



Aug. 2022 Ver.2.0
TDK Corporation

Multilayer Diplexer

For 2.4-2.5GHz W-LAN & Bluetooth / 5-7GHz W-LAN

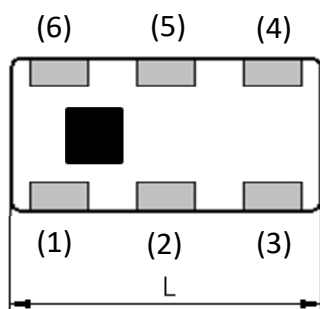
DPX Series 1.6x0.8mm [EIA 0603] TYPE

P/N: **DPX167125DT-8197B1**

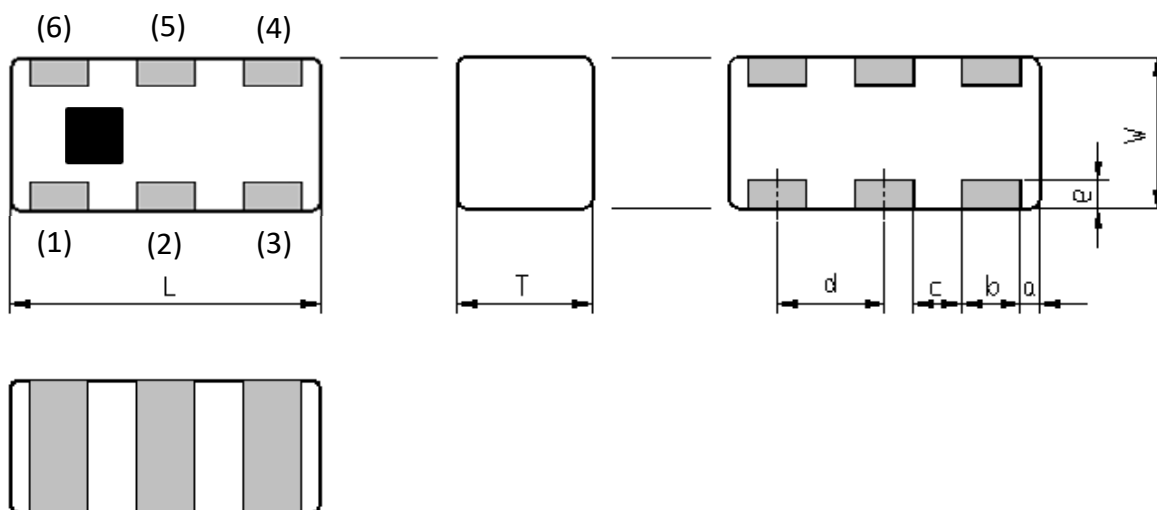
DPX167125DT-8197B1

■ SHAPES AND DIMENSIONS

[Top View]



[Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e
1.60	0.80	0.60	0.10	0.30	0.25	0.55	0.15
+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10	+/-0.10

Terminal functions

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

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

■ TERMINATION FINISH

Material
Sn plate

DPX167125DT-8197B1**ELECTRICAL CHARACTERISTICS**

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	617 to 2400	-	0.21	0.35
	2400 to 2500	-	0.21	0.35
	2500 to 2690	-	0.27	0.40
Insertion Loss (dB) (-40 to +85 °C)	617 to 2400	-	-	0.40
	2400 to 2500	-	-	0.40
	2500 to 2690	-	-	0.50
VSWR (Common Port)	617 to 2400	-	1.28	1.67
	2400 to 2500	-	1.07	1.67
	2500 to 2690	-	1.22	1.67
VSWR (Low-Band Port)	617 to 2400	-	1.28	1.67
	2400 to 2500	-	1.07	1.67
	2500 to 2690	-	1.21	1.67
Attenuation (dB)	4800 to 5000	20	26.3	-
	5150 to 7125	20	24.1	-
	7200 to 7500	23	31.7	-
	9600 to 10000	23	34.7	-
	12000 to 12500	22	31.3	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	5150 to 5925	-	0.74	0.90
	5925 to 7125	-	0.43	0.75
Insertion Loss (dB) (-40 to +85 °C)	5150 to 5925	-	-	1.00
	5925 to 7125	-	-	0.85
VSWR (Common Port)	5150 to 5925	-	1.36	1.67
	5925 to 7125	-	1.27	1.67
VSWR (High-Band Port)	5150 to 5925	-	1.36	1.67
	5925 to 7125	-	1.30	1.67
Attenuation (dB)	617 to 960	25	28.3	-
	1427 to 2400	25	27.0	-
	2400 to 2500	25	28.5	-
	2500 to 2690	25	29.0	-
	3300 to 3800	20	24.3	-
	3800 to 4200	20	24.2	-
	10300 to 14250	28	31.0	-
	15450 to 21375	17	24.1	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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ELECTRICAL CHARACTERISTICS

