

Data Sheet for SAW Components

Band2

Duplexer



Product ID: RAD1960B0K

Date: May. 17, 2021

Revision: 1.0

Features

- ◆ Package Size : 1.8 x 1.4 x 0.5max mm
- ◆ Single-Ended Input and Output
- ◆ Terminating Impedance : 50 Ω
- ◆ Moisture Sensitivity Level 3
- ◆ ESD Sensitive Device
- ◆ TC-SAW
- ◆ Low Insertion Loss

Electrical Specifications

Band2 Duplexer

Temperature Range for Specification : -30 to +85 ° C

Tx to Ant					Min.	Typ.	Max.	Unit
Insertion Loss								
	1850.25	-	1909.75	MHz	-	1.6	2.5	dB
Pass Band Ripple								
	1850.25	-	1909.75	MHz	-	0.6	1.8	dB
VSWR Tx								
	1850.25	-	1909.75	MHz	-	1.4	1.9	-
VSWR Ant								
	1850.25	-	1909.75	MHz	-	1.4	1.9	-
Absolute Attenuation								
	10	-	728	MHz	35	45	-	dB
	704	-	716	MHz	35	45	-	dB
	728	-	764	MHz	35	44	-	dB
	777	-	787	MHz	35	44	-	dB
	869	-	894	MHz	31	41	-	dB
	1226	-	1250	MHz	28	36	-	dB
	1559	-	1563	MHz	32	37	-	dB
	1565.42	-	1573.37	MHz	32	37	-	dB
	1573.37	-	1577.47	MHz	32	37	-	dB
	1577.47	-	1585.42	MHz	32	37	-	dB
	1597.55	-	1605.89	MHz	32	38	-	dB
	1605.88	-	1680	MHz	30	38	-	dB
	1930	-	1990	MHz	43	49	-	dB
	2010	-	2025	MHz	36	45	-	dB
	2110	-	2155	MHz	25	37	-	dB
	2350	-	2360	MHz	25	44	-	dB
	2400	-	2500	MHz	30	43	-	dB
	3700	-	3820	MHz	17	28	-	dB
	4900	-	5850	MHz	3	21	-	dB
	5254	-	5455	MHz	5	28	-	dB
	5520	-	5845	MHz	3	21	-	dB
	5540	-	5950	MHz	3	19	-	dB
	7390	-	7650	MHz	1	14	-	dB

Electrical Specifications

Band2 Duplexer

Temperature Range for Specification : -30 to +85 ° C

Ant to Rx					Min.	Typ.	Max.	Unit
Insertion Loss								
	1930.25	-	1989.75	MHz	-	1.9	3.0	dB
Pass Band Ripple								
	1930.25	-	1989.75	MHz	-	1.0	1.8	dB
VSWR Rx								

VSWR Ant	1930.25	–	1989.75	MHz	–	1.4	2.0	–
	1930.25	–	1989.75	MHz	–	1.4	2.0	–
Absolute Attenuation								
	10	–	1850	MHz	31	38	–	dB
	699		716	MHz	40	54	–	dB
	777	–	787	MHz	40	51	–	dB
	724	–	849	MHz	35	49	–	dB
	1770	–	1830	MHz	38	45	–	dB
	1850	–	1910	MHz	45	52	–	dB
	1910	–	1915	MHz	11	28	–	dB
	2010	–	2025	MHz	3	7	–	dB
	2050	–	2075	MHz	35	50	–	dB
	2075	–	6000	MHz	30	36	–	dB
	2305	–	2315	MHz	30	42	–	dB
	2400	–	2500	MHz	30	43	–	dB
	3780	–	3900	MHz	35	47	–	dB
	3860	–	3980	MHz	35	47	–	dB
	4900	–	5950	MHz	28	36		dB
	5610	–	5845	MHz	28	36	–	dB
	5630	–	5810	MHz	28	36	–	dB
	5790	–	5970	MHz	28	36	–	dB
	5970	–	7720	MHz	10	30	–	dB
	7720	–	7960	MHz	10	30	–	dB

