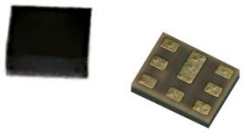
Data Sheet for SAW Components



Band3

Duplexer

Product ID: RAD1843B09

Date: Mar. 17, 2022

Revision: 3.1

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 Band3 Duplexer

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

Tx to Ant					Min.	Typ.	Max.	Unit
Insertion Loss								
	1710	-	1785	MHz	-	1.5	2.5	dB
Pass Band Ripple								
	1710	-	1785	MHz	-	0.5	1.1*1	dB
VSWR Tx								
	1710	-	1785	MHz	-	1.5	2.0	-
VSWR Ant								
	1710	-	1785	MHz	-	1.5	2.0	-
Absolute Attenuation								
	10	-	1565.42	MHz	28	35	-	dB
	703	-	748	MHz	30	45	-	dB
	716	-	756	MHz	35	45	-	dB
	814	-	849	MHz	33	43	-	dB
	832	-	862	MHz	33	43	-	dB
	880	-	915	MHz	33	42	-	dB
	925	-	960	MHz	32	41	-	dB
	1226	-	1250	MHz	30	36	-	dB
	1496	-	1511	MHz	33	38	-	dB
	1559	-	1563	MHz	36	42	-	dB
	1565.42	-	1573.37	MHz	37	44	-	dB
	1573.37	-	1577.47	MHz	37	44	-	dB
	1577.47	-	1585.42	MHz	38	45	-	dB
	1597.55	-	1605.89	MHz	37	42	-	dB
	1605.89	-	1680	MHz	5	33		dB
	1805	-	1880	MHz	42	53	-	dB
	1920	-	1980	MHz	20	42	-	dB
	2110	-	2170	MHz	24	31	-	dB
	2400	-	2500	MHz	28	36	-	dB
	2620	-	2690	MHz	25	40	-	dB
	3420	-	3570	MHz	20	33	-	dB
	4900	-	5850	MHz	16	31	-	dB
	5100	-	5385	MHz	18	34		dB

5130	-	5355	MHz	18	34	-	dB
6840	-	7140	MHz	12	20	-	dB

*1: Over any 5 MHz in band

Electrical Specifications Band3 Duplexer

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

Ant to Rx					Min.	Typ.	Max.	Unit
Insertion Loss								
	1805	-	1880	MHz	-	2.0	3.5	dB
Pass Band Ripple								
	1805	-	1880	MHz	-	0.7	1.7*1	dB
VSWR Rx								
	1805	-	1880	MHz	-	1.6	2.0	-
VSWR Ant								
	1805	-	1880	MHz	-	1.4	2.0	-
Absolute Attenuation								
	1	-	1710	MHz	30	37	-	dB
			95	MHz	50	112	-	dB
	718	-	748	MHz	40	55	-	dB
	814	-	849	MHz	40	50	-	dB
	832	-	862	MHz	40	50	-	dB
	880	-	915	MHz	40	48	-	dB
	1447	-	1463	MHz	30	38	-	dB
	1615	-	1690	MHz	40	43	-	dB
	1710	-	1785	MHz	43	57	-	dB
	1785	-	1790	MHz	24*2	53	-	dB_{INT}
	1920	-	6000	MHz	25	35	-	dB
	2400	-	2500	MHz	40	45	-	dB
	2500	-	2570	MHz	36	47	-	dB
	2570	-	3515	MHz	40	44	-	dB
	3515	-	3760	MHz	40	51		dB
	3760	-	8000	MHz	15	29	-	dB
	4900	-	5950	MHz	31	36	-	dB
	5205	-	5660	MHz	32	39	-	dB
	7220	-	7520	MHz	25	29	-	dB
	6000	-	8000	MHz	15	29	-	dB

*1: Over any 5 MHz in band

*2: Integrated |S31| over the center 4.5 MHz CH BW and converting to dB value

Electrical Specifications Band3 Duplexer

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

Tx to Rx					Min.	Typ.	Max.	Unit
Isolation								
	1712.5	-	1782.5	MHz	55*1	59	-	dB_{INT}
	1807.5	-	1877.5	MHz	50*1	54	-	dB_{INT}

