

TP 2520 Series

Multilayer Chip Triplexers

Features

- ❖ Monolithic structure including one low-pass and two band-pass filters with loss pole at adjacent passband.
- ❖ HF & RoHS compliant.

Applications

- ❖ Wireless Communication.



Specifications

Part Number	Passband (MHz)	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)	Isolation (dB)
TP2520 -R213761 CT	1427~1511	0.5 max. / 0.24 typ. @ 25°C 0.7 max. @ -40~105°C	10 min. / 16 typ.	18 min. / 22 typ. @ 3300 ~ 3700 MHz 20 min. / 22 typ. @ 3700 ~ 3800 MHz 20 min. / 22 typ. @ 3800 ~ 4200 MHz 20 min. / 27 typ. @ 4400 ~ 5000 MHz 23 min. / 28 typ. @ 5150 ~ 5925 MHz 23 min. / 31 typ. @ 5925 ~ 7125 MHz 10 min. / 21 typ. @ 7125 ~ 12750 MHz	Middle to Low 18 min. / 25 typ. @ 617 ~ 960 MHz 18 min. / 27 typ. @ 1427 ~ 1600 MHz 18 min. / 27 typ. @ 1447 ~ 1606 MHz 20 min. / 30 typ. @ 1695 ~ 1710 MHz 20 min. / 30 typ. @ 1710 ~ 2200 MHz 18 min. / 21 typ. @ 2300 ~ 2690 MHz 20 min. / 24 typ. @ 3300 ~ 4200 MHz
	1559~1563	0.5 max. / 0.25 typ. @ 25°C 0.7 max. @ -40~105°C			
	1574~1576	0.5 max. / 0.26 typ. @ 25°C 0.7 max. @ -40~105°C			
	1598~1606	0.5 max. / 0.26 typ. @ 25°C 0.7 max. @ -40~105°C			
	1710~1785	0.5 max. / 0.29 typ. @ 25°C 0.7 max. @ -40~105°C			
	1805~1885	0.5 max. / 0.31 typ. @ 25°C 0.7 max. @ -40~105°C			High to Low 35 min. / 55 typ. @ 617 ~ 960 MHz 35 min. / 50 typ. @ 1427 ~ 1606 MHz 35 min. / 49 typ. @ 1695 ~ 1710 MHz 35 min. / 42 typ. @ 1710 ~ 2690 MHz 24 min. / 31 typ. @ 5150 ~ 7125 MHz
	1930~1990	0.7 max. / 0.32 typ. @ 25°C 0.9 max. @ -40~105°C			
	2300~2496	1.1 max. / 0.46 typ. @ 25°C 1.3 max. @ -40~105°C			
	2496~2690	1.1 max. / 0.65 typ. @ 25°C 1.3 max. @ -40~105°C			Middle to High 15 min. / 20 typ. @ 3300 ~ 4200 MHz 17 min. / 26 typ. @ 5150 ~ 7125 MHz

	3300~4200	1.35 max. / 1.15 typ. @ 25°C 1.55 max. @ -40~105°C	10 min. / 18 typ.	20 min. / 25 typ. @ 500 ~ 1606 MHz 22 min. / 29 typ. @ 1606 ~ 2400 MHz 22 min. / 35 typ. @ 2400 ~ 2500 MHz 18 min. / 21 typ. @ 2500 ~ 2690 MHz 0.5 min. / 2.4 typ. @ 2700 ~ 3150 MHz 1 min. / 2.0 typ. @ 4400 ~ 4900 MHz 8 min. / 22 typ. @ 4900 ~ 5150 MHz 15 min. / 22 typ. @ 5150 ~ 5925 MHz 15 min. / 22 typ. @ 6250 ~ 6550 MHz 15 min. / 24 typ. @ 6600 ~ 8400 MHz 15 min. / 39 typ. @ 8400 ~ 9900 MHz 10 min. / 36 typ. @ 9900 ~ 12600 MHz 10 min. / 20 typ. @ 13200 ~ 16800 MHz	
	5150~5925	1.35 max. / 0.96 typ. @ 25°C 1.55 max. @ -40~105°C	10 min. 18 typ.	25 min. / 50 typ. @ 100 ~ 960 MHz 25 min. / 49 typ. @ 1161 ~ 1249 MHz 25 min. / 49 typ. @ 1427 ~ 1610 MHz 25 min. / 45 typ. @ 1695 ~ 2200 MHz 25 min. / 45 typ. @ 2300 ~ 2370 MHz 25 min. / 44 typ. @ 2400 ~ 2484 MHz 29 min. / 43 typ. @ 2496 ~ 2690 MHz 35 min. / 37 typ. @ 3300 ~ 3800 MHz 15 min. / 20 typ. @ 3800 ~ 4200 MHz 15 min. / 28 typ. @ 10300 ~ 11850 MHz 8 min. / 25 typ. @ 15450 ~ 17775 MHz	
	6095~7125	1.1 max. / 0.81 typ. @ 25°C 1.4 max. @ -40~105°C			