Electrical Specifications

Band2 Duplexer

Temperature Range for Specification : -30 to +85 ° C

Tx to Rx				Min.	Typ.	Max.	Unit
Isolation							
	1852.5	-	1907.5 MHz	53 ^{*1}	57	-	dB _{INT}
	1932.5	-	1987.5 MHz	50 ^{*1}	54	-	dB _{INT}

*1: Integrated |S₃₂| over the center 4.5 MHz CH BW and converting to dB value

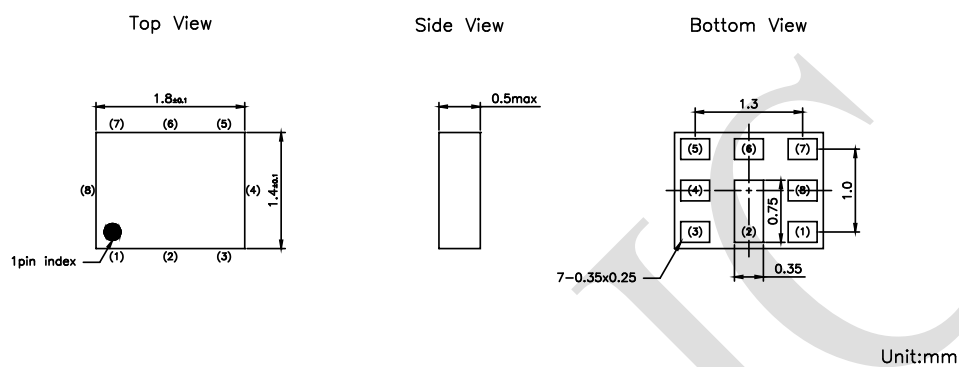
Maximum Ratings

Item	Rating	Condition / Remark
Storage Temperature	-40 to +85 ° C	
DC Voltage	5 V	+25 ° C
Input power	+30 dBm	LTE , +55 ° C , 5000 h

