

# General Technical Information

To

**Non-Controlled Copy**

TDK'S PRODUCT NAME

**RF Components**

(DEA, DPX, TPX, HHM, ANT, DLF series)

DATE:        YEAR        MONTH        DAY

TDK Corporation  
Sales  
Electronic Components Sales &  
Marketing Group

Engineering  
Electronic Components Business Company  
Communication Devices Business Group

## RF Components

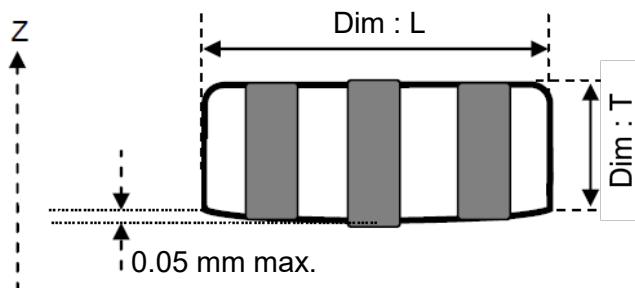
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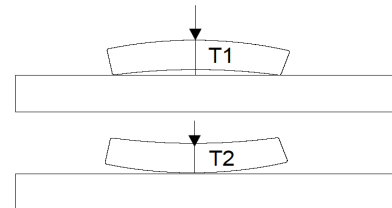
## RF Components

### ■ Coplanarity

0.05mm max. difference in Z-direction as follows :



Coplanarity measurement method  
Coplanarity = T1-T2



Each terminal extends the full length of the TDK RF Components.  
Hence, any coplanarity deviation between terminals is due to curvature in the substrate.  
TDK guarantees that the edge of each terminal is within 0.05mm of the horizontal plane.  
For specifications of each product, please contact us.

### ■ Storage Conditions

Temperature	: +5 to +30 °C
Humidity	: 20 to 70% RH
Term of storage	: Within 12 months (After the delivery) *
Baking	: Unnecessary

\* After peeling off cover tape, do not keep exposing the products to the open air.  
For the products stored longer than 12 months, confirm their terminals  
and solderability before use.

