



Jan. 2022 Ver.2.0
TDK Corporation

Multilayer Diplexer

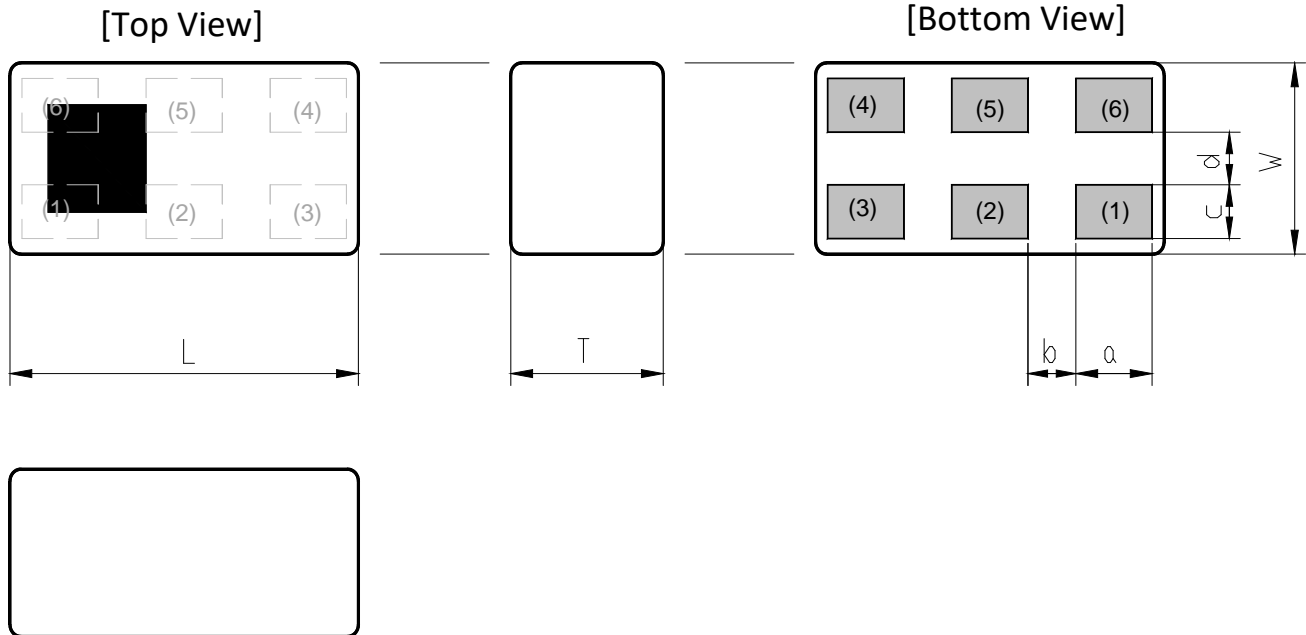
For 1880-1920MHz / 2496-2690MHz

DPX Series 1.6x0.8mm [EIA 0603] TYPE

P/N: **DPX162690DT-8039B1**

DPX162690DT-8039B1

■ SHAPES AND DIMENSIONS



Dimensions (mm)

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

Terminal functions

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

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

■ TERMINATION FINISH

Material
Au plate

DPX162690DT-8039B1

■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	1880 to 1920	-	0.87	1.20
Return Loss@Common (dB)	1880 to 1920	10	20.4	-
Return Loss@Low-Band (dB)	1880 to 1920	10	19.2	-
Attenuation (dB)	2496 to 2690	10	13.4	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2496 to 2690	-	0.59	0.80
Return Loss@Common (dB)	2496 to 2690	10	21.9	-
Return Loss@High-Band (dB)	2496 to 2690	10	16.5	-
Attenuation (dB)	1880 to 1920	15	22.7	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

DPX162690DT-8039B1

■ MAXIMUM RATINGS

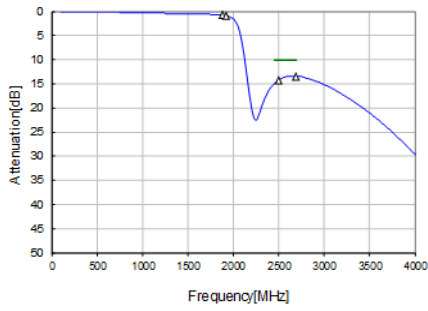
Parameter		TDK Spec	Conditions
Operating temperature (°C)		-40 to +85 °C	
Storage temperature (°C)		-40 to +85 °C	
Power Handling (W) *1	Frequency (MHz)		
Low-Band	1880 to 1920	2.5	Duty 50%
High-Band	2496 to 2690	1	CW
Human Body Model : HBM	@Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : MM	@Each 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

