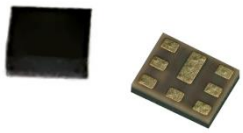
Data Sheet for

SAW Components



Band2

Duplexer

Product ID: RAD1960B0K

Date: Mar. 17, 2022

Revision: 1.1

Features

- Package Size : 1.8 x 1.4 x 0.55max 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								
1930.25	-	1989.75	MHz		-	1.4	2.0	-
VSWR Ant								
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

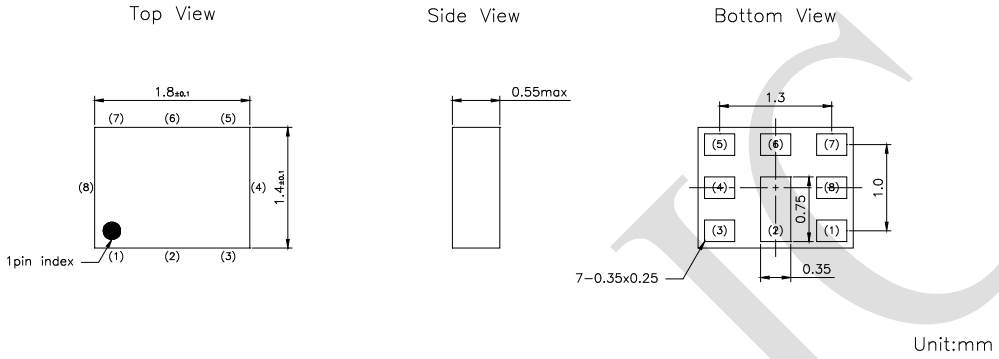
Maximum Ratings

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

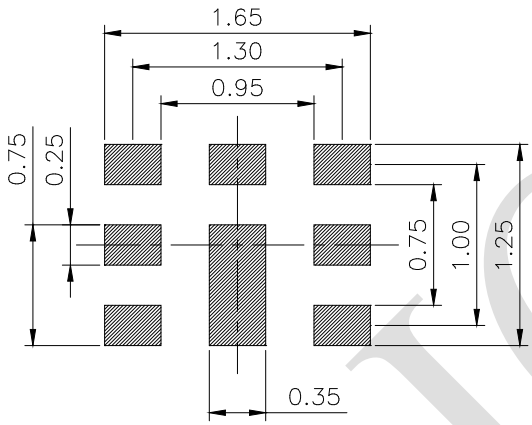
Item	Rating	Condition / Remark
Operating Temperature, T_{CASE}	-30 to +85 °C	

Package Information



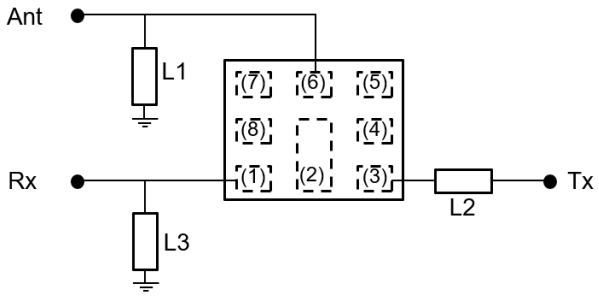
Pin Configuration		
1	:	Rx
3		Tx
6	:	Ant
Other	:	GND

Land Pattern



Unit:mm

Application Circuit

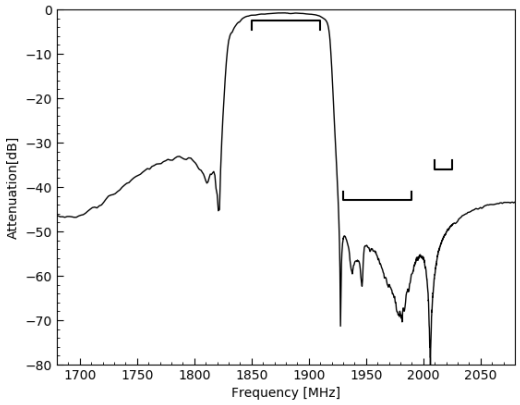


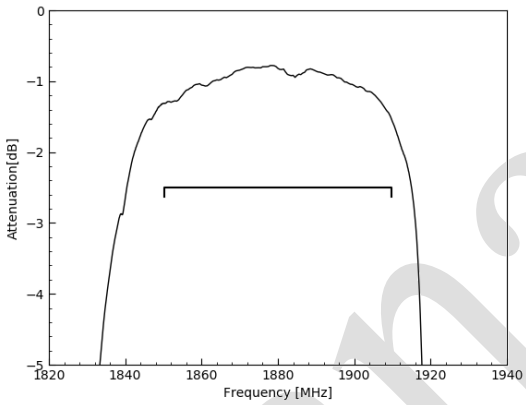
Port	Terminating Z	Matching Component
Ant	50 Ω	L1 : 4.3nH (Ideal inductor)
Tx	50 Ω	L2 : 2.4nH (Ideal inductor)
Rx	50 Ω	L3 : 3.9nH (Ideal inductor)

