



TAI-SAW TECHNOLOGY CO., LTD.

No. 3, Industrial 2nd Rd., Ping-Chen Industrial District,
Taoyuan, 324, Taiwan, R.O.C.

TEL: 886-3-4690038 FAX: 886-3-4697532

E-mail: tstsales@mail.taisaw.com Web: www.taisaw.com

Product Specifications Approval Sheet

Product Description: 184.32 MHz 40MHz BW SMD 7.0 x 5.0 mm SAW IF Filter

TST Parts No.: TB1176A

Customer Parts No.: _____

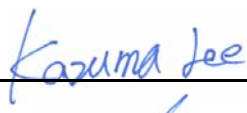
Customer signature required

Company: _____

Division: _____

Approved by : _____

Date: _____

Checked by: _____ Kazuma Lee 

Approval by: _____ Bob Chau 

Date: _____ 06 / 11 / 2015

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.



TAI-SAW TECHNOLOGY CO., LTD.

No.3, Industrial 2nd Rd., Ping-Chen Industrial District, Taoyuan, Taiwan, R.O.C.

TEL: 886-3-4690038

FAX: 886-3-4697532

E-mail: tstsales3@mail.taisaw.com Web: www.taisaw.com

SAW Filter 184.32MHz 40MHz BW (SMD 7.0×5.0 mm)

MODEL NO.: TB1176A

REV. NO.1

A. MAXIMUM RATING:

1. Operating temperature range: -40°C to 85°C
2. Storage temperature range: -40°C to 85°C
3. Input Power Level : 10 dBm
4. Maximum DC Voltage : 10V

RoHS Compliant
Lead free
Lead-free soldering

Electrostatic Sensitive Device

B. CHARACTERISTICE:

1. Ambient Temperature: 25°C

50ohm single-end

Item	Unit	Min.	Type.	Max.
Center frequency, F_c	MHz	-	184.32	-
Insertion Loss, IL	dB	-	9.7	12.0
1dB Bandwidth	MHz	40.0	44.5	-
Passband Ripple F _c +/- 10MHz	dB	-	0.4	1.0
Absolute group Delay	us	-	0.5	-
Group Delay variation F _c +/- 10MHz	ns	-	45	-
VSWR F _c +/- 10MHz		-	2.4	-
Attenuation (Reference level from minimum Insertion loss)				
100~139.32MHz	dB	45	50	-
229.32MHz~375MHz	dB	40	45	-
Temperature Coefficient	ppm/°C	-	-94	-
Source Impedance	Ohm	-	50	-
Load Impedance	Ohm	-	50	-

200ohm differential

Item	Unit	Min.	Type.	Max.
Center frequency, Fc	MHz	-	184.32	-
Insertion Loss, IL	dB	-	12.0	13.5
1dB Bandwidth	MHz	40.0	42.0	-
Passband Ripple Fc+/- 10MHz	dB	-	0.7	1.0
Absolute group Delay	us	-	0.5	-
Group Delay variation Fc+/- 10MHz	ns	-	44	-
VSWR Fc+/- 10MHz		-	5	-
Attenuation (Reference level from minimum Insertion loss)				
100~139.32MHz	dB	45	50	-
229.32MHz~375MHz	dB	40	45	-
Temperature Coefficient	ppm/°C	-	-94	-
Source differential Impedance	Ohm	-	200	-
Load differential Impedance	Ohm	-	200	-

