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TDK Corporation

Multilayer Triplexer

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

P/N: **TPX207125MT-7325C1**

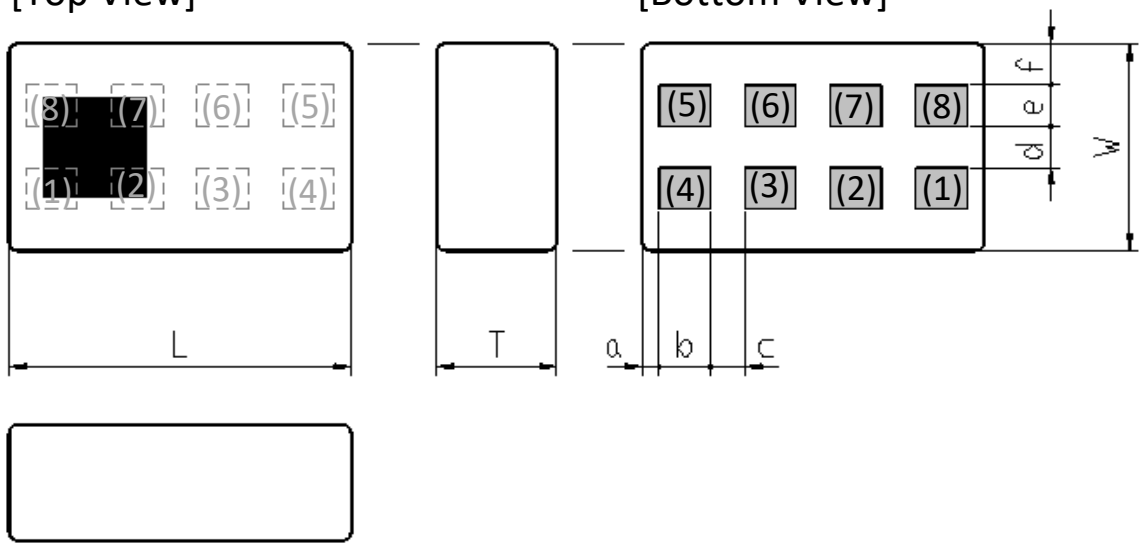
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SHAPES AND DIMENSIONS

[Top View] [Bottom View]



Dimensions (mm)

L	W	T	a	b	c	d	e	f
2.00 +/-0.15	1.25 +/-0.15	0.65 Max	0.10 +/-0.10	0.30 +/-0.05	0.20 +/-0.05	0.20 +/-0.05	0.25 +/-0.05	0.275 +/-0.10

Terminal functions

(1)	GND
(2)	Common Port
(3)	GND
(4)	Low-Band Port

(5)	GND
(6)	Middle-Band Port
(7)	GND
(8)	High-Band Port

TERMINATION FINISH

Material
Ag

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

Low-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	617 to 960	-	0.33	0.50
	1164 to 1249	-	0.36	0.50
	1559 to 1606	-	0.54	0.70
Insertion Loss (dB) –40 to +85 °C	617 to 960	-		0.60
	1164 to 1249	-		0.60
	1559 to 1606	-		0.85
VSWR (Common Port)	617 to 960	-	1.24	2.00
	1164 to 1249	-	1.18	2.00
	1559 to 1606	-	1.18	2.00
VSWR (Low-Band Port)	617 to 960	-	1.25	2.00
	1164 to 1249	-	1.20	2.00
	1559 to 1606	-	1.15	2.00
Attenuation (dB)	2400 to 2500	20	23.2	-
	3300 to 4200	13	16.0	-
	4800 to 6000	25	29.6	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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■ ELECTRICAL CHARACTERISTICS

(Measurement)

Middle-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	2400 to 2500	-	0.95	1.15
Insertion Loss (dB) –40 to +85 °C	2400 to 2500	-		1.35
VSWR (Common Port)	2400 to 2500	-	1.18	2.00
VSWR (Middle-Band Port)	2400 to 2500	-	1.17	2.00
Attenuation (dB)	617 to 960	20	22.9	-
	1164 to 1606	20	24.5	-
	3300 to 4200	15	17.9	-
	4800 to 5000	25	29.6	-
	5150 to 5850	25	32.3	-
	7200 to 7500	30	49.6	-
Characteristic Impedance (ohm)		50 (Nominal)		