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

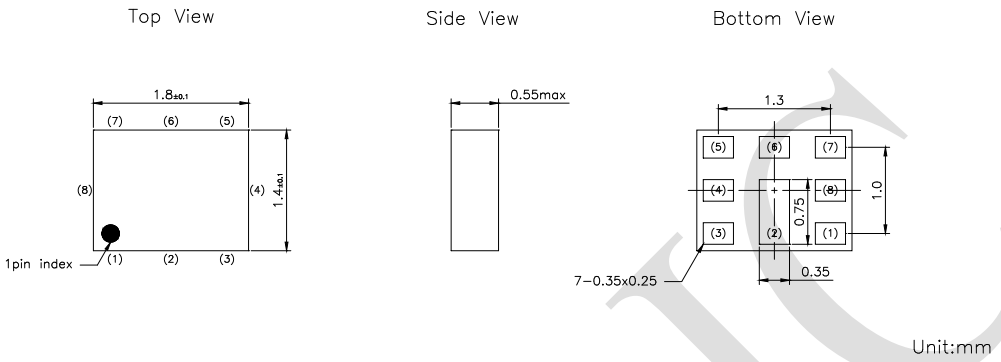
Maximum Ratings

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

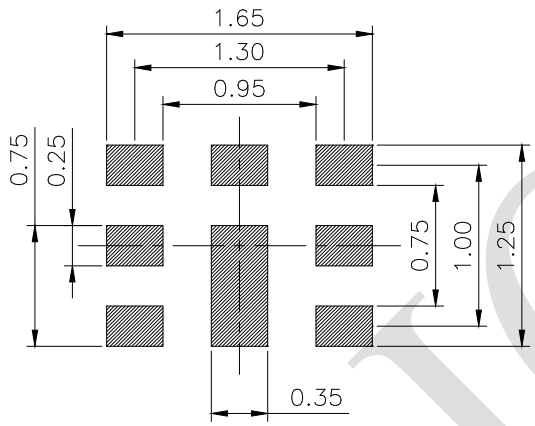
Item	Rating	Condition / Remark
Operating Temperature, T_{CASE}	-30 to +85 °C	

Package Information



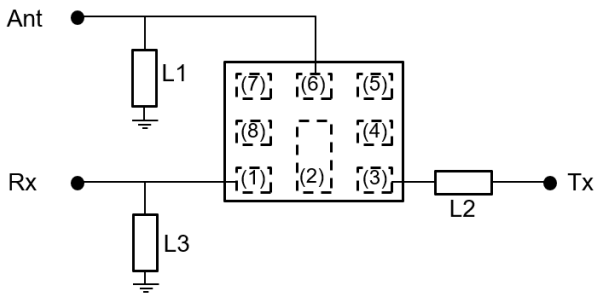
Pin Configuration		
1	:	Rx
3		Tx
6	:	Ant
Other	:	GND

Land Pattern



Unit:mm

Application Circuit

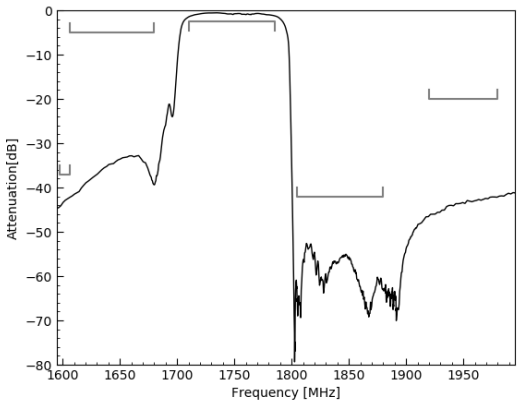


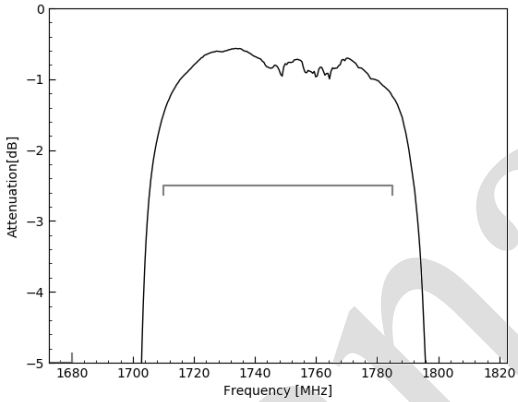
Port	Terminating Z	Matching Component
Ant	50 Ω	L1 : 4.7nH (Ideal inductor)
Tx	50 Ω	L2 : 4.7nH (Ideal inductor)
Rx	50 Ω	L3 : 3.9nH (Ideal inductor)

