UHF RFID tag data sheet
LXMSJZNCMK-257

Scope

The product is RAIN RFID normally known as the passive UHF tag.

RAIN RFID is a unique identifier that helps to create reliable and efficient data capturing. It is commonly used for business operation and process typically for logistics, inventory, product tracking, security, sustainability, and so on. It is not suited for the applications listed in “Limitation of applications” in the document.

1. General Descriptions

Small size form factor with an excellent performance.

Product is designed to be fit into the product by embedding using adhesive glue, tape, or injection molding. Please contact for the detail.

[Features]

-Small and robust package design

-RAIN RFID/UHF band (865~928MHz)

-ISO18000-63 / EPC Global Gen2(v2) Compliant

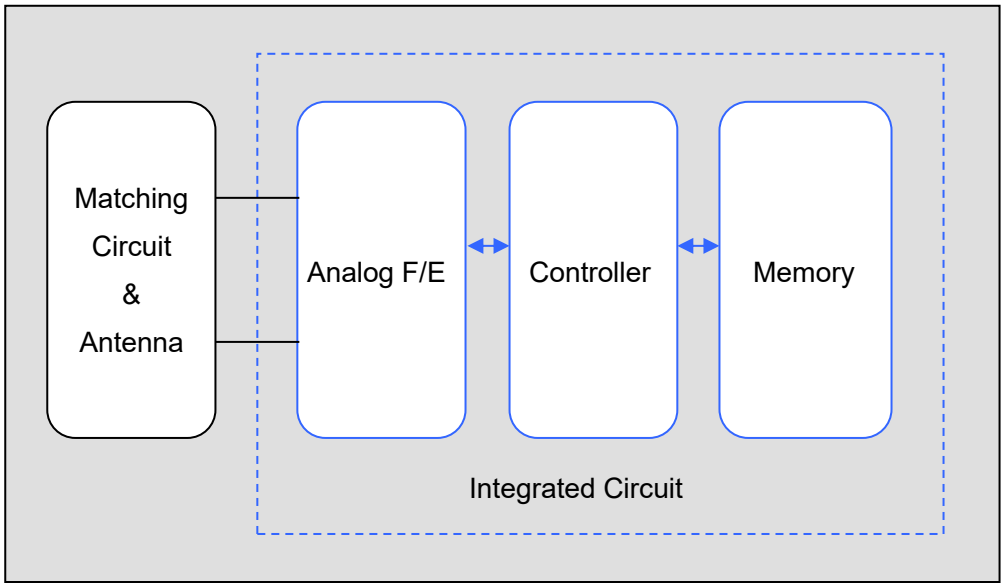
-Size is 1.20 x 1.20 x 0.55mm

-Impinj M781

-Reading range: JP band 23.4mm, EU band 24.1mm *Reference

-RoHS compliant

2. Block Diagram



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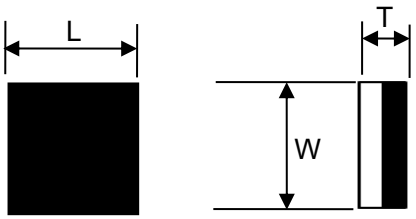
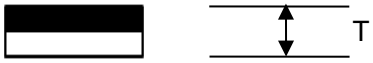
3. Mechanical Information

[Dimension]

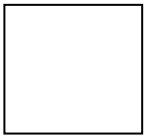
<Top View>



<Side View>



<Bottom View>



Unit : mm

Mark	Dimensions
L	1.20+/-0.15
W	1.20+/-0.15
T	0.55max.

4. Electrical characteristics

4-1. Frequency range

865 – 928 MHz

4-2. IC / Memory size

Item		Description	Remarks
IC		Impinj M781	
Protocol		ISO/IEC 18000-63	
		EPC global Gen2 v2	
Memory	EPC	128 bit	Read & Write
	TID	96 bit	Read Only
	Reserved memory	32 bit Access	Read & Write
		32 bit Kill	
	User	512 bit	Read & Write
ESD Voltage Immunity		+/-2kV (Max)	Human body model (HBM)
Data Retention Time		※20years (Min)	Tamb = 22℃

※Reference value

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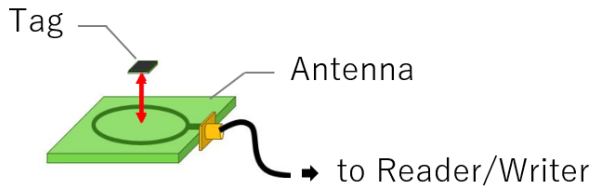
5. Reading range (reference only)

UHF band(865～928MHz) : JP band 23.4mm
EU band 24.1mm (when reader output 30dBm)

*Reading image



This item is read by a magnetic-field antenna.