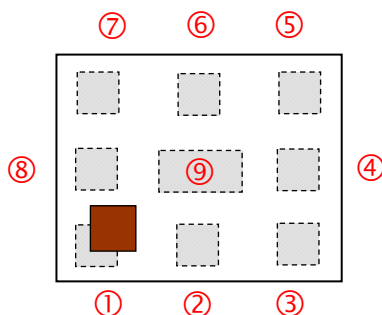
Q'ty/Reel (pcs) : 3000
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Storage Period : 12 months max.
 Power Capacity : 3W max.

Part Number

TP 2520 - R 213761 CT □ /LF
 ① ② ③ ④ ⑤ ⑥ ⑦

① Type	TP : Triplexer	② Dimensions (L × W)	2.5 × 2.0 mm
③ Material Code	R	④ Frequency Range	213761=2100MHz /3700MHz/6100MHz
⑤ Specification Code	CT	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

Terminal Configuration

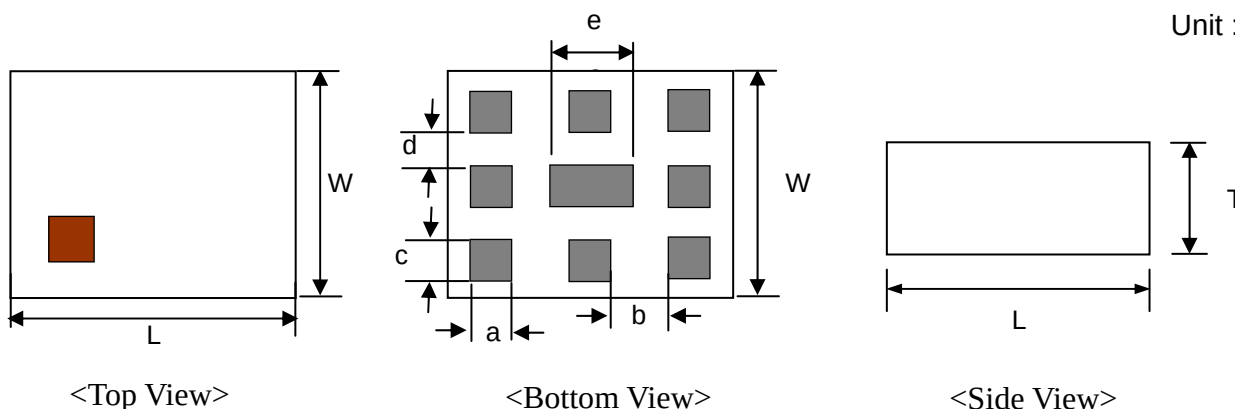


<Top View>

No.	Terminal Name	No.	Terminal Name
①	High band	⑥	GND
②	GND	⑦	ANT
③	Middle band	⑧	GND
④	GND	⑨	GND
⑤	Low band		

