

TP 2520 Series (Preliminary)

Multilayer Chip Triplexers

Features

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

Applications

- ❖ LTE Mobile Communication.

Target Specifications

| Part Number | Passband (MHz) | Insertion Loss (dB) | VSWR | Attenuation (dB) | Isolation (dB) |
|--------------------------|----------------|---------------------|----------|--|---|
| TP2520 -R213655 CA | 1427~1990 | 0.5 max. | 2.0 max. | 21 min. @ 3400 ~ 3800MHz 27 min. @ 5150 ~ 5925MHz 9.5 min. @ 5925 ~ 12750MHz | Middle to Low 21 min. @617 ~ 960MHz 21 min. @1427 ~ 1606MHz 23 min. @1695 ~ 1710MHz 21 min. @1710 ~ 2200MHz 20 min. @2300 ~ 2690MHz 20 min. @3400 ~ 3600MHz 22 min. @3600 ~ 3800MHz 30 min. @5150 ~ 5950MHz |
| | 2300~2496 | 0.6 max. | | | |
| | 2490~2690 | 0.8 max. | | | |
| | 3400~3800 | 1.15 max. | 2.0 max. | 20 min. @ 617~1606MHz 21 min. @ 1606 ~ 2400MHz 23 min. @ 2400 ~ 2500MHz 21 min. @ 2500 ~ 2690MHz 2 min. @ 2700 ~ 3150MHz 1 min. @ 4400 ~ 4900MHz 8 min. @ 4900 ~ 5150MHz 16 min. @ 5150 ~ 5950MHz 20 min. @ 6250 ~ 6550MHz 20 min. @ 6800 ~ 7200MHz 20 min. @ 10200 ~ 10800MHz 10 min. @ 13600 ~ 15200MHz | High to Low 35 min. @617 ~ 960MHz 35 min. @1427 ~ 1606MHz 35 min. @1695 ~ 1710MHz 35 min. @1710 ~ 2690MHz 30 min. @3400 ~ 3800MHz 26 min. @5150 ~ 5950MHz |

| Part Number | Passband (MHz) | Insertion Loss (dB) | VSWR | Attenuation (dB) | Isolation (dB) |
|-----------------------------------|----------------|---------------------|----------|---------------------------|---|
| TP2520 -R213655 CA | 5150~5925 | 1.2 max. | 2.0 max. | 25min. @ 100 ~ 960MHz | Middle to High 15 min. @617 ~ 960MHz 15 min. @1427 ~ 1606MHz 15 min. @1710 ~ 2690MHz 15 min. @3400 ~ 3800MHz 15 min. @5150 ~ 5950MHz |
| | | | | 25min. @ 1166 ~ 1249MHz | |
| | | | | 25min. @ 1427 ~ 1610MHz | |
| | | | | 25min. @ 1695 ~ 2200MHz | |
| | | | | 25min. @ 2300 ~ 2370MHz | |
| | | | | 25min. @ 2400 ~ 2484MHz | |
| | | | | 30min. @ 2496 ~ 2690MHz | |
| | | | | 16min. @ 3400 ~ 3800MHz | |
| | | | | 10min. @ 10300 ~ 11850MHz | |
| | | | | 5 min. @ 15450 ~ 17775MHz | |

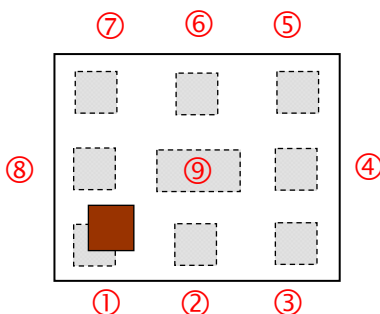
Q'ty/Reel (pcs) : 3000
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Storage Period : 12 months max.
 Power Capacity : 3W max.

Part Number

TP 2520 - R 213655 CA □ /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 | 213655=2100MHz /3600MHz/5500MHz |
| ⑤ Specification Code | CA | ⑥ Packaging | T: Tape & Reel B: Bulk |
| ⑦ Soldering | /LF=lead-free | | |

