000
Applicable Specification	JAXA-QTS-2110 JAXA-QTS-2110/A250

November 2024

Prepared and Established by IRIICHI Technologies Inc.

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 data sheet: 25 August 2025

Record of revisions

Rev.	Date	Description
NC	20 Nov. 2024	Original Issued a document by IRIICHI Technologies Inc. Document number: GR6-02005 (Rev. 3)

GR6-02005 (Rev. 3)

Revision history

Rev.	Date	Description	Reasons for revision
1	27 May 2024	Original	
2	13 Aug. 2024	▪ All page top left The document number "JAXA-ADS-2110/A250" has added. The release date "27 May, 2024" has added.	To review the description.
		▪ All page top right The document number has changed from "JAXA-ADS-2110/A250" to "GR6-02005."	To correct error.
		▪ Contents 8 Others The section number 8.1 titled "Inquiries" has added.	To add the information missed.
		▪ Contents The marginal test results of the shock has deleted. The marginal test results of the thermal shock has deleted.	To delete since the marginal test of the shock and the marginal test of the thermal shock are under evaluation.
		▪ Page 2 Marking example The example has changed from "A200-L***AA" to "A250-L***AA."	To correct error.
		▪ Page 3 Picture 1 The picture and the note have deleted.	To change to the appropriate picture.
		▪ Page 8. Table 2 bottom part The information that the marginal test of the shock is under evaluation has deleted. The information that the marginal test of the thermal shock is under evaluation has deleted.	To delete the evaluation items in the contents.
3	7 Oct. 2024	▪ All page top left The document number "JAXA-ADS-2110/A250" has deleted. The release date "27 May 2024" has deleted.	To review the description.
		▪ Cover page top right The column titled document number has changed to the column titled registration number. The document number "GR6-02005" has changed to blank. (Applicable only in Japanese version.)	To review the description.
		▪ Revision history, contents, pages 1 to 7 The document number has changed from "GR6-02005" to "GR6-02005 (Rev. 3)."	To add the revision information with the document number.
		▪ Contents The title "Table 3 Outgassing data" has added.	To add the outgassing data.

GR6-02005 (Rev. 3)

Rev.	Date	Description	Reasons for revision
		▪ Paragraph 4.2.1 The paragraph number has changed from 4.2 to 4.2.1. The title in the paragraph has changed from "Mechanical and thermal characteristics" to "Mechanical and thermal characteristics (except temperature rise)."	To correct to the true title and the paragraph number.
		▪ Paragraph 4.2.2 Temperature rise The main body has added “Qualification Test Group IV to guarantee the temperature rise value at the maximum ambient temperature (105°C). Evaluation results are shown in Table 2.	To clarify that the temperature rise results measured at the room temperature applied and the reasons.
		▪ Table 1. paragraph 3, Group II, Electrical characteristics The test result has changed from blank to acceptable.	To reflect the test result.
		▪ Table 1, paragraph 11, Group III, Electrical characteristics The test result has changed from blank to acceptable.	To reflect the test result.
		▪ Table 1 Group IV, paragraphs 14 Temperature rise The description has changed from “25°C maximum” to “in accordance with paragraph 4.2.2.” The description has changed from "⊿t=0.37°C to 0.88°C" to "acceptable."	To review the description.
		▪ Table 1, paragraph 19, Group IV, Electrical characteristics The test result has changed from blank to acceptable.	To reflect the test result.
		▪ Table 2. Evaluation test results (Electrical characteristics) The description has changed from blank to "Temperature rise."	To add the detail explanation data related to paragraph 4.2.2.
		▪ Added Outgassing data The outgassing data has added to as Table 3.	To add the evaluation data.