Recommended Operating Conditions

Item	Rating	Condition / Remark
Operating Temperature, T _{CASE}	-30 to +85 ° C	

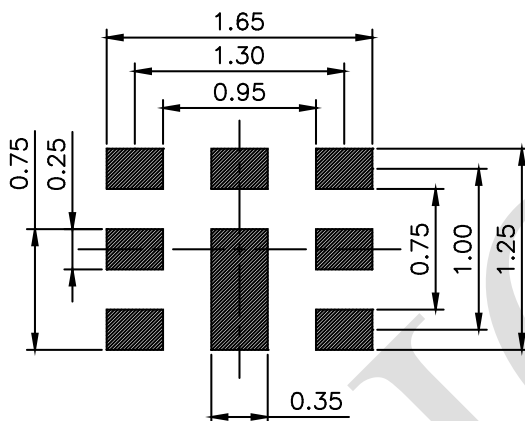
Package Information



Pin Configuration

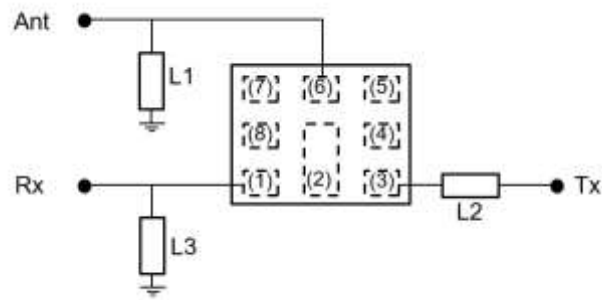
1	:	Rx
3	:	Tx
6	:	Ant
Other	:	GND

Land Pattern



Unit:mm

Application Circuit



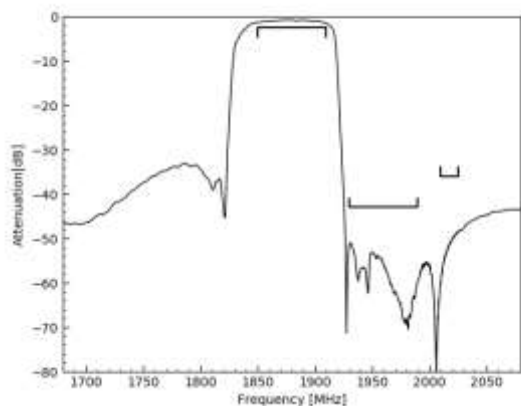
Port	Terminating Z	Matching Component		
Ant	50 Ω	L1 : 4.3nH (Ideal inductor)		
Tx	50 Ω	L2 : 2.4nH (Ideal inductor)		
Rx	50 Ω	L3 : 3.9nH (Ideal inductor)		

For ESD protection, external shunt inductor at all ports is recommended.

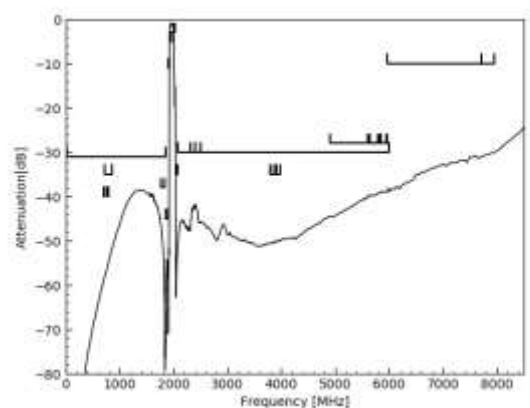
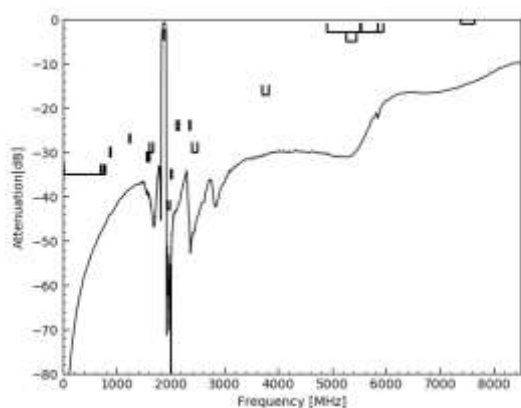
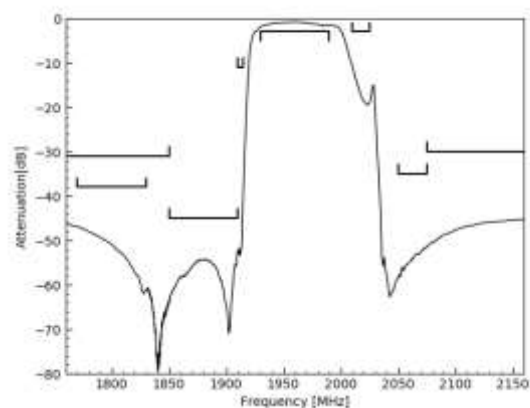
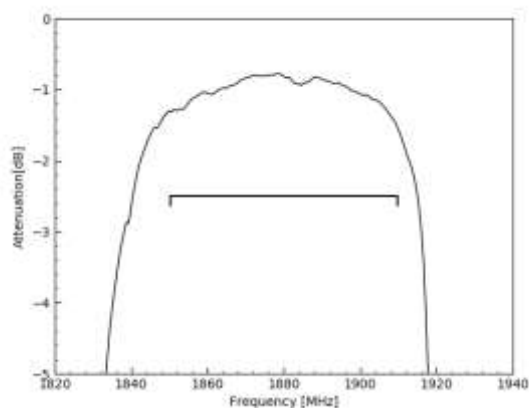
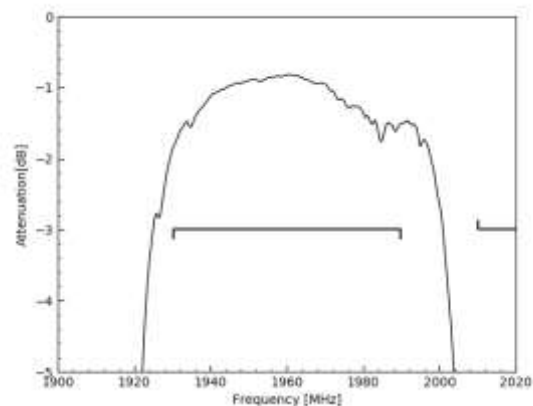
Electrical Characteristics

