

**Product Specification for  
UHF Ultra Small Package Tag  
(IM5-PK2525)**

**Ver.3.0**

**February, 2016**

**©Hitachi Chemical Co., Ltd.  
Protection Film R&D Dept.**

1. Scope

This specification defines UHF Ultra Small Package Tag IM5-PK2525.

2. Model No.

Model No. is shown in Table 1.

Table 1.Type

No.	Model	Note
1	IM5-PK2525	

3. RFID Protocol

The tag is compliant with RFID standards shown in Table 2.

Table 2. Compliant Standards

No.	Item	Spec
1	Protocol	ISO/IEC 18000-6 TypeC EPCglobal™ Class1 Generation2

4. Operating Conditions

Operating conditions are shown in Table 3.

Table 3. Operating Environment

No.	Item	Spec	Note
1	Operating Temp.	-20 to 70°C	Humidity : 10 to 80%RH
2	Storage Temp.	-30 to 75°C	Humidity : 10 to 80%RH

5. General specs

General specs are shown in Table 4.

Table 4. General Specs

No.	Item	Spec		Note
1	Frequency	860 to 920MHz		
2	Memory	TID	96bit	48bit : Serial No 16bit : TID Header 32bit : Manufacturer/Model No
		EPC	128bit	
		Passwords	64bit	Kill/Access
3	Data Retention	50 years		Reference
4	Write Endurance	100,000 cycles		Reference

6. Figure

The tag figure is shown in Fig 1.

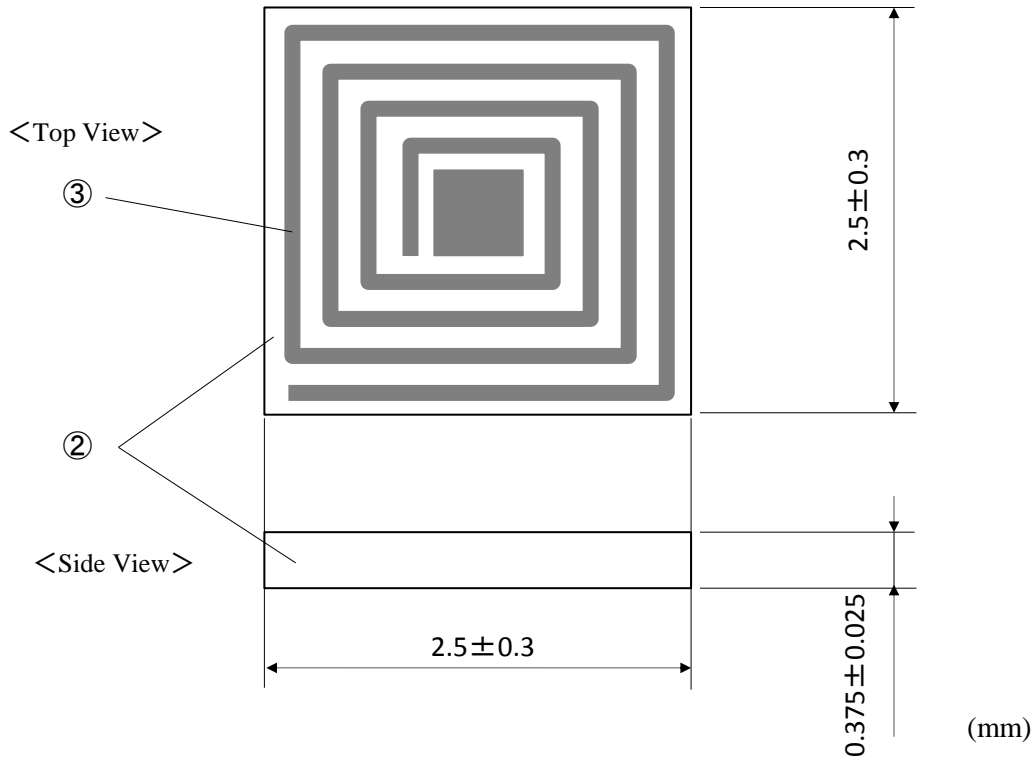


Fig 1. Figure

7. Material

Material of tag is shown in Table 5.

Table 5. Material

No.	Parts	Spec	Note
1	IC Chip	Monza5 by Impinj	
2	Packaging Material	Epoxy Resin (Halogen-Free)	
3	Surface of Pattern	Au	

8. Read Range

Read range is shown in Table 6.

