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TDK Corporation

Multilayer Diplexer

For 2400-2500MHz / 4900-5850MHz

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

P/N: **DPX165850DT-8040B1**

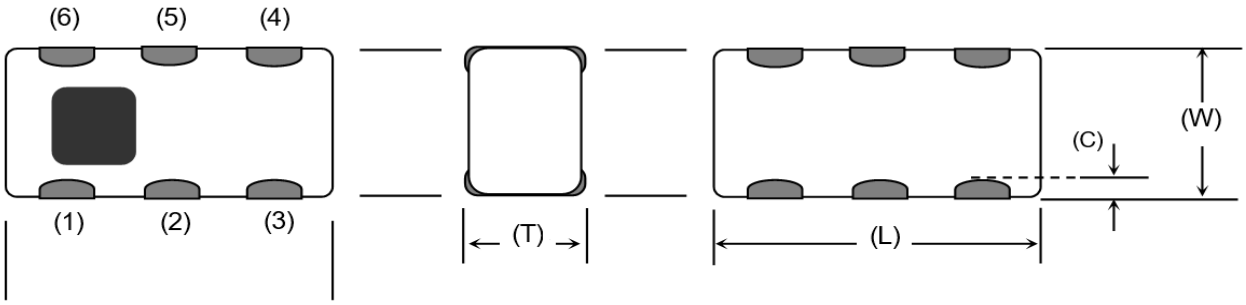
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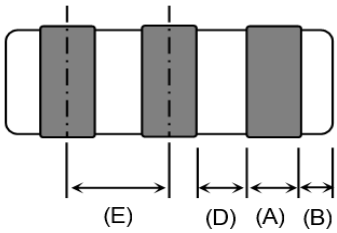
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■ SHAPES AND DIMENSIONS

[Top View] [Bottom View]



[Side View]



Dimensions (mm)

L	W	T	A	B	C	D	E
1.60 +/-0.15	0.80 +/-0.15	0.60 +/-0.10	0.30 +/-0.10	0.10 +/-0.10	0.15 +/-0.10	0.25 +/-0.1	0.55 +/-0.10

Terminal functions

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

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

■ TERMINATION FINISH

Material
Sn plate

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2400 to 2500	-	0.53	0.85
Return Loss@Low-Band (dB)	2400 to 2500	10	15.0	-
Attenuation (dB)	4800 to 5000	23	31.0	-
	7200 to 7500	30	46.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	4900 to 5850	-	1.25	1.90
Return Loss@High-Band (dB)	4900 to 5850	9	12.0	-
Attenuation (dB)	2400 to 2500	25	34.0	-
	3400 to 3900	11	17.0	-
	3600	15	25.0	-
	7200	15	23.0	-
	7250 to 7550	20	25.0	-
	10600 to 11700	30	44.0	-
	15300 to 16200	20	26.0	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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■ 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	2400 to 2500	1	CW
	High-Band	4900 to 5850	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

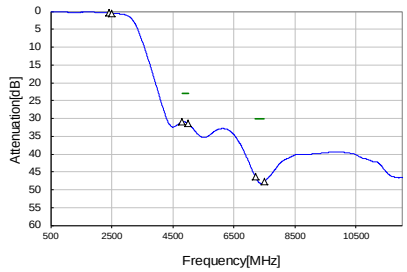
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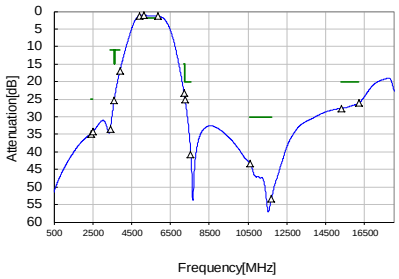
FREQUENCY CHARACTERISTICS

Low band-Port



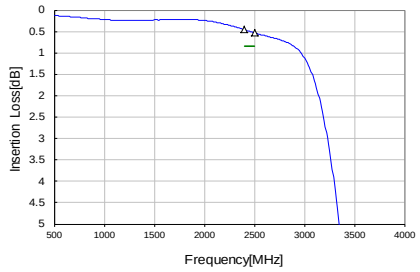
Attenuation		
4800 MHz	31.03	dB
5000 MHz	31.43	dB
7200 MHz	46.37	dB
7500 MHz	47.81	dB

