TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
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TEL: 886-3-4690038 FAX: 886-3-4697532
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Product Specifications Approval Sheet

Product Name: 2450 MHz BW 100MHz / 5500 MHz BW 700MHz SMD

1.6X0.8 mm (Multilayer Diplexer filter)

TST Parts No.: TL0017B

Customer Parts No.:_____

Company:_____

Division:_____

Approved by :_____

Date:_____

Checked by:_____ Hong Pu Lin Hong Pu Lin _____

Approval by:_____ Andy Yu Andy Yu _____

Date:_____ 2019/07/14 _____

1. Customer signed back is required before TST can proceed with sample build and receive orders.
2. Orders received without customer signed back will be regarded as agreement on the specifications.
3. Any specifications changes must be approved upon by both parties and a new revision of specifications shall be released to reflect the changes.

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LTCC Filter 2450 MHz BW100MHz , 5500 MHz BW700MHz

MODEL NO.:TL0017B REV. NO.:1

A. MAXIMUM RATING:

RoHS Compliant
Lead free
Lead-free soldering

1. Input Power Level: 20 dBm
2. DC Voltage : 5V
3. Operating Temperature: -40℃ to +85℃
4. Storage Temperature: -40℃ to +85℃
5. Moisture Sensitive Level (MSL): Level 1
6. AEC-Q200

Electrostatic **S**ensitive **D**evice (**ESD**)

B. ELECTRICAL CHARACTERISTICS:

Terminating source impedance : Zs = 50 Ω

Terminating load impedance : ZL = 50 Ω

1.

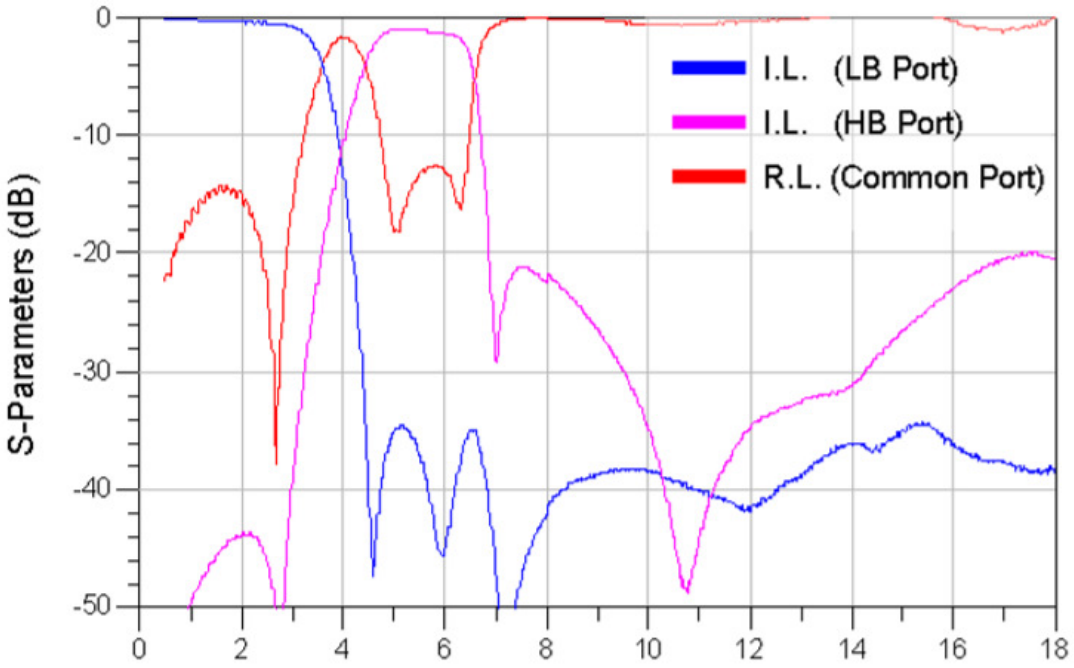
Item		Unit	Spec
Frequency Range		MHz	2450±50
Insertion Loss (2400~2500 MHz)	**IL**	dB	0.6 Max
Return Loss (2400~2500 MHz)		dB	15min
VSWR (2400~2500 MHz)			2.0 Max
Attenuation (Reference level from 0 dB)			
4800 ~ 5000MHz		dB	23 Min
7200 ~ 7500MHz		dB	30 Min

2.