(Measurement)

Isolation

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Isolation (dB)	617 to 2400	25	26.5	-
	2400 to 2500	25	28.5	-
	2500 to 2690	25	29.2	-
	5150 to 5925	20	23.8	-
	5925 to 7125	20	24.8	-

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	617 to 2690	1	CW Duty 100%
High-Band	5150 to 7125	1	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

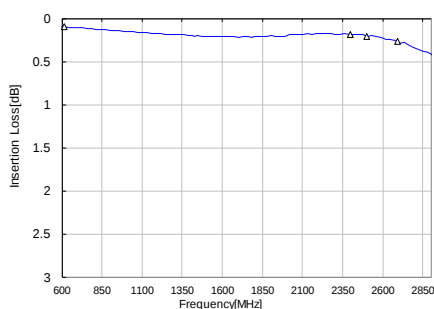
*1 : Refer to 3GPP TS 38.101-1 V15.2.0

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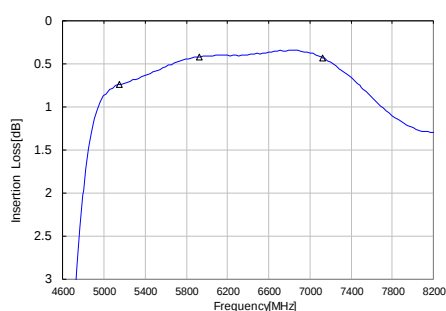
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FREQUENCY CHARACTERISTICS

