



Jan. 2022 Ver9.0a  
TDK Corporation

## Multilayer Diplexer

For 1710-2200MHz / 2496-3800MHz

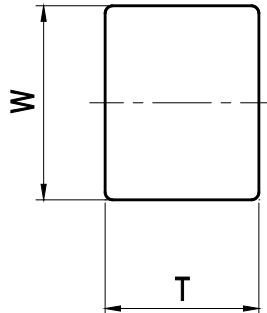
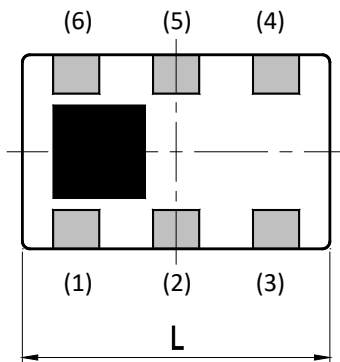
DPX Series 2.0x1.25mm [EIA 0805] TYPE

P/N: **DPX202690DT-4084A5**

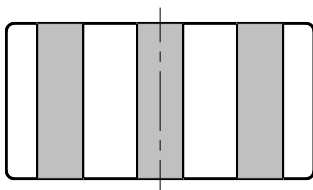
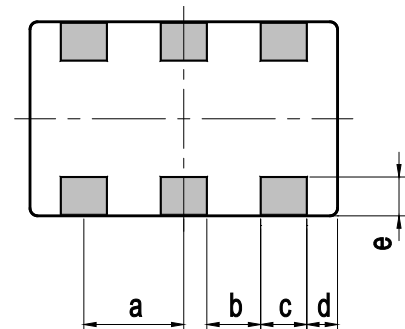
## DPX202690DT-4084A5

### SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e
2.00	1.25	0.90	0.65	0.35	0.30	0.20	0.20
+/-0.15	+/-0.15	+/-0.10	+/-0.15	+/-0.15	+/-0.15	+/-0.15	+/-0.15

Terminal functions

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

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

### TERMINATION FINISH

Material
Sn plate

## DPX202690DT-4084A5

### ■ ELECTRICAL CHARACTERISTICS

( Measurement )

#### Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB) ( +25 °C )	1710 to 1980	-	0.53	0.80
	2110 to 2170	-	0.80	1.00
	2170 to 2180	-	0.85	1.20
	2180 to 2200	-	1.01	1.60
Insertion Loss (dB) ( -40 to +85 °C )	1710 to 1980	-	-	0.85
	2110 to 2170	-	-	1.20
	2170 to 2180	-	-	1.40
	2180 to 2200	-	-	1.85
Return Loss (dB) ( -40 to +85 °C )	1710 to 1980	10	18.9	-
	2110 to 2170	10	22.3	-
	2170 to 2200	10	22.6	-
Attenuation (dB) ( +25 °C )	2496 to 2500	12	22.3	-
	2500 to 2690	12	14.2	-
Attenuation (dB) ( -40 to +85 °C )	2496 to 2500	11	-	-
	2500 to 2690	12	-	-

Ta = +25+/-5°C

## DPX202690DT-4084A5

### ■ ELECTRICAL CHARACTERISTICS

( Measurement )

#### High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB) ( +25 °C )	2496 to 2500	-	0.70	1.05
	2500 to 2690	-	0.66	1.00
	3400 to 3600	-	0.26	0.80
	3550 to 3700	-	0.24	0.80
	3600 to 3800	-	0.24	0.80
Insertion Loss (dB) ( -40 to +85 °C )	2496 to 2500	-	-	1.15
	2500 to 2690	-	-	1.10
	3400 to 3600	-	-	0.90
	3550 to 3700	-	-	0.90
	3600 to 3800	-	-	0.90
Return Loss (dB) ( -40 to +85 °C )	2496 to 2500	10	17.5	-
	2500 to 2690	10	17.8	-
	3400 to 3600	10	17.4	-
	3550 to 3700	10	17.1	-
	3600 to 3800	10	17.1	-
Attenuation (dB) ( +25 °C )	1710 to 1980	12	14.7	-
	2110 to 2170	15	21.6	-
	2170 to 2180	12	23.1	-
	2180 to 2200	12	17.8	-
Attenuation (dB) ( -40 to +85 °C )	1710 to 1980	12	-	-
	2110 to 2170	15	-	-
	2170 to 2180	12	-	-
	2180 to 2200	10	-	-

