SPECIFICATION

SPEC. No.TFA9NAA00426
DATE: Mar.30th,2017

To

XIAMEN XIANGGAO ELECTRONICS CO.,LTD

CUSTOMER'S PRODUCT NAME	TDK'S PRODUCT NAME
DPX162690DT-8039B1	DPX162690DT-8039B1

RECEIPT CONFIRMATION

DATE: YEAR MONTH DAY

TDK Corporation

Sales

Electronic Components Sales & Marketing Group

Engineering

Electronic Components Business Company

Communication Devices Business Group

APPROVED	Person in charge

APPROVED	CHECKED	Person in charge
N.Harada	*A.Okada*	*H.Ashida*

Mar.30th,2017

TDK Corporation

Specification Change History

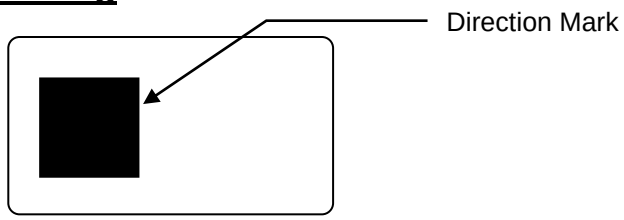
Customer's Product Name : DPX162690DT-8039B1

TDK Product Name : DPX162690DT-8039B1

Ver.	Date	Person in charge	Change Item
-	Mar.30th,2017	H.Ashida	Initial issue

Diplexer (TDK Part Number : DPX162690DT-8039B1) Specification

1. Marking



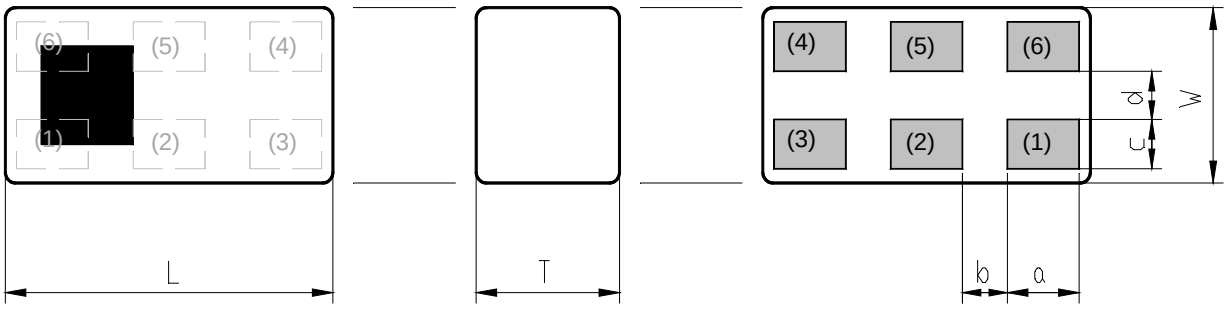
2. Mechanical Outline

2-1 Package

Package:	Surface mount package
Delivery medium:	Tape on reel
Soldering method:	IR-reflow
Size:	1.6 X 0.8 mm typ.
Height:	0.6 mm typ.

MECHANICAL DIMENSIONS

[Top View] [Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d
1.60 +/-0.10	0.80 +/-0.10	0.60 +/-0.10	0.35 +/-0.05	0.22 +/-0.05	0.225 +/-0.05	0.22 +/-0.05

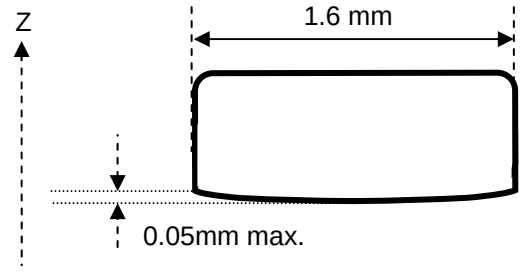
Terminal functions

(1)	GND
(2)	Common Port
(3)	GND

(4)	High-Band Port
(5)	GND
(6)	Low-Band Port

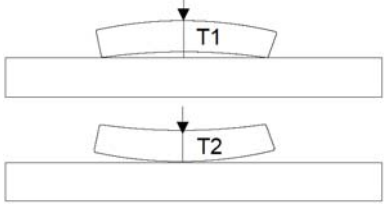
2-2 Co-planarity

0.05mm max. difference in Z-direction as follows



Co-planarity measurement method

Co-planarity = T1-T2



Each terminal extends the full of the **DPX162690DT-8039B1**. 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.