High band-Port



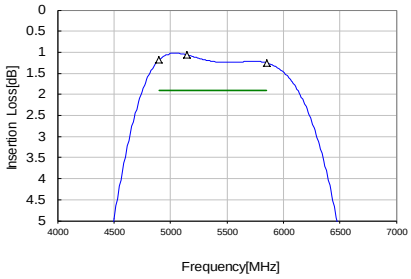
Attenuation		
2400 MHz	34.81	dB
2500 MHz	34.31	dB
3400 MHz	33.48	dB
3600 MHz	25.37	dB
3900 MHz	16.93	dB
7200 MHz	23.23	dB
7250 MHz	25.02	dB
7550 MHz	40.83	dB
10600 MHz	43.32	dB
11700 MHz	53.28	dB
15300 MHz	27.62	dB
16200 MHz	26.09	dB

Low band-Port



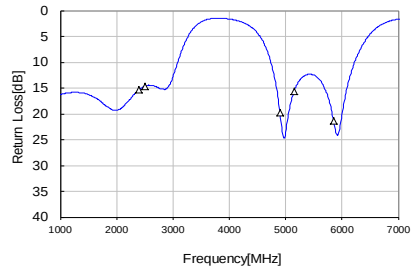
Insertion Loss		
2400 MHz	0.46	dB
2500 MHz	0.53	dB

High band-Port



Insertion Loss		
4900 MHz	1.18	dB
5150 MHz	1.07	dB
5850 MHz	1.25	dB

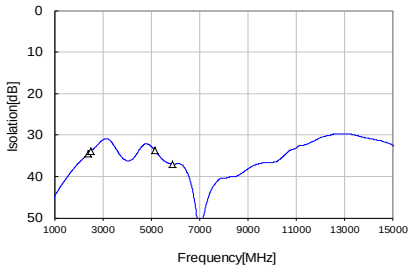
Common Port Return Loss



2400 MHz	15.38	dB
2500 MHz	14.66	dB

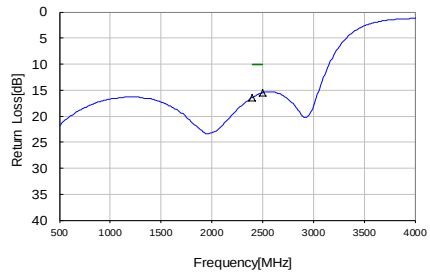
4900 MHz	19.79	dB
5150 MHz	15.62	dB
5850 MHz	21.29	dB

Isolation



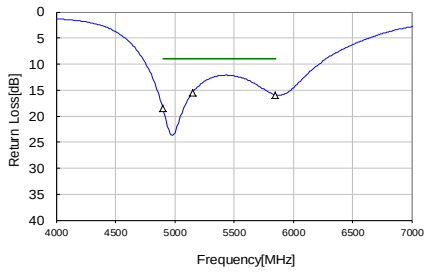
2400 MHz	34.5	dB
2500 MHz	34.0	dB
5150 MHz	33.6	dB
5900 MHz	37.0	dB

Low band-Port Return Loss



2400 MHz	16.40	dB
2500 MHz	15.52	dB

High band-Port Return Loss



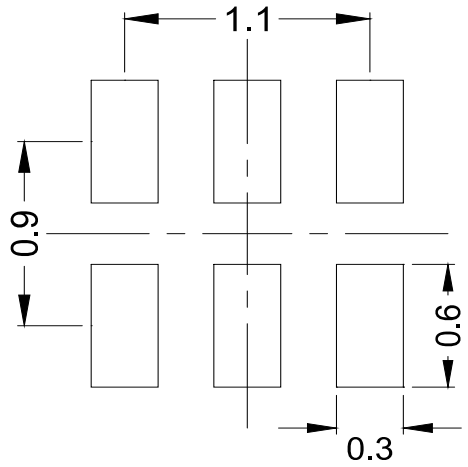
4900 MHz	18.47	dB
5150 MHz	15.50	dB
5850 MHz	15.91	dB