Ta = +25+/-5°C

## DPX202690DT-4084A5

### ELECTRICAL CHARACTERISTICS

( Measurement )

#### Common

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Return Loss (dB) ( -40 to +85 °C )	1710 to 1980	10	15.9	-
	2110 to 2170	10	21.4	-
	2170 to 2200	10	25.3	-
	2496 to 2500	10	17.4	-
	2500 to 2690	10	17.6	-
	3400 to 3600	10	17.3	-
	3550 to 3700	10	17.1	-
	3600 to 3800	10	17.1	-

Ta = +25+/-5°C

### MAXIMUM RATINGS

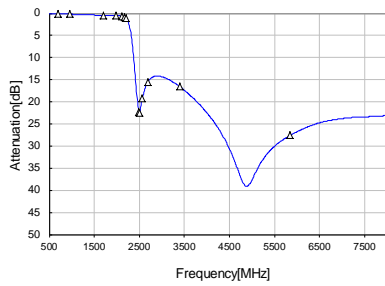
Parameter		TDK Spec	Conditions
Operating temperature (°C)		-40 to +85 °C	
Storage temperature (°C)		-40 to +85 °C	
Power Handling (W) *1	Frequency (MHz)		
	Low-Band	1710 to 2200	2 CW Duty 100%
	High-Band	2496 to 2690	2 CW Duty 100%
3400 to 3800		2 CW Duty 100%	
Human Body Model : HBM	@Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : MM	@Each Port (V)	+/-150	200pF / 0ohm
Charged Device Model : CDM	@Each Port (V)	+/-500	Humidity : 60%RH max

\*1 : Refer to 3GPP TS 38.101-1 V15.2.0

# DPX202690DT-4084A5

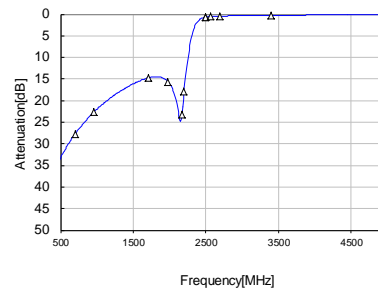
## FREQUENCY CHARACTERISTICS

Low band-Port



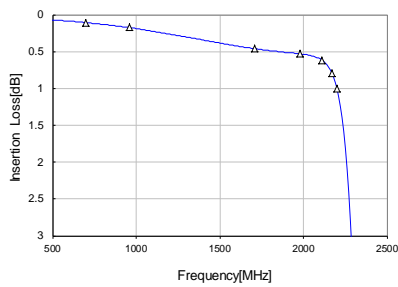
Frequency [MHz]	Attenuation [dB]
2496	22.27
2500	22.40
2570	19.15
2690	15.49
3400	16.58
5850	27.58

High band-Port



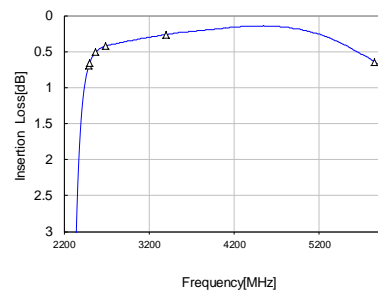
Frequency [MHz]	Attenuation [dB]
700	27.67
960	22.59
1710	14.73
1980	15.65
2170	23.15
2200	17.89

Low band-Port



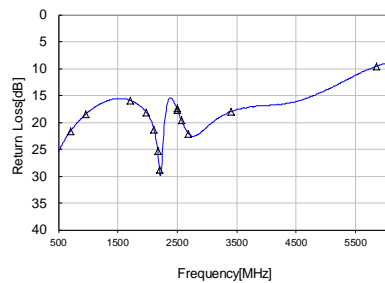
Frequency [MHz]	Insertion Loss [dB]
700	0.11
960	0.17
1710	0.46
1980	0.53
2110	0.62
2170	0.80
2200	1.01

High band-Port



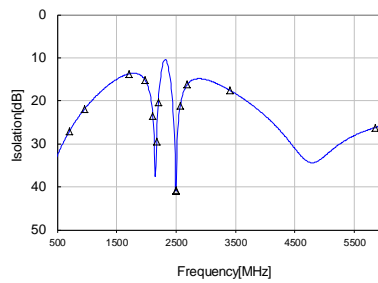
Frequency [MHz]	Insertion Loss [dB]
2496	0.70
2500	0.66
2570	0.51
2690	0.42
3400	0.27
5850	0.64