Item		Unit	Spec
Frequency Range		MHz	5500±350
Insertion Loss (5150~5850 MHz)	**IL**	dB	1.5 Max
Return Loss (5150~5850 MHz)		dB	15min
VSWR (5150~5850 MHz)			2.0 Max
Attenuation (Reference level from 0 dB)			
2400 ~ 2500MHz		dB	25 Min
3400 ~ 3600MHz		dB	15 Min
3600 ~ 3900MHz		dB	10 Min
6900 ~ 7550MHz		dB	20 Min
10600 ~ 11700MHz		dB	30 Min

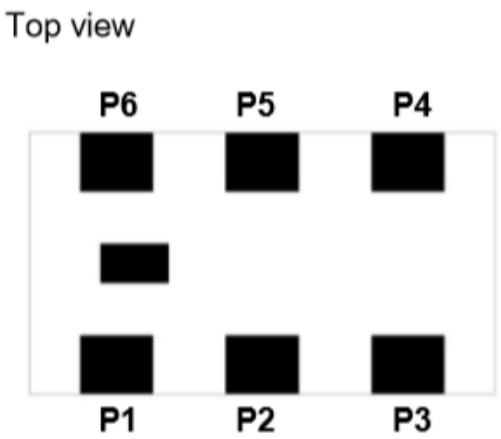
15300 ~ 16200MHz	dB	20 Min

C. Frequency Characteristics : (Characteristic curve)



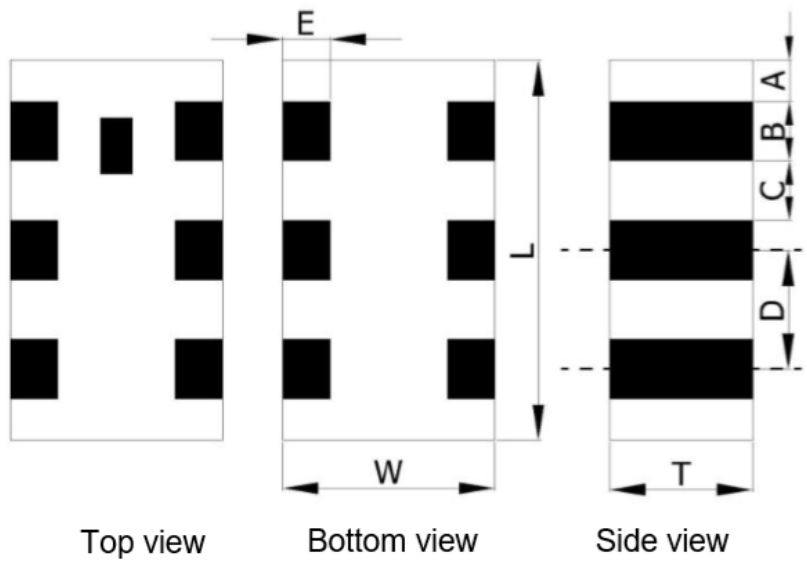
D. Package Dimensions

CONSTRUCTION

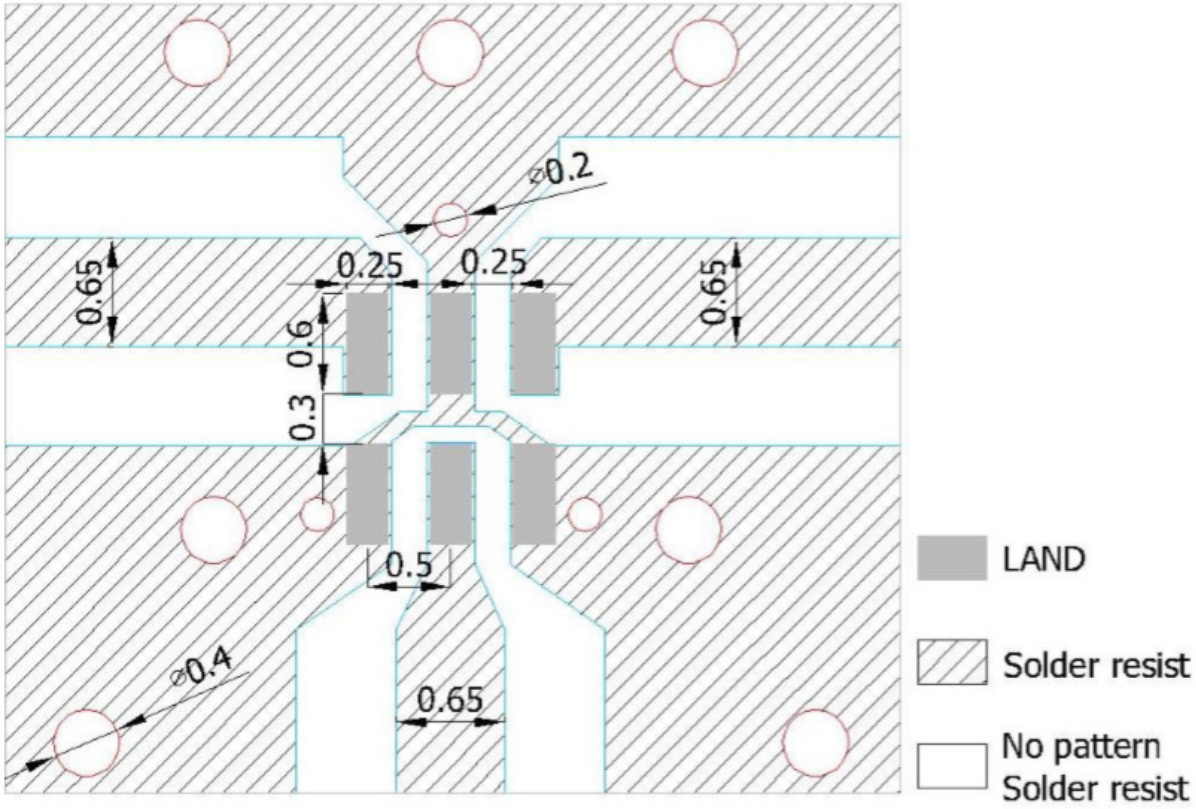


PIN	Connection
1	GND
2	Common
3	GND
4	Low-Band
5	GND
6	High-Band

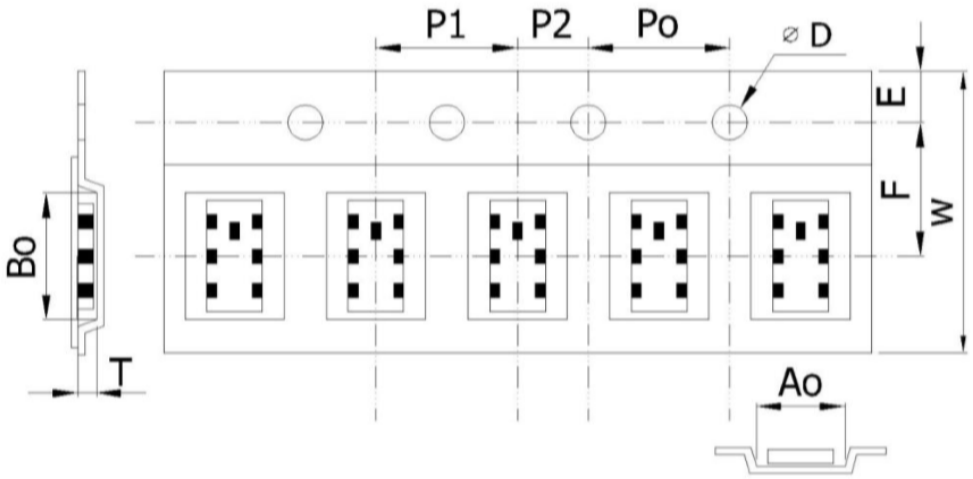
DIMENSIONS

Figure	Symbol	Dimension (mm)
	L	1.60 ± 0.15
	W	0.80 ± 0.15
	T	0.60 ± 0.10
	A	0.175 ± 0.15
	B	0.25 ± 0.15
	C	0.25 ± 0.15
	D	0.50 ± 0.15
	E	0.20 ± 0.15

E. PCB Footprint



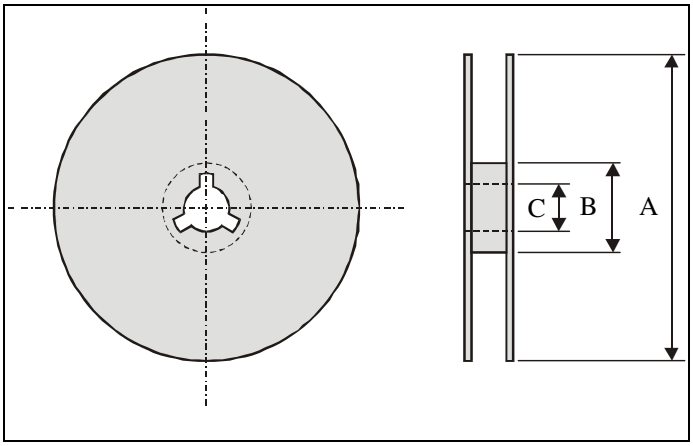
F. Packing



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	ΦD	T	W
Dimension (mm)	0.975 ± 0.05	1.76 ± 0.05	1.55 + 0.05	0.75 ± 0.10	8.0 ± 0.10
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05