Example of antenna:

Part number: LXRFZZUCCA-036/037-EVAL

Description: Short range antenna (magnetic loop) optimized for reading Murata's micro tag series.
Interface is SMA connection (with reverse polarity) when connecting to UHF reader devices such as Impinj R700 reader

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Please see below link for the data sheet.

https://www.murata.com/-/media/webrenewal/products/rfid/rfid/uhf/single/pdf/lxrfzzucca-036-037-eval-datasheet.

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6. Ratings

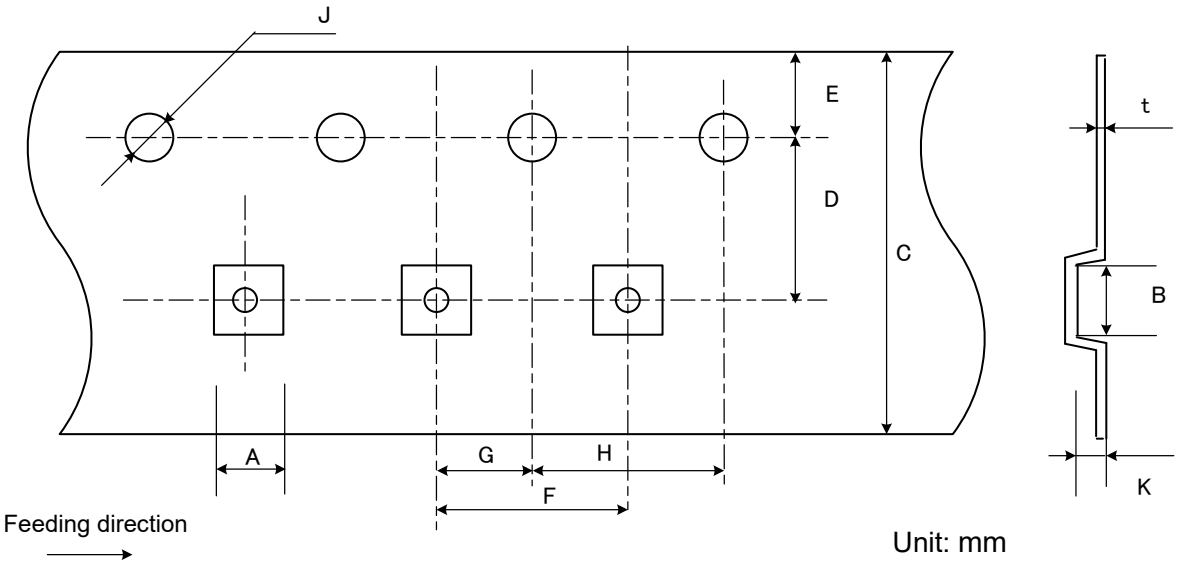
Symbol	Item	Min	Max	Unit
T_{stg}	Storage temperature	-40	+85	ºC
T_{amb}	Operating temperature	-40	+85	ºC

*Data retention period at 125℃ will become 1 year.

*The upper limit of temperature when writing is 65℃.

7. Packaging

7-1. Dimensions of tape



Unit: mm

Symbol	A	B	C	D	E	F
Dimension	1.45+/-0.1	1.45+/-0.1	8.0+/-0.2	3.5+/-0.05	1.75+/-0.1	4.0+/-0.1

Symbol	G	H	J	K	t
Dimension	2.0+/-0.05	4.0+/-0.1	1.5+0.1/-0	0.60+/-0.05	0.25+/-0.05