Ta = +25+/-5°C

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ELECTRICAL CHARACTERISTICS

(Measurement)

High-Band

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
Insertion Loss (dB)	5150 to 7125	-	0.87	1.30
Insertion Loss (dB) –40 to +85 °C	5150 to 7125	-		1.70
VSWR (Common Port)	5150 to 7125	-	1.26	2.00
VSWR (High-Band Port)	5150 to 7125	-	1.24	2.00
Attenuation (dB)	617 to 960	30	34.0	-
	1164 to 1606	25	30.6	-
	2400 to 2500	25	29.4	-
	3300 to 3800	32	37.5	-
	3800 to 4200	20	22.9	-
	10300 to 14250	20	25.1	-
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)	LB - MB	617 to 960	20	22.7	-
		1164 to 1606	20	24.4	-
		2400 to 2500	20	27.5	-
	LB - HB	617 to 960	30	33.3	-
		1164 to 1606	28	31.1	-
		5150 to 7125	25	29.2	-
	MB - HB	2400 to 2500	25	30.1	-
		4800 to 5000	25	29.1	-
		5150 to 7125	25	32.6	-

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 960	4	CW	Duty 50%
		1164 to 1606	1	CW	Duty 100%
	Middle-Band	2400 to 2500	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	

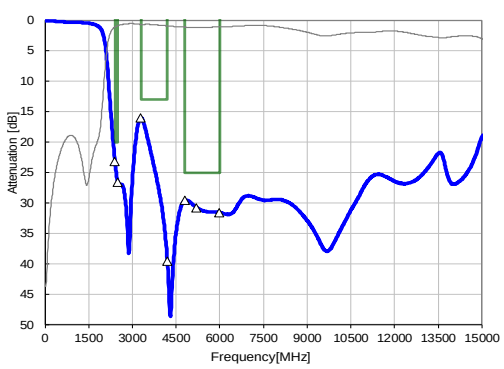
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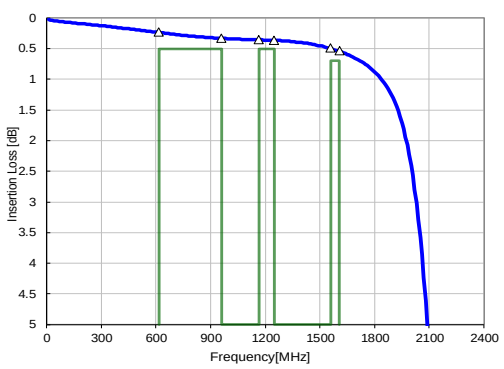
FREQUENCY CHARACTERISTICS

Low Band Attenuation



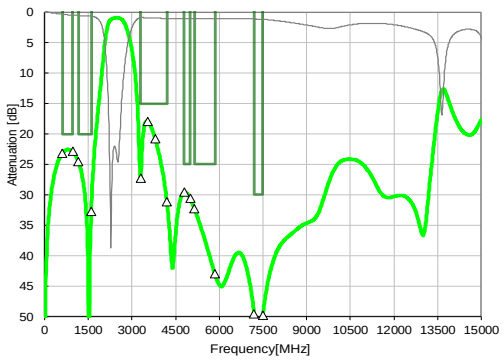
MHz	dB
2400	23.2
2500	26.6
3300	16.0
4200	39.6
4800	29.6
5200	30.7
6000	31.6

Low Band Insertion Loss



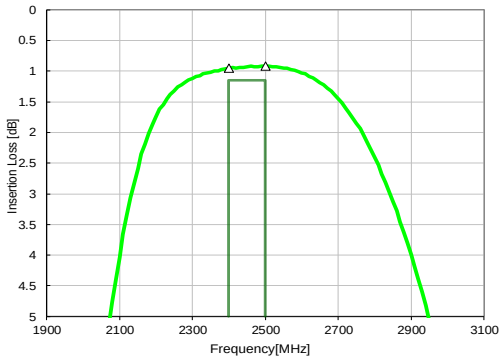
MHz	dB
617	0.23
960	0.33
1164	0.35
1249	0.36
1559	0.49
1606	0.54