C. FREQUENCY CHARACTERISTICE :

(1) Narrow band Response: 50ohm single-end

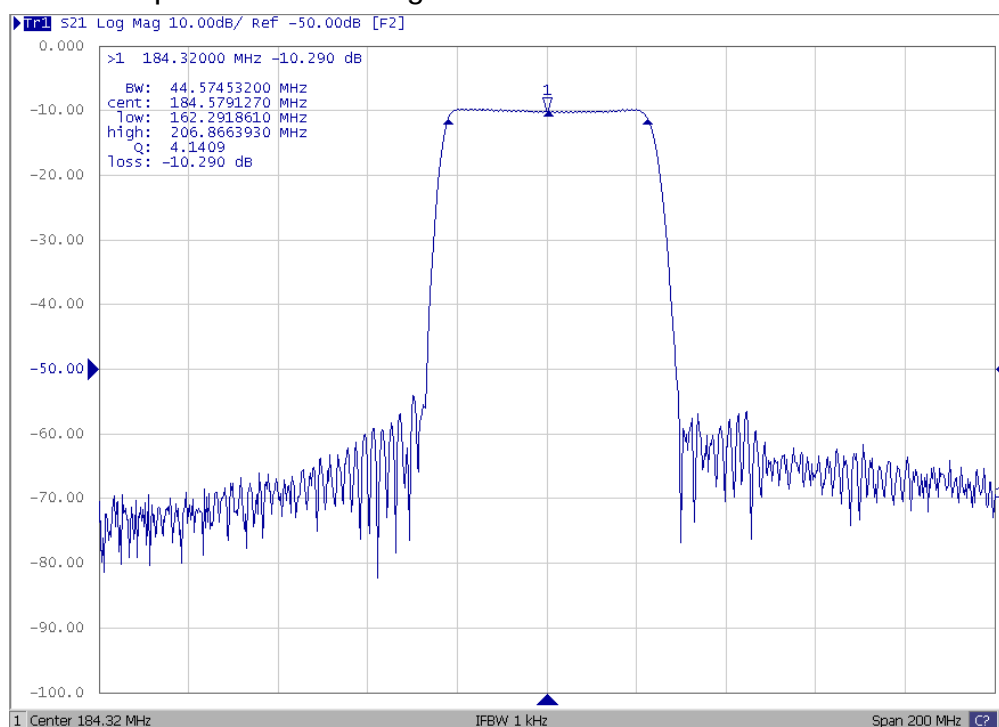


Fig1. Horizontal: 20MHz/Div Vertical: 10dB/Div