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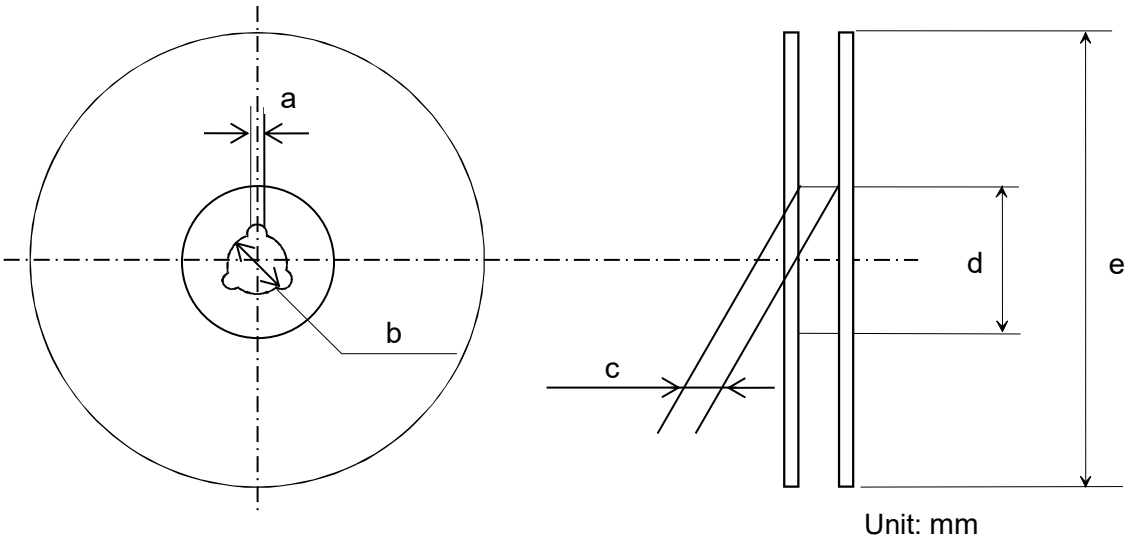
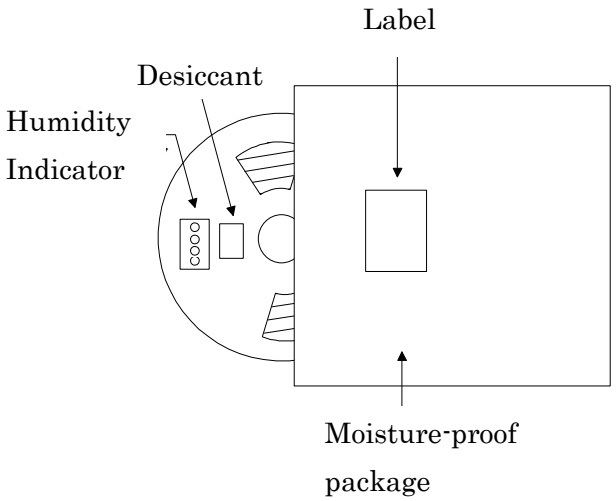
7-2. Dimensions of reel



Unit: mm

Symbol	a	b	c	d	e
Dimension	2.0+/-0.5	Φ13.0+/-0.2	9.0+/-0.3	(Φ60)	(Φ180)

7-3. Packing（Moisture-proof package）



Reel will be packed in moisture-proof package together with desiccant and humidity indicator.
After packing, the package will be heat-sealed.

