



Apr. 2019 Ver.4.1N
TDK Corporation

Multilayer Diplexer

For LTE

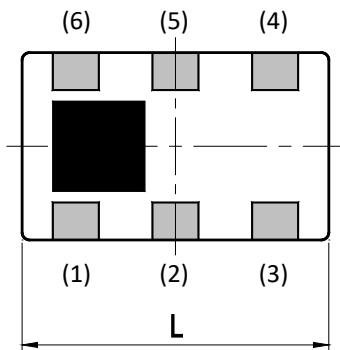
DPX Series 2.0x1.25mm [EIA 0805] TYPE

P/N: **DPX202690DT-4184A5**

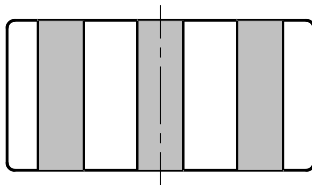
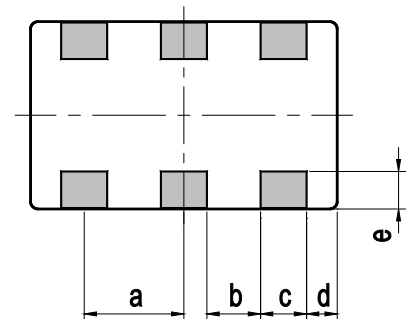
DPX202690DT-4184A5

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

■ TERMINATION FINISH

Material
Sn plate

DPX202690DT-4184A5

■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	1710 to 1980	-	0.49	0.80
	2110 to 2170	-	0.74	1.00
	2170 to 2180	-	0.78	1.20
	2180 to 2200	-	0.89	1.60
Return Loss@Common (dB)	1710 to 1980	10	19.3	-
	2110 to 2170	10	18.4	-
	2170 to 2200	10	18.4	-
Return Loss@Low-Band (dB)	1710 to 1980	10	24.7	-
	2110 to 2170	10	19.9	-
	2170 to 2200	10	19.9	-
Attenuation (dB)	2496 to 2500	12	19.8	-
	2500 to 2690	12	15.8	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2496 to 2500	-	0.77	1.05
	2500 to 2690	-	0.75	1.00
	3400 to 3600	-	0.31	0.80
	3550 to 3700	-	0.28	0.80
	3600 to 3800	-	0.27	0.80
Return Loss@Common (dB)	2496 to 2500	10	20.6	-
	2500 to 2690	10	20.6	-
	3400 to 3600	10	16.2	-
	3550 to 3700	10	16.1	-
	3600 to 3800	10	16.2	-
Return Loss@High-Band (dB)	2496 to 2500	10	20.8	-
	2500 to 2690	10	20.9	-
	3400 to 3600	10	15.8	-
	3550 to 3700	10	15.8	-
	3600 to 3800	10	15.8	-
Attenuation (dB)	1710 to 1980	12	14.4	-
	2110 to 2170	15	22.7	-
	2170 to 2180	12	21.8	-
	2180 to 2200	12	18.3	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

All specifications are subject to change without notice.

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DPX202690DT-4184A5

■ MAXIMUM RATINGS

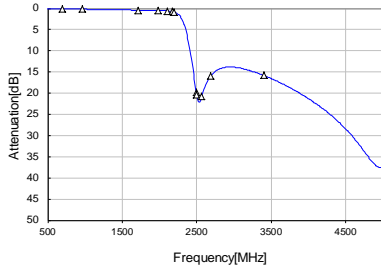
Parameter		TDK Spec	Conditions
Operating temperature (°C)		-40 to +85 °C	
Storage temperature (°C)		-40 to +85 °C	
Power Handling (W) *1	Frequency (MHz)		
Low-Band	1710 to 2200	2	CW
High-Band	2496 to 2690	2	CW
	3400 to 3800	2	CW
Human Body Model : HBM	@Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : 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

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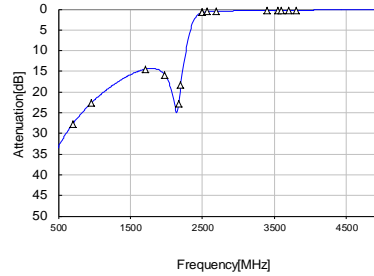
FREQUENCY CHARACTERISTICS

Low band-Port



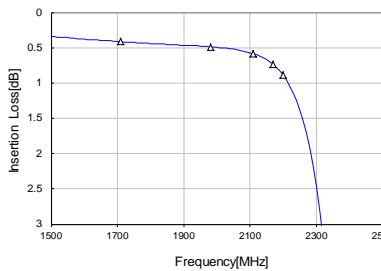
Attenuation	Frequency
19.83 dB	2496 MHz
20.28 dB	2500 MHz
20.74 dB	2570 MHz
15.87 dB	2690 MHz
15.81 dB	3400 MHz
27.80 dB	5850 MHz