Middle Band Attenuation



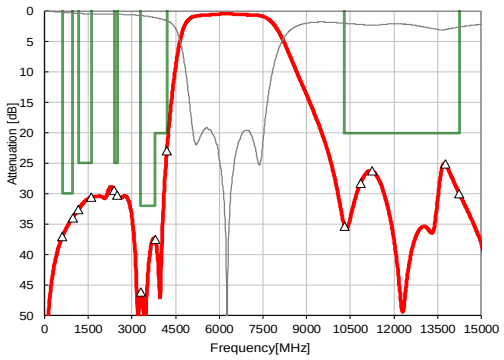
MHz	dB
617	23.2
960	22.9
1164	24.5
1606	32.8
3300	27.3
3550	17.9
3800	20.8
4200	31.1
4800	29.6
5000	30.6
5150	32.3
5850	43.0
7200	49.6
7500	49.8

Middle Band Insertion Loss



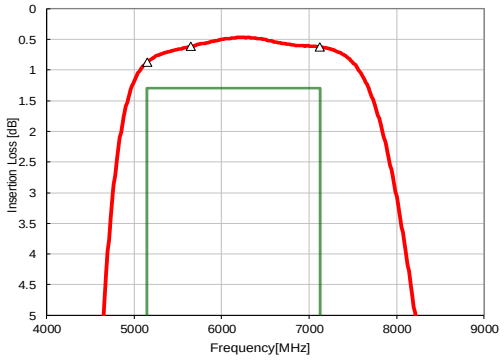
MHz	dB
2400	0.95
2500	0.91

High Band Attenuation



MHz	dB
617	37.0
960	34.0
1164	32.6
1606	30.6
2400	29.4
2500	30.3
3300	46.2
3800	37.5
4200	22.9
10300	35.4
10850	28.3
11250	26.3
13760	25.1
14250	30.0

High Band Insertion Loss



MHz	dB
5150	0.87
5650	0.62
7125	0.62

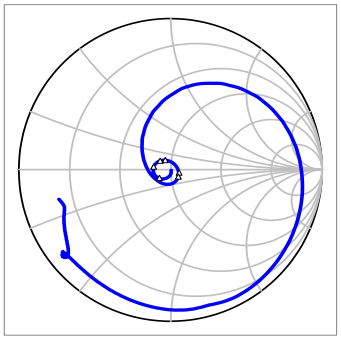
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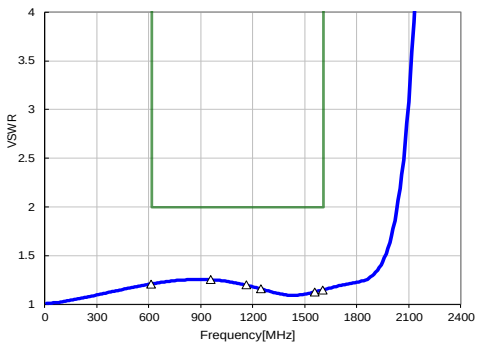
FREQUENCY CHARACTERISTICS

Low Band Port Smith Chart



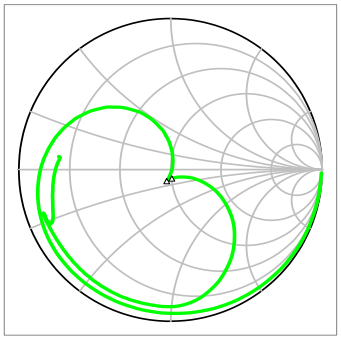
MHz	Ω
617	42.6-4.72j
960	40+1.39j
1164	43.3+5.18j
1249	45.9+5.95j
1559	55.7-2.39j
1606	55.3-5j