3. Environment (Temperature & Humidity)

3-1 Operating & Storage condition

Storage temperature range	: -40 ~ +85 ^{o}C
Operating temperature range	: -40 ~ +85 ^{o}C
Humidity	: 0 ~ 90 % R.H. (Max. wet bulb temperature 38 ^{o}C)

3-2 Storage condition before soldering

Temperature	: +5 ~ +30 ^{o}C
Humidity	: 20 ~ 70 % RH
Term of storage	: Within 6 months
Baking	: Unnecessary

3-3 Moisture sensitivity level

Equal to Level 1

4. Electrical Specification

(Ta = 25 +/- 5 ^{O}C)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	1880 to 1920	-	0.87	1.20
Return Loss (dB)	1880 to 1920	10	19.2	-
Attenuation (dB)	2496 to 2690	10	13.4	-

High-Band

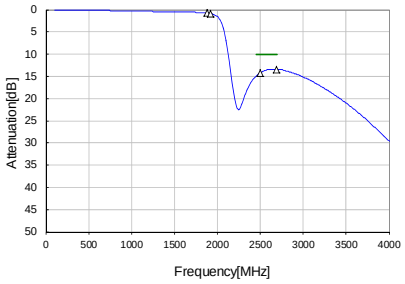
Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2496 to 2690	-	0.59	0.80
Return Loss (dB)	2496 to 2690	10	16.5	-
Attenuation (dB)	1880 to 1920	15	22.7	-

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Return Loss (dB)	1880 to 1920	10	20.4	-
	2496 to 2690	10	21.9	-