Dimensions and Recommended PC Board Pattern

Unit : mm

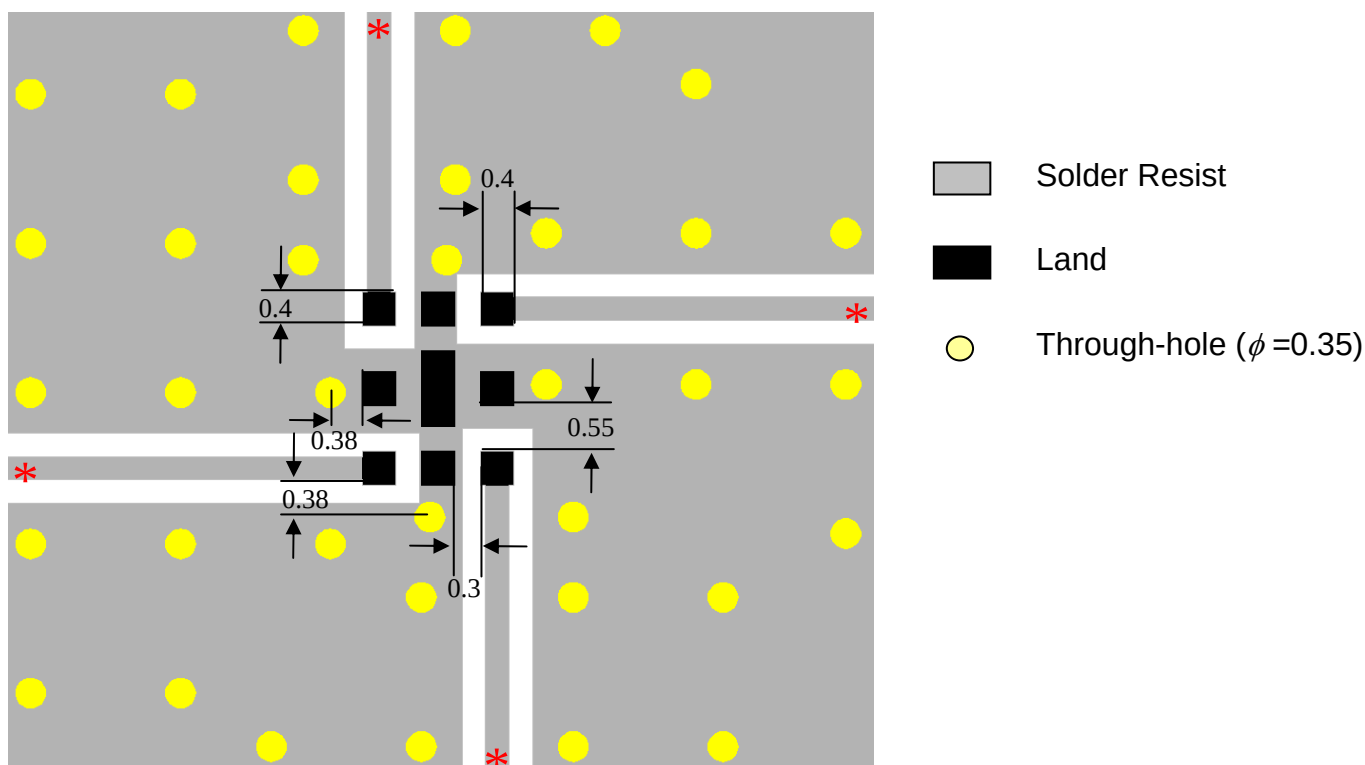


<Top View>

<Bottom View>

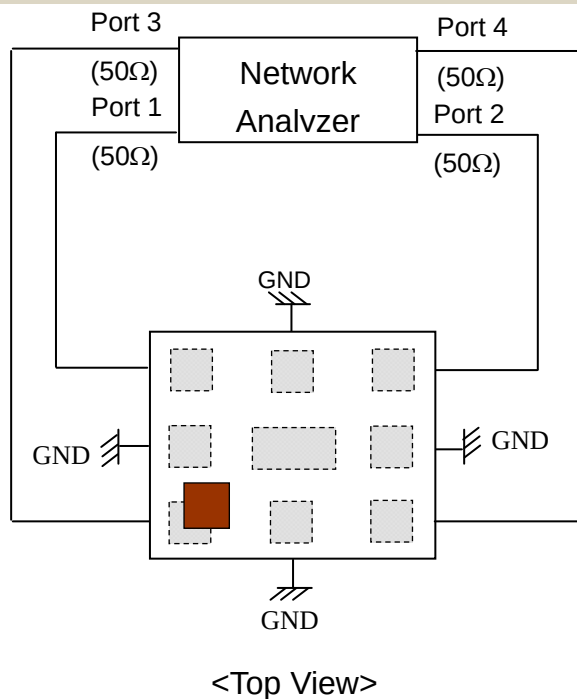
<Side View>

Mark	L	W	T	a	b	c	d	e
Dimensions	2.5 ± 0.1	2.0 ± 0.1	0.65 max.	0.4 ± 0.1	0.55 ± 0.15	0.4 ± 0.1	0.3 ± 0.1	0.9 ± 0.15



