

General Technical Information

To

Non-Controlled Copy

TDK'S PRODUCT NAME

RF Components

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

DATE: YEAR MONTH DAY

TDK Corporation
Sales
Electronic Components Sales &
Marketing Group

Engineering
Electronic Components Business Company
Communication Devices Business Group

RF Components

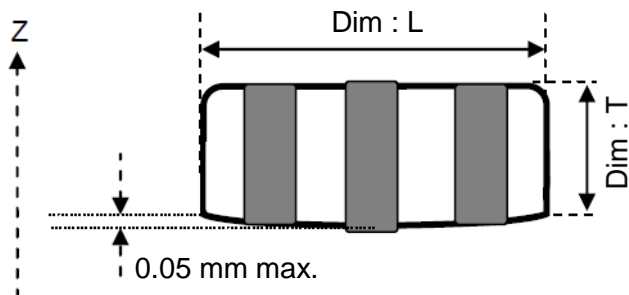
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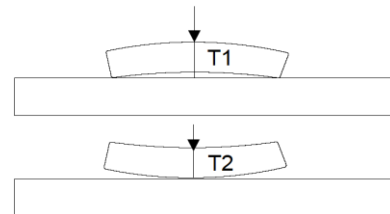
RF Components

■ 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.

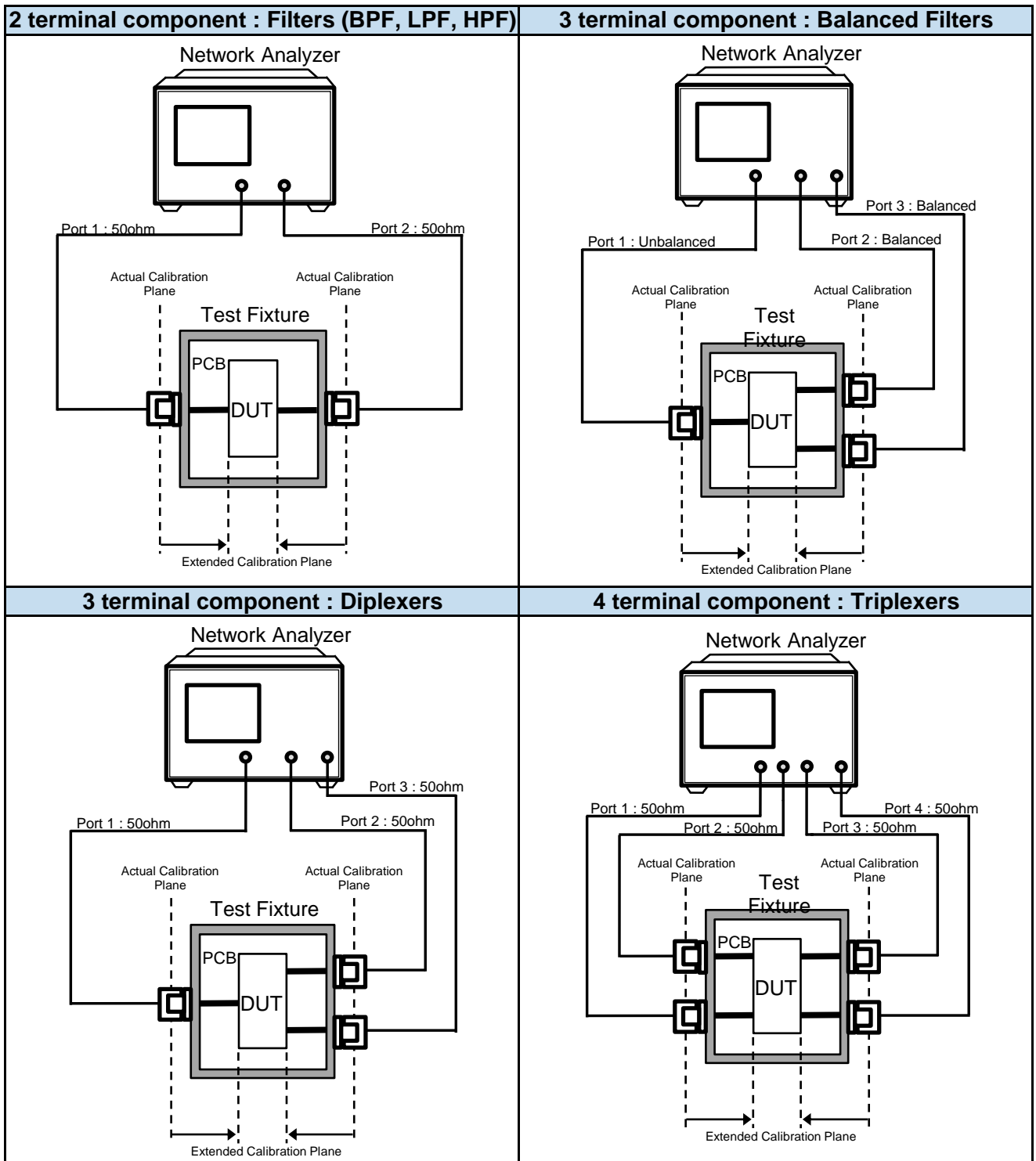
■ Moisture Sensitivity Level

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.

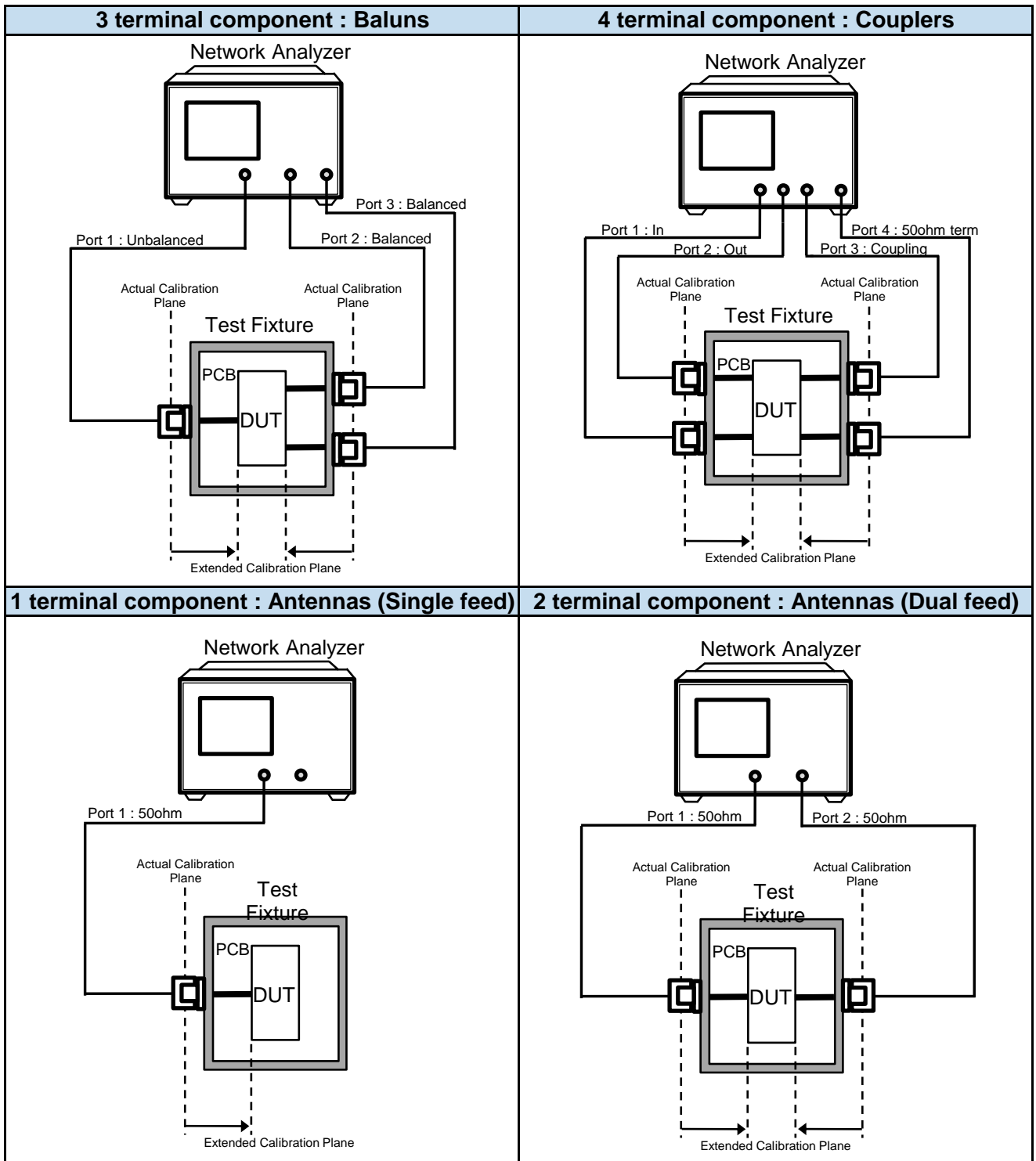
Note2 : Loss in the PCB traces is compensated for by measurement data taken on a PCB Thru' line.

