

TP 2012 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

- ❖ Triple-band for GPS and 2.4GHz/5GHz WLAN

Specifications

Part Number	Passband (MHz)	Insertion Loss (dB)	Return Loss (dB)	Attenuation (dB)	Isolation (dB)
TP2012-A1255DA	1560 ~ 1610	0.6 max. @25°C 0.7 max. @-40~85°C	10 min.	14 min. @ 2400 ~ 2500 MHz 15 min. @ 4800 ~ 6000 MHz	Low to Middle band 20 min. @ 1559~1606
	2400 ~ 2500	0.73 max. @25°C 0.81 max. @-40~85°C	10 min.	10 min. @ 3600 ~ 3750 MHz 20 min. @ 4800 ~ 5000 MHz 10 min. @ 7200 ~7500 MHz 10 min. @ 9600 ~10000 MHz	Middle to High band 20 min. @ 4800~5000
	4900 ~ 5950	0.8 max @25°C 0.92 max @-40~85°C	10 min.	24 min. @ 860 ~ 960 MHz 24 min. @ 1545 ~ 1605 MHz 25 min. @ 1710 ~ 1990 MH 30 min. @ 2170 MHz 10 min. @ 8100 ~ 8800 MHz 15 min. @ 8820 ~ 9800 MHz 25 min. @ 9800 ~ 11800 MHz	Low to High band 25 min. @ 1559~1606

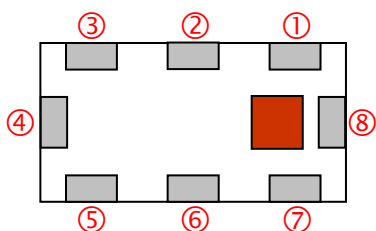
Q'ty/Reel (pcs) : 4,000
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Storage Period : 12 months max.
 Power Capacity : 2W max.

Part Number

TP 2012 - A 1255 DA □ /LF
① ② ③ ④ ⑤ ⑥ ⑦

① Type	TP : Triplexer	② Dimensions (L × W)	2.0 × 1.2 mm
③ Material Code	A	④ Frequency Range	1255=1610MHz /2450MHz /5500MHz
⑤ Specification Code	DA	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

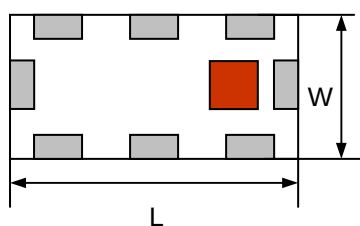
Terminal Configuration



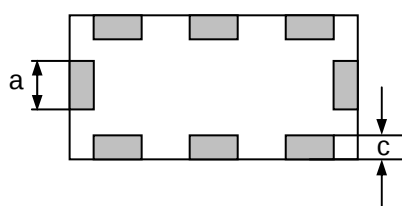
No.	Terminal Name	No.	Terminal Name
①	GND	⑤	GND
②	Common Port	⑥	High-Band Port (5G)
③	GND	⑦	GND
④	Low-Band Port (1.5G)	⑧	Middle-Band Port (2.4G)