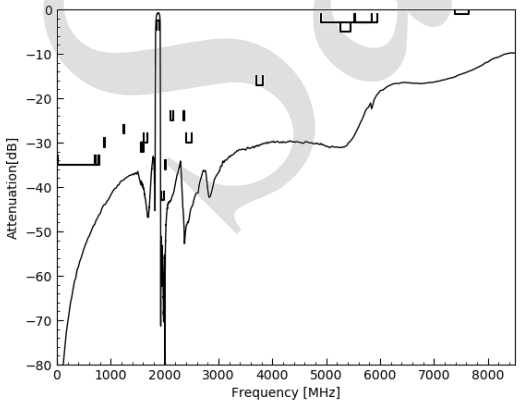
For ESD protection, external shunt inductor at all ports is recommended.

Electrical Characteristics Band2 Duplexer

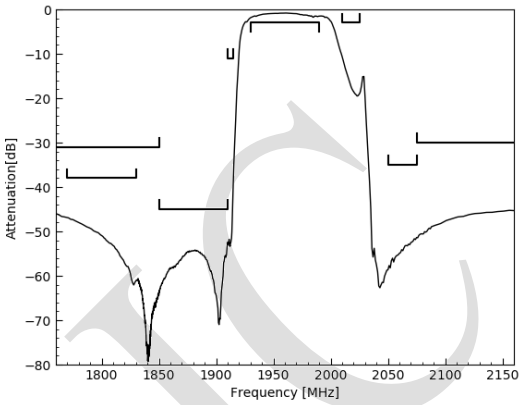
Tx to Ant

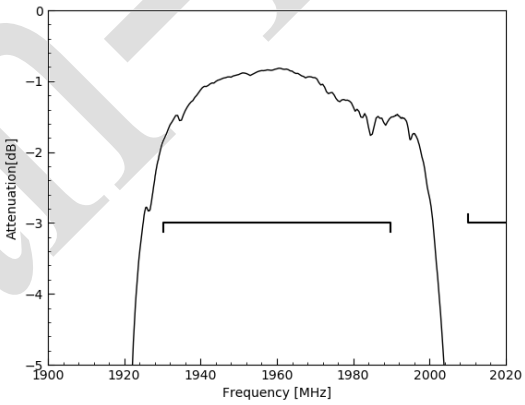


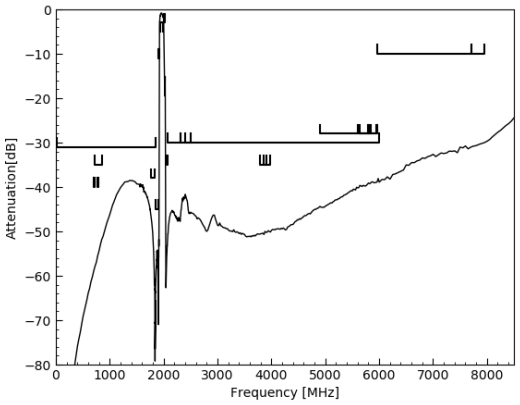




Ant to Rx

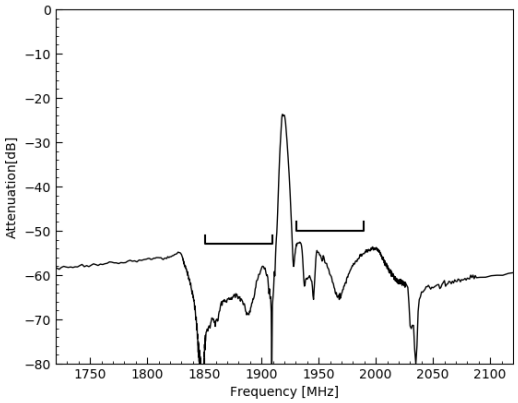


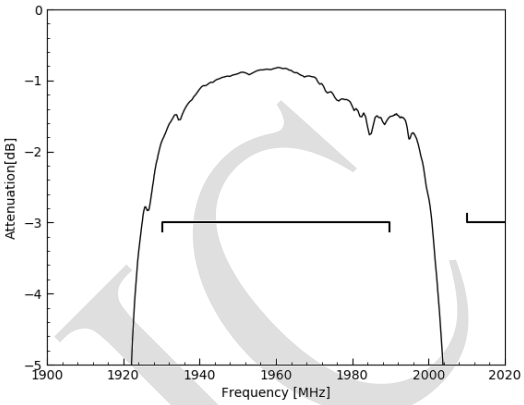