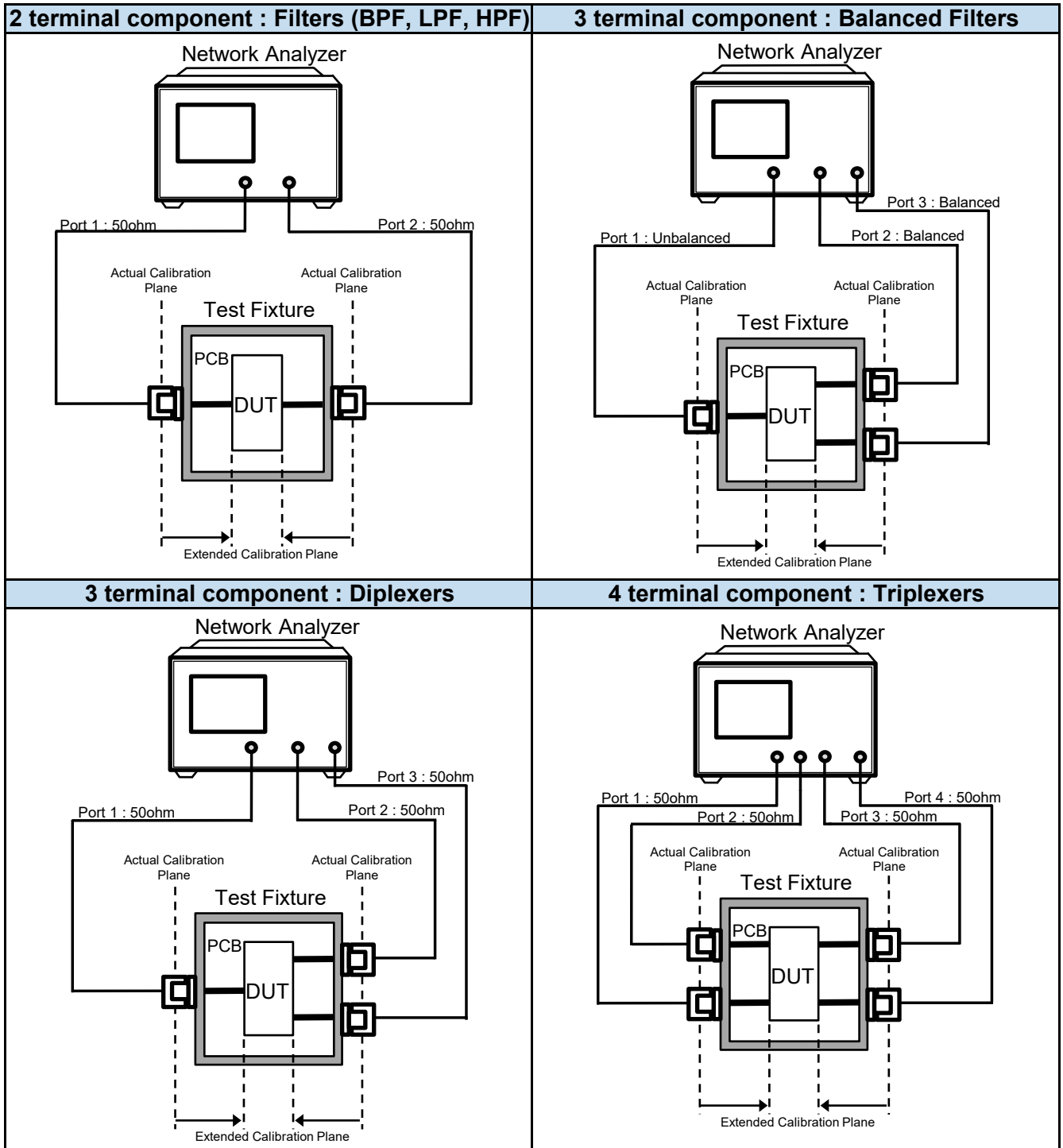
### ■ Moisture Sensitivity Level

MSL : Equal to LEVEL 1

Note : Product is not resin molded type. Baking is not required.