DPX162690DT-8039B1

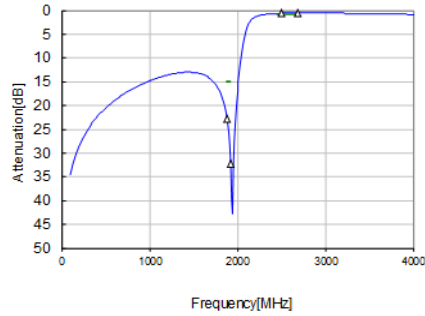
FREQUENCY CHARACTERISTICS

Low band-Port



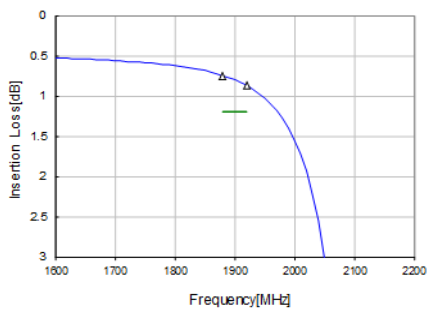
Insertion Loss	
1880 MHz	0.75 dB
1920 MHz	0.87 dB
Attenuation	
2496 MHz	14.30 dB
2690 MHz	13.41 dB

High band-Port



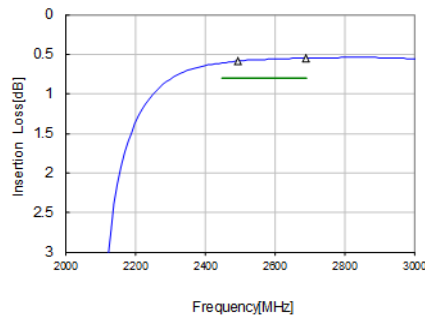
Insertion Loss	
2496 MHz	0.59 dB
2690 MHz	0.65 dB
Attenuation	
1880 MHz	22.71 dB
1920 MHz	32.14 dB

Low band-Port



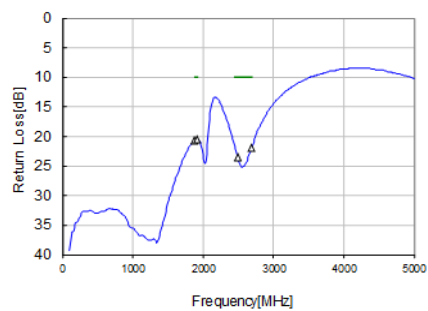
Insertion Loss	
1880 MHz	0.75 dB
1920 MHz	0.87 dB

High band-Port



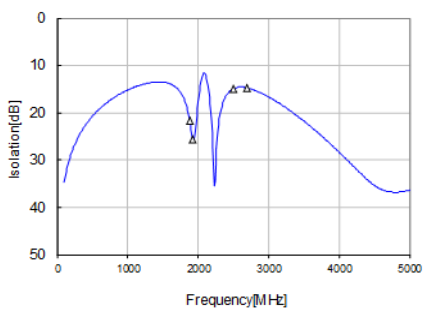
Insertion Loss	
2496 MHz	0.59 dB
2690 MHz	0.65 dB

Common Port Return Loss



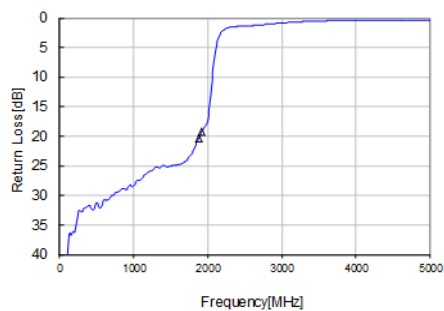
1880 MHz	20.66 dB
1920 MHz	20.48 dB
2496 MHz	23.47 dB
2690 MHz	21.93 dB