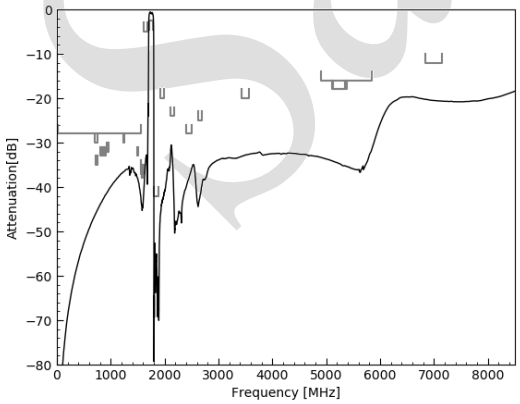
For ESD protection, external shunt inductor at all ports is recommended.

Electrical Characteristics Band3 Duplexer

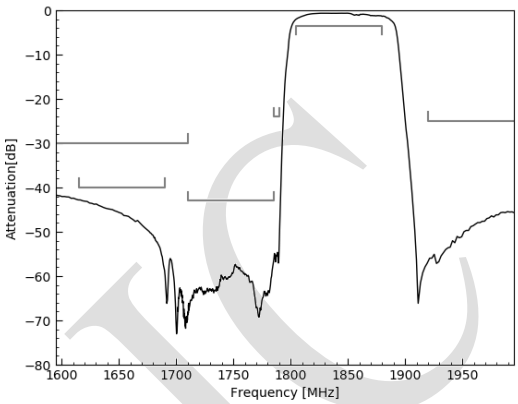
Tx to Ant

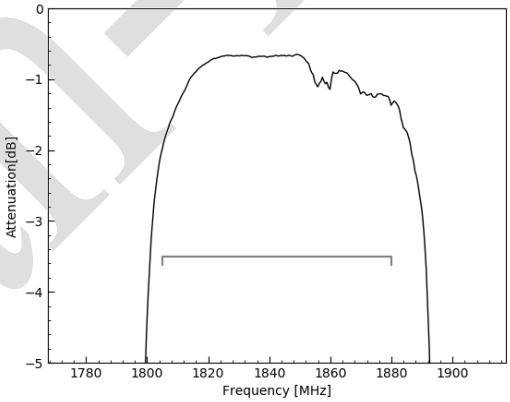


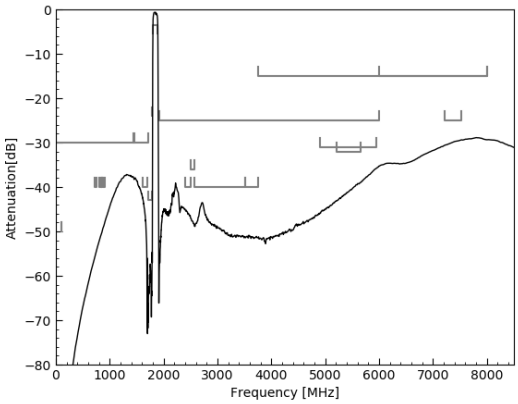




Ant to Rx

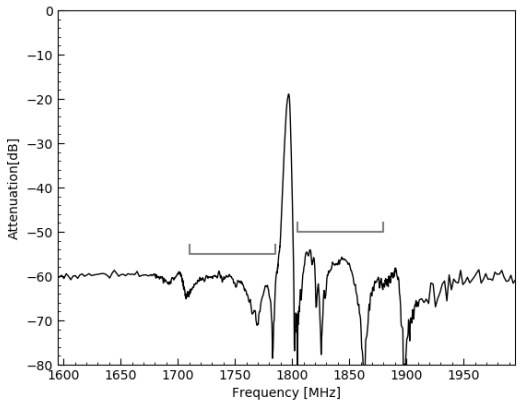