## RF Components

### ■ Test Circuit



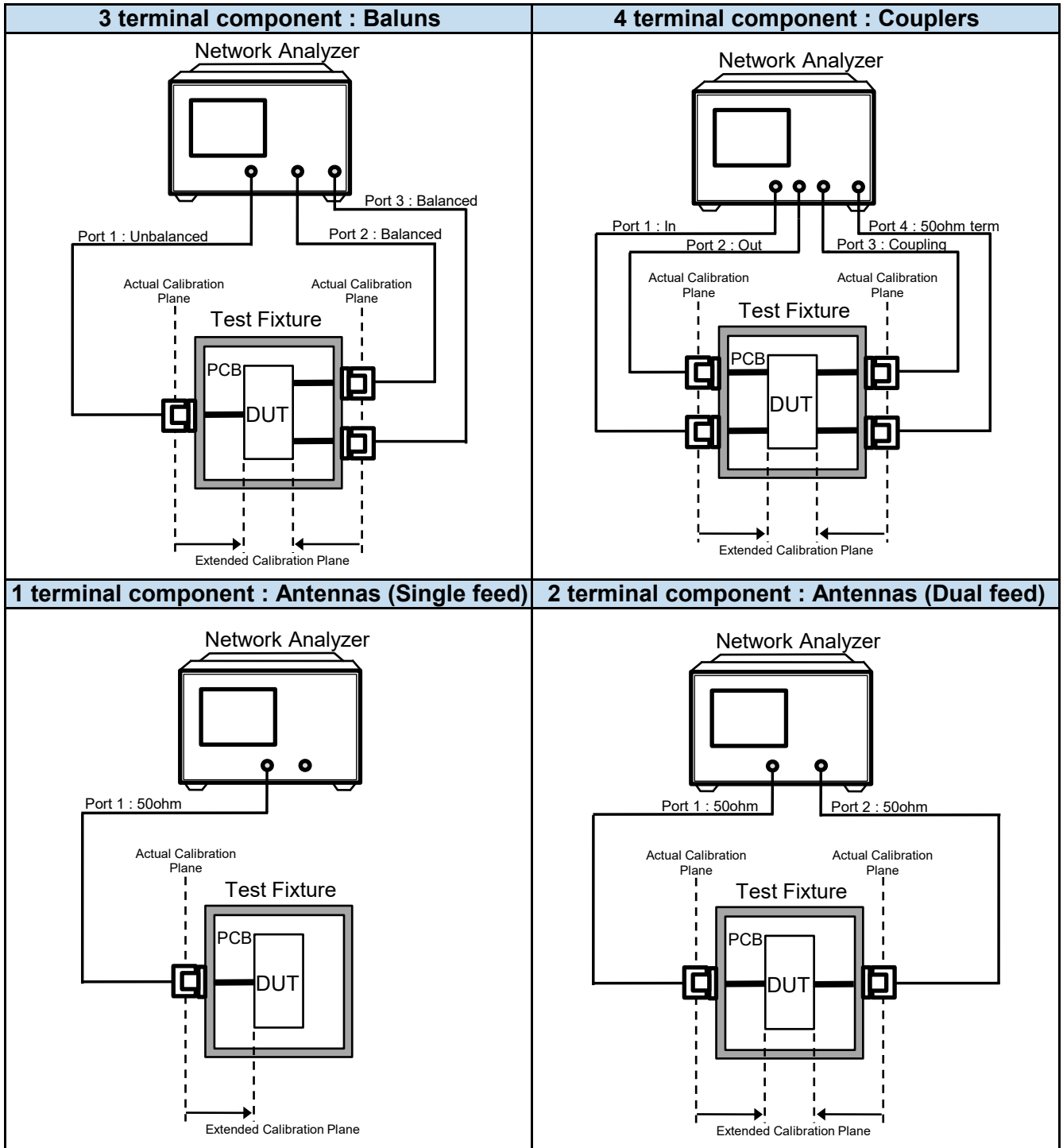
Note1 : The Port Extension function on the Network Analyzer is used to extend the calibration plane to the DUT terminals.

Note2 : Loss in the PCB traces is compensated for by measurement data taken on a PCB Thru' line.

Note3 : Line width of evaluation board should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

## RF Components

### ■ Test Circuit



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## RF Components

### ■ Test Methods

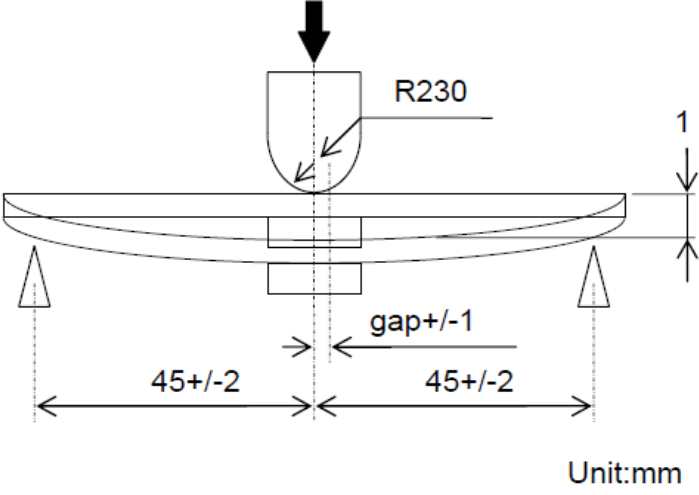
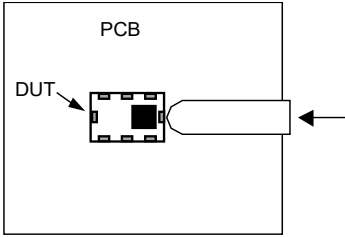
This product satisfies the electrical specification after the following tests.  
Measurement shall be conducted after test sample is kept at room temperature for 1 to 2 hours.