(2) Pass band and Group Delay Response: 50ohm single-end

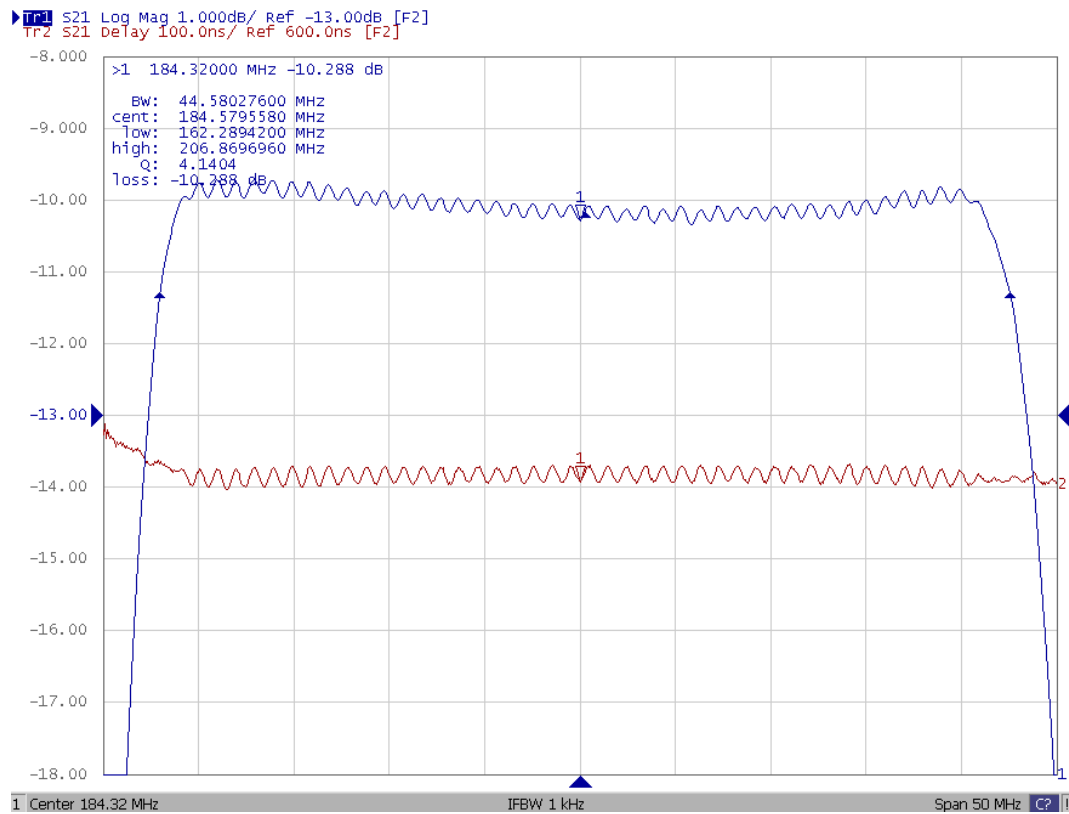
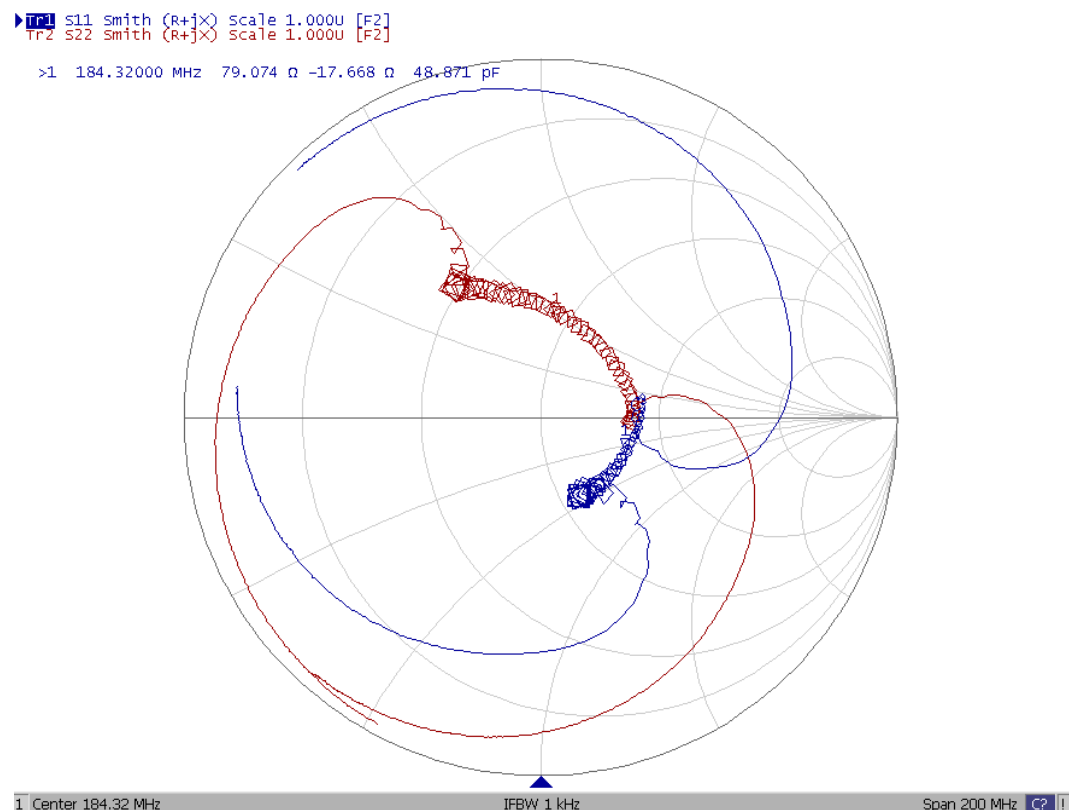