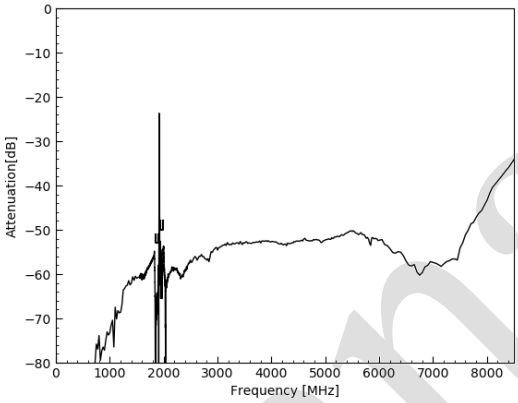


Electrical Characteristics Band2 Duplexer

Tx to Rx

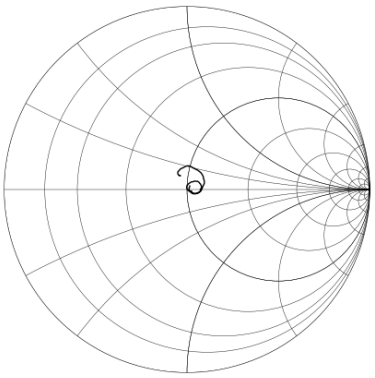




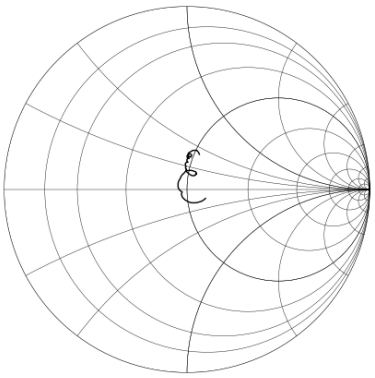


Electrical Characteristics Band2 Duplexer

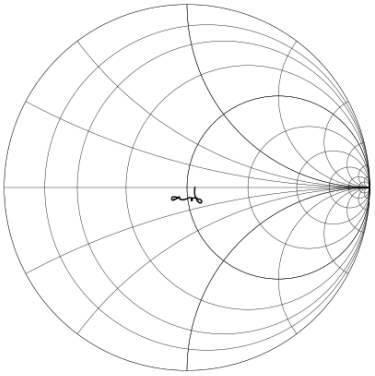
Ant Impedance (Tx band)



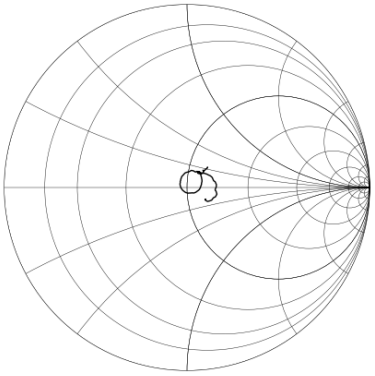
Ant Impedance (Rx band)