Items	Test methods
Temperature Characteristics	All data initially taken at +25°C, then repeated at -40°C and again at +85 °C
Heat Proof	+85 +/- 2 °C for 1000 hours
Cold Proof	-40 +/- 2 °C for 500 hours
Moisture Proof	+60 +/- 2 °C, 90~95%RH for 1000 hours
Heat Shock	-40 ~ +85 °C for 350 cycles, each cycle being 30 min
Vibration	10-500Hz vibration frequency (10G Max.) with 1.52mmp-p amplitude for two hours in x,y,z directions
Mechanical Shock	<ol style="list-style-type: none"> <li>1. Acceleration: 1000m/s<sup>2</sup></li> <li>2. Direction: X, Y, Z ,X',Y',Z',axes</li> <li>3. Time: 6ms duration and 3 times in each direction</li> </ol>
Solderability	<p>The dipped surface of the terminal shall be at least 75% covered with solder after dipped in solder bath of 245 +/- 3 °C for 3 +/- 0.5 sec.</p> <p>Remark solder: Sn-3.0Ag-0.5Cu</p>
Drop Shock	Dropped onto steel plate or concrete from 100cm height three times.

## RF Components

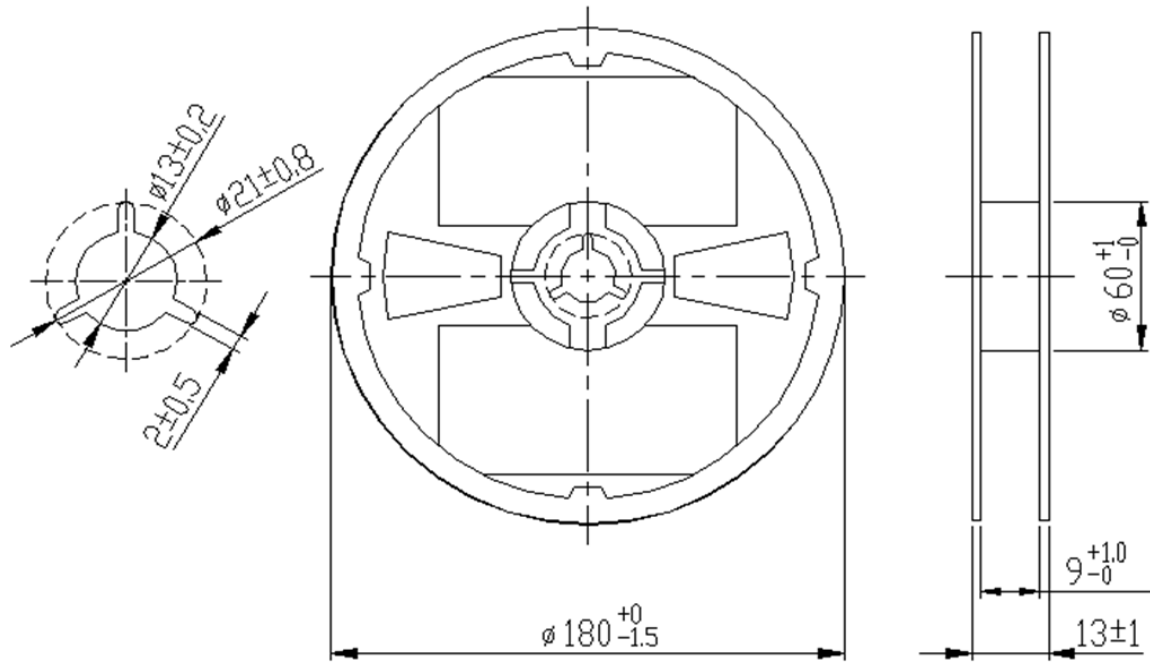
### ■ Test Methods

This product satisfies the electrical specification after the following tests.  
Measurement shall be conducted after test sample is kept at room temperature for 1 to 2 hours.