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

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

RF Components

■ Test Circuit



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

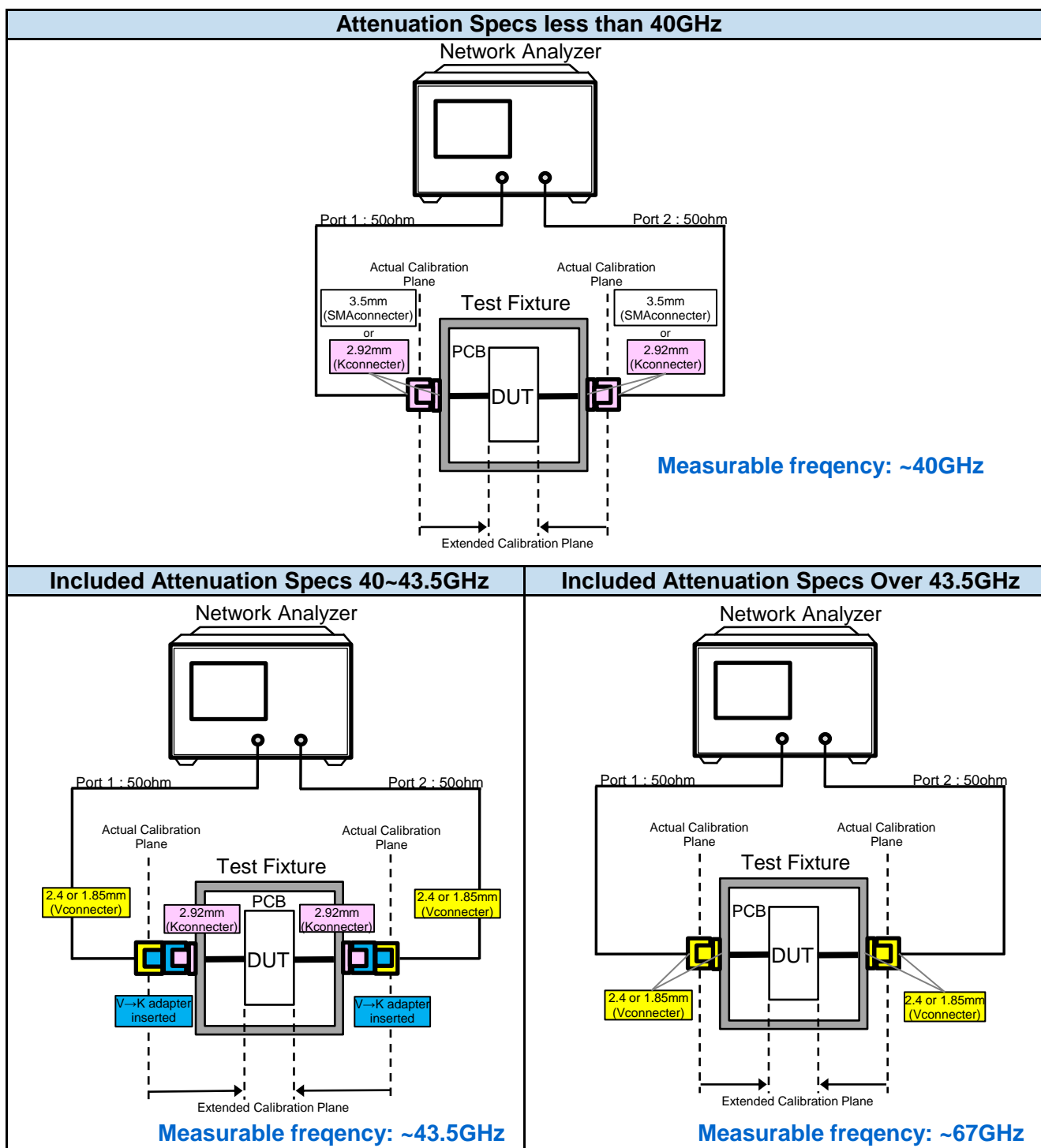
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Note3 : Line width of evaluation board should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