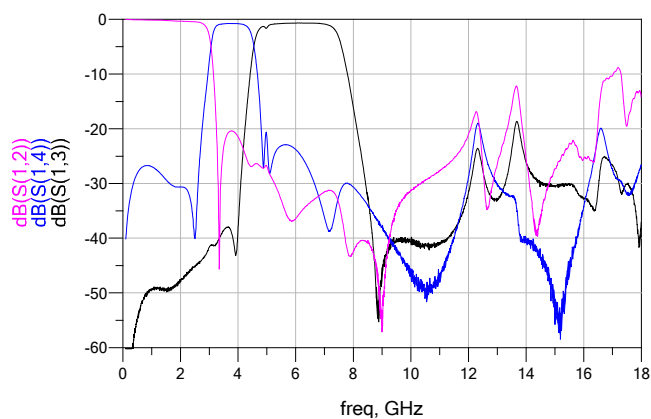
* Line width should be designed to match 50 Ω characteristic impedance, depending on PCB material and thickness.

Measuring Diagram

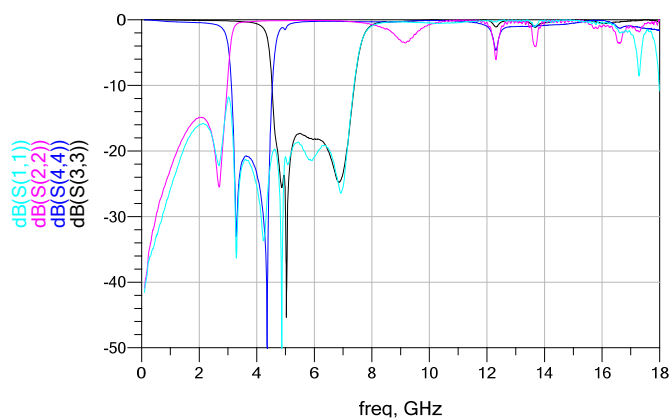


Electrical Characteristics(T=25°C)

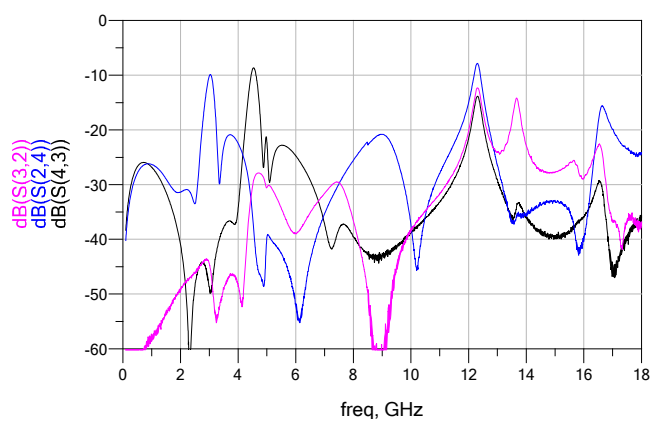
Attenuation



Return Loss



Isolation

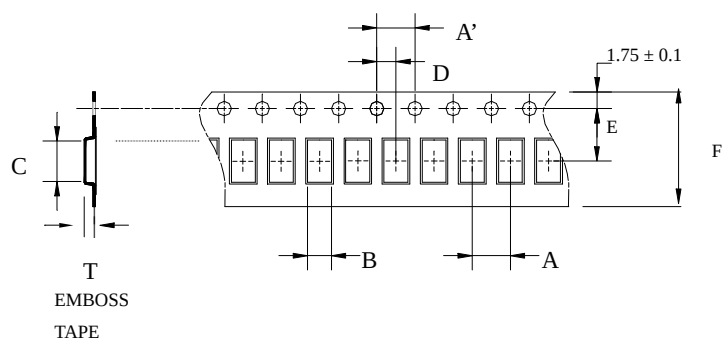


Notes

- ❖ The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

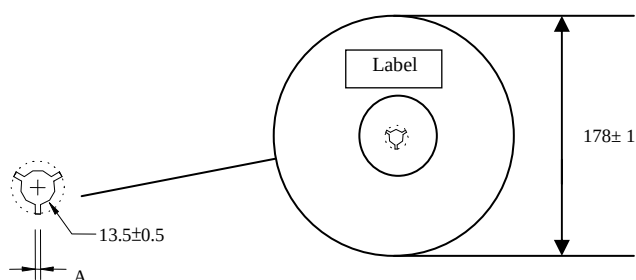
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
2520	4.0± 0.1	4.0± 0.1	2.35± 0.1	2.80± 0.1	2.0± 0.1	3.5± 0.1	8.0± 0.1	0.8± 0.1	3,000pcs	Plastic (Embossed)