GR6-02005 (Rev. 3)

Contents

GR6-02005 (Rev. 3)

COMMON PARTS AND MATERIALS, SPACE USE,
APPLICATION DATA SHEET FOR

1. GENERAL

1.1 Scope

This Application Data Sheet provides additional detailed information necessary for designing or selecting products not contained in JAXA QML. Relevant information not covered in this document shall also be considered. Users are responsible for all aspects pertaining to selection and use of the product(s) specified in this document.

1.2 Applicable Documents

The latest version of the followings are applicable to the product in this data sheet.

(1) JAXA-QTS-2000	Common Parts/Materials, Space Use, General Specification for
(2) JAXA-QTS-2110	COIL and Inductors, High Reliability, Space Use, General Specification For
(3) JAXA-QTS-2110/A250	Coils, High Reliability, Space Use, (JAXA2110/A250 type) Detail Specification For

2. SUMMARY OF PRODUCTS

The coils described in this data sheet is an open type high reliability product for electrical equipment to be installed on satellites and/or launch vehicles.

2.1 Externals, Dimensions, Marking and Wiring

Externals, dimensions and markings of the coil are shown below.

Part number	Externals, dimensions, marking and wiring
JAXA2110/A250-L000	See Figure 1 and 2

GR6-02005 (Rev. 3)

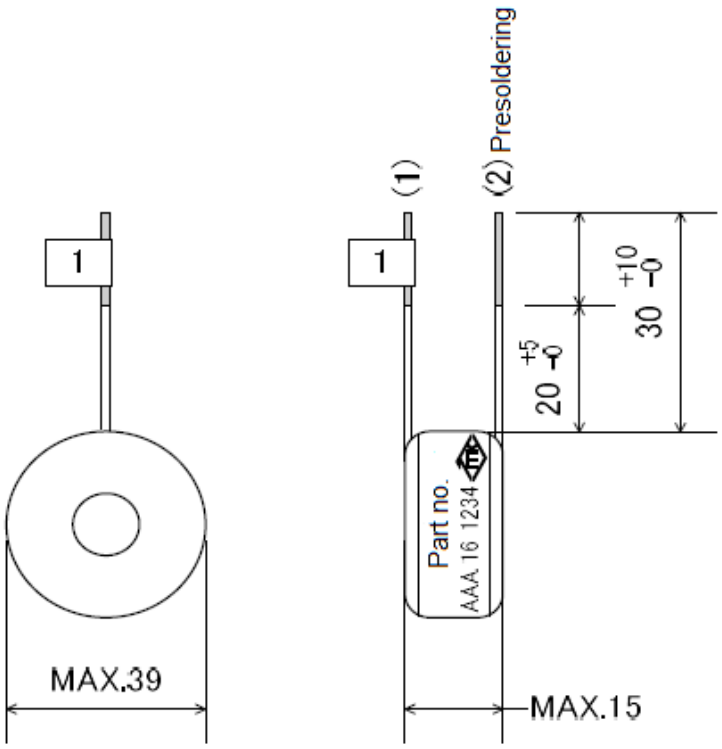


Figure 1. External

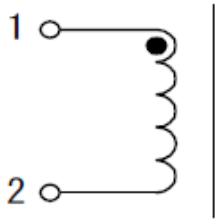
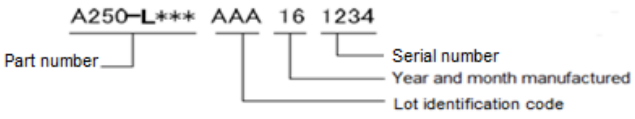


Figure 2. Wiring Diagram

1) Part number (abbreviation)
2) Terminal identification (see Figure 1)
3) Lot identification code
4) Year and month manufactured
5) Serial number
6) Trademark of manufacturer



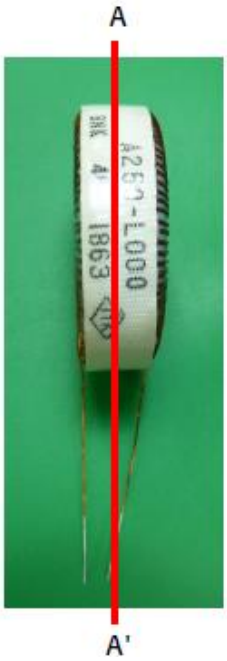
Trademark

2.2 Mass

Part number	Mass (Standard value)
JAXA2110/A250-L000	70g

2.3 Construction

The product is wound around a toroidal core with magnet wire, and the lead wire is pulled out by direct winding. It is an open coil coated with uralen. The internal structures are shown on Picture 1 and Figure 3.