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

RF Components

■ Test Circuit (Details for RF Connector Options)



Note1 : The Port Extension function on the Network Analyzer is

used to extend the calibration plane to the DUT terminals with adapter when it is used.

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 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.

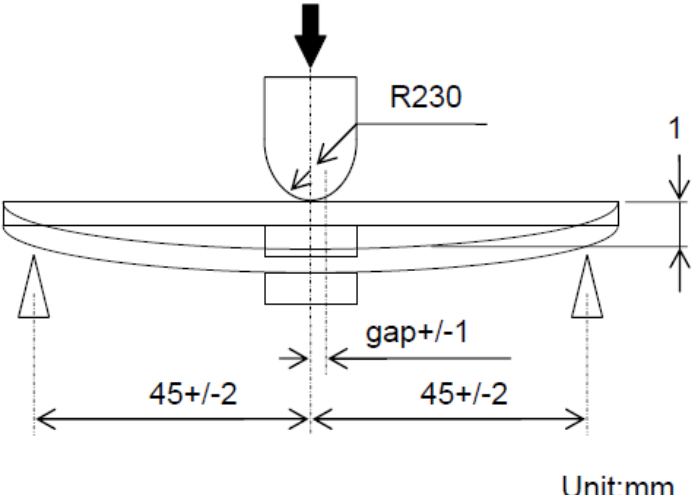
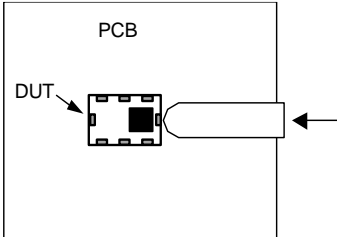
Items	Test methods
Temperature Characteristics	All data initially taken at +25°C, then repeated at -40°C and again at +85 °C
Heat Proof	+85 +/- 2 °C for 1000 hours
Cold Proof	-40 +/- 2 °C for 500 hours
Moisture Proof	+60 +/- 2 °C, 90~95%RH for 1000 hours
Heat Shock	-40 ~ +85 °C for 350 cycles, each cycle 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"> 1. Acceleration: 1000m/s² 2. Direction: X, Y, Z ,X',Y',Z',axes 3. Time: 6ms duration and 3 times in each direction
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