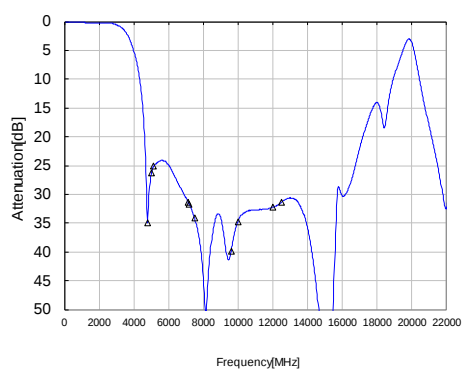
Low-Band Port Insertion Loss S21



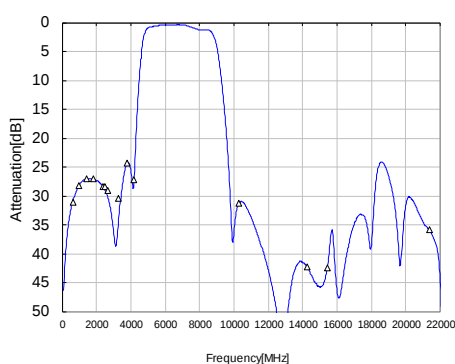
High-Band Port Insertion Loss S31



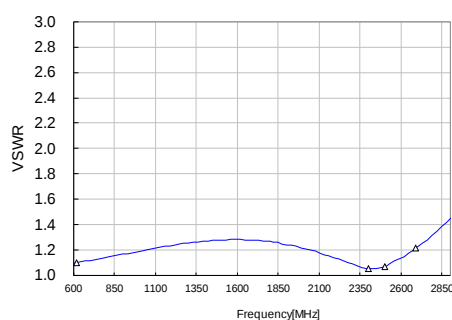
Low-Band Port Attenuation S21



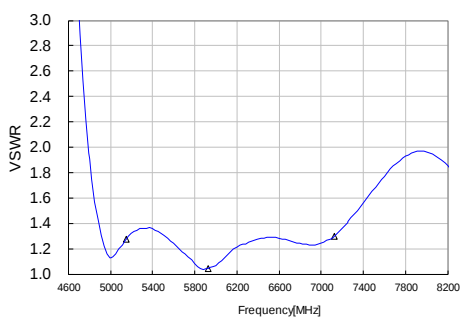
High-Band Port Attenuation S31



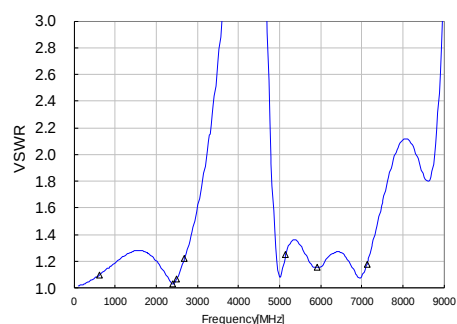
Low-Band Port VSWR S22



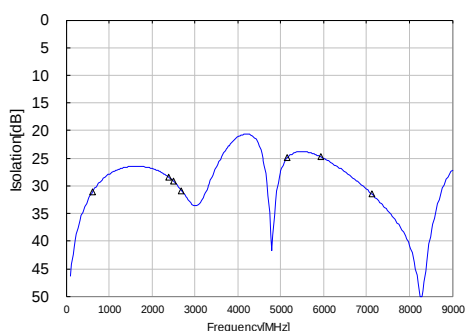
High-Band Port VSWR S33



Common Port VSWR S11



Isolation S23



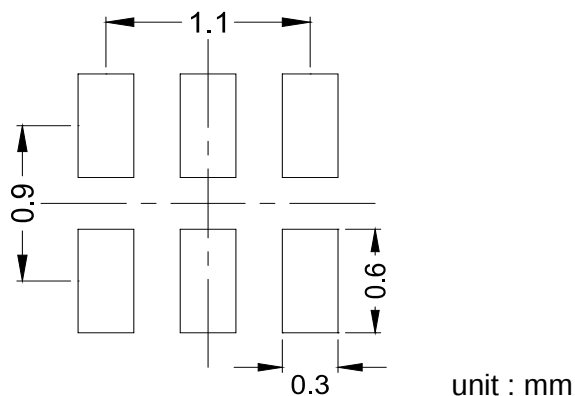
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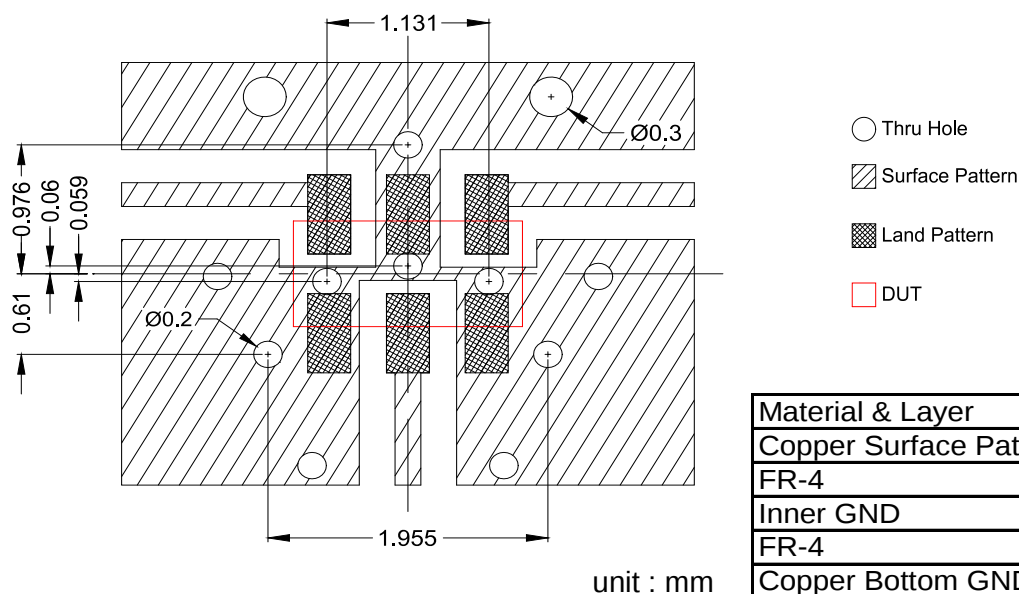
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RECOMMENDED LAND PATTERN