Picture 1.
(Side view from side coil)

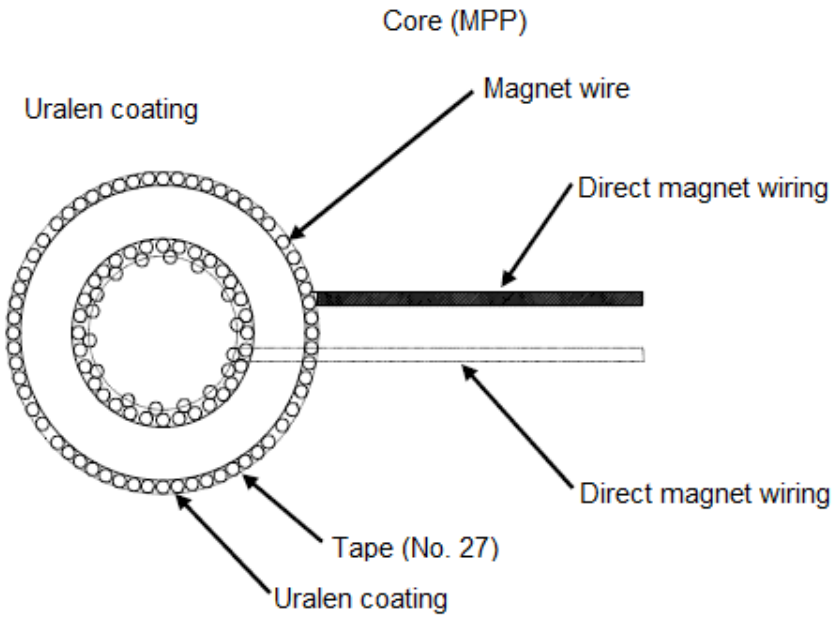


Figure 3.（Cross sectional view of A-A'）

3. USAGE

3.1 Rating

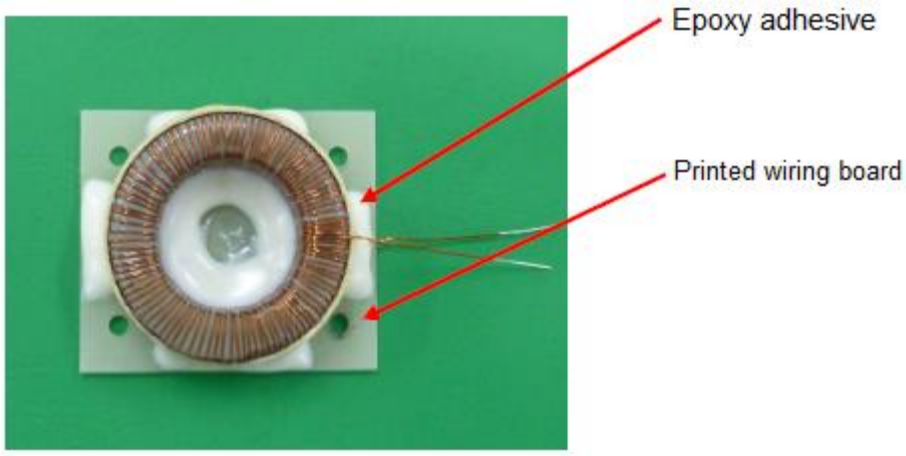
The ratings are as follows.