Fig2. Horizontal: 5MHz/Div Vertical: 1dB/Div
 Vertical: 100ns/Div

(3) Smith Chart: 50ohm single-end



(4) Wide band Response: 50ohm single-end

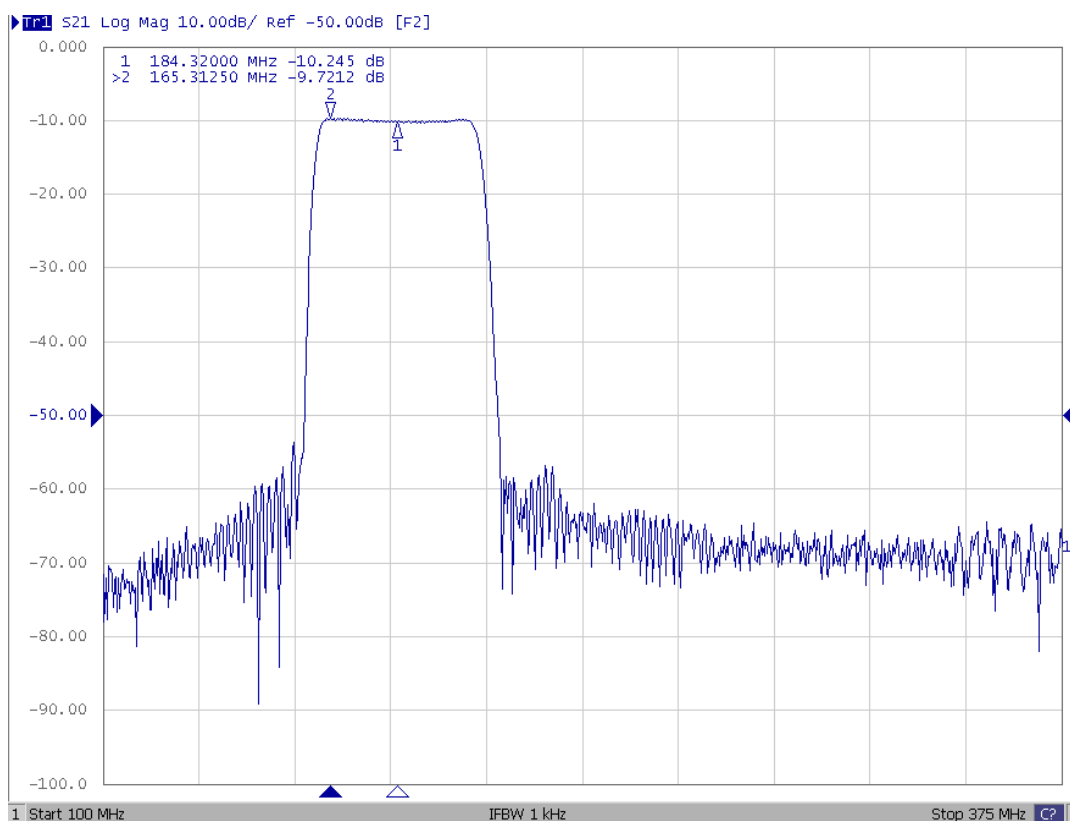


Fig4. Horizontal: 27.5MHz/Div Vertical: 10dB/Div