Items	Test methods																
Bending	<p>Solder specimen components on the test printed circuit board (L: 100 x W:40 x T:0.8mm) in appended recommended PCB pattern. Apply the load in direction of the arrow until bending reaches 1mm for 5+/-1 sec.</p>  <p style="text-align: right;">Unit:mm</p>																
Board Adhesion (Push Test)	<p>Solder specimen components on the test printed circuit board (L: 100 x W:40 x T:0.8mm) in appended recommended PCB pattern. Apply the load in direction of the arrow until 2N to 5N for 5+/-1 sec.</p>  <table border="1" data-bbox="1074 1485 1493 1767"> <thead> <tr> <th>Component size</th> <th>Strength[N]</th> </tr> </thead> <tbody> <tr> <td>0.65 x 0.5 mm</td> <td>2</td> </tr> <tr> <td>1.0 x 0.5 mm</td> <td>5</td> </tr> <tr> <td>1.4 x 1.1 mm</td> <td>3</td> </tr> <tr> <td>1.6 x 0.8 mm</td> <td>5</td> </tr> <tr> <td>2.0 x 1.25 mm</td> <td>5</td> </tr> <tr> <td>2.0 x 1.5 mm</td> <td>5</td> </tr> <tr> <td>2.5 x 2.0 mm</td> <td>5</td> </tr> </tbody> </table>	Component size	Strength[N]	0.65 x 0.5 mm	2	1.0 x 0.5 mm	5	1.4 x 1.1 mm	3	1.6 x 0.8 mm	5	2.0 x 1.25 mm	5	2.0 x 1.5 mm	5	2.5 x 2.0 mm	5
Component size	Strength[N]																
0.65 x 0.5 mm	2																
1.0 x 0.5 mm	5																
1.4 x 1.1 mm	3																
1.6 x 0.8 mm	5																
2.0 x 1.25 mm	5																
2.0 x 1.5 mm	5																
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## RF Components