Band2 Duplexer

Tx to Ant



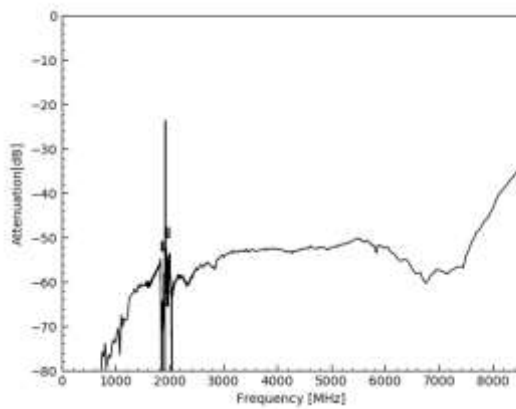
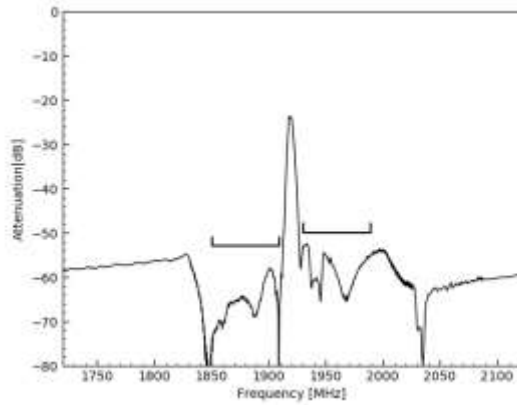
Ant to Rx



Electrical Characteristics

Band2 Duplexer

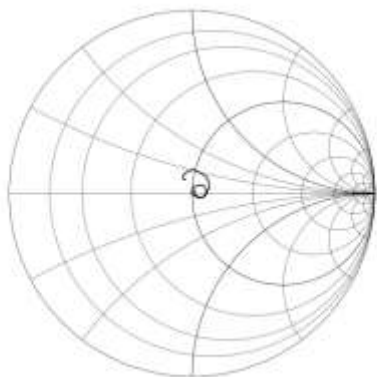
Tx to Rx



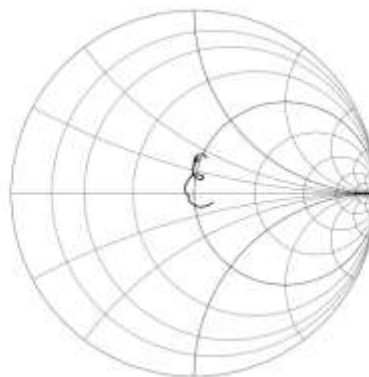
Electrical Characteristics

Band2 Duplexer

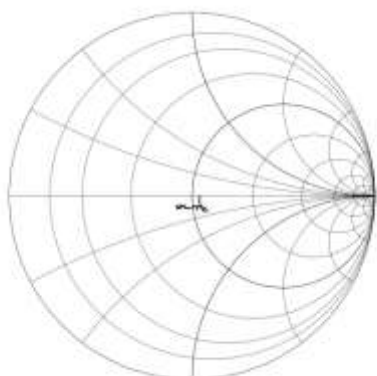
Ant Impedance (Tx band)