Part number	Grade	Operating ambient temperature (1)	Input voltage	Rated power
JAXA2110/A250-L000	6 (Open type)	-55°C to +105°C	50Vrms	8VA

Note (1) Operating ambient temperature + Temperature rise = Maximum operating temperature ; Class S (130°C) as a maximum.

3.2 Mounting Methods

It is recommended that the coil should be attached to a printed wiring board and adhered the coil body with epoxy.
An example is shown in Picture 2.



Picture 2. An example of fixing a coil onto a printed wiring board

4. CHARACTERISTICS UNDER NORMAL OPERATING CONDITIONS

4.1 Electrical Characterisitcs

The coil meets the electrical characteristics specified in the detail specification. The evaluation results are shown in Tables 1 and 2.

4.2 Deleted

4.2.1 Mechanical and Thermal Characteristics (except temperature rise)

The coil meets the electrical characteristic specified in the detail specification. The evaluation results are shown in Tables 1 and 2.

4.2.2 Temperature Rise

Qualification Test Group IV paragraph 14 Temperature Rise

The temperature rise of the products is measured at room temperature in an air-flow free location.
The method at the maximum ambient temperature (105°C) specified in appendix A of JAXA QTS-2110 is that the sample is placed in a chamber keeping 105°C and the measurement system is placed outside the chamber in a room temperature. In this case, the winding resistance value calculated to resistance method conversion varies, then more accurate value is acquired by placing the sample in a room temperature.
The temperature rise value in a room temperature is more than the temperature rise value at the maximum ambient temperature, therefore the measurement results in a room temperature guarantee the temperature rise value at the maximum ambient temperature (105°C).
The evaluation results are shown in Table 2.

4.3 Characteristics in Various Operating Environments

The coil meets the electrical characteristic specified in the detail specification. The evaluation results are shown in Tables 1 and 2.

4.4 Environmental Limits

The shock as the marginal limit for mechanical strength is under evaluation.
The thermal shock as the marginal limit for thermal strength is under evaluation.

5. RELIABILITY

5.1 Possible Failure Modes

- Open circuit (breaking, bad connection)
- Short circuit (Insulation breakage, insulating film damage)
- Decrease of inductance (core crack, flexure, layer short)

6. STORAGE CONDITIONS

It is recommended to store the coil under the following conditions.

Items	Conditions
(1) Temperature	+0°C to +35°C
(2) Relative humidity	75%RH maximum

7. PRECAUTIONS

7.1 Instructions for Purchaser

If purchaser's specification is included in the "qualification coverage" specified in the detail specification (refer to paragraph 3.1 ofJAXA-QTS-2110/A250), or if "qualification by similarity" specified in paragraph A.3.1.1.1, appendix A of JAXA-QTS-2110 is applicable, products can be provided as JAXA qualified parts. In this case, the purchaser can purchase requirements for specific applications in product specification (refer to paragraph 6.3 of JAXA-QTS-2110) for each procurement.

7.2 Instructions for User

- Use immediately after opening the dry pack (no baking required).
- The rigid epoxy adhesive is recommended. (example: EW2030, 3M)
- It is recommended to keep the operating frequency deviation within the rated operating frequency.
- The coil shall be operated in the temperature class S (130°C) as a maximum.
- The coil shall be considered of its outgassing characteristics.

8. OTHERS

8.1 Inquiries

Direct all inquiries about this data sheet to the company below.

Manufacturer	IRIICHI Technologies Inc. Quality Assurance Department
Address	3140-1 Shimo Suwa-cho, Suwa-gun, Nagano 393-8555
Telephone	+81-266-27-2111

8.2 Outgassing

The outgassing data for organic materials used for the coil are shown in Table 3.