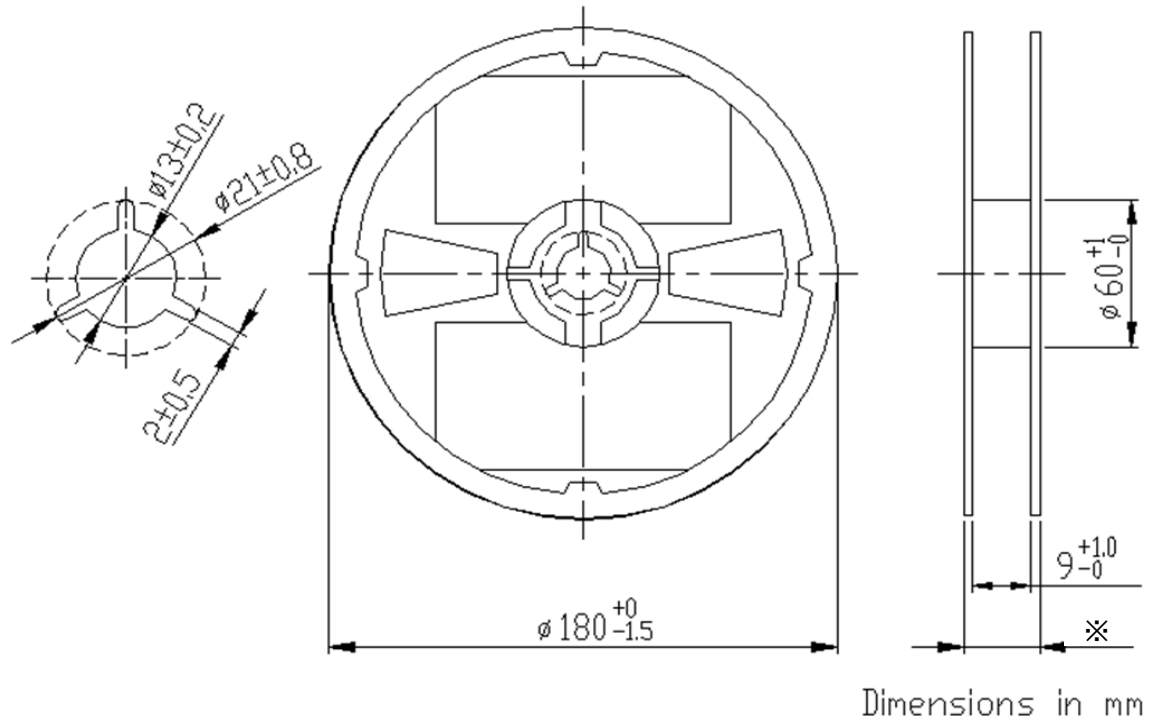
This product satisfies the electrical specification after the following tests.

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="1061 1518 1476 1848"> <thead> <tr> <th>Component size</th> <th>Strength[N]</th> </tr> </thead> <tbody> <tr> <td>0.47 x 0.32 mm</td> <td>1</td> </tr> <tr> <td>0.65 x 0.5 mm</td> <td>2</td> </tr> <tr> <td>1.0 x 0.5 mm</td> <td>3</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]	0.47 x 0.32 mm	1	0.65 x 0.5 mm	2	1.0 x 0.5 mm	3	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
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RF Components

■ Reel Dimensions



Material : Plastic

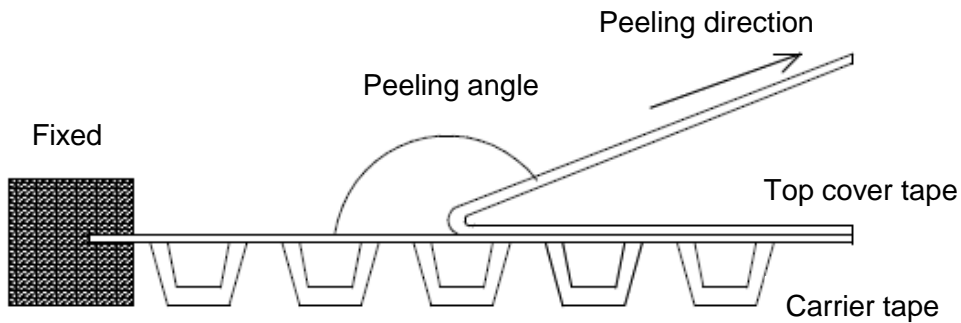
※ ・ DEA, DPX, TPX, HHM, ANT, DLF series)
13±1