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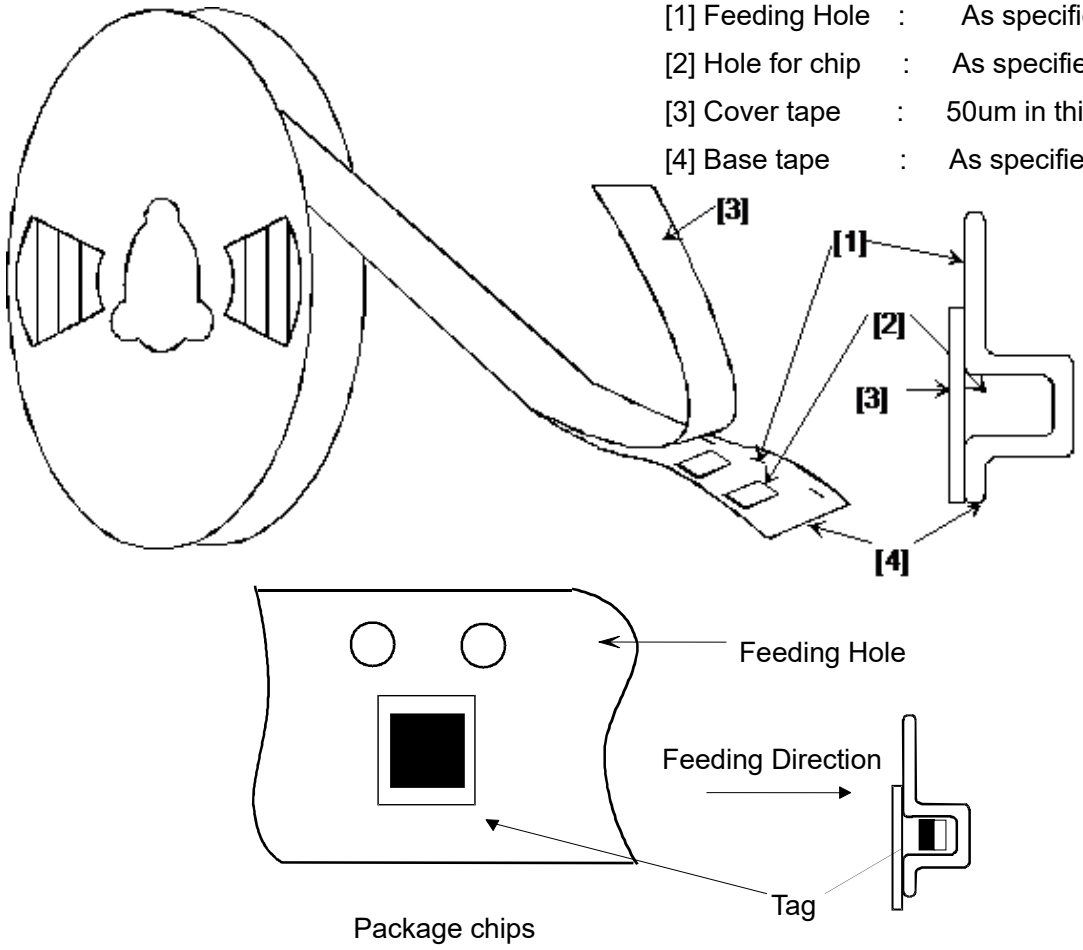
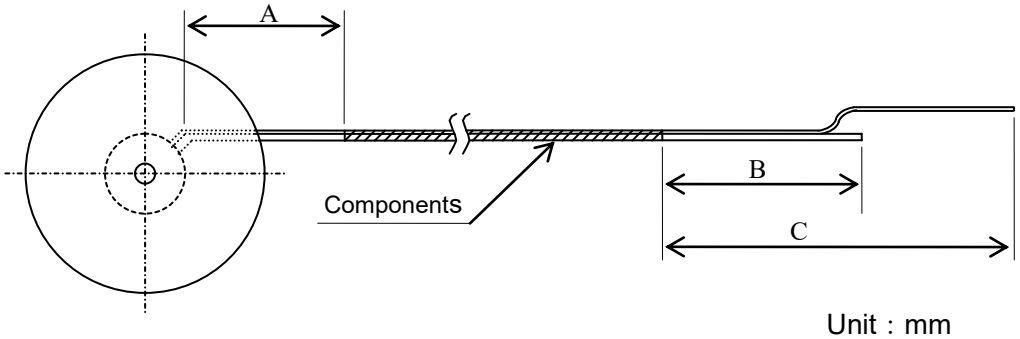
7-4. Taping Diagrams

[1] Feeding Hole : As specified in7-1
[2] Hole for chip : As specified in 7-1
[3] Cover tape : 50um in thickness
[4] Base tape : As specified in 7-1



7-5. Leader and Tail tape



Unit : mm

Symbol	Item	Minimum length
A	Tail	160
B	Leader no components	100
C	Leader with cover tape	400

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7-6 Taping direction

The tape for chips are wound clockwise.

The feeding holes will come on the right side when the tape is pulled to a user's direction.

7-7. Quantity per reel

5,000 pcs

7-8. Minimum order quantity

5,000pcs

7-9. Material

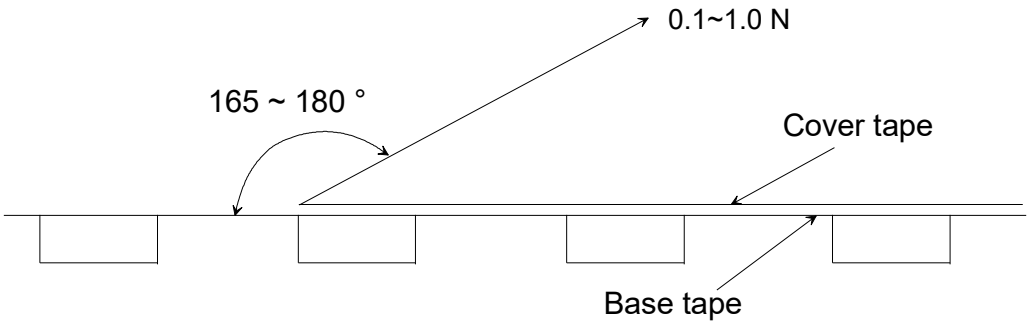
Base and Cover tape : Plastic

Reel : Plastic

Base and Cover tape, Reel have an anti-ESD function.