5. Typical electrical characteristics

Low band-Port



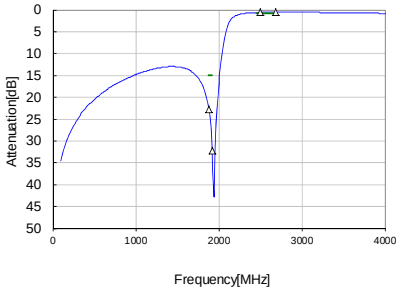
Insertion Loss

1880 MHz	0.75	dB
1920 MHz	0.87	dB

Attenuation

2496 MHz	14.30	dB
2690 MHz	13.41	dB

High band-Port



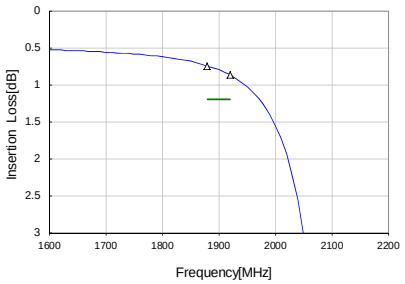
Insertion Loss

2496 MHz	0.59	dB
2690 MHz	0.55	dB

Attenuation

1880 MHz	22.71	dB
1920 MHz	32.14	dB

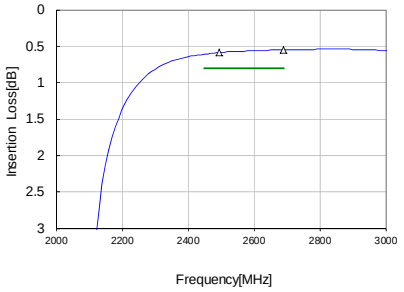
Low band-Port



Insertion Loss

1880 MHz	0.75	dB
1920 MHz	0.87	dB

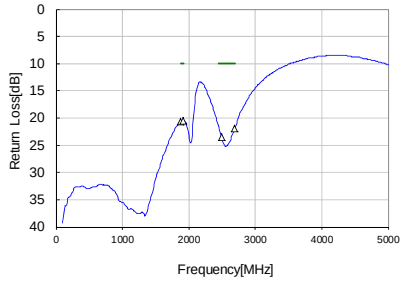
High band-Port



Insertion Loss

2496 MHz	0.59	dB
2690 MHz	0.55	dB

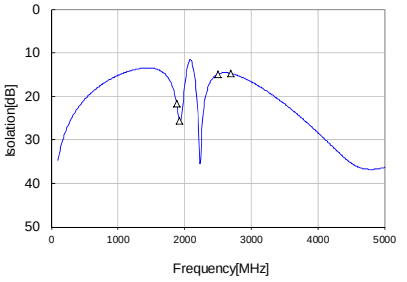
Common Port Return Loss



1880 MHz	20.66	dB
1920 MHz	20.48	dB

2496 MHz	23.47	dB
2690 MHz	21.93	dB

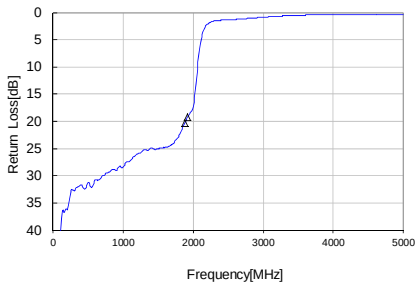
Isolation



1880 MHz	21.7	dB
1920 MHz	25.7	dB

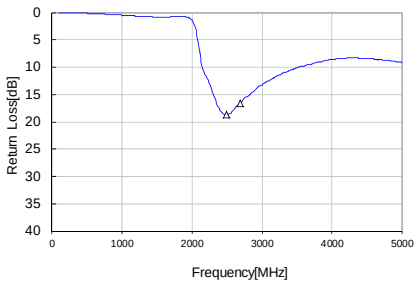
2496 MHz	15.0	dB
2690 MHz	14.7	dB

Low band-Port Return Loss



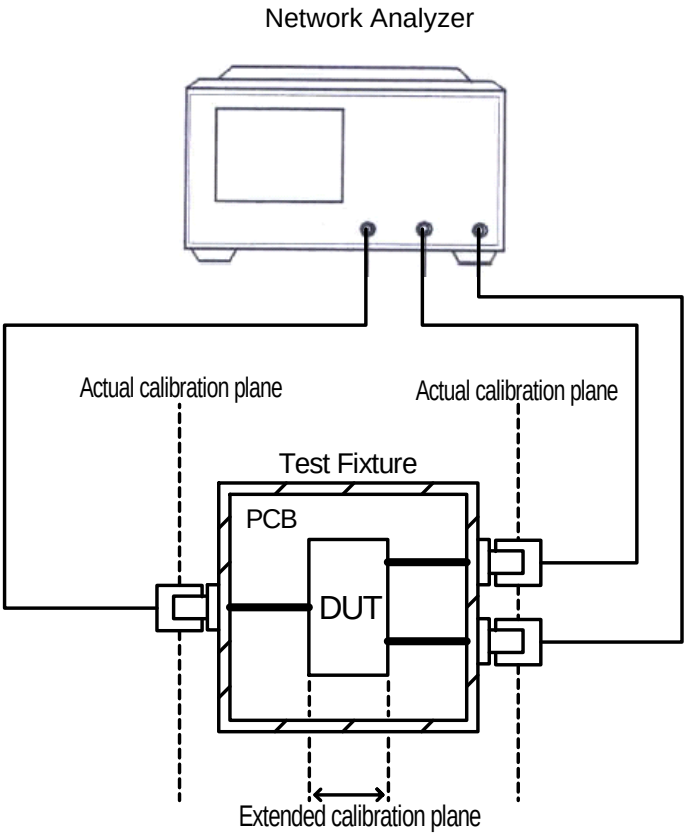
1880 MHz	20.33	dB
1920 MHz	19.29	dB

High band-Port Return Loss



2496 MHz	18.64	dB
2690 MHz	16.56	dB

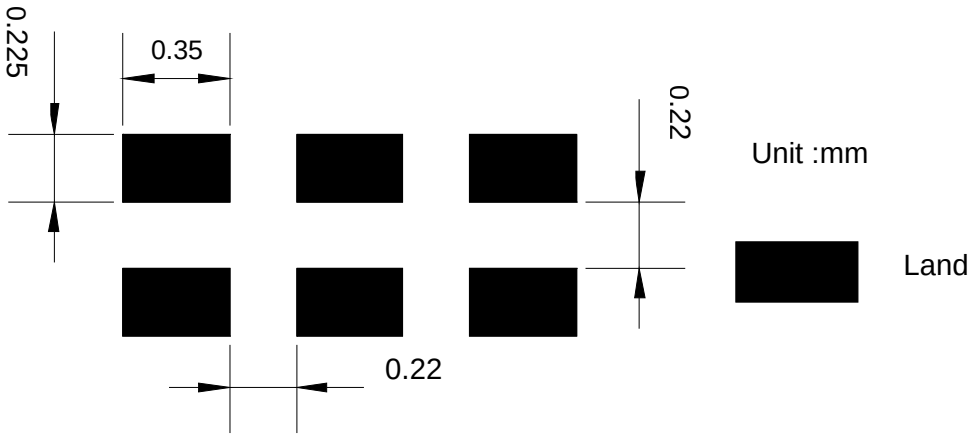
6. Test Circuit



Note 1: The Port Extension function on the Network Analyzer is used to extend the calibration plane to the DUT terminals.