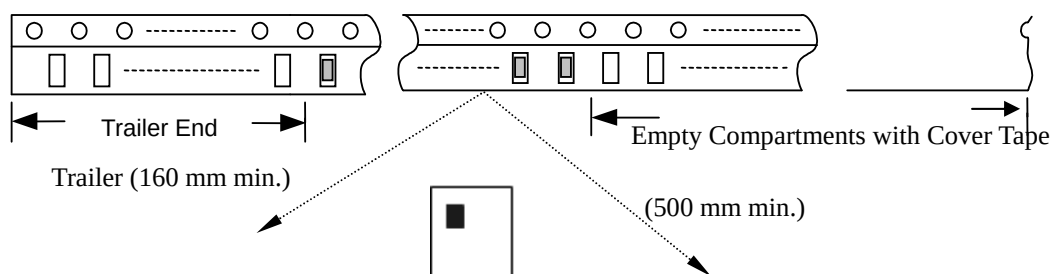
❖Reel Dimensions (Unit: mm)



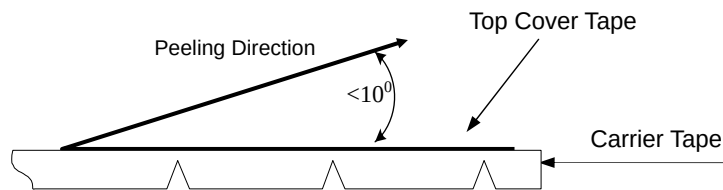
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
2520	2.3±0.5	9.0±0.3

❖Leader and Trailer Tape



❖Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300 ± 10 mm/min .

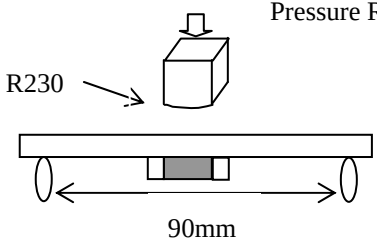
❖Storage Conditions

- (1) Temperature: 5 ~35°C , relative humidity (RH): 45~75%.
- (2) Non-corrosive environment.

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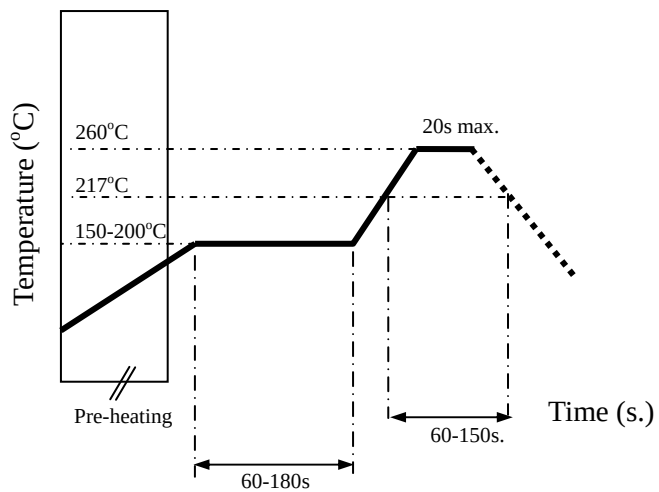
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	- No apparent damage - More than 95% of the terminal electrode shall be covered with new solder	- Preheat: $120 \pm 5^{\circ}\text{C}$ - Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	10N minimum	- Solder specimen onto test jig. - Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction
Deflection (Substrate Bending)	No apparent damage	- Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. - Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $85 \pm 2^{\circ}\text{C}$ - Humidity: 90% ~ 95% RH - Duration: 1000 ± 48hrs - Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	- No apparent damage - Fulfill the electrical specification after test	- One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 5^{\circ}\text{C}$ for 30 min - No of cycles : 100 - Recovery: 1-2 hrs
Low Temperature Resistance	- No apparent damage - Fulfill the electrical specification after test	- Temperature: $-40 \pm 5^{\circ}\text{C}$ - Duration: 500 ± 24hrs - Recovery: 1-2hrs

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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