Terminal Configuration

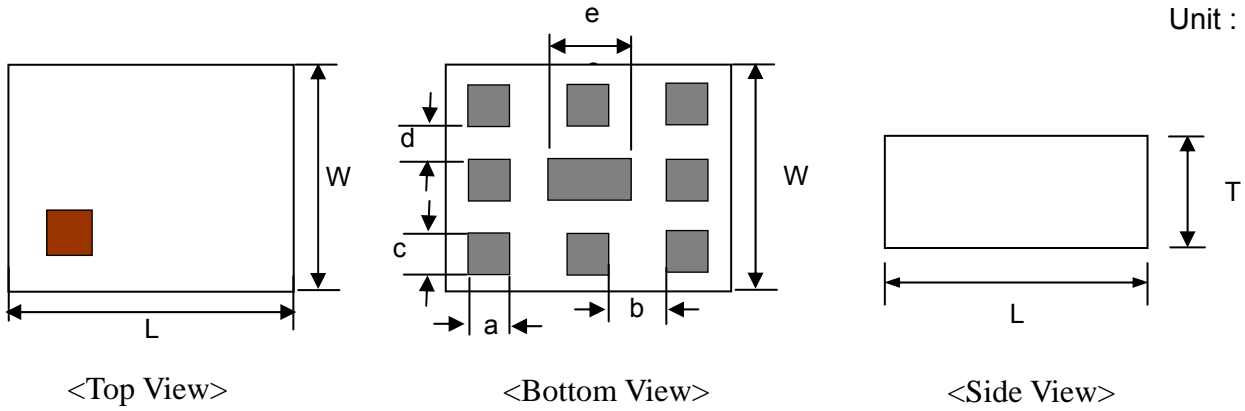


<Top View>

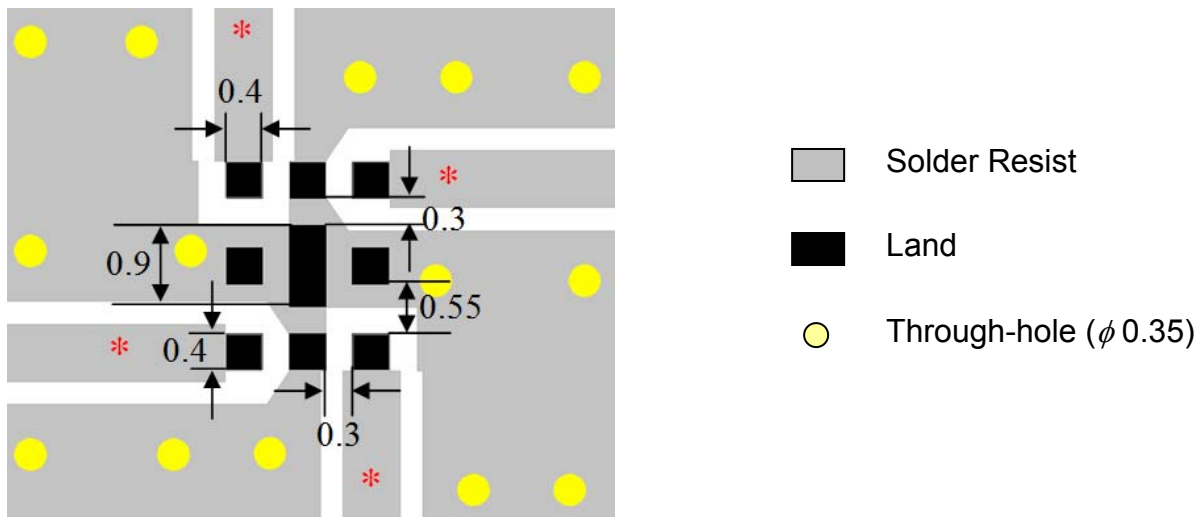
| No. | Terminal Name | No. | Terminal Name |
|-----|---------------|-----|---------------|
| ① | High band | ⑥ | GND |
| ② | GND | ⑦ | Ant |
| ③ | Middle band | ⑧ | GND |
| ④ | GND | ⑨ | GND |
| ⑤ | Low band | | |

Dimensions and Recommended PC Board Pattern

Unit : mm

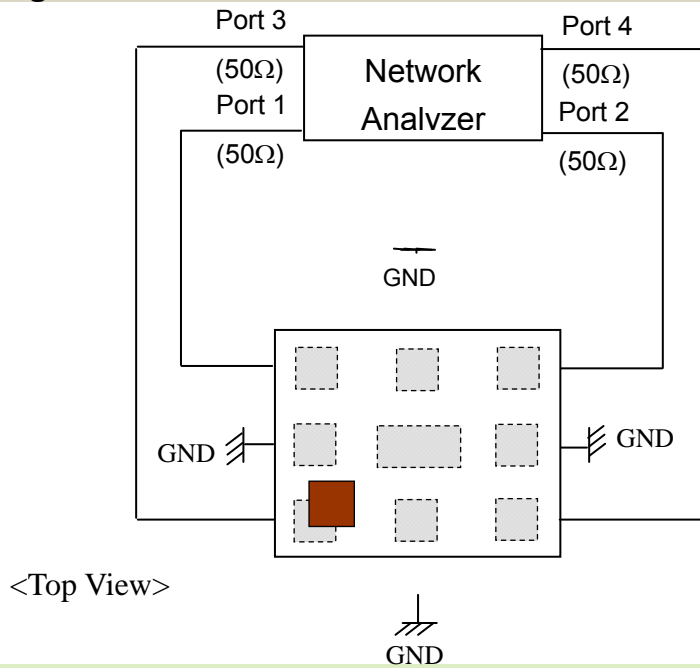


| Mark | L | W | T | a | b | c | d | e |
|------------|--------------|--------------|--------------|--------------|----------------|--------------|--------------|---------------|
| Dimensions | 2.5 ± 0.2 | 2.0 ± 0.2 | 0.65 max. | 0.4 ± 0.1 | 0.55 ± 0.15 | 0.4 ± 0.1 | 0.3 ± 0.1 | 0.9 ± 0.15 |