7-10. Peeling force

0.1~1.0 N in the direction of peeling as shown below.



8. Contact window

URL: http://www.murata.com/products/rfid

Email: rfid.contact@murata.com

For any inquiries/queries, please feel free to contact us.

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NOTICE

1. Storage Conditions:

To avoid damaging, be sure to observe the following points.

- The product shall be stored without opening the packing under the ambient temperature from 5 to 35 deg.C and humidity from 20 to 70%RH.
  (Packing materials, in particular, may be deformed at the temperature over 40 deg.C.)

- The product left more than 6 months after reception, it needs to be baked before use.
  (Since adhesive tape, tape, and reel are not resistant to heat, baking with tape and reel is not possible. In case baking is necessary, please place the product into a heat resistant container. Baking condition should be 125deg.C, 24hours, once.)

- The product shall be stored in non corrosive gas (Cl_2, NH_3, SO_2, No_x, etc.).

- Environment with high temperature or excessive temperature shift might cause dew condensation and deterioration of product performance.

- After the packing is opened, the product shall be stored at 5 < x < 30 deg.C / < 60 %RH.
-

- When the color of the indicator in the packing changed, the product shall be baked before use.

- This product is applicable to MSL2 (Based on IPC/JEDEC J-STD-020)

2. Handling Conditions:

Be careful in handling or transporting products because excessive stress or mechanical shock may break products.

Please see Appendix 1 for reference attachment condition in detail.

3. Operational Environment Conditions:

Products are designed to work under normal environmental conditions (ambient temperature, humidity and pressure). Therefore, products have no problems to be used under the similar conditions to the above-mentioned. However, if products are used under the following circumstances, it may damage products and leakage of electricity and abnormal temperature may occur.

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- In an atmosphere containing corrosive gas (Cl_2, NH_3, SO_x, NO_x etc.).
- In an atmosphere containing combustible and volatile gases.
- In a dusty environment.
- Direct sunlight
- Water splashing place.
- Humid place where water condenses.
- In a freezing environment.

If there are possibilities for products to be used under the preceding clause, consult with Murata before actual use.

If static electricity is added to this product, degradation and destruction may be produced.
Please use it after consideration enough so that neither static electricity nor excess voltage is added at the time of an assembly and measurement.

If product malfunctions may result in serious damage, including that to human life, alternative measures of the operation and design must be taken to secure the safety.

4. Cleaning Conditions:

If the cleaning will be applied, please check with Murata in advance since the product may degrade or get broken.

5. Limitation of Applications:

The products listed in the product specification (hereinafter the product(s) is called as the “Product(s)”) are designed and manufactured for applications specified in the product specification. (hereinafter called as the “Specific Application”).
We shall not warrant anything in connection with the Products including fitness, performance, adequateness, safety, or quality, in the case of applications listed in from (1) to (11) written at the end of this precautions, which may generally require high performance, function, quality, management of production or safety. Therefore, the Product shall be applied in compliance with the specific application.
WE DISCLAIM ANY LOSS AND DAMAGES ARISING FROM OR IN CONNECTION WITH THE PRODUCTS INCLUDING BUT NOT LIMITED TO THE CASE SUCH LOSS AND DAMAGES CAUSED BY THE UNEXPECTED ACCIDENT, IN EVENT THAT (i) THE PRODUCT IS APPLIED FOR THE PURPOSE WHICH IS NOT SPECIFIED AS THE SPECIFIC APPLICATION FOR THE PRODUCT, AND/OR (ii) THE PRODUCT IS APPLIED FOR ANY FOLLOWING APPLICATION PURPOSES FROM (1) TO (11) (EXCEPT THAT SUCH APPLICATION PURPOSE IS UNAMBIGUOUSLY SPECIFIED AS SPECIFIC APPLICATION FOR THE PRODUCT IN OUR CATALOG SPECIFICATION FORMS, DATASHEETS, OR OTHER DOCUMENTS OFFICIALLY ISSUED BY US*).
(1) Aircraft equipment