Reel dimensions



Index	**A**	**B**	**C**
Dimension (mm)	**Φ178.0**	**Φ60.0**	**Φ13.0**

Taping Quantity: 4000 pieces per 7” reel

G. Recommended Reflow Profile:

RELIABILITY TEST

Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature：235 ± 5°C *Immersion time：2 ± 0.5 sec Solder：Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature：260 ± 5°C *Leaching immersion time：30 ± 0.5 sec Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature：120~150°C, 1 minute. *Solder temperature：270±5°C *Immersion time：10±1 sec Solder：Sn3Ag0.5Cu for lead-free Measurement to be made after keeping at room temperature for 24±2 hrs	**No mechanical damage.** Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C. Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044 Customer's specification.	*Height：75 cm *Test Surface：Rigid surface of concrete or steel. *Times：6 surfaces for each units；2 times for each side.	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Vibration JIS C 0040	*Frequency：10Hz~55Hz~10Hz(1min) *Total amplitude：1.5mm *Test times：6hrs.(Two hrs each in three mutually perpendicular directions)	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force： 5N(≦0603)；10N(>0603) *Test time：10±1 sec	No remarkable damage or removal of the termination.
Bending test JIS C 0051- 7.4.1	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5±1 sec. Measurement to be made after keeping at room temperature for 24±2 hours	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Temperature cycle JIS C 0025	1. 30±3 minutes at -40°C±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +85°C±3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.

High temperature JIS C 0021	*Temperature：85°C±2°C *Test duration：1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Humidity (steady conditions) JIS C 0022	*Humidity：90% to 95% R.H. *Temperature：40±2°C *Time：1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs ※ 500hrs measuring the first data then 1000hrs data	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Low temperature JIS C 0020	*Temperature：-40°C±2°C *Test duration：1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.

SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2,