Low Band Port VSWR



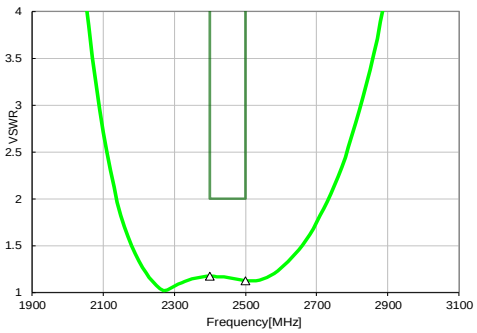
MHz	
617	1.21
960	1.25
1164	1.20
1249	1.16
1559	1.12
1606	1.15

Middle Band Port Smith Chart



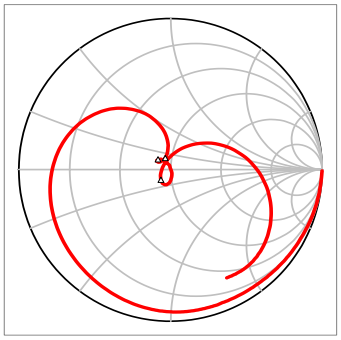
MHz	Ω
2400	47-7.17j
2500	50.1-6.04j

Middle Band Port VSWR



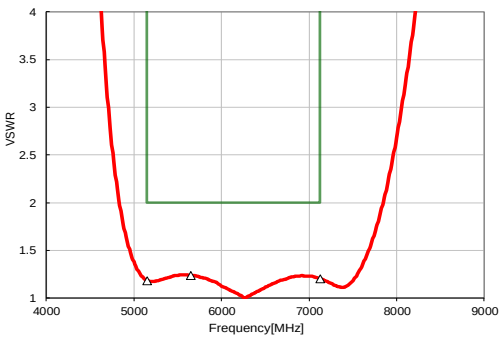
MHz	
2400	1.17
2500	1.13

High Band Port Smith Chart



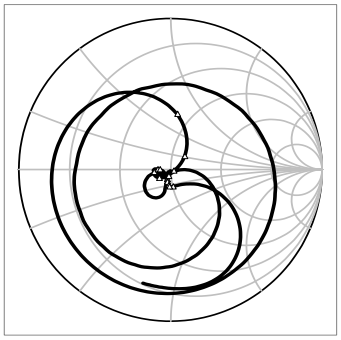
MHz	Ω
5150	45.9+7.03j
5650	42+5.61j
7125	43.7-6.11j

High Band Port VSWR



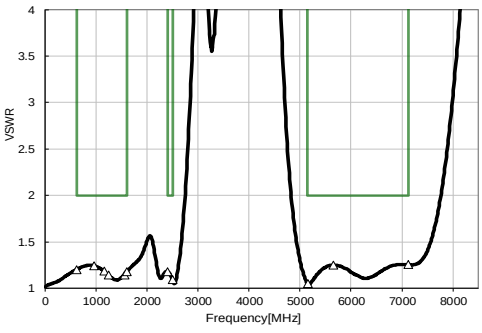
MHz	
5150	1.19
5650	1.24
7125	1.21

Common Port Smith Chart



MHz	Ω
617	42.9-4.69j
960	40.4-1.43j
1164	42.3+0.17j
1249	43.7+0.03j
1559	47.5-6.08j
1606	47.2-7.45j
2400	47.2-7.58j
2500	48.6-4.03j
5150	52.2-0.82j
6760	47.6-9.96j
7125	50.4-11.45j

Common Port VSWR



MHz	
617	1.20
960	1.24
1164	1.18
1249	1.15
1559	1.14
1606	1.18
2400	1.18
2500	1.09
5150	1.05
5650	1.25
7125	1.26