Table 6. Read range

No.	Item	Spec	Condition	
1	Read Range	Contact with Reader Antenna Surface	Reader	AT-880 by ATID
			Frequency	920MHz
			Power	1W
			Environment	Antenna surface of tag is facing reader antenna surface. (Free Air/Room Temp.and Humidity)

Note : Read range will change by the reader model, power, environment.

## 9. Packing Specification

### (1) Standard Packing Specification

Read range is shown in Table 7.

Table 7. Standard Packing Specification

No.	Item	Specification	Note
1	Packaging Form	Taping, Spooled on a Reel	
2	Number of Packages	5,000pcs	
3	Tape Width	$8.0 \pm 0.3 \text{mm}$	
4	Pitch of Product	$4.0 \pm 0.1 \text{mm}$	Pitch of Pocket
5	Outside Diameter	$180 + 0 / - 1.5 \text{mm}$	
6	Inside Diameter	$\phi 13 \pm 0.2 \text{mm}$	

### (2) Taping Specification

Taping Specification is shown in Figure 2 to Figure 4.

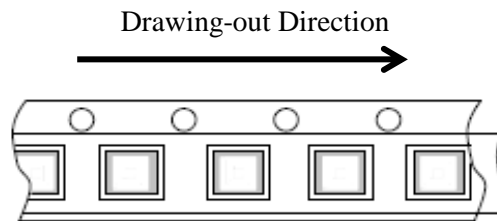


Figure 2. Drawing-out Direction of Tape

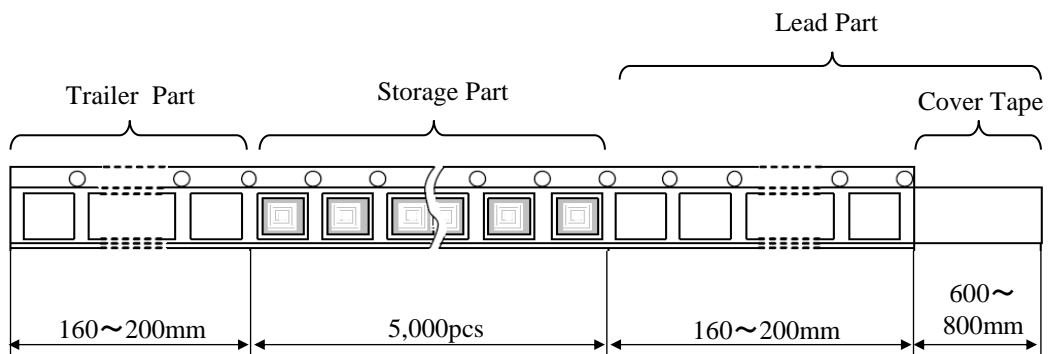


Figure 3. Storage Method of Products

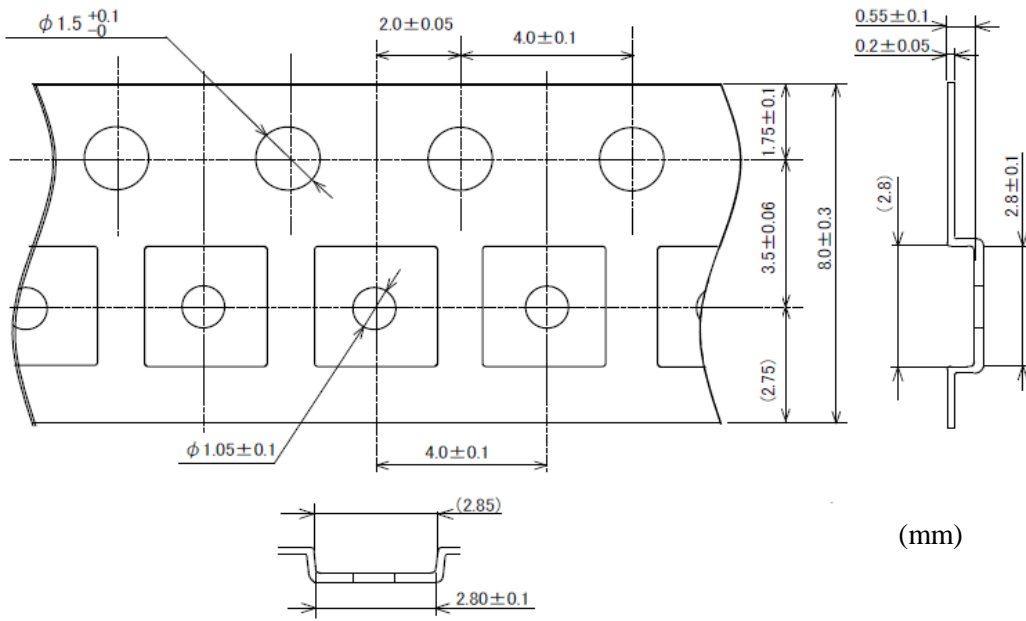


Figure 4. Dimension of Carrier Tape

### (3) Reel Specification

Reel Specification is shown in Figure 5.

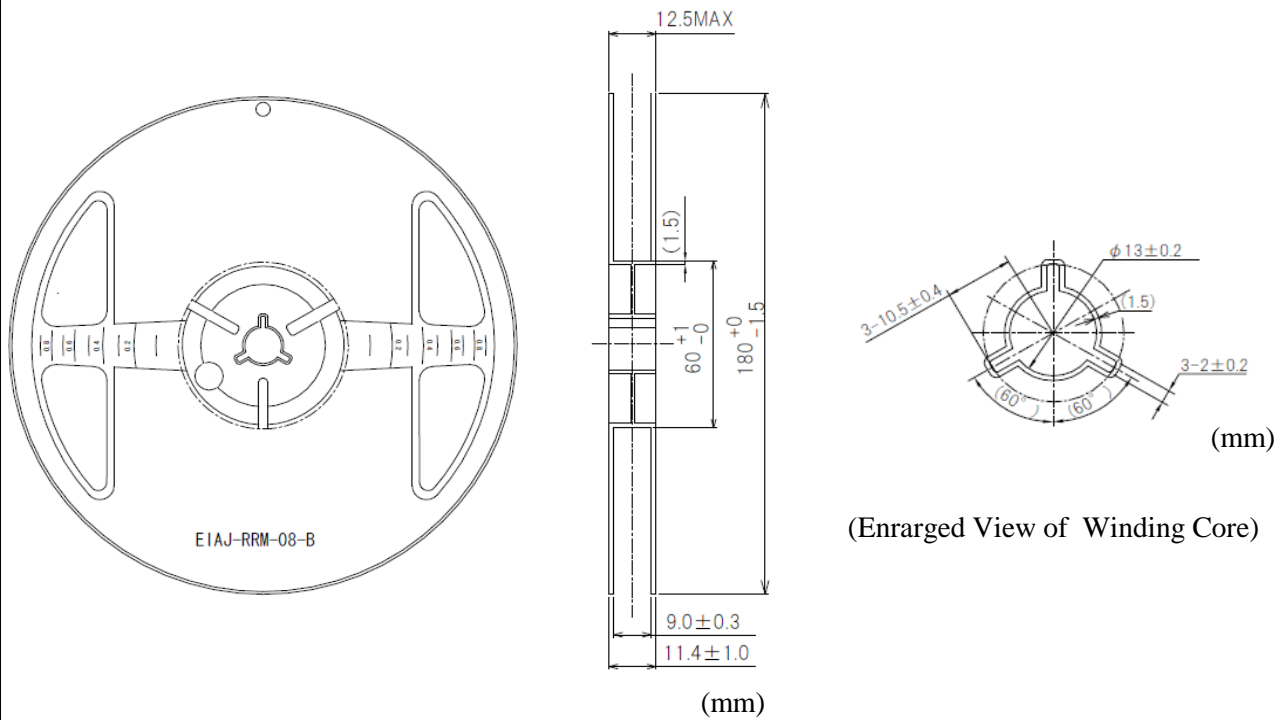
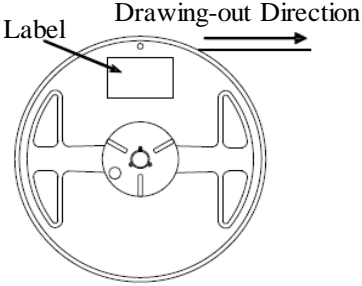
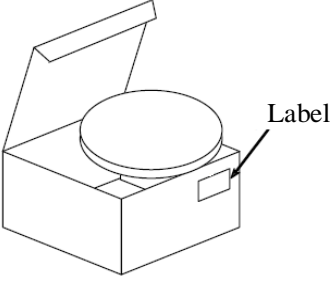
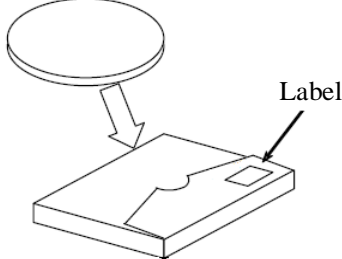