Note 2: Loss in the PCB traces is compensated for by measurement data taken on a PCB Thru' line.

7. Evaluation PCB Pattern

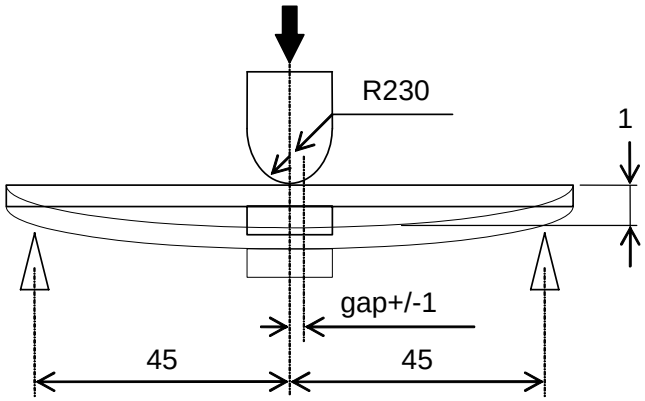
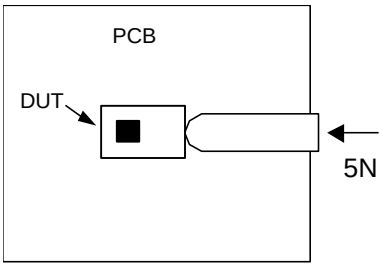


8. Environmental and quality proposal

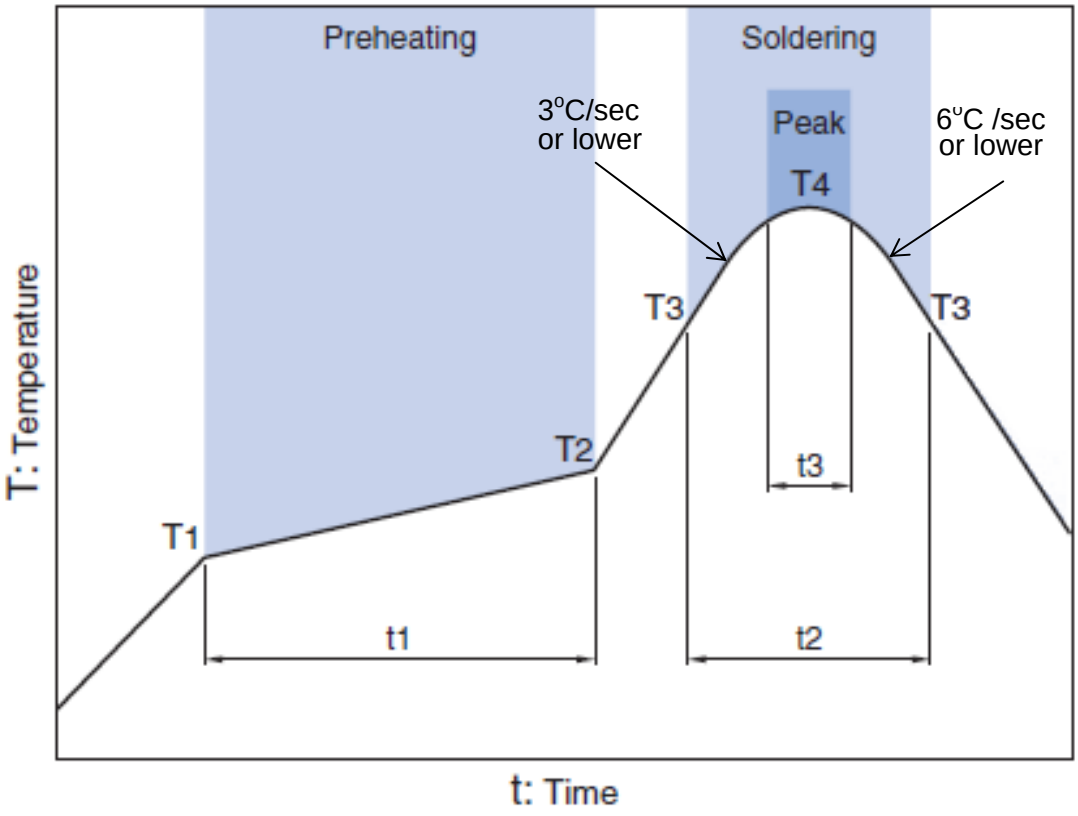
This product satisfies the electrical specification after the following tests.