(5) Wide band Response: 200ohm differential

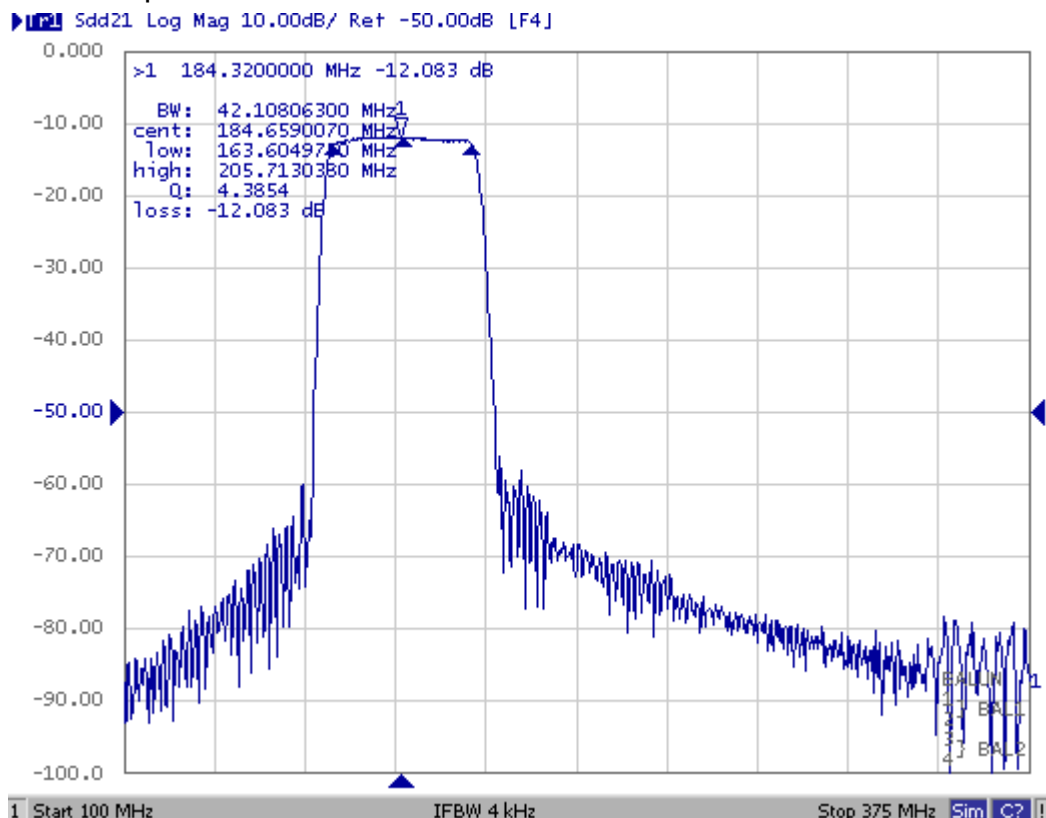


Fig1. Horizontal: 30MHz/Div Vertical: 10dB/Div

(6) Pass band and Group Delay Response: 200ohm differential

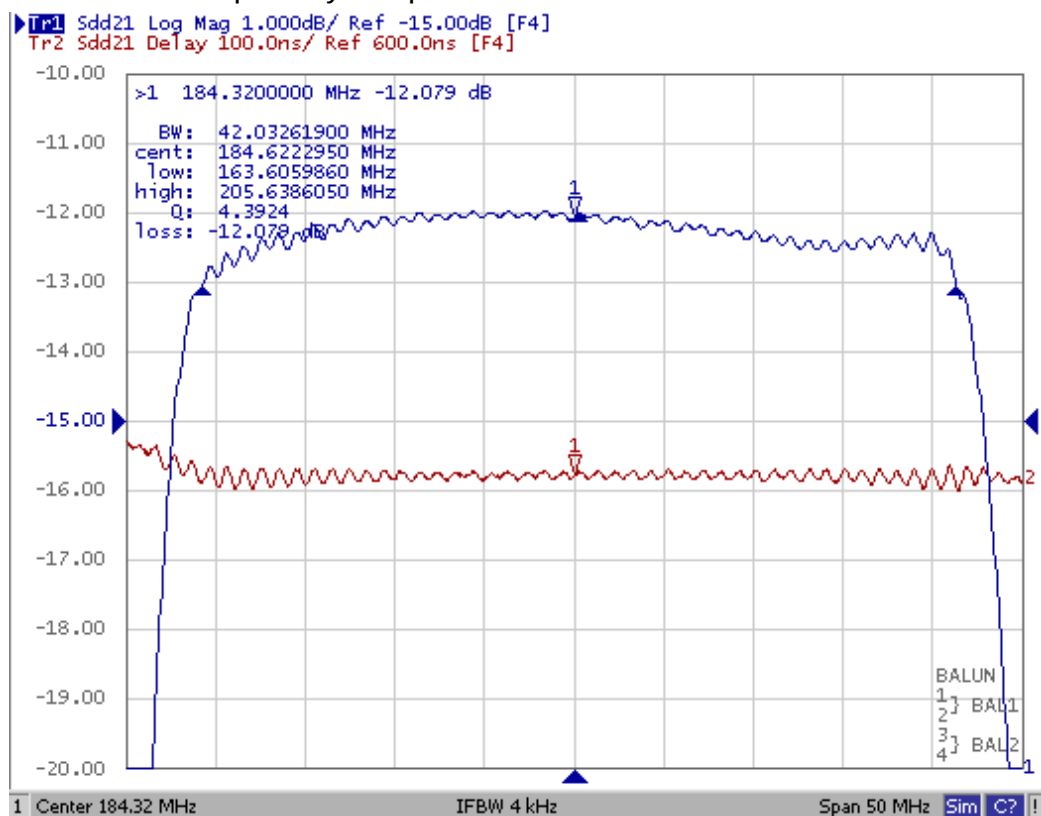
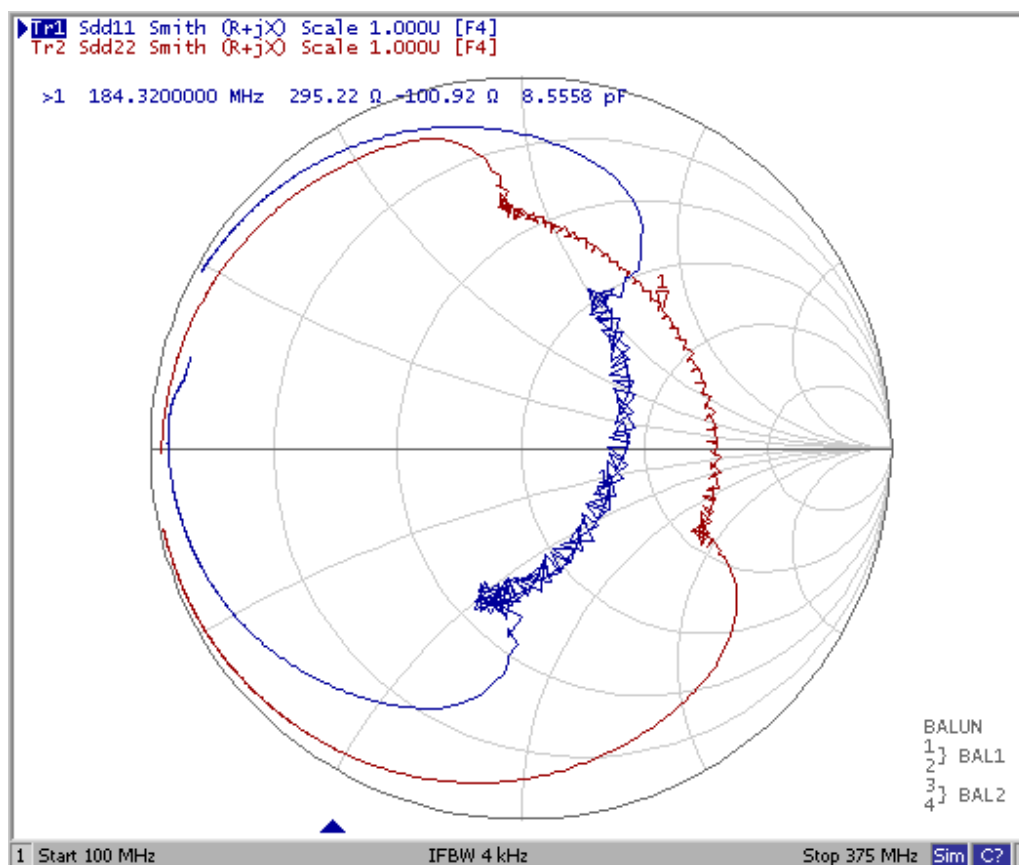