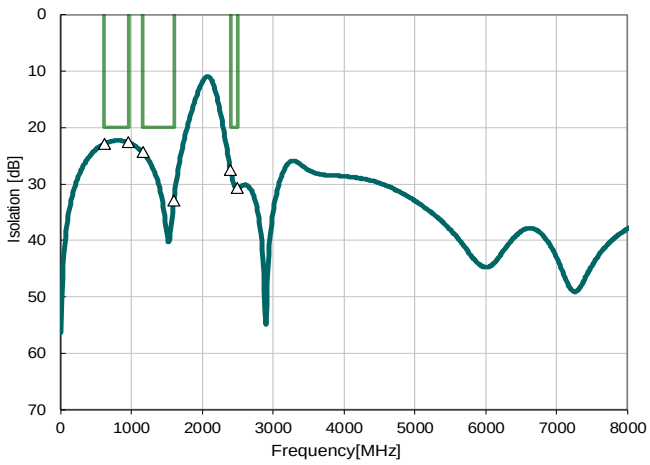
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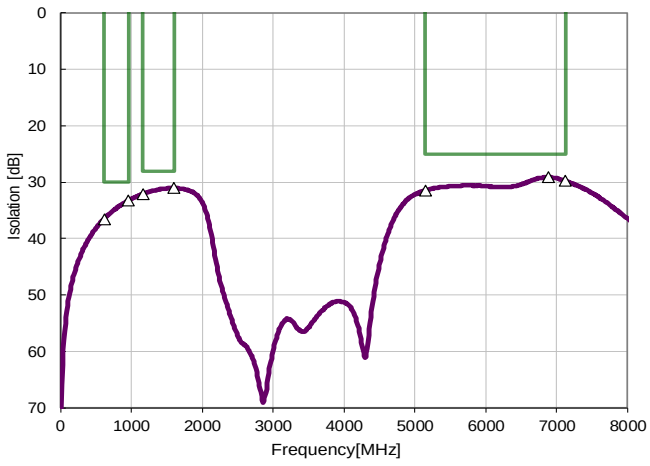
FREQUENCY CHARACTERISTICS

Low - Middle Isolation



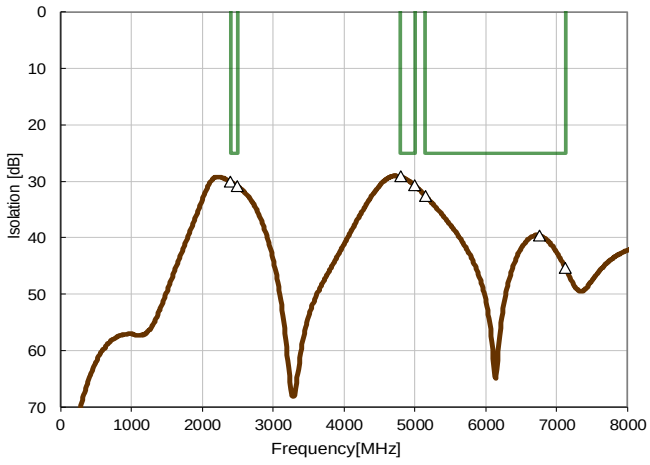
MHz	dB
617	22.9
960	22.7
1164	24.4
1606	32.9
2400	27.5
2500	30.7

Low - High Isolation



MHz	dB
617	36.6
960	33.3
1164	32.1
1606	31.1
5150	31.5
6890	29.2
7125	29.8

Middle - High Isolation



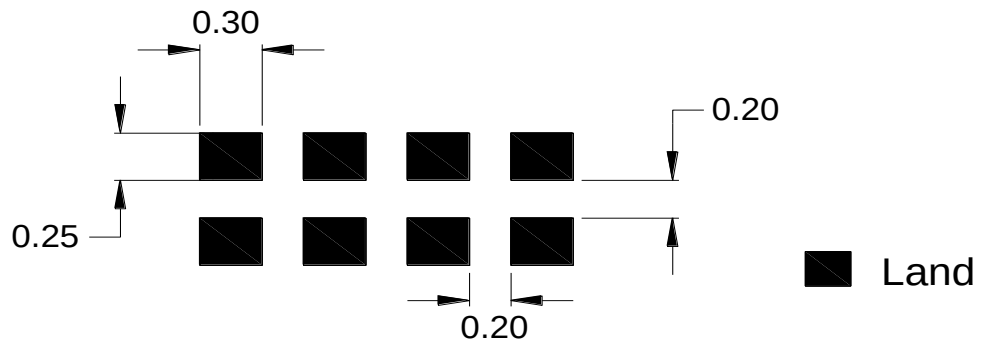
MHz	dB
2400	30.1
2500	30.9
4800	29.1
5000	30.8
5150	32.6
6760	39.6
7125	45.3