Common Port Return Loss



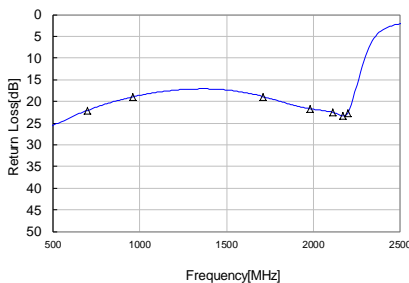
Frequency [MHz]	Return Loss [dB]
700	21.71
960	18.46
1710	15.92
1980	18.18
2110	21.40
2170	25.33
2200	28.74
2496	17.39
2500	17.66
2570	19.64
2690	22.08
3400	17.99
5850	9.56

Isolation



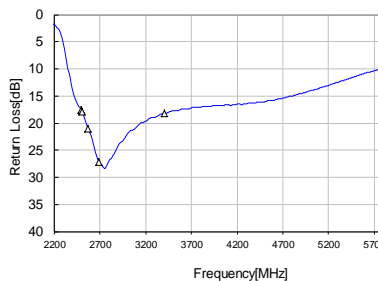
Frequency [MHz]	Isolation [dB]
700	27.1
960	21.9
1710	13.7
1980	15.2
2110	23.5
2170	29.5
2200	20.4
2496	40.9
2500	41.0
2570	21.1
2690	16.2
3400	17.5
5850	26.2

Low band-Port Return Loss



Frequency [MHz]	Return Loss [dB]
700	22.05
960	18.96
1710	18.91
1980	21.73
2110	22.52
2170	23.35
2200	22.65

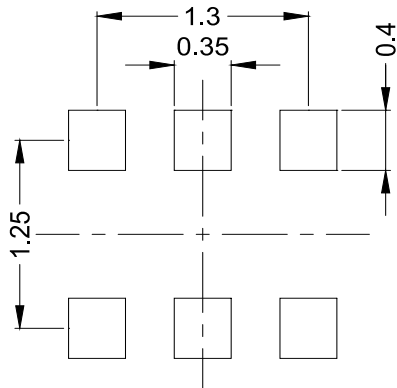
High band-Port Return Loss



Frequency [MHz]	Return Loss [dB]
2496	17.49
2500	17.86
2570	20.99
2690	27.13
3400	18.22
5850	9.71

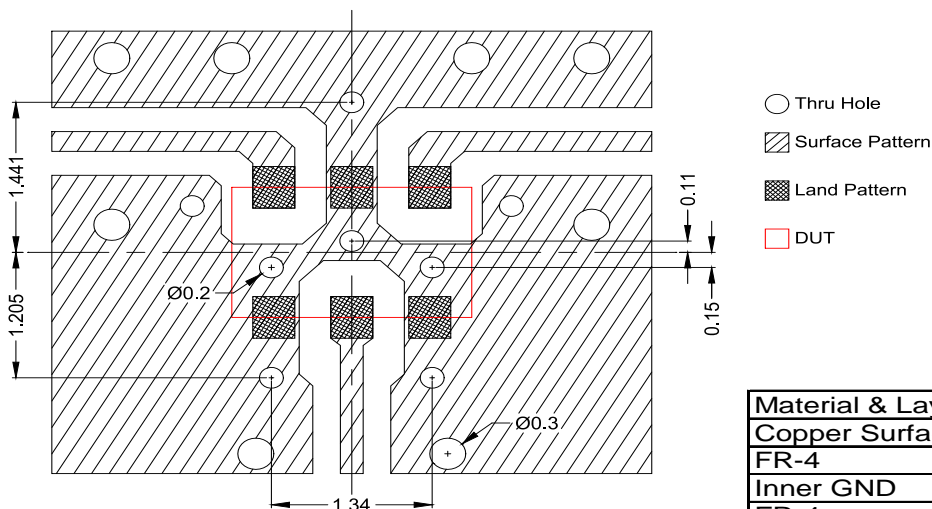
## DPX202690DT-4084A5

### RECOMMENDED LAND PATTERN



Unit : [mm]