GR6-02005 (Rev. 3)

Table 1. Evaluation Test Results (Environmental Durability and Electrical Characteristics)

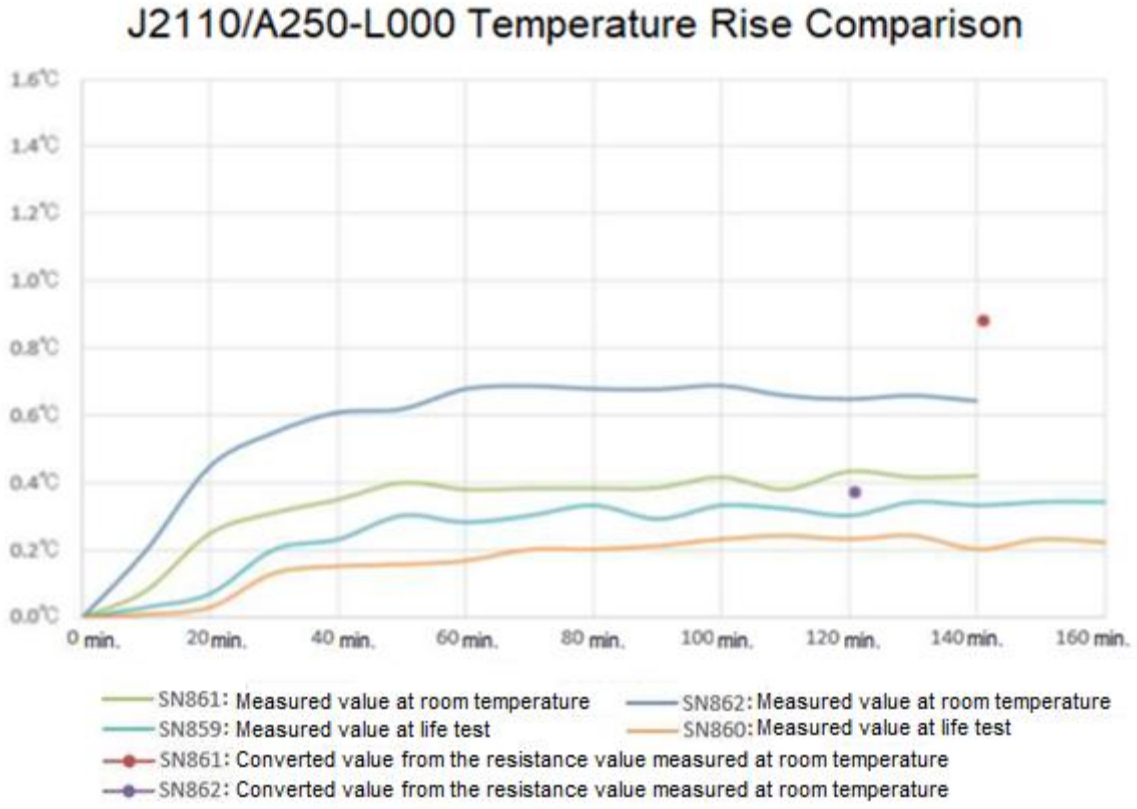
Item no. Group		Test item	Test method([2])	Pass/Fail criteria	Test result (parameter range)		
						Passed	Failed
I	1	Thermal shock	A.4.4.6.3	No corrosions affecting electrical performance nor mechanical damages	Acceptable	10	0
II	2	Material, design, construction, externals, dimension, marking, workmanship	A.4.4.2 A.4.4.3	Markings, dimensions, mass and structures shall be as specified in the detail specification.	Acceptable	10	0
	3	Electrical characteristics	A.4.4.4.1	As specified in Table 2.	Acceptable	10	0
	4	Withstanding voltage (at barometric pressure)	A.4.4.4.2.1	No dielectric breakdown	Acceptable	10	0
	5	Withstanding voltage (at reduced pressure)	A.4.4.4.2.2	No dielectric breakdown	Acceptable	10	0
	6	Interlayer withstanding voltage	A.4.4.4.3	No dielectric breakdown	Acceptable	10	0
	7	Insulation resistance	A.4.4.4.4	10,000MΩ (DC 100V) minimum	100,000MΩ minimum	10	0
	8	Fungus	—	External materials shall be processed to prevent bacterial infestation.	All materials used are antibacterial.	10	0
III	9	Solderability	A4.4.5.2	Surface must be covered with 95% minimum of new solder.	Acceptable	2	0
	10	Life	A.4.4.7.1	No mechanical or electrical damages	Acceptable	2	0
	11	Visual and mechanical inspection (post-test)	A.4.4.2.1	Markings, dimension, mass and construction shall be as specified in the detail specification	Acceptable	2	0
	12	Electrical characteristics	A.4.4.4.1	As specified in Table 2.	Acceptable	2	0
IV	13	Terminal strength	A.4.4.5.1	No loosening, breakage or other mechanical damage to the terminals	Acceptable	6	0
	14	Temperature rise	A.4.4.4.6	The maximum temperature rise shall be as specified in the detail specification, and no mechanical damage are occurred.	Acceptable	2	0
	15	Vibration	A.4.4.6.1	No mechanical damages	Acceptable	6	0
	16	Shock	A.4.4.6.2	No mechanical damages	Acceptable	6	0
	17	Moisture resistance	A.4.4.6.5	No corrosions affecting electrical performance nor mechanical damages	Acceptable	6	0
	18	Overload	A.4.4.4.1.21	No corrosions affecting electrical performance nor mechanical damages	Acceptable	6	0
	19	Electrical characteristics	A.4.4.4.1	Shown in Table 2.	Acceptable	6	0
	20	Visual and mechanical inspection (post-test)	A.4.4.2.1	Markings, dimension, mass and construction shall be as specified in the detail specification	Acceptable	6	0
	21	DPA	A.4.4.3.1	Internal construction shall be as specified in the detail specification	Acceptable	3	0