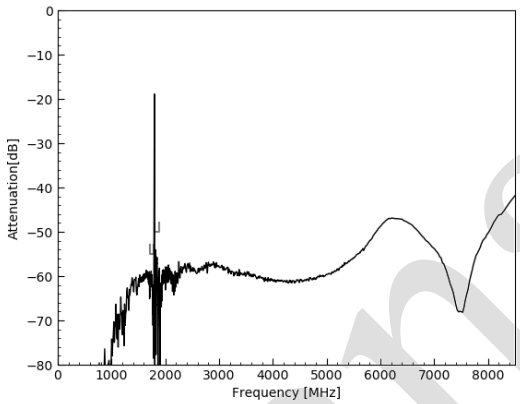




Electrical Characteristics Band3 Duplexer

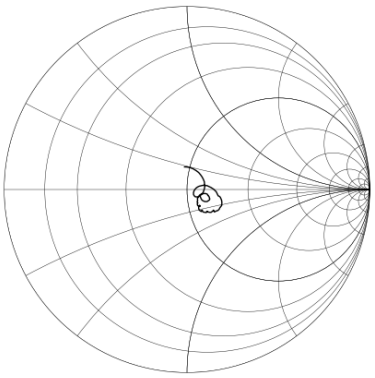
Tx to Rx



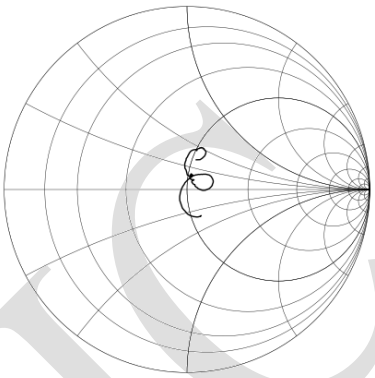


Electrical Characteristics Band3 Duplexer

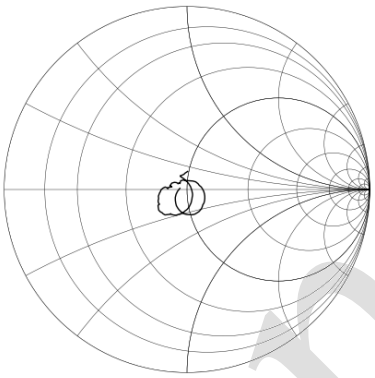
Ant Impedance (Tx band)



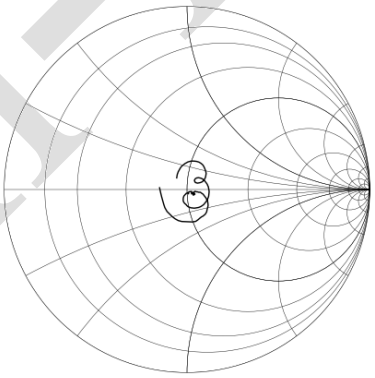
Ant Impedance (Rx band)