### EVALUATION BOARD



Material & Layer	Thickness
Copper Surface Pattern	0.035 mm
FR-4	0.10 mm
Inner GND	0.018 mm
FR-4	0.30 mm
Copper Bottom GND	0.035 mm

unit : mm

\* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

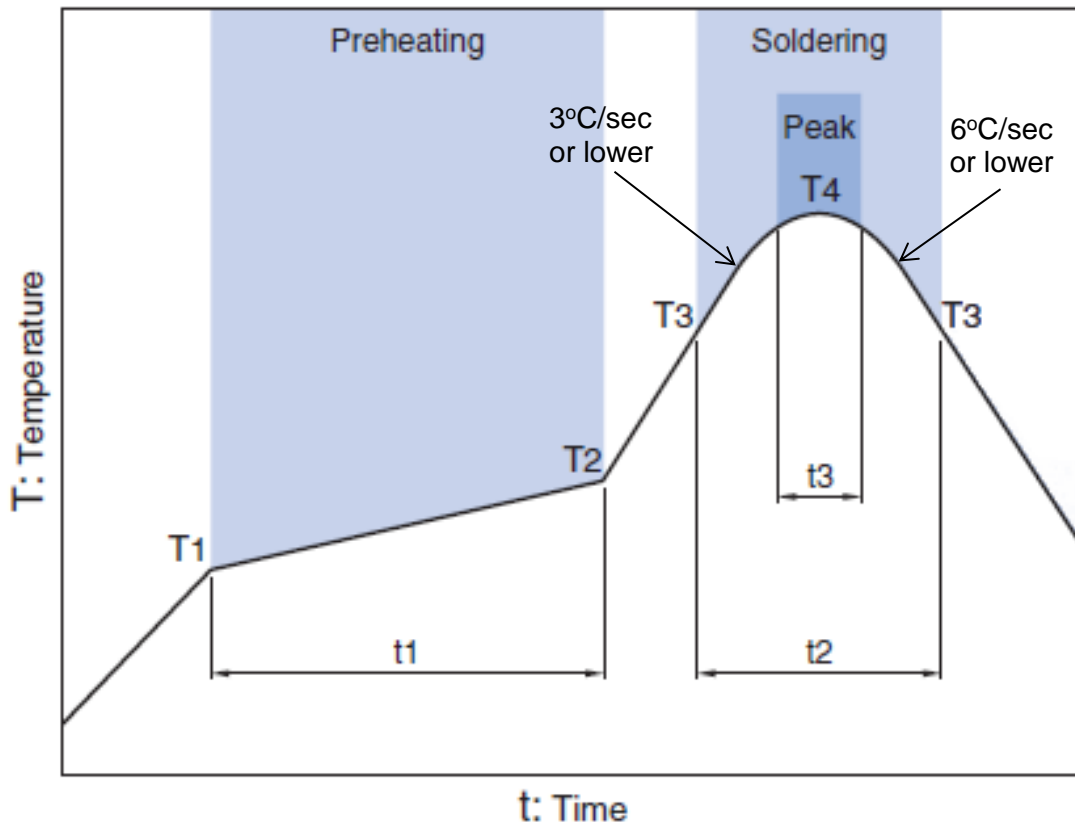
\*\* The position of the through hole which have possibility of influence to the performance are indicated by dimension line.

### ENVIRONMENT INFORMATION

RoHS Statement  
RoHS Compliance

## DPX202690DT-4084A5

### RECOMMENDED REFLOW PROFILE



Preheating			Soldering			
			Critical zone (T3 to T4)		Peak	
Temp.	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)