EVALUATION BOARD



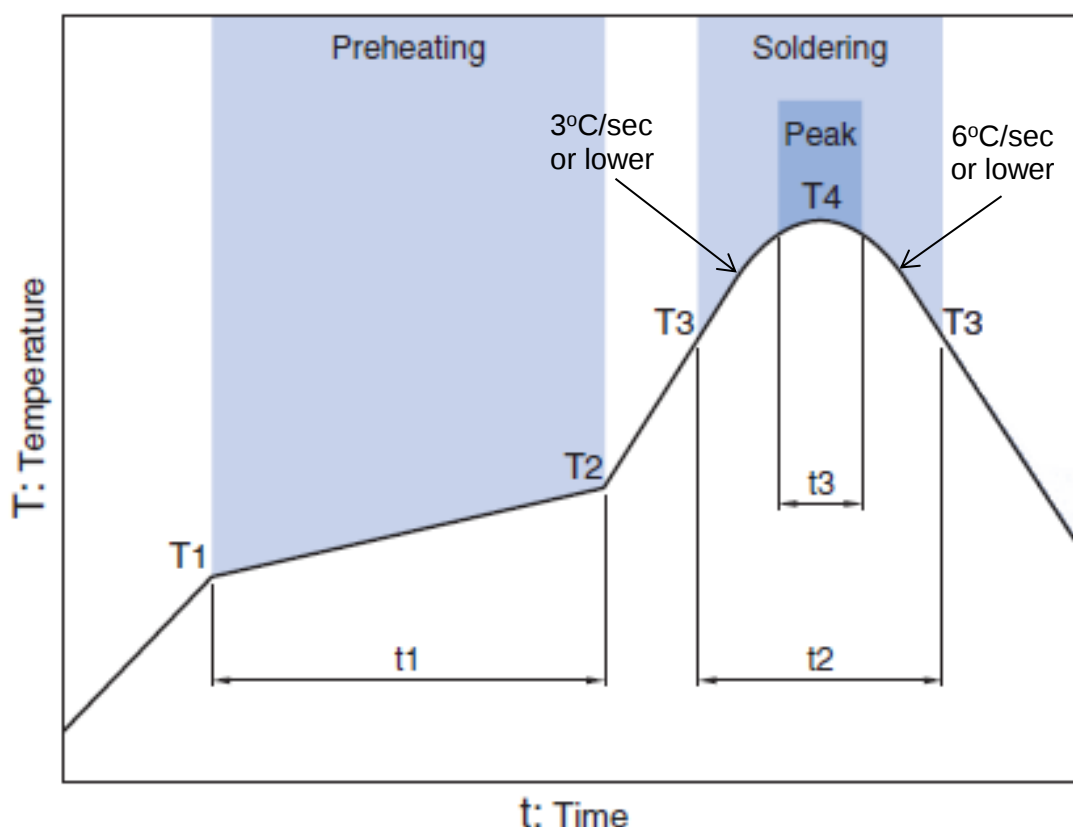
Material & Layer	Thickness
Copper Surface Pattern	0.035 mm
FR-4	0.10 mm
Inner GND	0.018 mm
FR-4	0.30 mm
Copper Bottom GND	0.035 mm

* 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

DPX167125DT-8197B1**RECOMMENDED REFLOW 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)