### ■ Reel Dimensions



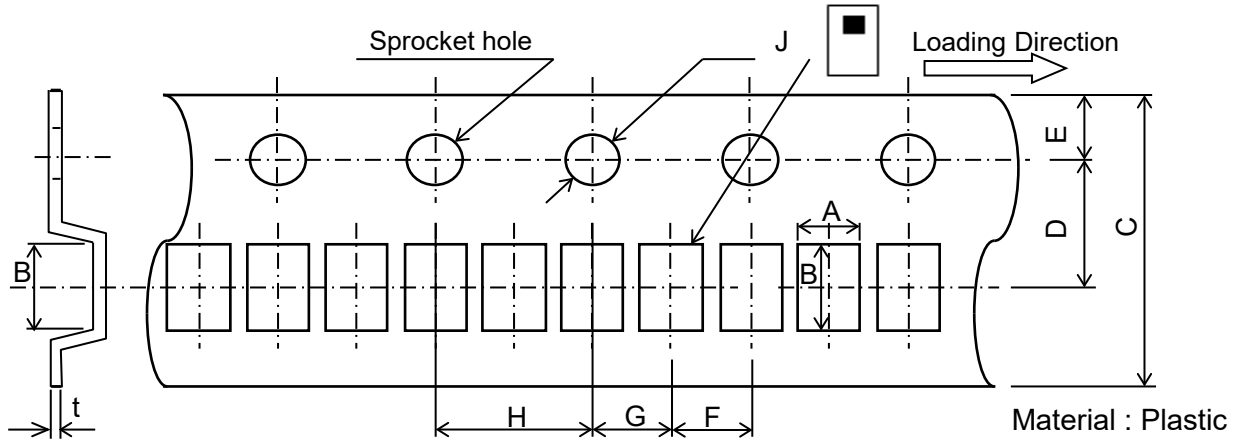
Dimensions in mm

Material : Plastic



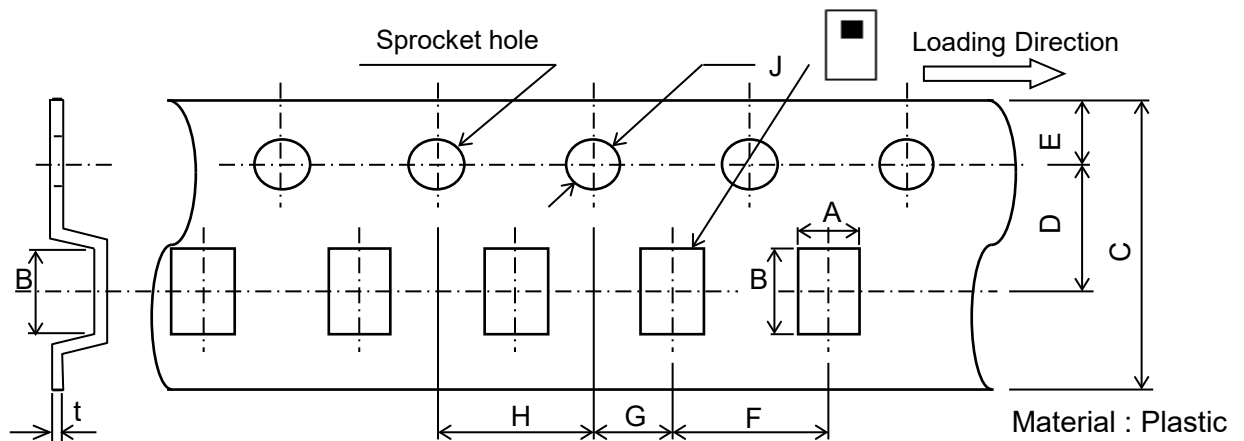
## RF Components

### Carrier Tape Dimensions



Tape dimensions (mm) & Standard package quantity (pcs/reel) (Typical Value)

Component size	A	B	C	D	E	F	G	H	J	t	Quantity
0.65 x 0.5 mm	0.6	0.8	8.0	3.5	1.75	2.0	2.0	4.0	1.5	0.2	10,000
1.0 x 0.5 mm	0.62	1.12	8.0	3.5	1.75	2.0	2.0	4.0	1.5	0.2	10,000



Tape dimensions (mm) & Standard package quantity (pcs/reel) (Typical Value)

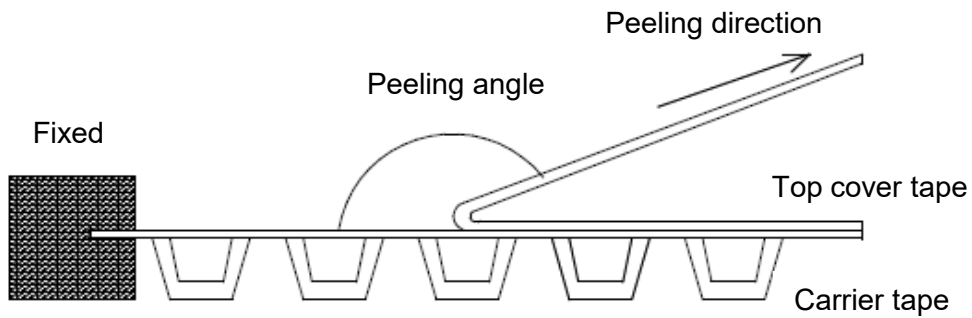
Component size	A	B	C	D	E	F	G	H	J	t	Quantity
1.4 x 1.1 mm	1.35	1.65	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.25	4,000
1.6 x 0.8 mm	0.97	1.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.25	4,000
2.0 x 1.25 mm	1.45	2.2	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.25	2,000
2.0 x 1.5 mm	1.75	2.3	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.3	2,000
2.5 x 2.0 mm	2.2	2.7	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.25	2,000

This technical information contains general specifications only.  
When ordering, please check the full-specification with detailed information.

## RF Components

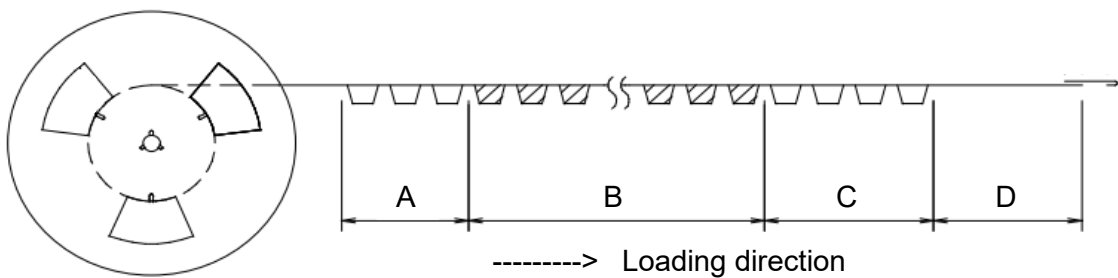
### ■ Carrier Tape Peel Back Force

Peel back force of top tape



- Peel Angle : 165 to 180 degree against the fixed surface of tape
- Peel Speed : 300mm  $\pm$  10mm per min
- Peel Force : 0.1 to 1.0 N (8mm tape width)