Figure 5. Reel Specification

(4) Inner Box, and Label Specification

Inner Box, and Label specification are shown in Table 8.

Table 8. Inner Box, and Label specification

	Packing Form	Label	Number of Packages						
Reel		<table border="1"> <tr> <td>P/N</td> <td>IM5-PK2525</td> </tr> <tr> <td>QTY</td> <td>5000</td> </tr> <tr> <td>LOT</td> <td></td> </tr> </table>	P/N	IM5-PK2525	QTY	5000	LOT		5000pcs
P/N	IM5-PK2525								
QTY	5000								
LOT									
5 Reels		<table border="1"> <tr> <td>P/N</td> <td>IM5-PK2525</td> </tr> <tr> <td>QTY</td> <td>25000</td> </tr> <tr> <td>LOT</td> <td></td> </tr> </table>	P/N	IM5-PK2525	QTY	25000	LOT		Max 25,000pcs (Max 5Reel)
P/N	IM5-PK2525								
QTY	25000								
LOT									
1 Reel		<table border="1"> <tr> <td>P/N</td> <td>IM5-PK2525</td> </tr> <tr> <td>QTY</td> <td>5000</td> </tr> <tr> <td>LOT</td> <td></td> </tr> </table>	P/N	IM5-PK2525	QTY	5000	LOT		5,000pcs (1Reel)
P/N	IM5-PK2525								
QTY	5000								
LOT									

10. Precautions for handling of Product

- (1) This product must be stored in a cool and dark place at normal temperature and humidity without direct sunshine in accordance with the provided storage conditions.
- (2) Please care about followings to protect IC chip inside the Product.
  - 1) Not to add pressure and impact on the chip when the Product is processed or attached on the object.
  - 2) Not to keep the Product under high temperature such as at direct sunshine, beside fire burning.
  - 3) Not to keep the Product under high humidity and the place of dewfall for a long time to prevent the malfunctions of Products.
  - 4) Not to keep the Product in the water or other liquid for a long time to prevent the deterioration in communication distance or the malfunction of Products. In the event that the Product gets wet with water, it must be wiped off with a dry cloth.
  - 5) To note that the chip might be malfunctioned by static electricity.
  - 6) Not to use the Product beside strong electric wave to prevent the improper operation or the malfunction of Products.
- (3) In the event that the Product has been processed to make other goods, read range will be affected due to material of the object or reading environment. Please confirm the read range at the site and condition before use.

- (4) When data is written into the Product, please make sure that writing data is completed. It is possible that writing data cannot be completed normally due to the electricity shortage.
- (5) Please care not to swallow or suck in this product because of very small. And care about the corner of the products to prevent cause injury a fingertip or eye.

#### 11. Conditions for the use of Products

- (1) In order to prevent serious accident in case of the malfunctions of Products, the customer shall back up or take measures to minimize damages as a prerequisite for the use of Products.
- (2) The Products are designed and manufactured for general industrial usage and if the customer applies the Products for other than such usage (hereinafter called as “non-general industrial application”, the warranty of this Specification regarding the performance or safety is not applied even within warranty period. In the event that the customer applies this product for non-general industrial application and the customer, HCC or third party gets damage, the customer shall indemnify and hold HCC harmless from and against any losses, costs, damages and fees attributable to any such claims or allegations and solve the problem as its responsibility.

Followings are examples of non-general industrial applications, but not be limited to:

- 1) Atomic power, Aviation, Space, Rail road, Ship, Automotive, Safety equipment, Human-related transportation system, Traffic equipment
- 2) 24 Hours non-stop operation system, Payment system, Supply system for electricity, gas and water
- 3) Radiation related equipment
- 4) Medical, Clinical test
- 5) All of figures in this specification are just an image and not exactly same as the product.
- 6) This specification will be changed without notice.