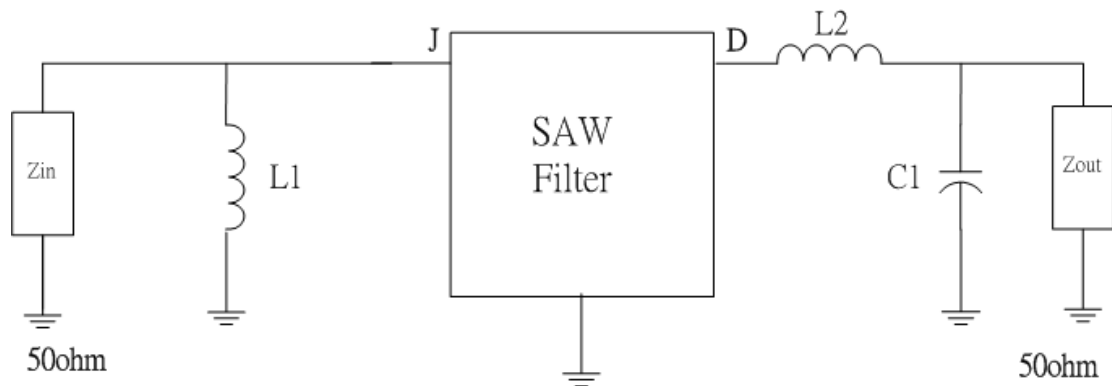
Fig2. Horizontal: 5MHz/Div Vertical: 1dB/Div
Vertical: 100ns/Div

(7) Smith Chart: 200ohm differential



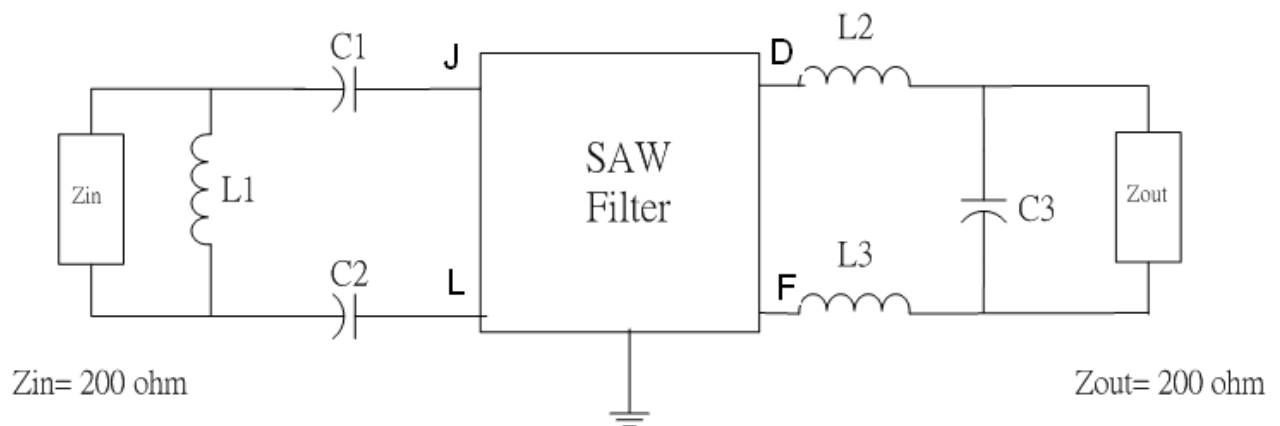
D. MATCHING CIRCUIT:

50ohm single-end



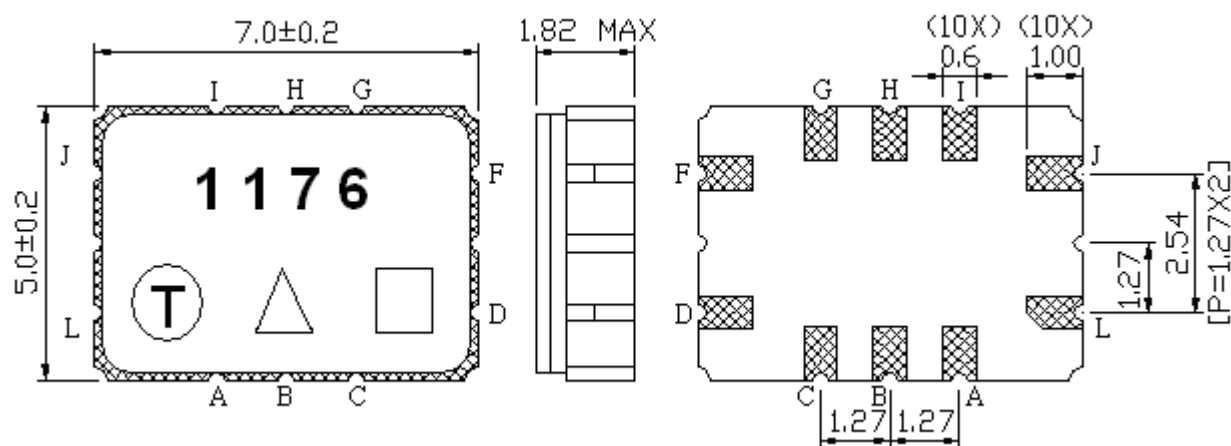
$$L1=24nH \quad L2=43nH \quad C1=24pF$$

200ohm differential



$$L1=47nH \quad L2=L3=47nH \quad C1=C2=56pF \quad C3=8pF$$

E. OUTLINE DRAWING:



Pin J –RF Input

Pin L –RF Input Return

Pin D –RF Output

Pin F –RF Output Return

Pin A,B,C,G,H,I - Ground

□ : Week Code

Unit : mm

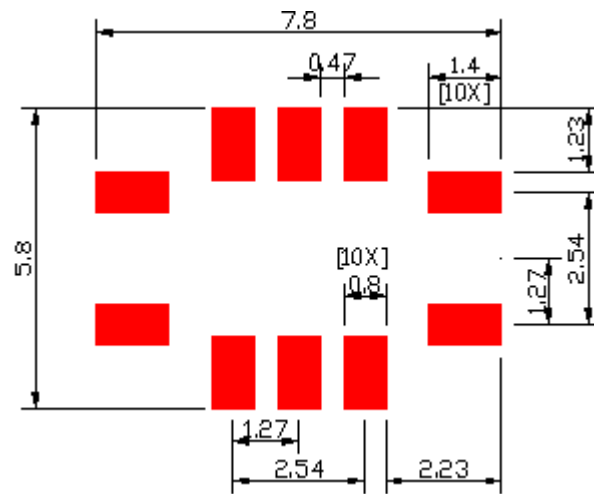
△ : Product / Year Code

Year	2013 2017	2014 2018	2015 2019	2016 2020
Product Code	B	b	<u>B</u>	<u>b</u>

Week Code Table

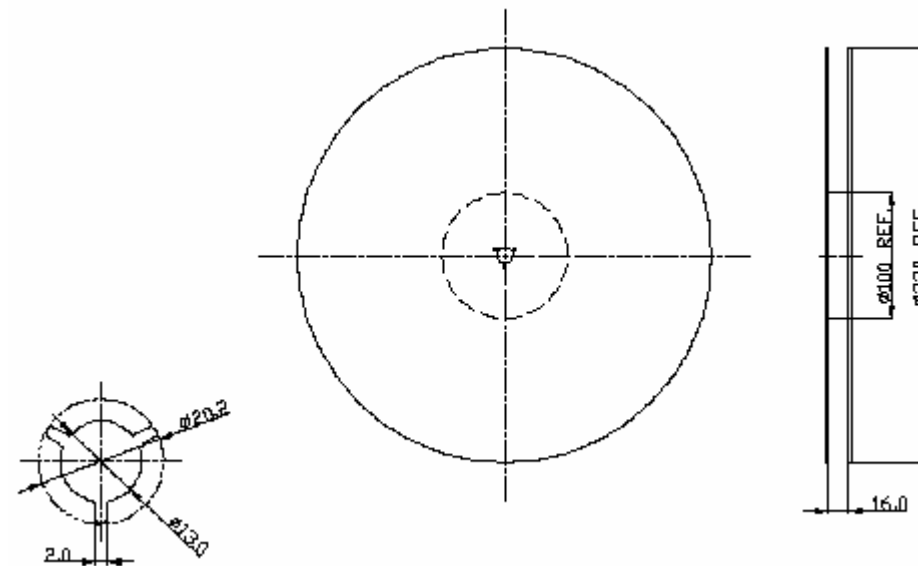
WK01	WK02	WK03	WK04	WK05	WK06	WK07	WK08	WK09	WK10	WK11	WK12	WK13