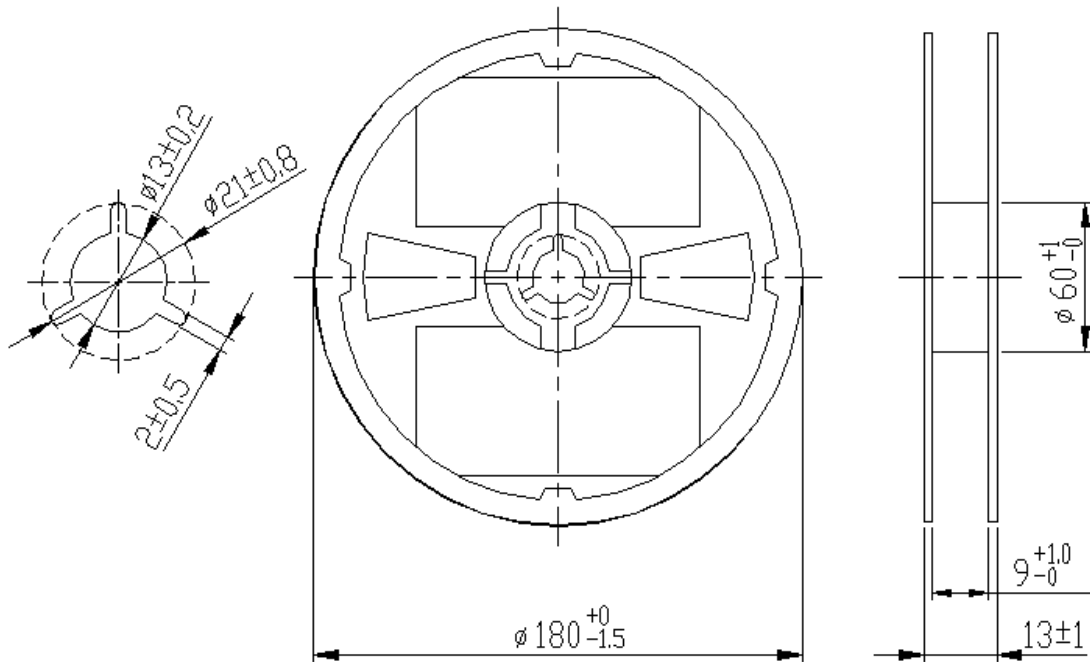
### GENERAL TECHNICAL INFORMATION

[https://product.tdk.com/en/system/files?file=dam/doc/product/rf/rf/coupler/general\\_tech\\_info/rf\\_general-technical-info\\_02\\_en.pdf](https://product.tdk.com/en/system/files?file=dam/doc/product/rf/rf/coupler/general_tech_info/rf_general-technical-info_02_en.pdf)



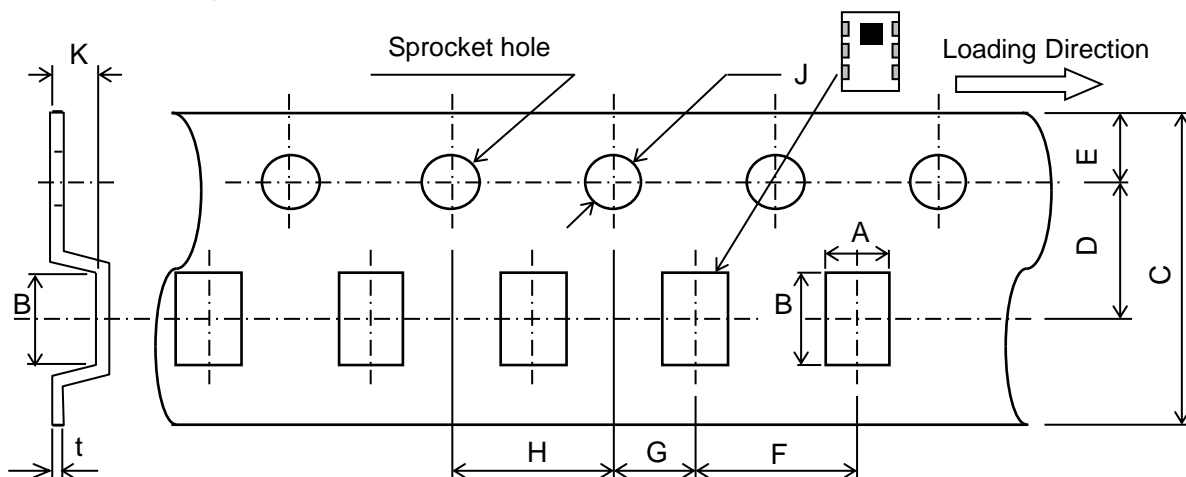
**DPX202690DT-4084A5****PACKAGING STYLE**

## Reel Dimensions



Dimensions in mm

## Carrier Tape



## Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
1.45	2.2	8.0	3.5	1.75	4.0	2.0	4.0	1.5	1.15	0.25
+/-0.05	+/-0.05	+0.3/-0.1	+/-0.05	+/-0.1	+/-0.1	+/-0.05	+/-0.1	+0.1/-0	MAX	+/-0.05

**STANDARD PACKAGE QUANTITY****( pieces/reel )**

2,000

All specifications are subject to change without notice.

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## 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 catalog 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 catalog.

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

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.