Isolation



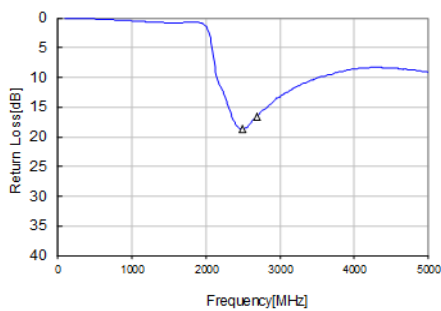
1880 MHz	21.7 dB
1920 MHz	25.7 dB
2496 MHz	15.0 dB
2690 MHz	14.7 dB

Low band-Port Return Loss



1880 MHz	20.33 dB
1920 MHz	19.29 dB

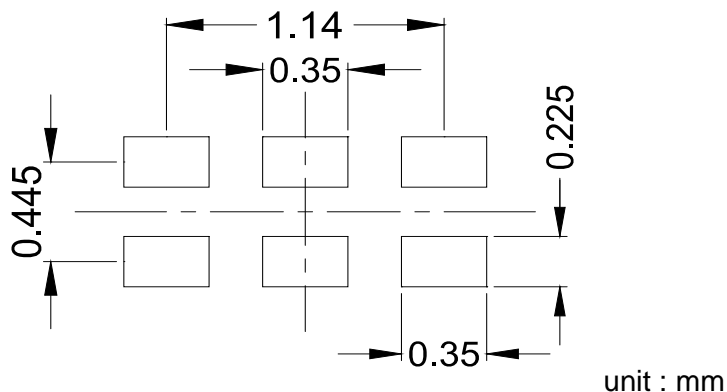
High band-Port Return Loss



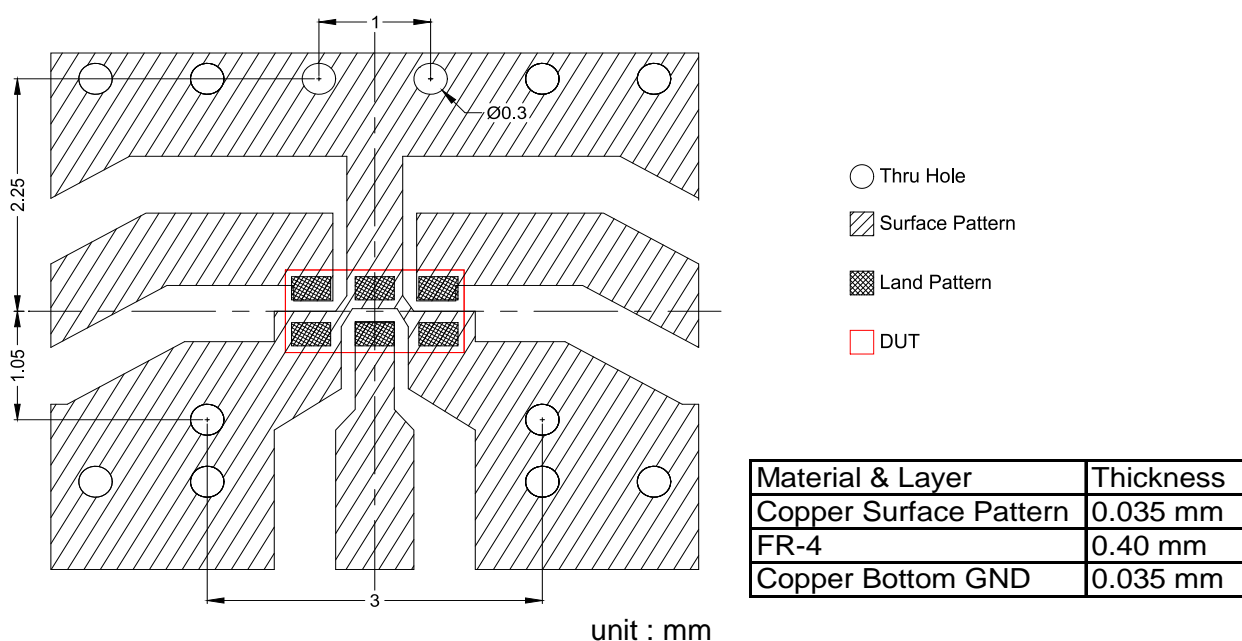
2496 MHz	18.64 dB
2690 MHz	16.56 dB

DPX162690DT-8039B1

RECOMMENDED LAND PATTERN



EVALUATION BOARD



- Thru Hole
- Surface Pattern
- Land Pattern
- DUT

Material & Layer	Thickness
Copper Surface Pattern	0.035 mm
FR-4	0.40 mm
Copper Bottom GND	0.035 mm