A	B	C	D	E	F	G	H	I	J	K	L	M
WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39
a	b	c	d	e	f	g	h	i	j	k	l	m
WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
n	o	p	q	r	s	t	u	v	w	x	y	z

F. PCB FOOTPRINT:

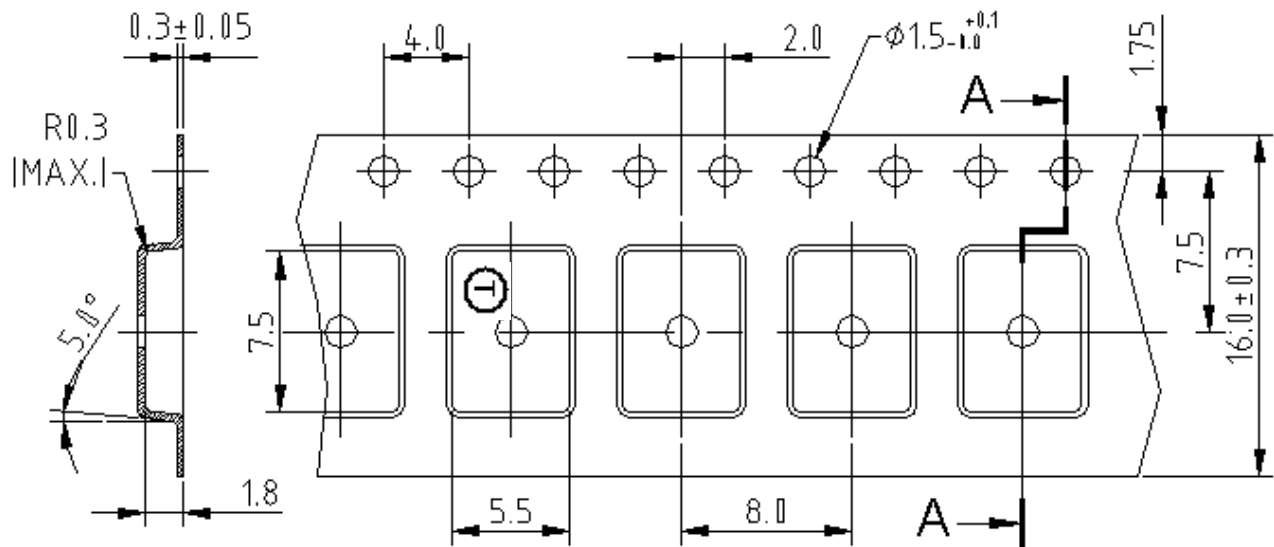


G. PACKING:

1. REEL DIMENSION (Please refer to FR-75D10 for packing quantity)



2. TAPE DIMENSION



H. RECOMMENDED REFLOW PROFILE:

1. Preheating shall be fixed at 150~180°C for 60~90 seconds.
2. Ascending time to preheating temperature 150°C shall be 30 seconds min.
3. Heating shall be fixed at 220°C for 50~80 seconds and at 245~260°C peak (min. 10sec).
4. Time : 2 times.