Dimensions and Recommended PC Board Pattern

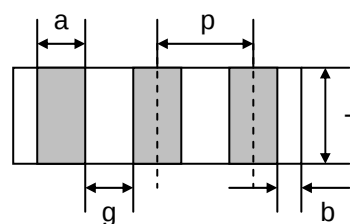
Unit : mm



< Top View >

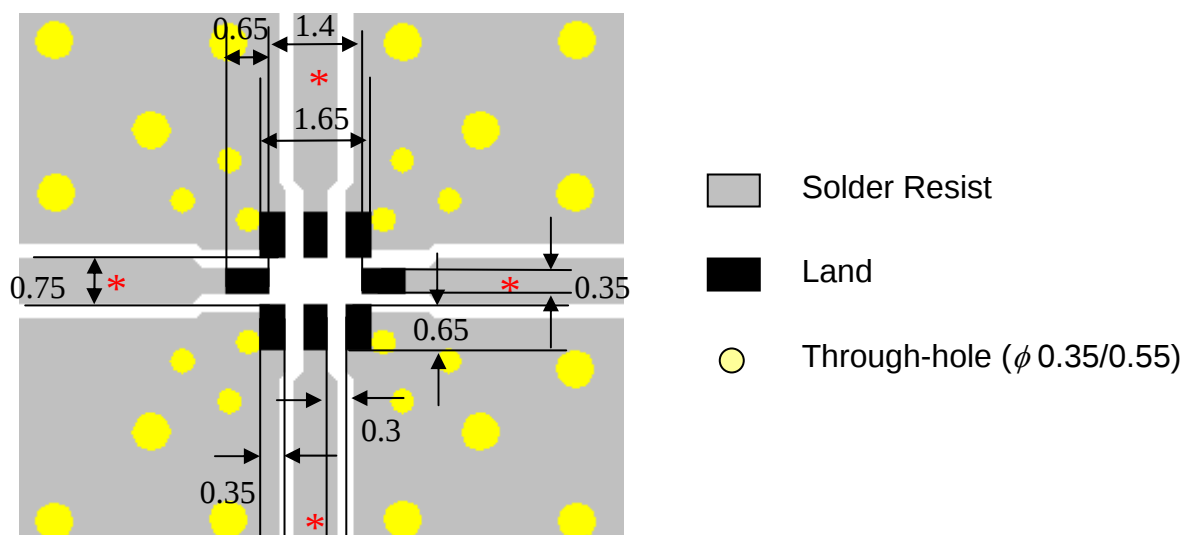


< Bottom View >



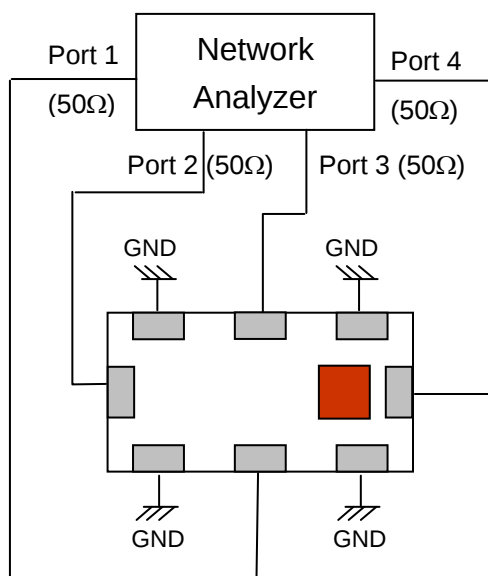
< Side View >

Mark	L	W	T	a	b	c	g	p
Dimensions	2.0 ±0.1	1.25 ±0.1	0.95 ±0.1	0.3 ± 0.1	0.2 ± 0.1	0.3+0.1 /-0.2	0.35 ± 0.1	0.65 ± 0.05



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

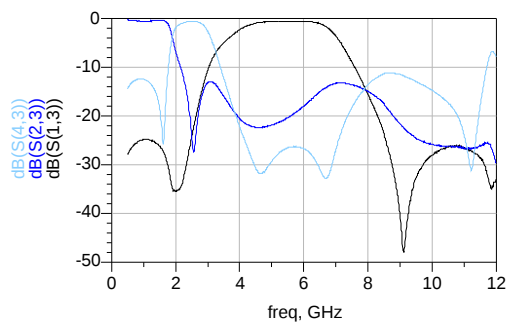
Measuring Diagram



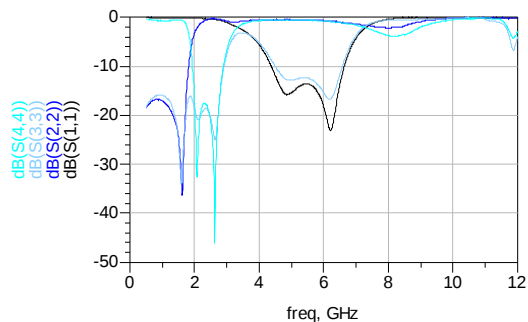
*In Application, It is not necessary to add the DC blocking capacitors at all ports when DC voltages are present at these RF ports.

Typical Electrical Characteristics (T=25°C)