・ TFS Series)
11.4±1

RF Components

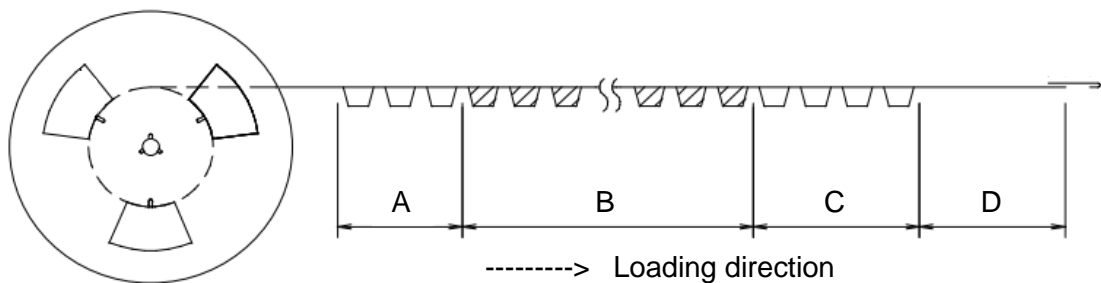
■ Carrier Tape Peel Back Force

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

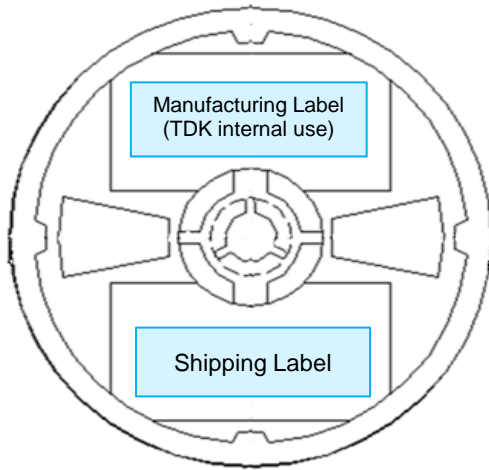


- A : Trailer Section (Blank components) 160mm min.
- B : Component Section
- C : Leader Section 100mm min.
- D : Top cover tape (Alone) 400mm min. (C+D)