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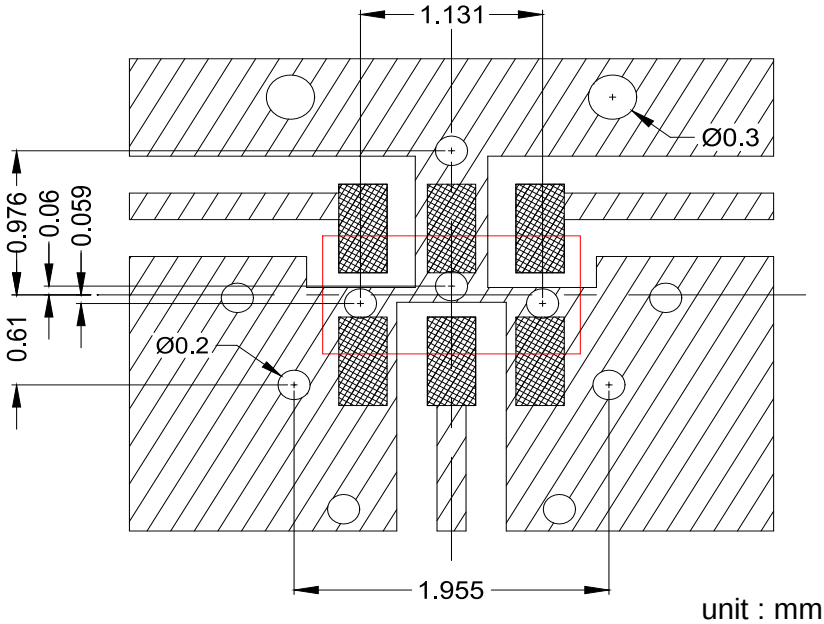
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RECOMMENDED LAND PATTERN



unit : mm

EVALUATION BOARD



Thru Hole
Surface Pattern
Land Pattern
DUT

unit : mm

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 throuh hole which have possibility of influence to the prerformance are indicated by dimension line.

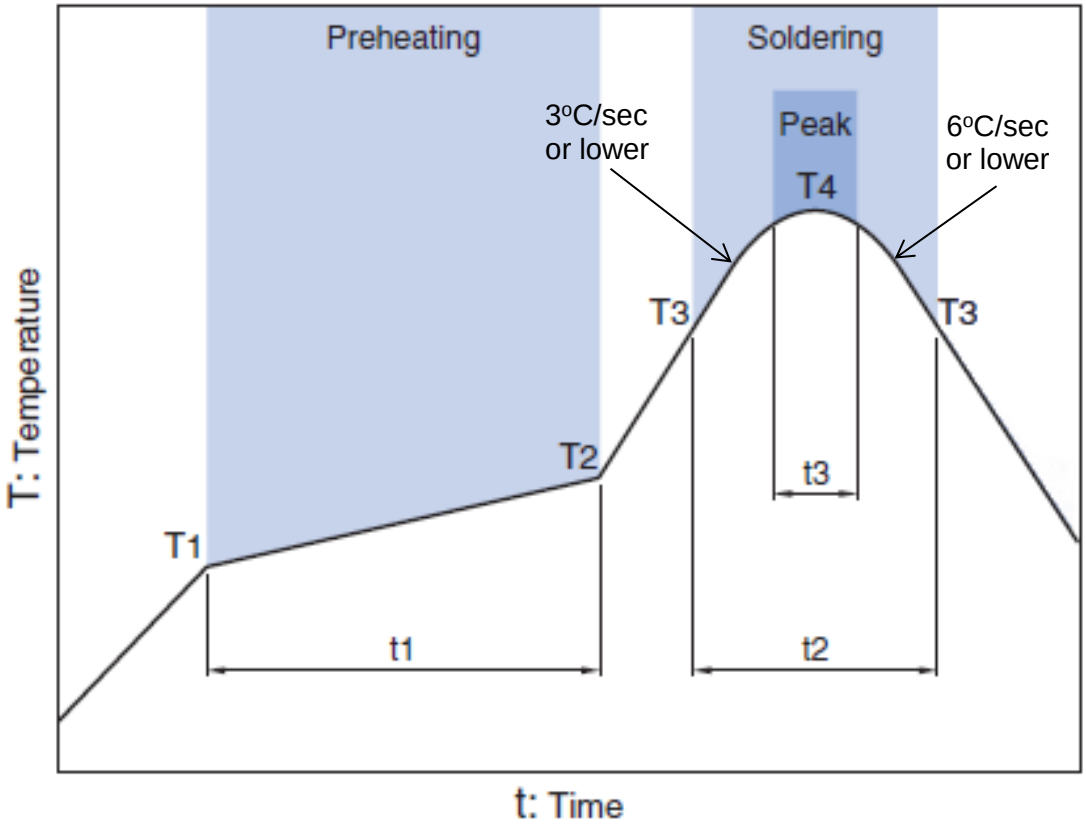
ENVIRONMENT INFORMATION

RoHS Statement
RoHS Compliance

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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)