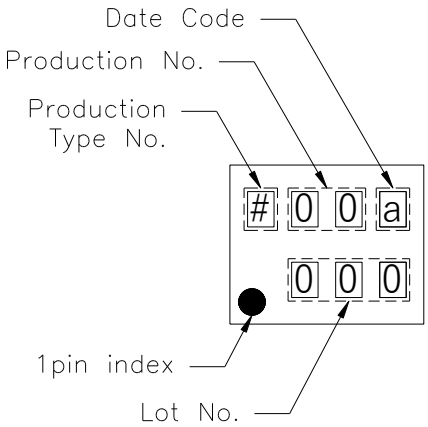
Tx Impedance



Rx Impedance



Marking Information



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

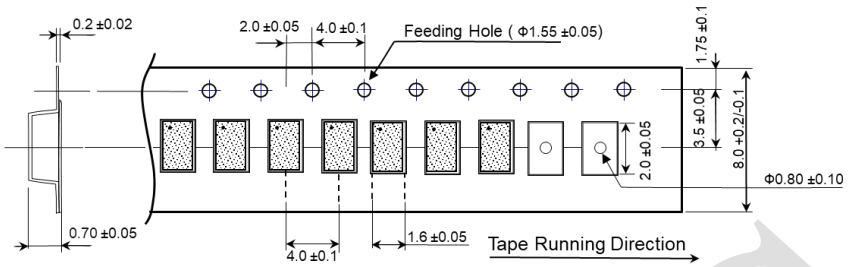
Product No. : 0K

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

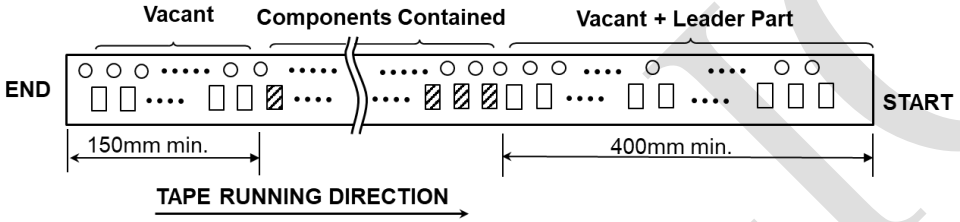
Product date code :

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

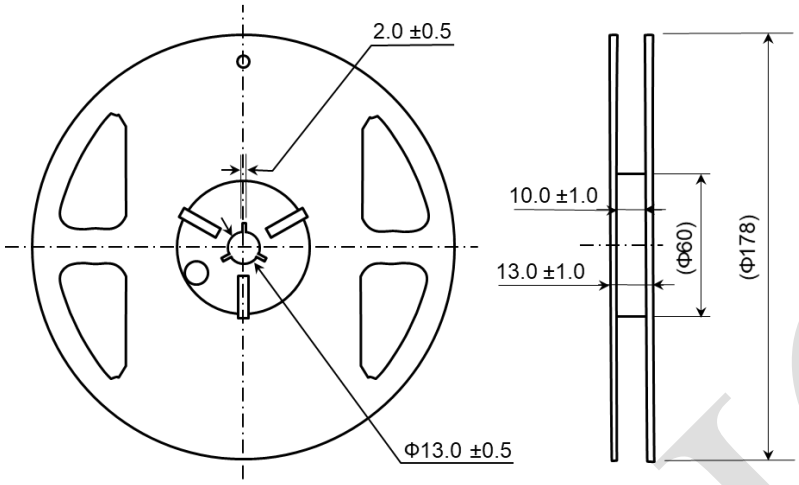
Tape Information



UNIT: mm

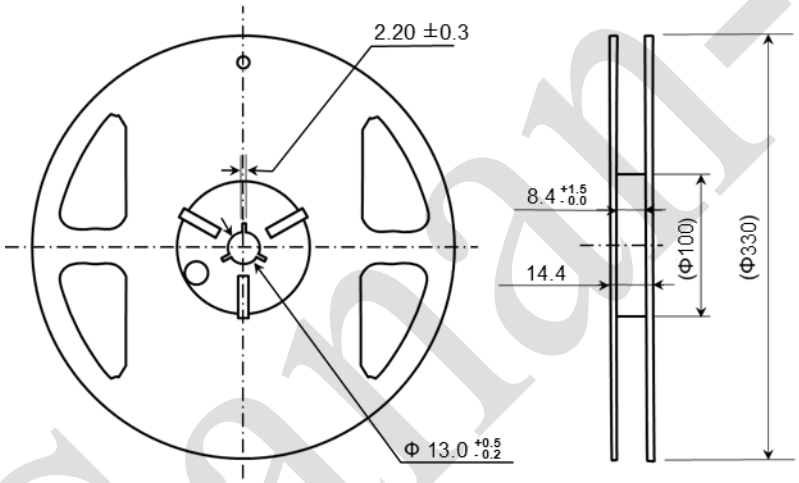


Reel Information



Φ178 Reel Dimension

UNIT: mm



Φ330 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

Revision History

Revision	Date	Description
1.0	May. 17, 2021	● Initial release
1.1	Mar. 17, 2022	● Updated “Features”
		●

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