GENERAL TECHNICAL INFORMATION

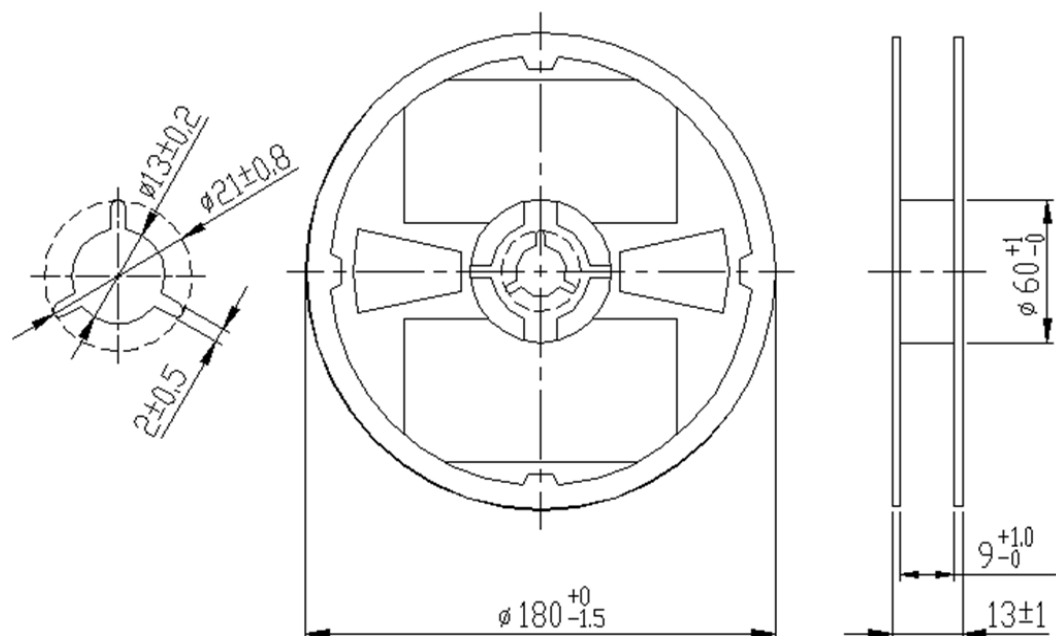
https://product.tdk.com/en/system/files?file=dam/doc/product/rf/rf/coupler/general_tech_info/rf_general-technical-info_02_en.pdf

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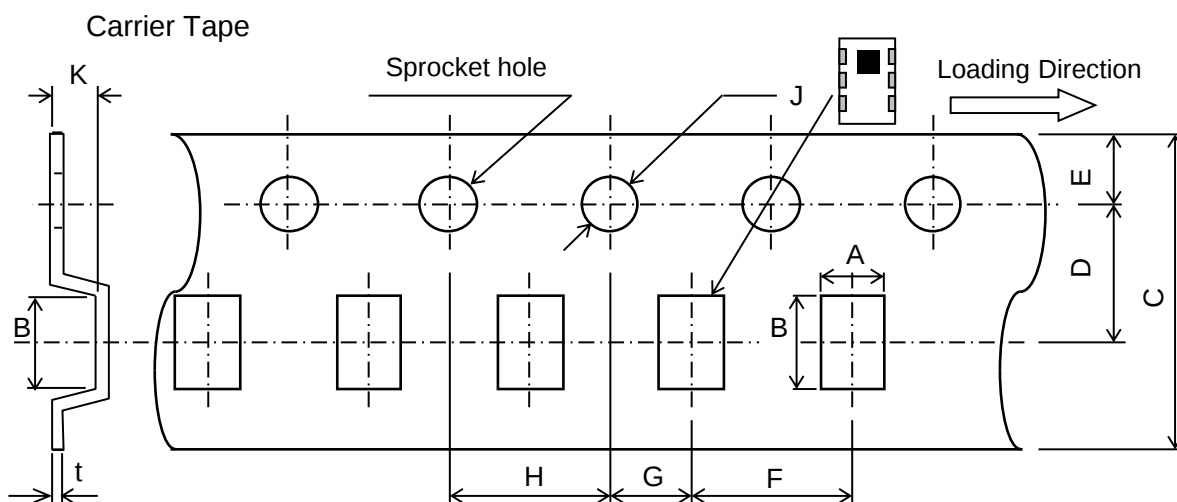
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PACKAGING STYLE

Reel Dimensions



Dimensions in mm



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	$+0.3/-0.1$	± 0.05	± 0.1	± 0.1	± 0.05	± 0.1	$+0.1/-0$	MAX	± 0.05

STANDARD PACKAGE QUANTITY
(pieces/reel)

4,000

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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 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.