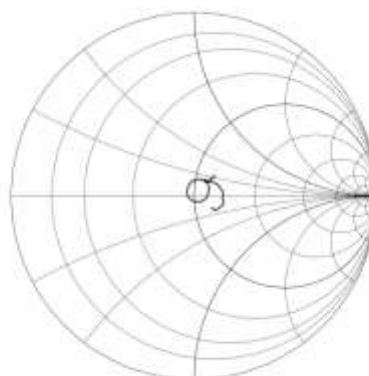
Ant Impedance (Rx band)



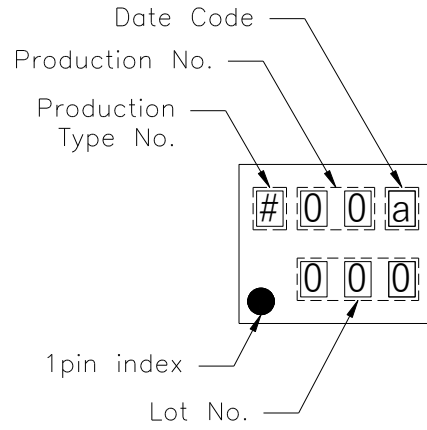
Tx Impedance



Rx Impedance



Marking Information



Production type No. (S: Sample, P: Production)

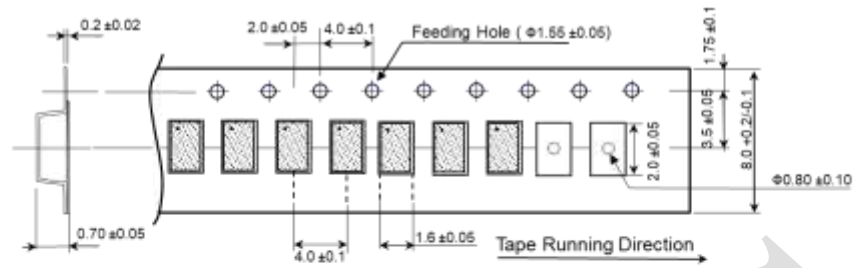
Product No. : 0K

Lot No. (Indicated by 0 ~ 9 or A to Z and a to z, except I, O, i, o and l)

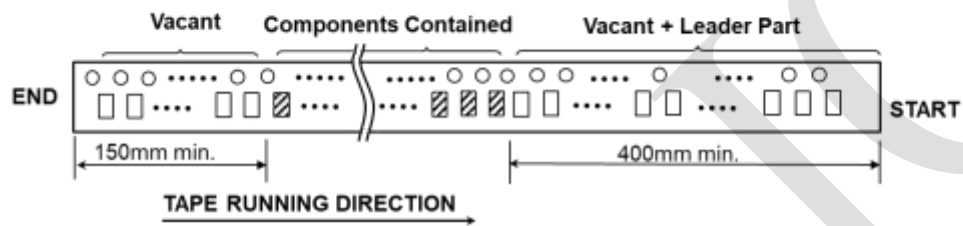
Product date code :

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	N	P	Q	R	S	T	U	V	W	X	Y	Z
2022	a	b	c	d	e	f	g	h	j	k	l	m
2023	n	p	q	r	s	t	u	v	w	x	y	z
2024	A	B	C	D	E	F	G	H	J	K	L	M