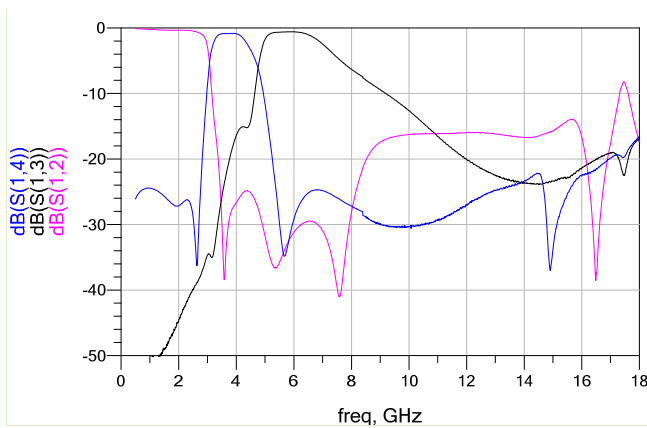
* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Measuring Diagram

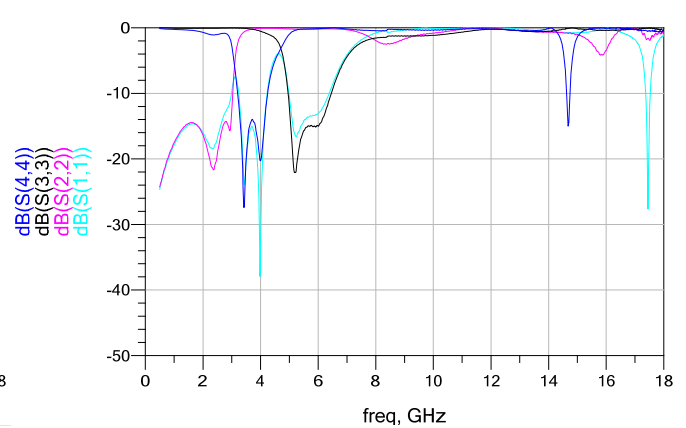


Electrical Characteristics (T=25°C)