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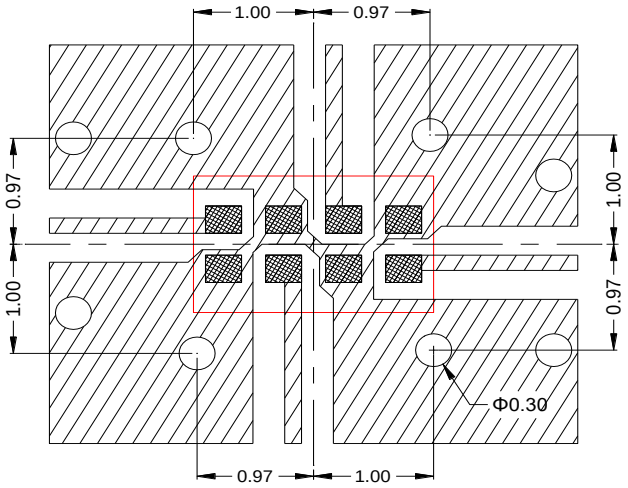
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RECOMMENDED LAND PATTERN



unit : mm

EVALUATION BOARD



unit : mm

Thru Hole
Surface Pattern
Land Pattern
DUT

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.

ENVIRONMENT INFORMATION

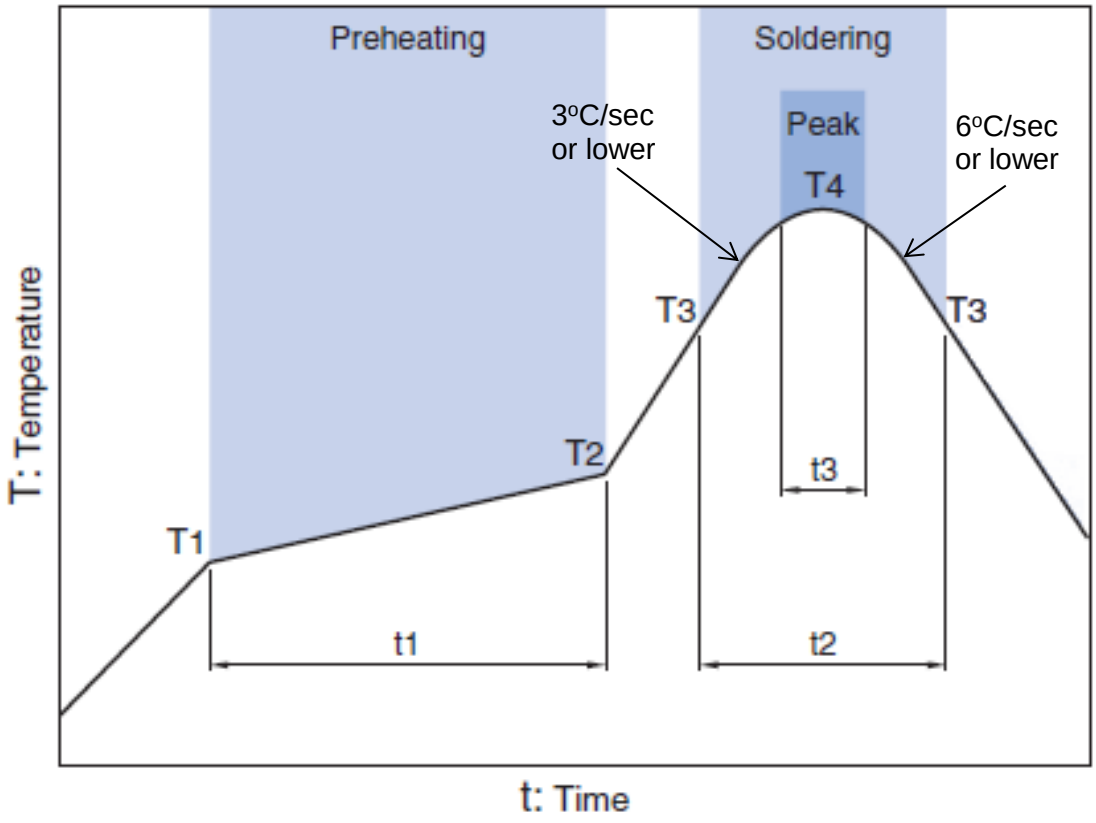
RoHS Statement
RoHS Compliance

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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)