High band-Port



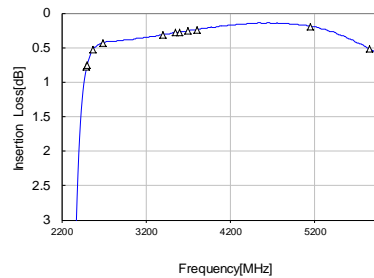
Attenuation	Frequency
27.70 dB	700 MHz
22.55 dB	960 MHz
14.45 dB	1710 MHz
15.93 dB	1980 MHz
22.77 dB	2170 MHz
18.32 dB	2200 MHz

Low band-Port



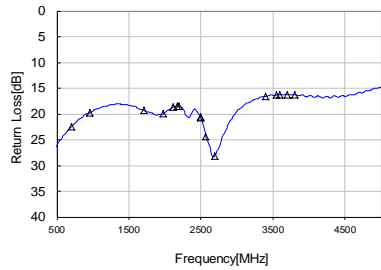
Insertion Loss	Frequency
0.11 dB	700 MHz
0.16 dB	960 MHz
0.41 dB	1710 MHz
0.49 dB	1980 MHz
0.58 dB	2110 MHz
0.74 dB	2170 MHz
0.89 dB	2200 MHz

High band-Port



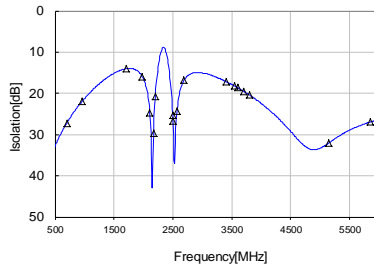
Insertion Loss	Frequency
0.77 dB	2496 MHz
0.75 dB	2500 MHz
0.52 dB	2570 MHz
0.43 dB	2690 MHz
0.31 dB	3400 MHz
0.28 dB	3550 MHz
0.27 dB	3600 MHz
0.25 dB	3700 MHz
0.24 dB	3800 MHz
0.19 dB	5150 MHz
0.52 dB	5850 MHz

Common Port Return Loss



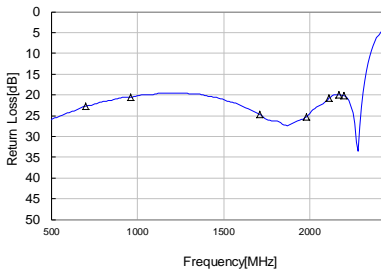
Return Loss	Frequency
22.39 dB	700 MHz
19.78 dB	960 MHz
13.35 dB	1710 MHz
13.97 dB	1980 MHz
18.62 dB	2110 MHz
18.47 dB	2170 MHz
18.53 dB	2200 MHz
20.61 dB	2496 MHz
20.72 dB	2500 MHz
24.41 dB	2570 MHz
28.14 dB	2690 MHz
16.56 dB	3400 MHz
16.31 dB	3550 MHz
16.26 dB	3600 MHz
16.19 dB	3700 MHz
16.23 dB	3800 MHz
13.85 dB	5150 MHz
10.12 dB	5850 MHz

Isolation



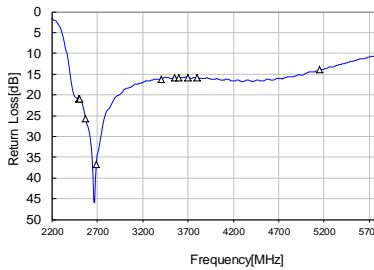
Isolation	Frequency
27.2 dB	700 MHz
21.9 dB	960 MHz
14.0 dB	1710 MHz
15.9 dB	1980 MHz
24.8 dB	2110 MHz
29.8 dB	2170 MHz
20.8 dB	2200 MHz
25.4 dB	2496 MHz
26.7 dB	2500 MHz
24.3 dB	2570 MHz
16.8 dB	2690 MHz
17.1 dB	3400 MHz
18.2 dB	3550 MHz
18.7 dB	3600 MHz
19.5 dB	3700 MHz
20.4 dB	3800 MHz
32.0 dB	5150 MHz
27.0 dB	5850 MHz

Low band-Port Return Loss



Return Loss	Frequency
22.71 dB	700 MHz
20.51 dB	960 MHz
24.68 dB	1710 MHz
25.27 dB	1980 MHz
20.86 dB	2110 MHz
19.96 dB	2170 MHz
20.18 dB	2200 MHz