RF Components

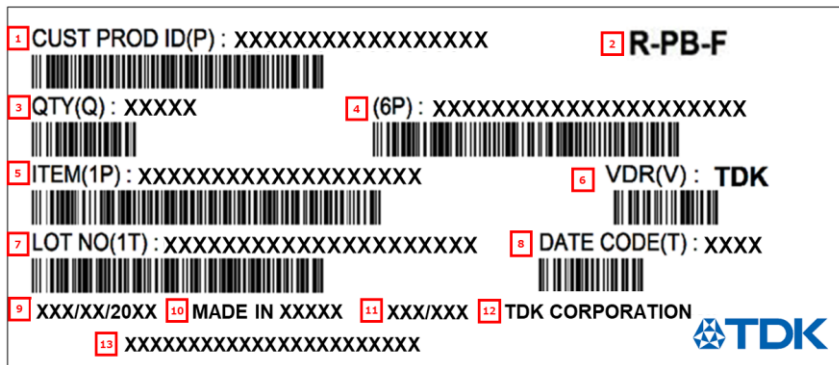
Label

Reel label placement



Shipping label example

Individual / Inner / Shipping mark label

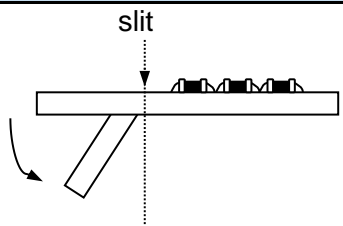
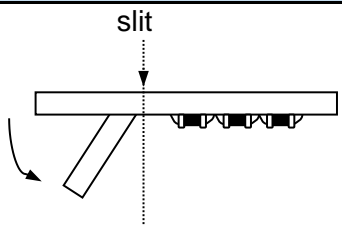
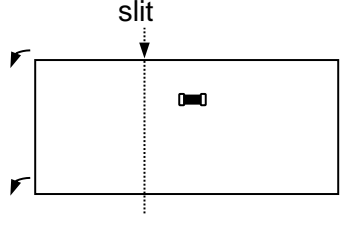
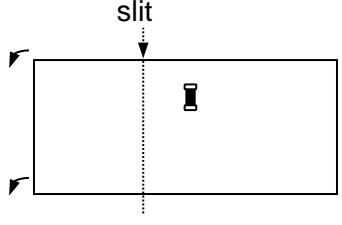
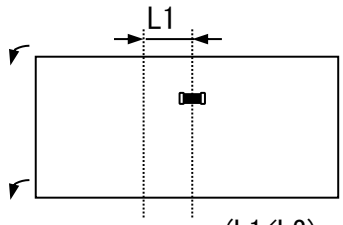
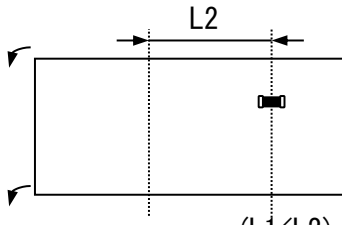


No.	Field	No.	Field
1	Customer part number	8	Shipping week
2	RoHS marking	9	Shipping date
3	Qty	10	Country of origin
4	Control Number of TDK	11	Box count
5	TDK item description	12	Company name
6	Vender code	13	Control Number of TDK
7	Control Number of TDK		

RF Components

■ PCB Application Manual

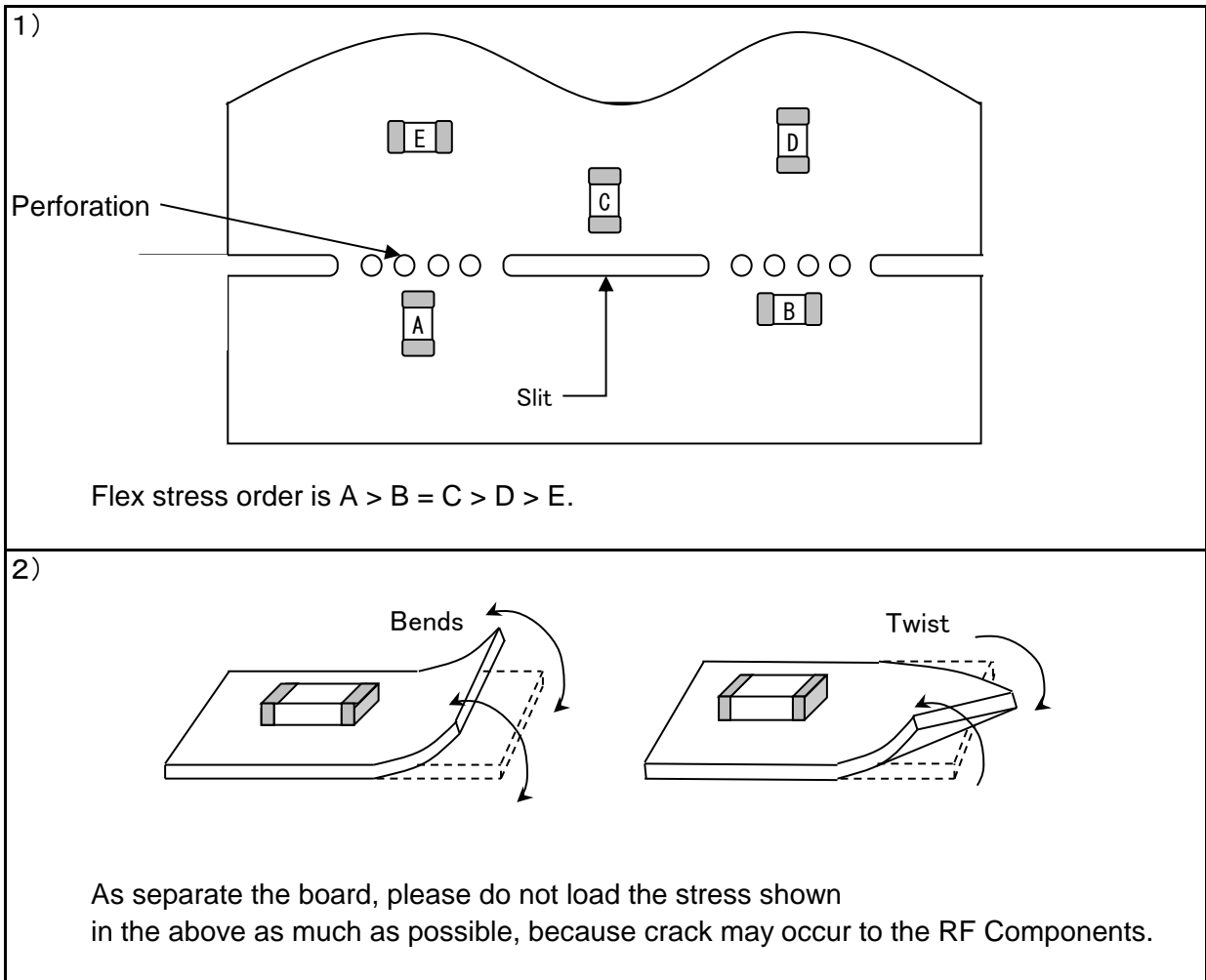
Relationship between RF Components position and flex stress during board separation