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(2) Aerospace equipment
(3) Undersea equipment
(4) Power plant control equipment
(5) Medical equipment
(6) Transportation equipment
(7) Traffic control equipment
(8) Disaster prevention/security equipment
(9) Industrial data-processing equipment
(10) Combustion/explosion control equipment
(11) Equipment with complexity and/or required reliability equivalent to the applications listed in the above.
For exploring information of the Products which will be compatible with the particular purpose other than those specified in the product specification, please contact our sales offices, distribution agents, or trading companies with which you make a deal, or via our web contact form.
Contact form: https://www.murata.com/contactform

*We may design and manufacture particular Products for applications listed in (1) to (11). Provided that, in such case we shall unambiguously specify such Specific Application in the product specification without any exception. Therefore, any other documents and/or performances, whether exist or non-exist, shall not be deemed as the evidence to imply that we accept the applications listed in (1) to (11).

⚠ Note:
Please make sure that your product has been evaluated and confirmed against your specifications when our product is attached to your product.

All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.

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Appendix 1

<High temperature process >

Please make sure to avoid more than 2 times of heating process when this product is attached with high temperature process.

Temperature profile of the attaching process should not exceed below reflow mounting process.

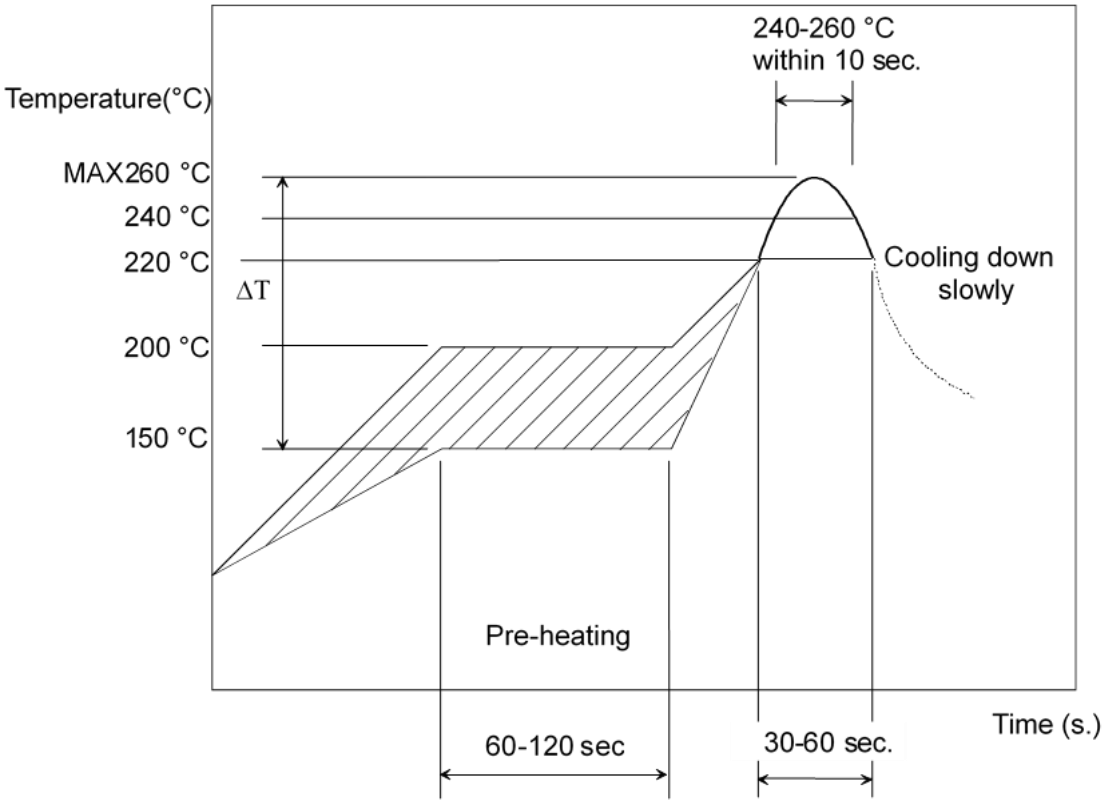
Excessive heating process might damage this product.

The impact of heating process should be evaluated to confirm the reliability based on customers' use case.

Please consult with Murata in case heating process exceeds 217℃(solder paste melting point).

Reference: Reflow profile

Reflow profile



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