### ■ Leader and Trailer Tape Length



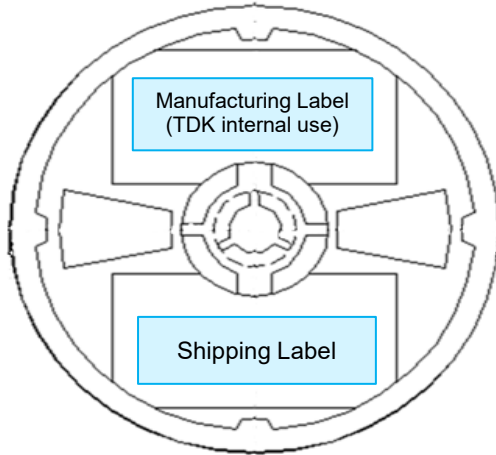
- A : Trailer Section (Blank components) 160mm min.
- B : Component Section
- C : Leader Section 100mm min.
- D : Top cover tape (Alone) 400mm min. (C+D)

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# RF Components

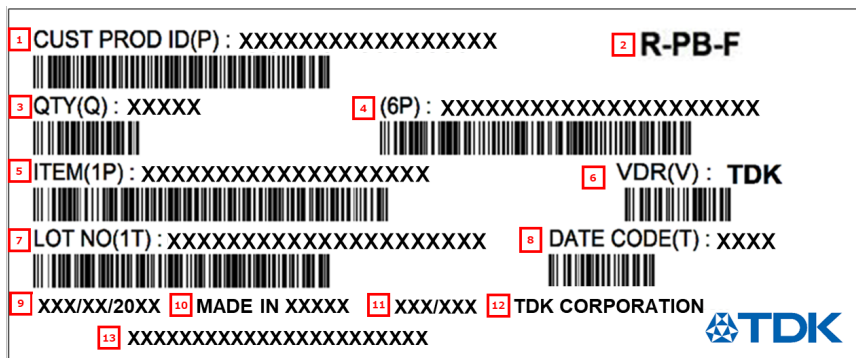
## Label

Reel label placement



Shipping label example

Individual / Inner / Shipping mark label



No.	Field	No.	Field
1	Customer part number	8	Shipping week
2	RoHS marking	9	Shipping date
3	Qty	10	Country of origin
4	Control Number of TDK	11	Box count
5	TDK item description	12	Company name
6	Vender code	13	Control Number of TDK
7	Control Number of TDK		

## RF Components

### ■ Product Origin

1. TDK Electronics Factories Corporation, Akita, Japan
2. TDK Dalian Corporation, Dalian, China

### ■ Cautions

1. Do not use and store the component in following conditions. Performance may deteriorates.
  - 1-1. Exposure to atmosphere containing corrosive gas, such as  $\text{Cl}_2$ ,  $\text{NH}_3$ ,  $\text{SO}_x$  and  $\text{NO}_x$ .
  - 1-2. Exposure to volatile or combustible gases.
  - 1-3. Exposure to excessive dust.
  - 1-4. Exposure to water.
  - 1-5. Exposure to direct sunlight.
  - 1-6. Exposure to freezing temperature.
  - 1-7. Exposure to dew condensation due to high humidity.
2. When assembling the printed circuit board with the component mounted, be sure that residual stress is not given to the component due to the overall distortion of the printed circuit board and partial distortion such as at screw tightening portions.
3. Do not use the components above the maximum allowable operating temperature. Surface temperature including self heating should be below maximum operating temperature.
4. The components are not designed or warranted to meet the requirements outside of the contents regulated in this specifications.