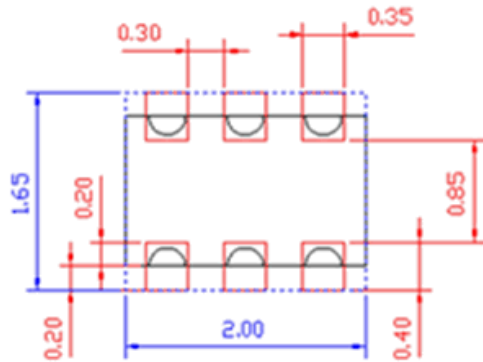
High band-Port Return Loss



Return Loss	Frequency
20.87 dB	2496 MHz
20.91 dB	2500 MHz
25.65 dB	2570 MHz
36.72 dB	2690 MHz
16.16 dB	3400 MHz
15.83 dB	3550 MHz
15.88 dB	3600 MHz
15.80 dB	3700 MHz
15.81 dB	3800 MHz
13.93 dB	5150 MHz
10.17 dB	5850 MHz

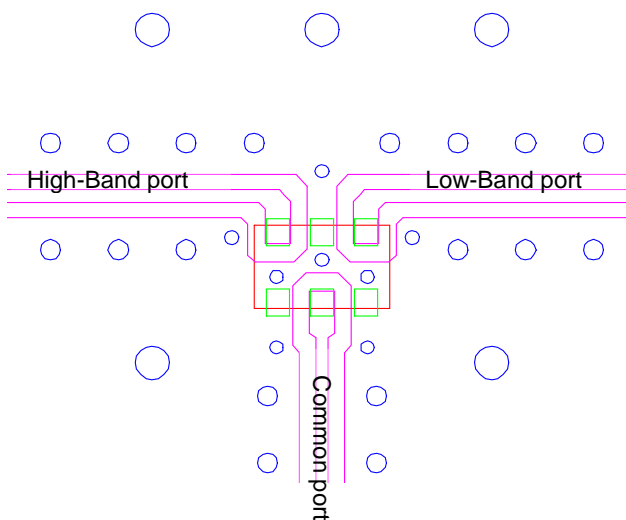
DPX202690DT-4184A5

RECOMMENDED LAND PATTERN



Unit : [mm]

EVALUATION BOARD



Material, Layer	Thickness
Top Resist	Resist
Copper Surface Pattern	0.035mm
FR-4	0.100mm
Copper Inner GND	0.018mm
FR-4	0.300mm
Copper Bottom GND	0.035mm

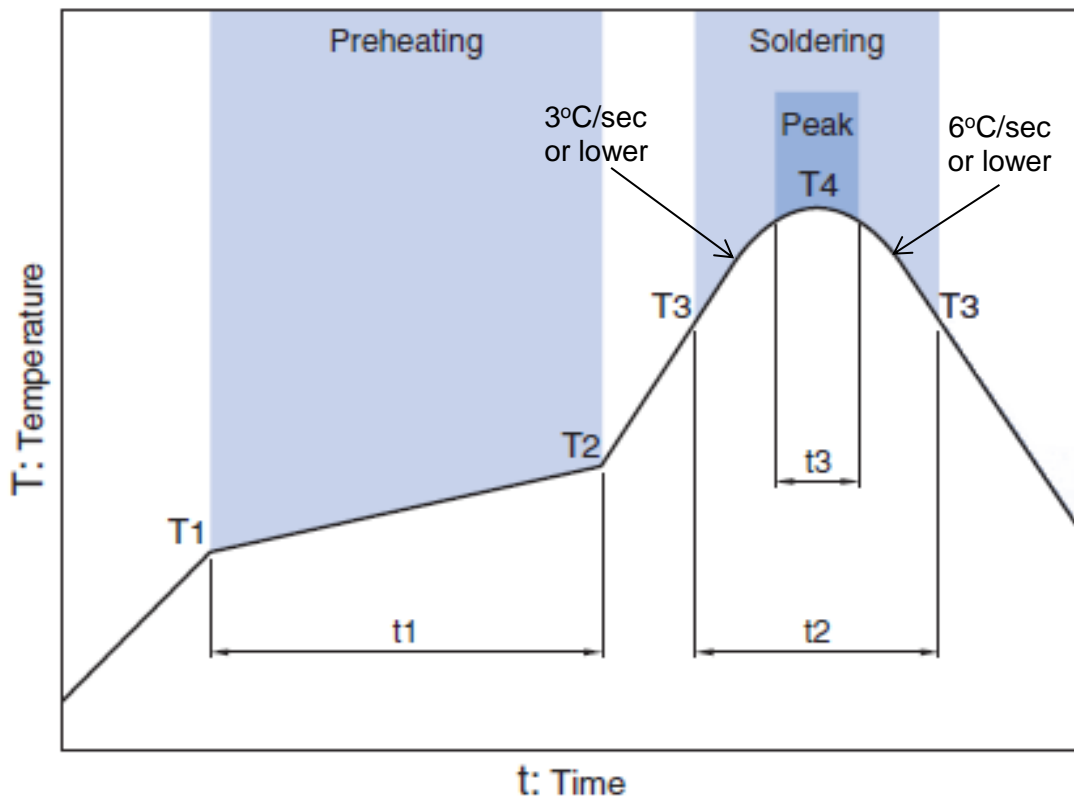
* Line width should be designed to match 50 ohm characteristic impedance depending on PCB material and thickness.

ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

DPX202690DT-4184A5

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

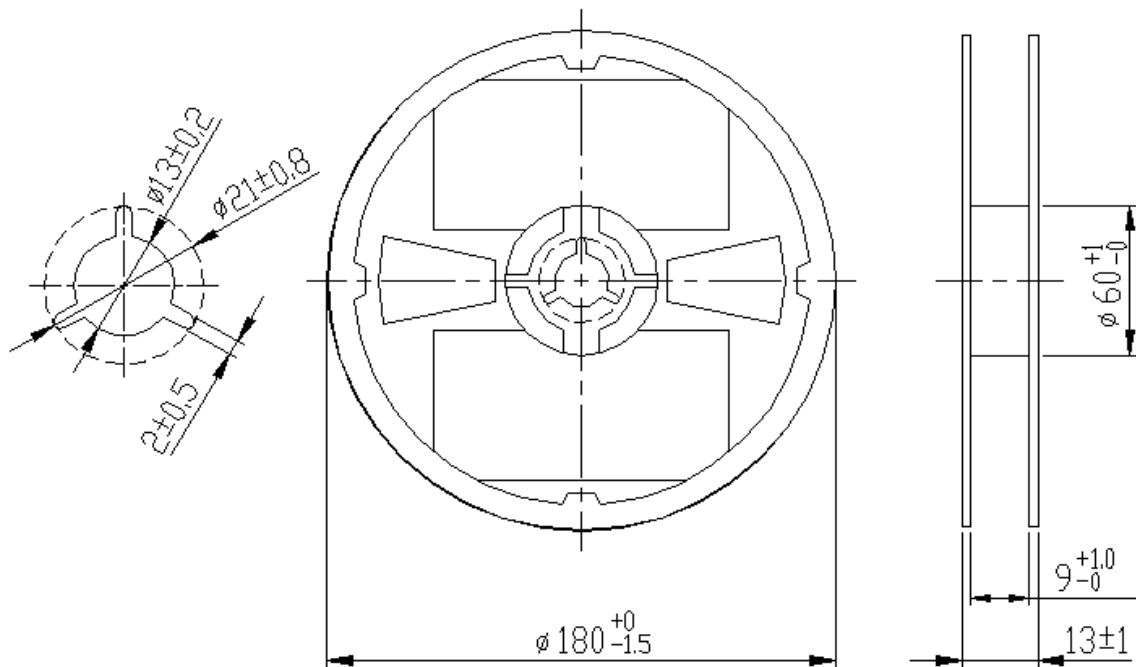
* t3 : Time within 5°C of actual peak temperature

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)

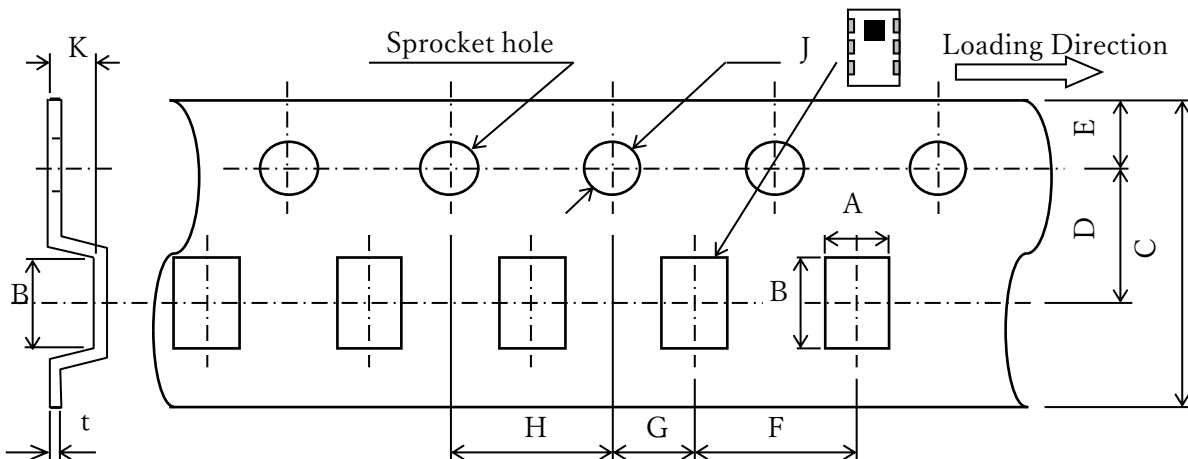
DPX202690DT-4184A5**PACKAGING STYLE**

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

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.