	Locations to avoid	Recommended locations
Direction in which chip mounting surface is bent.	 <p>Holding chip mounting surface upward and bend upward.</p>	 <p>Holding chip mounting surface downward and bending downward.</p>
Chip orientation (Direction)	 <p>Set vertically in relationship to slit.</p>	 <p>Set horizontally in relationship to slit.</p>
Distance from slit	 <p>($L1 < L2$)</p> <p>Installing close to slit.</p>	 <p>($L1 < L2$)</p> <p>Installing in center of circuit board units.</p>

RF Components

■ PCB Application Manual

Relationship between RF Components position and flex stress during board separation



RF Components

■ Product Origin

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

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

TFS Series)

TDK Electronics Factories Corporation, Kofu, Japan

■ 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 Cl_2 , NH_3 , SO_x and 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.

REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using these products.

REMINDERS

The products listed on this specification sheet are intended for use in general electronic equipment (AV equipment, telecommunications equipment, home appliances, amusement equipment, computer equipment, personal equipment, office equipment, measurement equipment, industrial robots) under a normal operation and use condition.

The products are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property. Please understand that we are not responsible for any damage or liability caused by use of the products in any of the applications below or for any other use exceeding the range or conditions set forth in this specification sheet.

1. Aerospace/Aviation equipment
2. Transportation equipment (cars, electric trains, ships, etc.)
3. Medical equipment
4. Power-generation control equipment
5. Atomic energy-related equipment
6. Seabed equipment
7. Transportation control equipment
8. Public information-processing equipment
9. Military equipment
10. Electric heating apparatus, burning equipment
11. Disaster prevention/crime prevention equipment
12. Safety equipment
13. Other applications that are not considered general-purpose applications

When using this product in general-purpose applications, you are kindly requested to take into consideration securing protection circuit/equipment or providing backup circuits, etc., to ensure higher safety.

Do not use the products or the technical information for the development of mass-destruction weapons or for military purposes. Please comply with applicable export-related laws and regulations such as the "Foreign Exchange and Foreign Trade Act" and the "U.S. Export Administration Regulations," and carry out all necessary procedures as stipulated by these laws.