(When measured after two hours in normal conditions):

Temperature characteristics:	All data initially taken at +25°C, then repeated at -40°C and again at +85°C.
Heat proof:	+85 °C+/-2 °C for 1000 hours
Cold proof:	-40 °C +/-2 °C or 500 hours
Moisture proof:	+60 °C +/-2 °C, 90~95% R.H. 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:	1.Acceleration 1000m/s2 2.Direction X, Y, Z ,X',Y',Z',axes 3.Time 6ms duration and 3 times in each direction
Solderability	The dipped surface of the terminal shall be at least 75% covered with solder after dipped in solder bath of 245 ^{o}C+/-3 °C for 3+/-0.5 sec. Remark solder: Sn-3.0Ag-0.5Cu Remark flux: Rosin 25%, Alcohol 75%
Solder heat shock:	It shall be possible to hot air reflow the components three times with a temperature profile shown below.
Drop shock:	Dropped onto steel plate or concrete from 100cm height three times.

Bending test:	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.  Unit:mm
Board adhesion (Push test):	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 5N for 5 +/-1 sec . 

9. Recommended reflowing temperature profile



Preheating			Soldering			
			Critical zone (T3 to T4)		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3 *
150°C	200°C	60 to 120sec	217°C	60 to 120sec	240 to 260°C	30 sec Max

* t3 : Time within 5°C of actual peak temperature

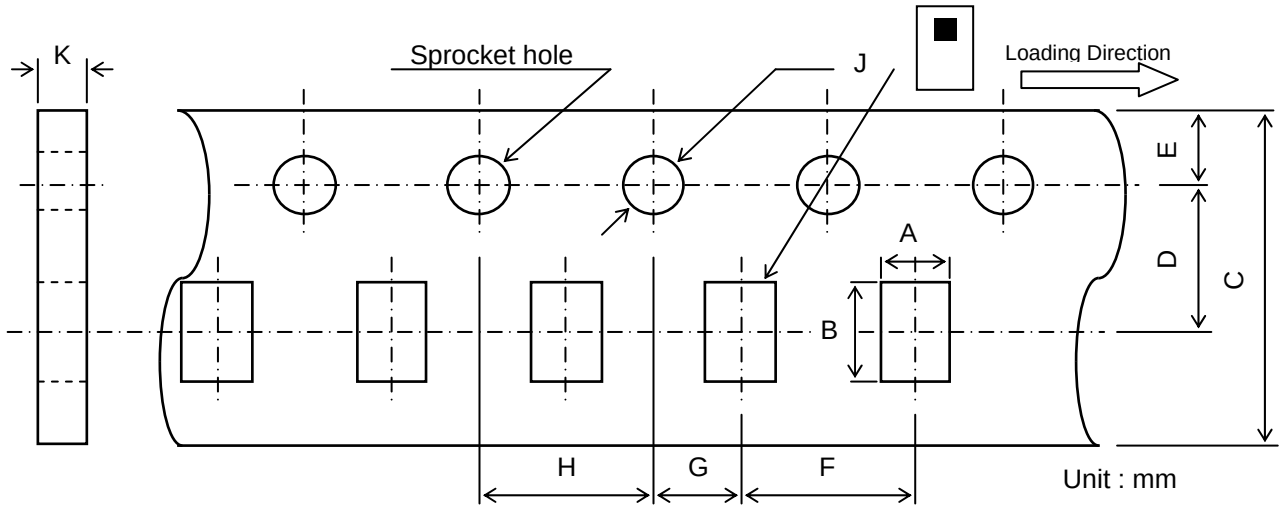
The maximum number of reflow is 3.

Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

10. Packing

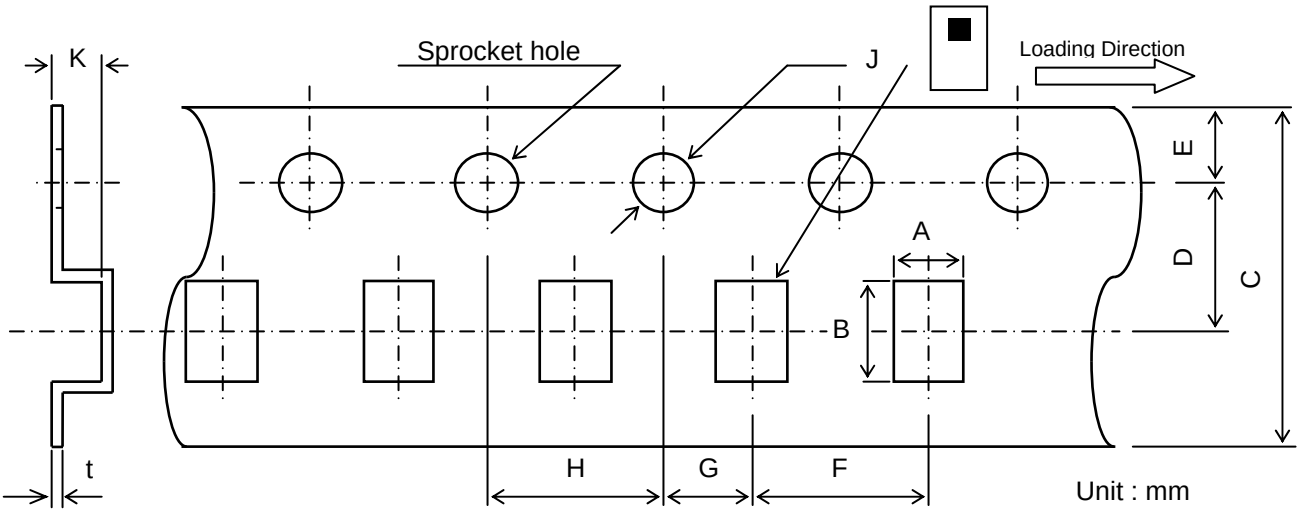
10-1 Carrier tape

Carrier tape 1 , Material : paper



A	B	C	D	E	F	G	H	J	K
0.97	1.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.8
+/-0.05	+/-0.05	+/-0.2	+/-0.05	+/-0.1	+/-0.1	+/-0.05	+/-0.1	+0.1/-0	MAX

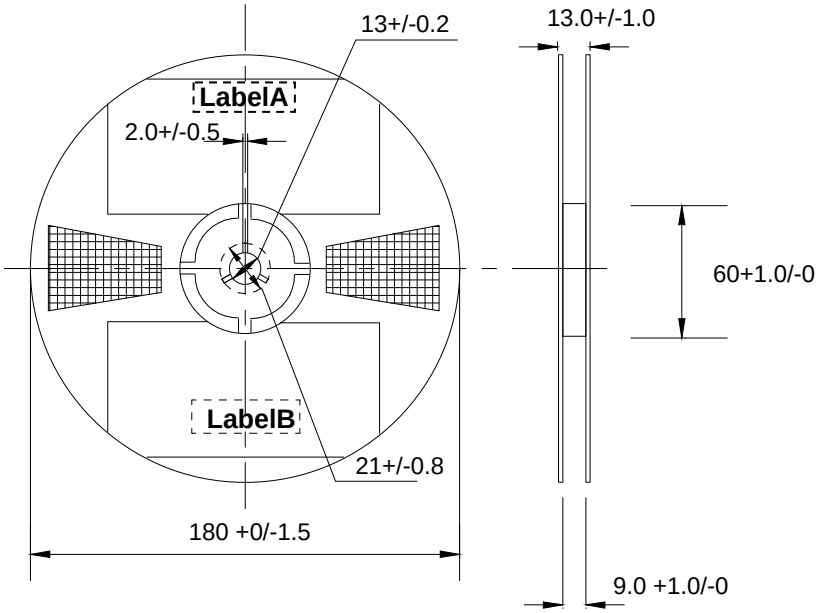
Carrier tape 2 , Material : PS



A	B	C	D	E	F	G	H	J	K	t
0.97	1.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.8	0.25
+/-0.05	+/-0.05	+/-0.2	+/-0.05	+/-0.1	+/-0.1	+/-0.05	+/-0.1	+0.1/-0	MAX	+/-0.05

“Carrier tape 1” is currently adopted. ″Carrier tape 2″ will be running change after Feb.2016.

10-2. Reel Dimensions



Unit : mm

10-3. Standard Reel Packaging quantities

4000pcs./reel

11. Other

11-1 Notice

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.

Aerospace/Aviation equipment
Transportation equipment (cars, electric trains, ships, etc.)
Medical equipment
Power-generation control equipment
Atomic energy-related equipment
Seabed equipment
Transportation control equipment
Public information-processing equipment
Military equipment
Electric heating apparatus, burning equipment
Disaster prevention/crime prevention equipment
Safety equipment
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.

11-2 Product Origin

1. TDK-UGO Corporation, Akita, Japan
2. TDK Dalian Corporation, Dalian ,China

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