■ GENERAL TECHNICAL INFORMATION

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

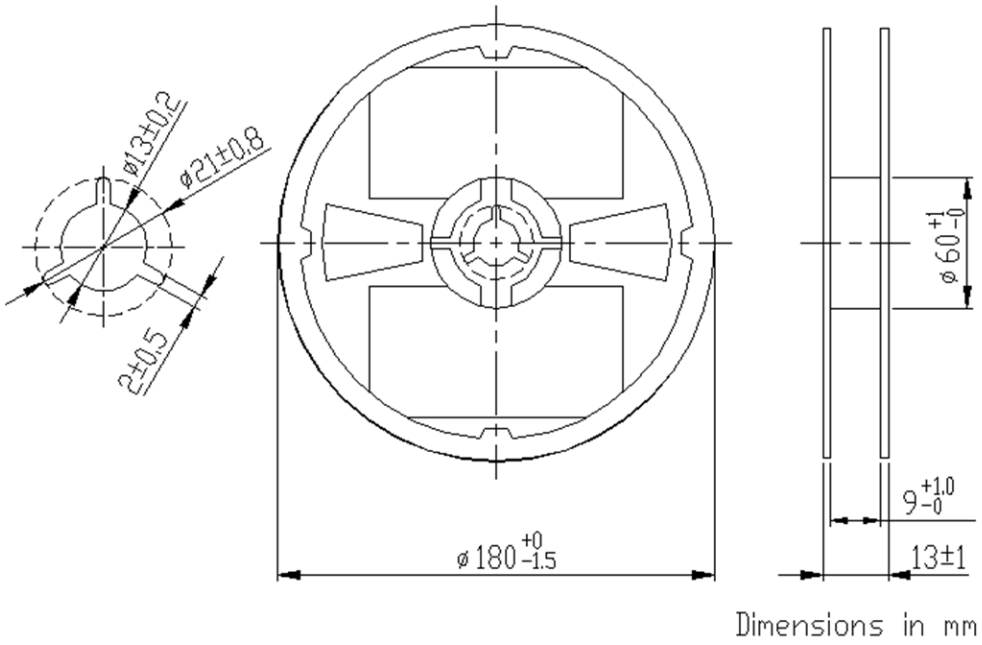
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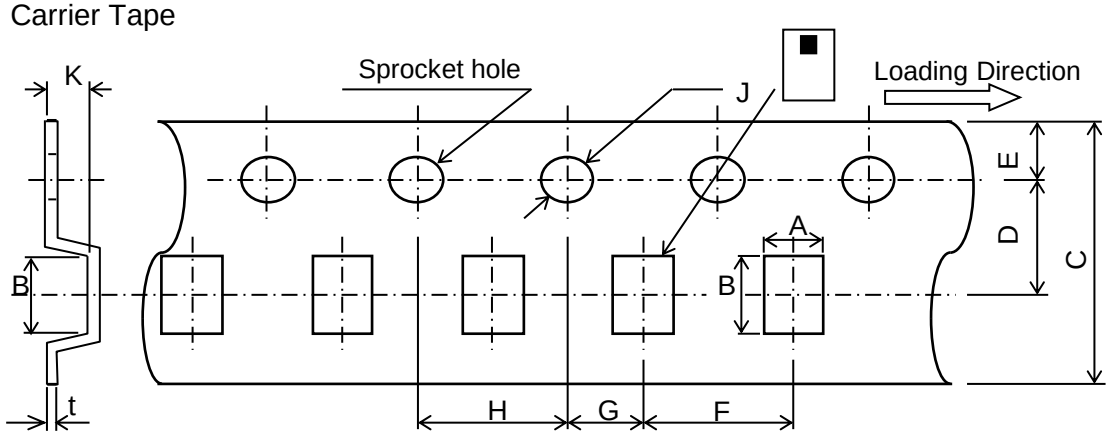
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■ PACKAGING STYLE

Reel Dimensions



Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
1.45 +/-0.05	2.2 +/-0.05	8.0 +0.3/-0.1	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)
2,000

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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.

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