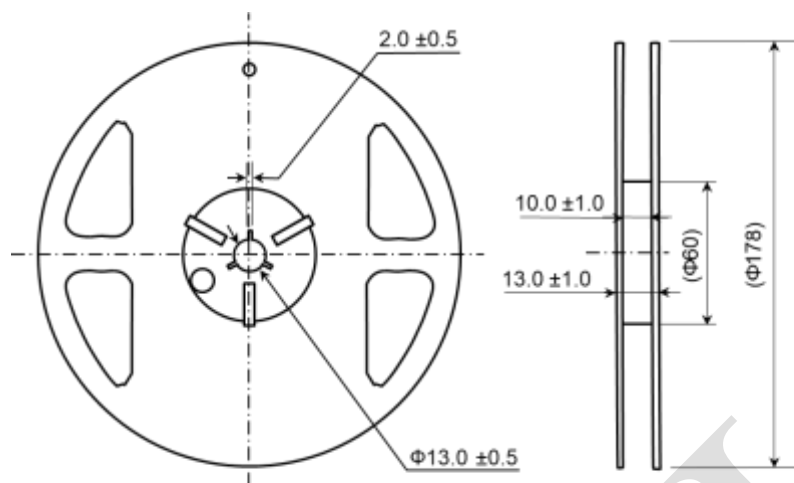
Tape Information



UNIT: mm

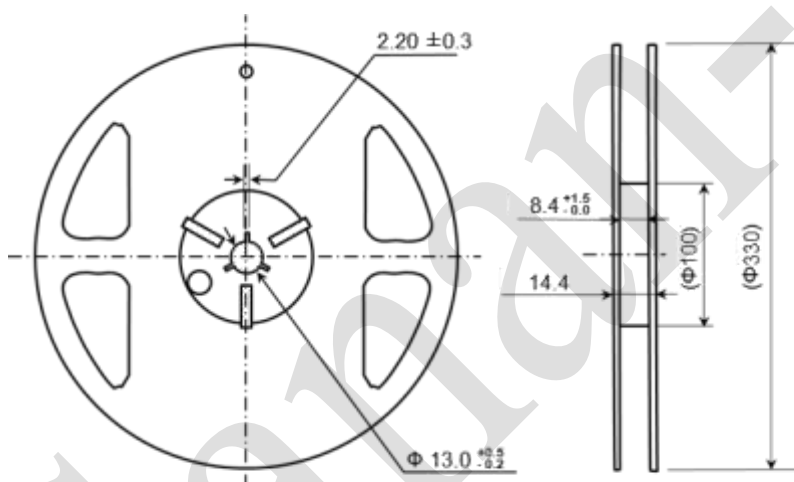


Reel Information



$\Phi 178$ Reel Dimension

UNIT: mm



$\Phi 330$ Reel Dimension

UNIT: mm

Ordering Code

Part Number	Description
RAD1960B0K-SA	Bulk (few pieces)
RAD1960B0K-MB	Tape & Reel 3,000 pcs/reel
RAD1960B0K-MC	Tape & Reel 10,000 pcs/reel
RAD1960B0K-SZ	EVB

Sanan-IC

Revision History

Revision	Date	Description
1.0	May. 17, 2021	● Initial release
		●

Sanan-IC

Important Notice

The information contained herein is as of the date of issue. The products or all information contained herein is subject to change without notice. Xiamen Sanan Integrated Circuit Co., Ltd. and subsidiaries (hereinafter referred to as “Sanan”) assumes no responsibility for errors or omissions in the information contained herein. Customers should verify the latest relevant information before ordering for Sanan products.

All of the contents may be used only for informational purposes by the customer. The information contained herein or any use of such information or Sanan products does not grant, either expressed or implied, to any party the intellectual property rights, patent rights, licenses and related rights. Sanan assume no responsibility for any damages and defects from the use of the information contained herein. Customers should verify Sanan products in actual condition and operating environment before using.

Sanan products are intended for use in mobile phone, PC, AV equipment, OA equipment, home electric appliances, office equipment, or other general electronic equipment. Sanan products are not warranted or authorized for use as critical components in aircraft, power plant, medical, life-saving, life-sustaining and other high reliability applications which can cause severe damages or personal injury or death.

The scope of the warranty of Sanan products is limited to products alone and Sanan does not assume any responsibility for any damages induced by the failure of the products without the express written agreement of Sanan.

Not to be used, duplicated, reproduced, modified, republished and revealed in whole or in part to others without the express written permission of Sanan.