Note ([2]) Indicates paragraph number of JAXA-QTS-2110.

GR6-02005 (Rev. 3)

Table 2. Evaluation Test Results (Electrical Characteristics)

Item	Pass/Fail criteria	Performance characteristics or performance range
Inductance	1.18mH ±30% (at 10kHz, 1.0V, 0A)	1.17 to 1.21mH
	1.17mH ±20% (at 10kHz, 1.0V, 0.16A)	1.17 to 1.21mH
DC resistance (at 20℃)	0.95Ω maximum	0.731 to 0.743Ω
Dimensions	As shown in Table 1, Externals	Width: 38.1 to 38.6mm Height: 11.0 to 12.2mm Lead wire: 34.5 to 36.1mm
Mass	70g maximum	54.9 to 55.5g
Temperature rise	25℃ maximum	Measured value at room temperature: S/N861 ∆t 0.4℃ S/N862 ∆t 0.6℃ Resistance measured value at room temperature: S/N861 ∆t 0.88℃ S/N862 ∆t 0.37℃ Measured temperature rise value at life test: S/N859 ∆t 0.31℃ S/N860 ∆t 0.21℃



GR6-02005 (Rev. 3)

Table 3. Outgassing Data

JAXA-ADS-2110/A250	**Outgassing Data of Materials Used**					
No.	Category	Part Number	Material	TML (%)	CVCM (%)	Mass (g) (Reference)
1	Core, coating materials	MPP#55324-A2	Polyester (Coating part)	0.066	0.002	1.37
2	Wire	1-PEW0.32	Polyester (Coating part)	0.015	0.0003	0.08
3	Ink	Markem 7261 (Black)	Polybutylene Terephthalate (PBT)	9.834	0.133	0.07
4	Impregnated material	5753 A-LV, 5753 B-LV	Urethane	0.340	0.036	0.02
5	Fixing tape	No. 27	Glass Cloth	1.476	0.736	0.36
The outgassing data calculation results for the entire organic materials				0.695	0.146	1.90