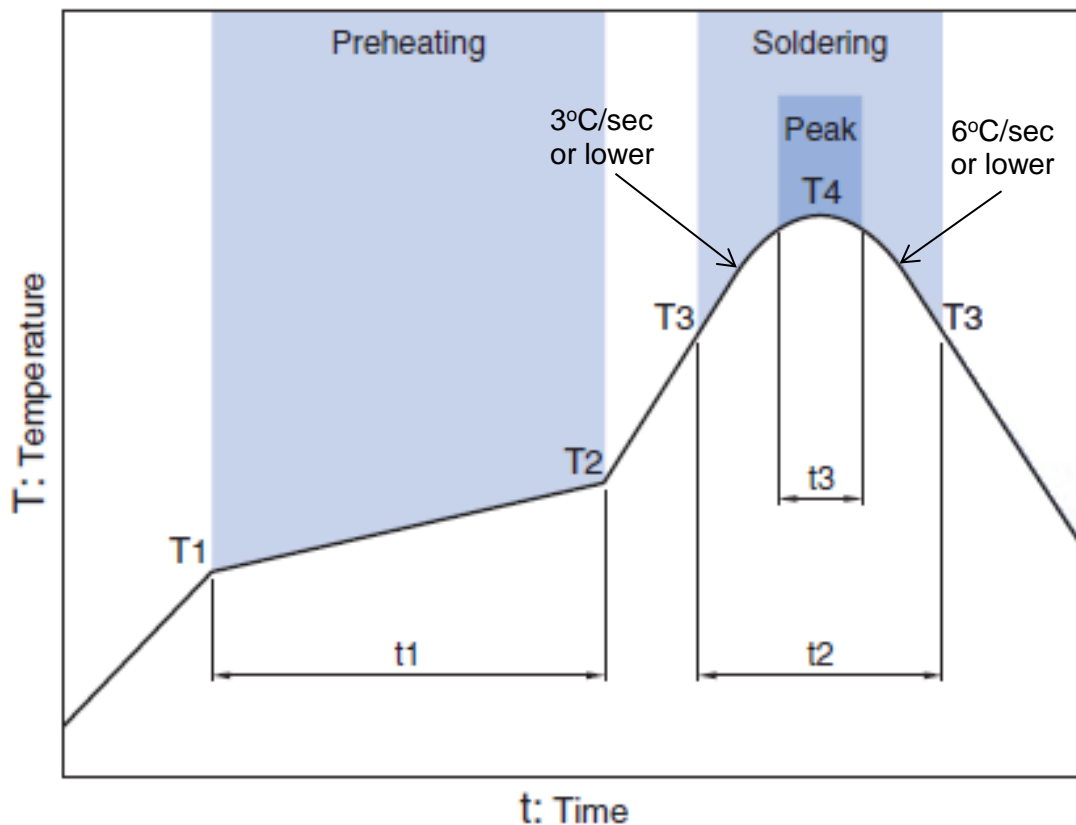
* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