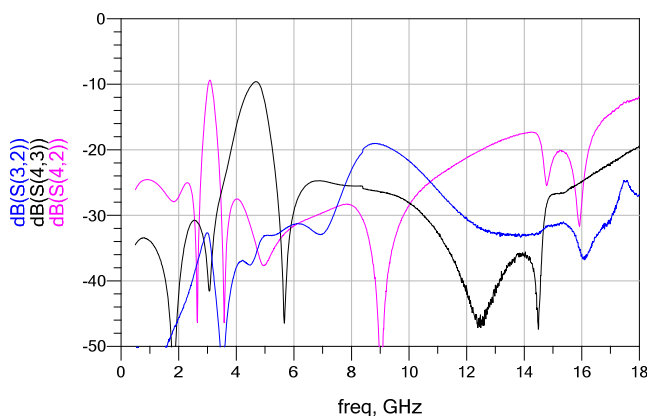
Attenuation



Return Loss



Isolation

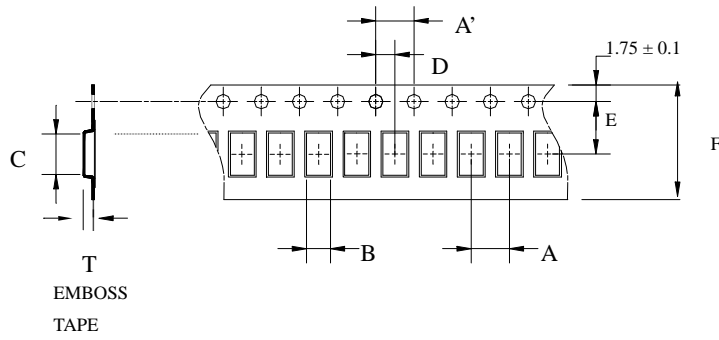


Notes

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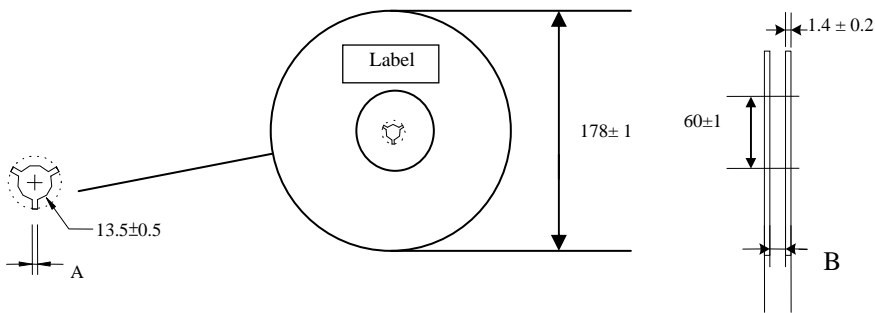
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



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

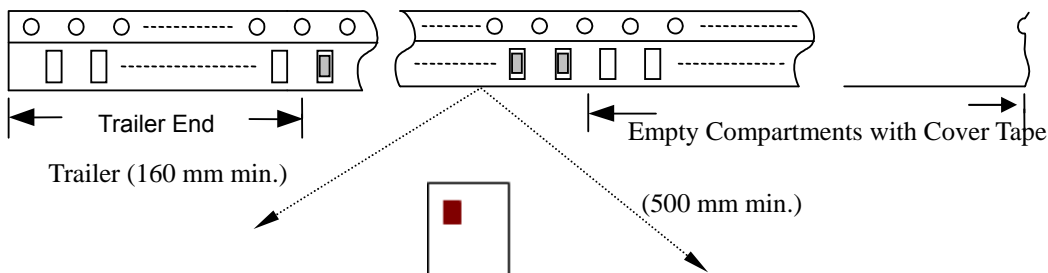
❖Reel Dimensions (Unit: mm)



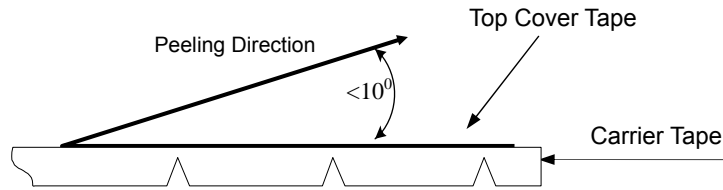
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

| Type | A | B | Material No. |
|------|---------|---------|--------------|
| 2520 | 2.3±0.5 | 9.0±0.3 | 1220300 |

❖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 .

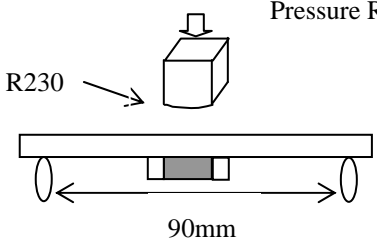
❖ **Storage Conditions**

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

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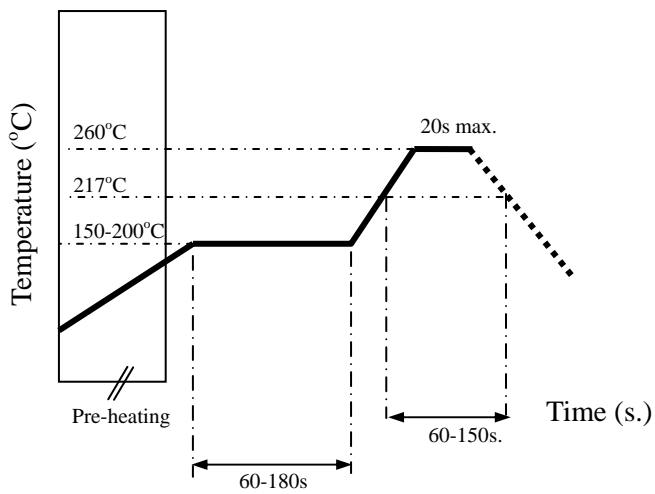
Mechanical & Environmental Characteristics

| Item | Requirements | Procedure |
|--|--|--|
| Solderability | <ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder | <ol style="list-style-type: none"> Preheat: $120 \pm 5^\circ\text{C}$ Solder: $245 \pm 5^\circ\text{C}$ for 5 ± 1 sec |
| Soldering strength (Termination Adhesion) | <ol style="list-style-type: none"> 1kg minimum | <ol style="list-style-type: none"> 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) | <ol style="list-style-type: none"> No apparent damage | <ol style="list-style-type: none"> Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. Apply a bending force of 2mm deflection  |
| Heat/Humidity Resistance | <ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test | <ol style="list-style-type: none"> Temperature: $85 \pm 2^\circ\text{C}$ Humidity: 90% ~ 95% RH Duration: 1000 ± 48hrs Recovery: 1-2hrs |
| Thermal shock (Temperature Cycle) | <ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test | <ol style="list-style-type: none"> 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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