Attenuation



Return Loss

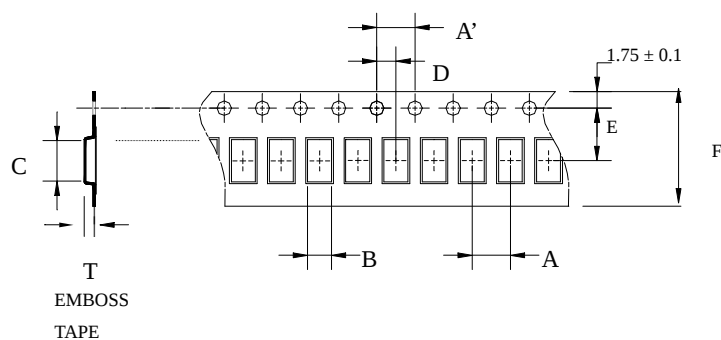


Notes

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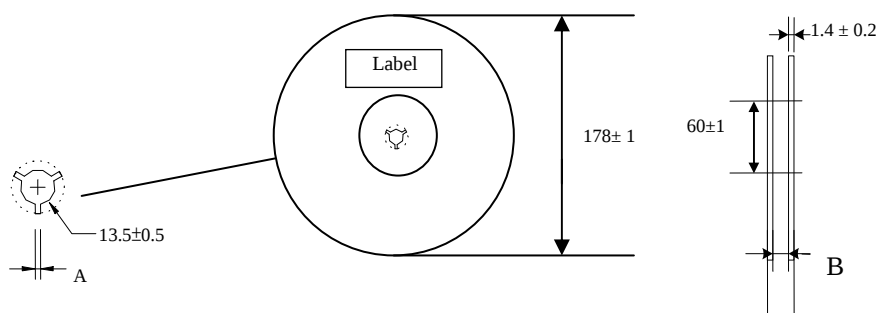
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
2012	4.0±	4.0±	1.35±	2.15±	2.0±	3.5±	8.0±	1.08±	4,000pcs	Plastic (Embossed)
	0.1	0.1	0.05	0.05	0.05	0.1	0.1	0.05		

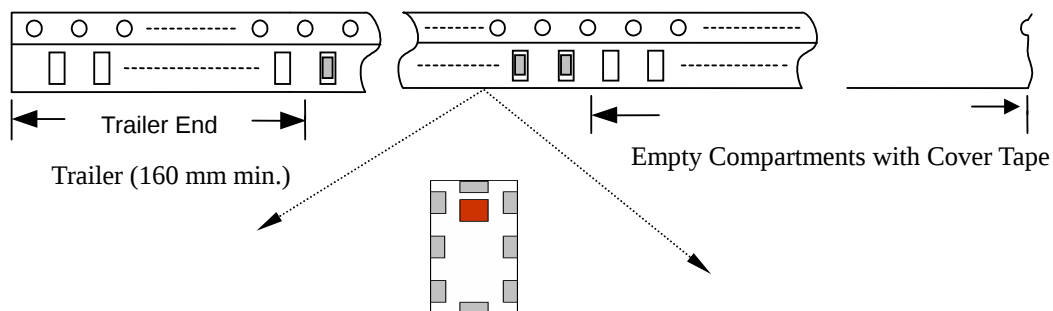
❖Reel Dimensions (Unit: mm)



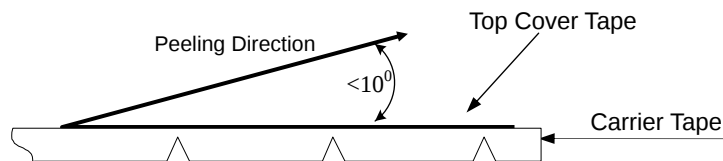
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
2012	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 .

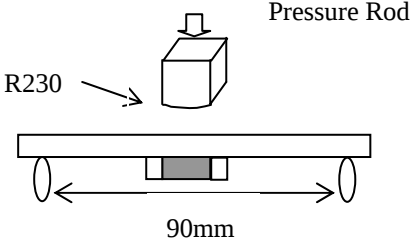
❖ Storage Conditions

- (1) Temperature: $+5 \sim +35^{\circ}\text{C}$, relative humidity (RH): 45~75%.
- (2) Non-corrosive environment.

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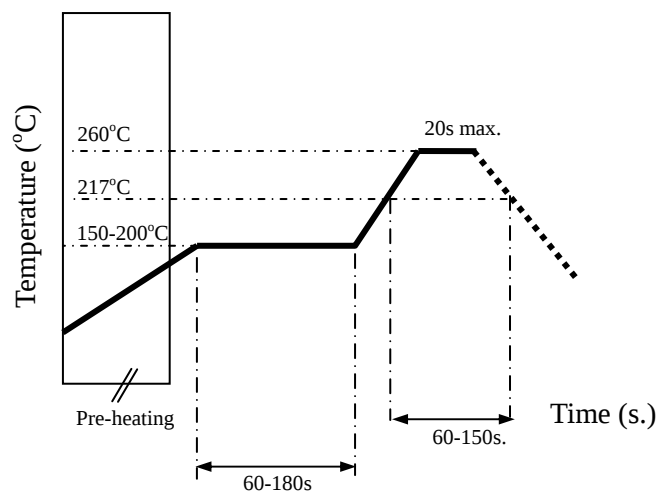
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder	1. Preheat: $120 \pm 5^{\circ}\text{C}$ 2. Solder: $245 \pm 5^{\circ}\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	1. 10N minimum	1. Solder specimen onto test jig. 2. 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)	1. No apparent damage	1. Solder specimen onto test jig (FR4, 1.6mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: $85 \pm 2^{\circ}\text{C}$ 2. Humidity: 90% ~ 95% RH 3. Duration: 1000 ± 48hrs 4. Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/step 1 : $125 \pm 5^{\circ}\text{C}$ for 30 min step 2 : $-40 \pm 5^{\circ}\text{C}$ for 30 min 2. No of cycles : 100 3. Recovery: 1-2 hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: $-40 \pm 5^{\circ}\text{C}$ 2. Duration: 500 ± 24hrs 3. Recovery: 1-2hrs

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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