** 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

RECOMMENDED REFLOW PROFILE



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

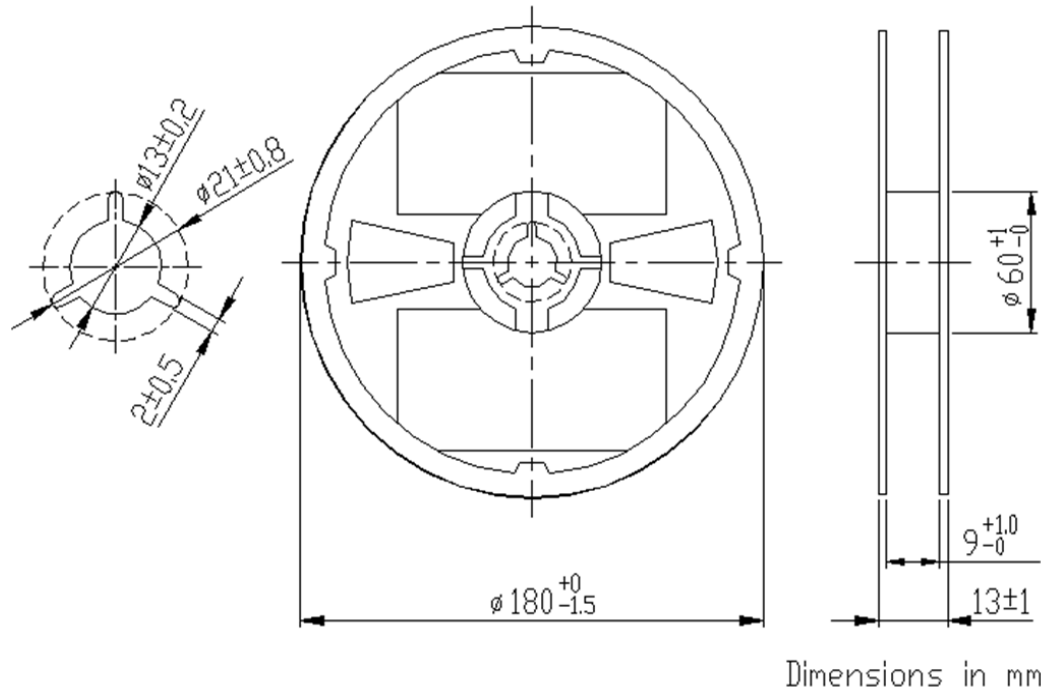
* t3 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.

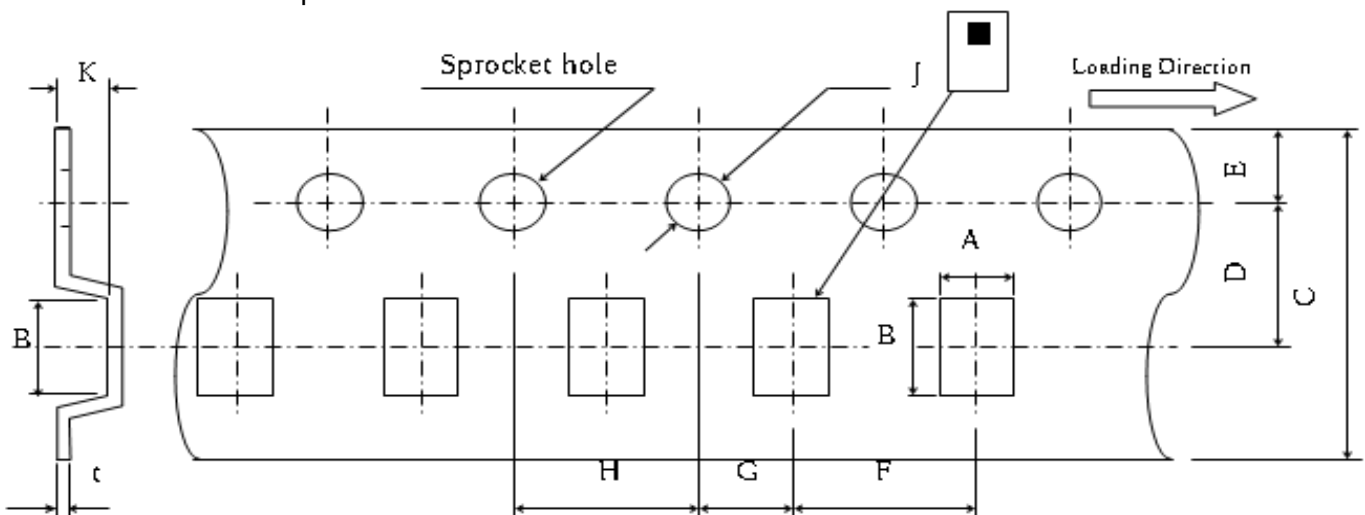
Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

DPX162690DT-8039B1**PACKAGING STYLE**

Reel Dimensions



Carrier Tape



Dimensions (mm)

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

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

4,000

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.