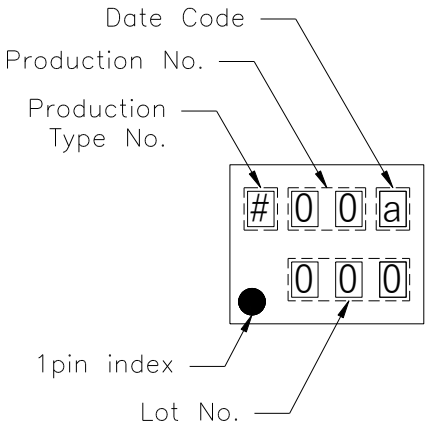
Tx Impedance



Rx Impedance



Marking Information



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

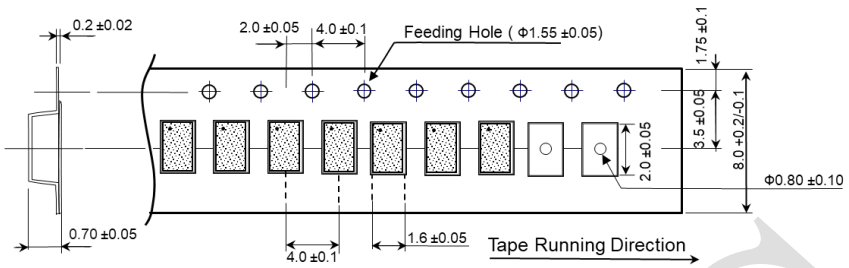
Product No. : 09

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

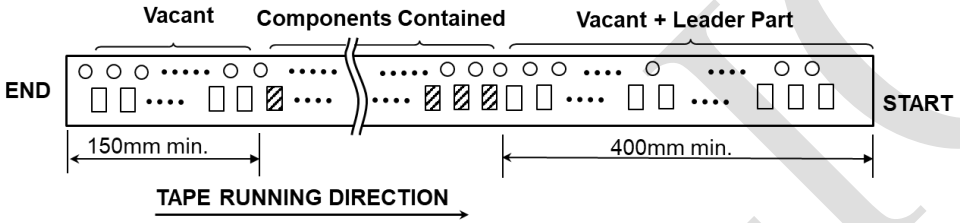
Product date code :

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	A	B	C	D	E	F	G	H	J	K	L	M
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

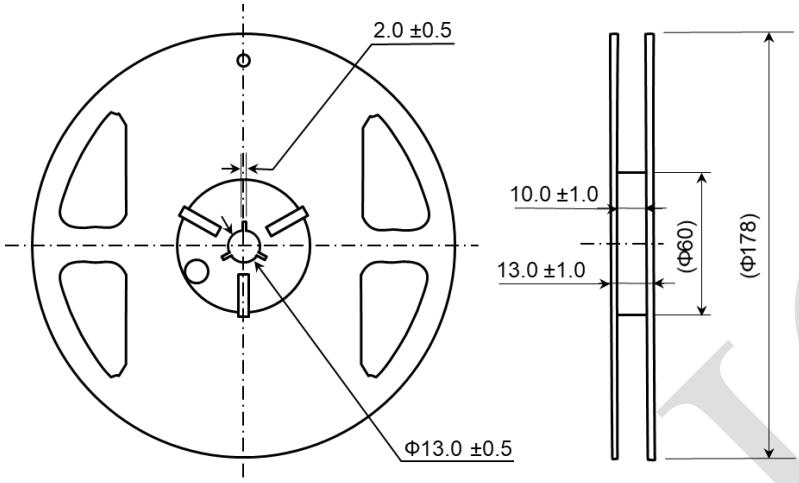
Tape Information



UNIT: mm

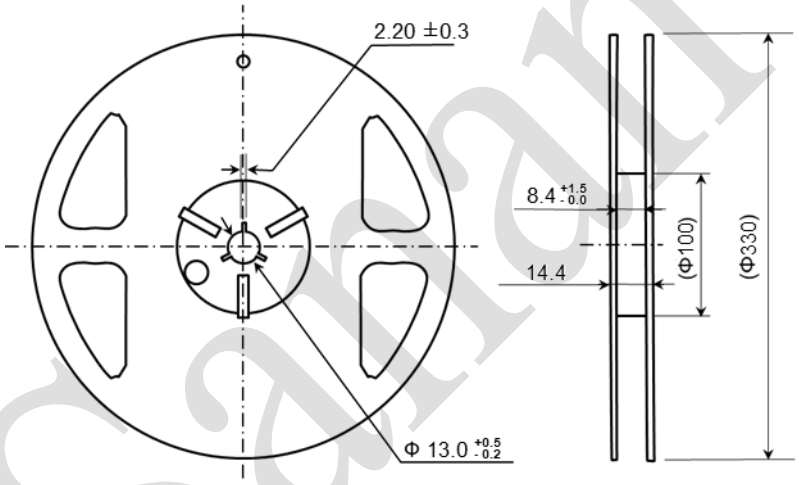


Reel Information



Φ178 Reel Dimension

UNIT: mm



Φ330 Reel Dimension

UNIT: mm

Ordering Code

Part Number	Description
RAD1843B09-SA	Bulk (few pieces)
RAD1843B09-MB	Tape & Reel 3,000 pcs/reel
RAD1843B09-MC	Tape & Reel 10,000 pcs/reel
RAD1843B09-SZ	EVB

Revision History

Revision	Date	Description
1.0	Jul. 17, 2020	● Initial release
2.0	Nov. 17, 2020	● Updated “Electrical Specifications”, “Electrical Characteristics”.
2.1	Dec. 22, 2020	● Update “Reel Information” and “Ordering Code”
3.0	Oct. 29, 2021	● Updated “Electrical Specifications”
3.1	Mar. 17, 2022	● Updated “Features”

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