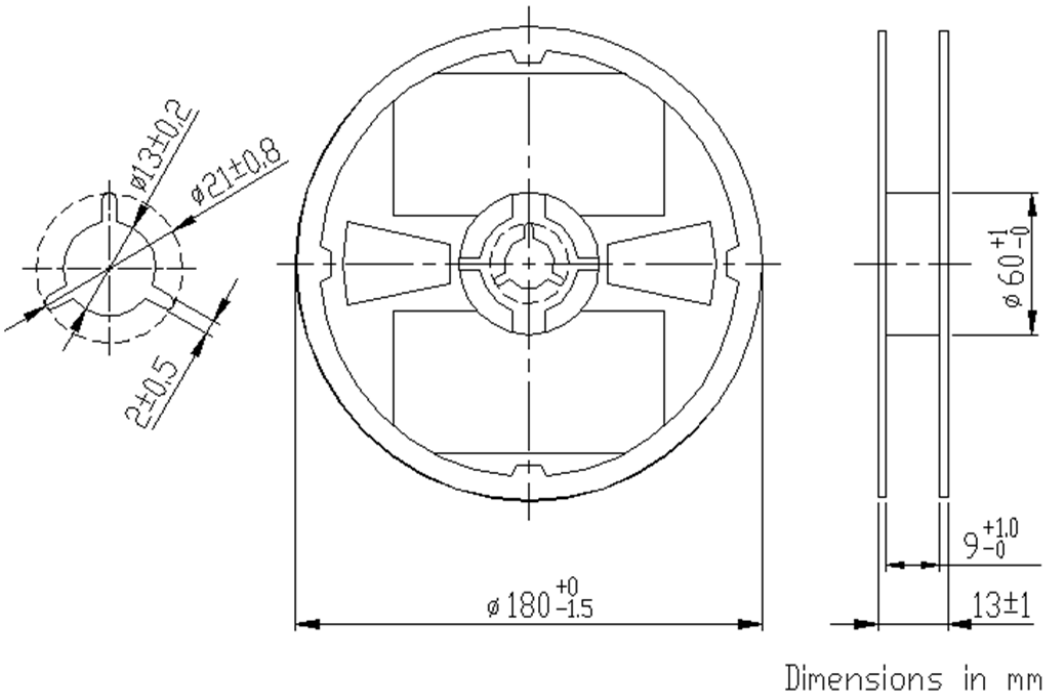
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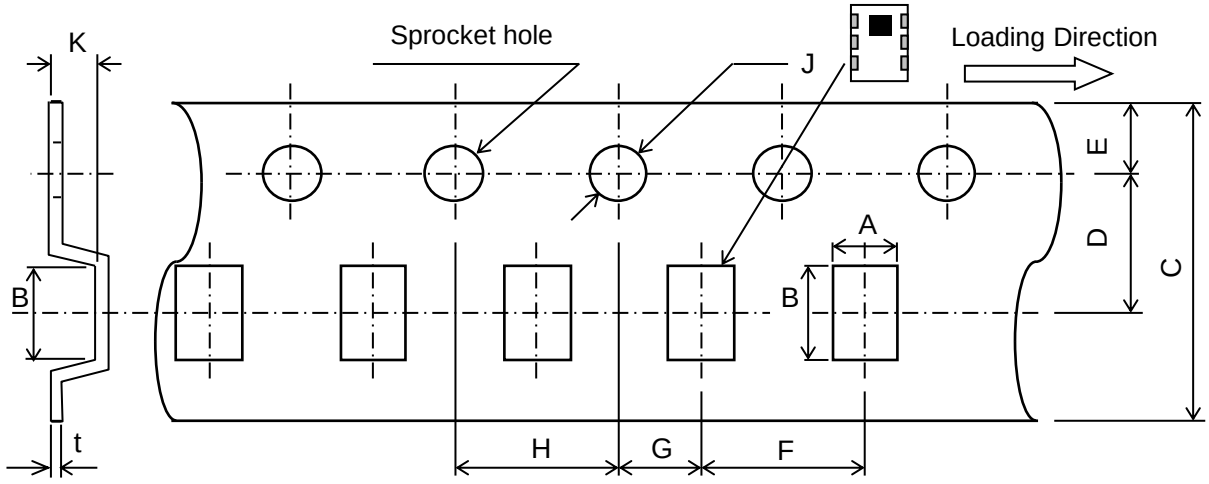
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■ PACKAGING STYLE

Reel Dimensions



Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
1.0 +/-0.05	1.8 +/-0.05	8.0 +/-0.2	3.5 +/-0.05	1.75 +/-0.1	4.0 +/-0.1	2.0 +/-0.05	4.0 +/-0.1	1.5 +0.1/-0	0.8 MAX	0.25 +/-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 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
(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.