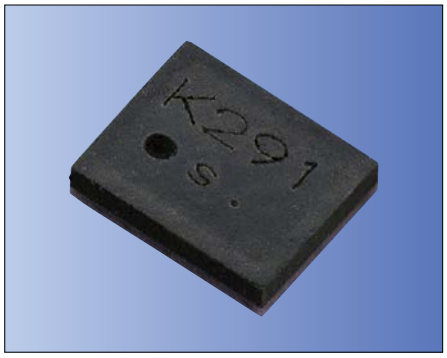
SAW Duplexers
SD20 Series (Balanced Type)



RoHS Compliant

Features

- High attenuation
- High isolation
- Rx balanced output type

Applications

- UMTS (W-CDMA)
- CDMA

How to Order

SD 20 - 1950 R 9 UB Q1
① ② ③ ④ ⑤ ⑥ ⑦

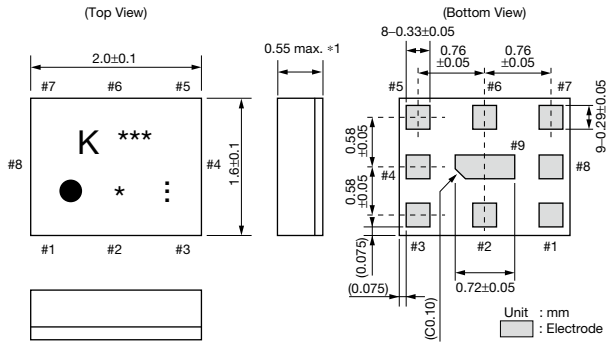
① Type of Product (SAW Duplexer)
② Package Size
③ Nominal Center Frequency
④ Spec.
⑤ Number of Terminals
⑥ Input/ Output
⑦ Custom Specification

Specifications

Part No.	Band	Condition	Pass Band Frequency	Insertion Loss (dB)	Pass Band Variation (dB)	VSWR	Absolute Rejection (dB)							Isolation Tx to Rx (dB)		Operating Temperature	Storage Temperature
														Differential Mode	Common Mode		
SD20-1950R9UBQ1	Band1	Tx to Ant	1920.48MHz - 1979.52MHz	2.0 max.	0.5 max.	2.3 max.	843MHz - 894MHz	1573.374MHz - 1577.466MHz	1805MHz - 1865MHz	1865MHz - 1880MHz	2010MHz - 2025MHz	2110MHz - 2170MHz	2400MHz - 2500MHz	1920.48MHz - 1979.52MHz	1920.48MHz - 1979.52MHz	−30 to +85°C	−40 to +85°C
							41 min.	43 min.	30 min.	10 min.	20 min. *1	44 min.	36 min.	55 min.	50 min.		
		Ant to Rx	2110.48MHz - 2169.52MHz	2.5 max.	0.5 max.	2.1 max.	1920MHz - 1980MHz	1980MHz - 2025MHz	2255MHz - 2400MHz	2400MHz - 2484MHz	2484MHz - 6000MHz	—	—	—	—		
							47 min.	20 min.	35 min.	35 min.	35 min.	—	—				
SD20-1880R9UBB1	Band2	Tx to Ant	1850.48MHz - 1909.52MHz	3.0 max.	1.8 max.	2.1 max.	869MHz - 894MHz	1565.42MHz - 1585.42 MHz	1597.552 MHz - 1605.886MHz	1930MHz - 1990MHz	2010MHz - 2025MHz	2110MHz - 2155MHz	2400MHz - 2500MHz	1850.48MHz - 1909.52MHz	1850.48MHz - 1909.52MHz		
							36 min.	38 min.	35 min.	36 min.	30 min.	30 min.	25 min.	40 min.	40 min.		
		Ant to Rx	1930.48MHz - 1989.52MHz	4.6 max.	2.5 max.	2.1 max.	30MHz - 1850MHz	1765MHz - 1835MHz	1850MHz - 1910MHz	2005MHz - 2050MHz	2050MHz - 2075MHz	2400MHz - 2484MHz	2810MHz - 2910MHz	—	—		
							30 min.	35 min.	32 min.	3 min.	25 min.	30 min.	30 min.				
SD20-0836R9UBQ1	Band5	Tx to Ant	824MHz - 849MHz	2.1 max.	1.0 max.	1.9 max.	869MHz - 894MHz	1573.374MHz - 1577.466MHz	1638MHz - 1708MHz	1844.9MHz - 1879.9MHz	1884.5MHz - 1919.6MHz	1930MHz - 1990MHz	2400MHz - 2557MHz	824MHz - 849MHz	824MHz - 849MHz		
							44 min.	45 min.	25 min.	30 min.	30 min.	40 min.	38 min.	55 min.	50 min.		
		Ant to Rx	869MHz - 894MHz	2.2 max.	1.2 max.	2.0 max.	447MHz - 824MHz	824MHz - 849MHz	849MHz - 854MHz	909MHz - 1000MHz	1000MHz - 1850MHz	1850MHz - 1920MHz	1920MHz - 6000MHz	—	—		
							30 min.	45 min.	10 min.	10 min.	28 min.	40 min.	33 min.				
SD20-0897R9UBQ1	Band8	Tx to Ant	882MHz - 912.6MHz	2.7 max. *2	2.1 max.	2.3 max.	927.4MHz - 957.6MHz	1573.374MHz - 1577.466MHz	1760MHz - 1830MHz	2400MHz - 2500MHz	2620MHz - 2745MHz	—	—	882.4MHz - 912.6MHz	882.4MHz - 912.6MHz		
							44 min. *2	37 min.	35 min.	25 min.	25 min.	—	—	55 min. *2	42 min. *2		
		Ant to Rx	925MHz - 960MHz	2.9 max. *2	2.1 max.	2.3 max.	10MHz - 880MHz	882.4MHz - 912.6MHz	1045MHz - 1750MHz	1750MHz - 4810MHz	—	—	—	—	—		
							35 min.	45 min. *2	35 min.	35 min.	—	—	—				

*1 Operating Temperature of 0 to +85°C *2 Integrated over ±1.92MHz around the WCDMA channel center frequency. unit : dBint

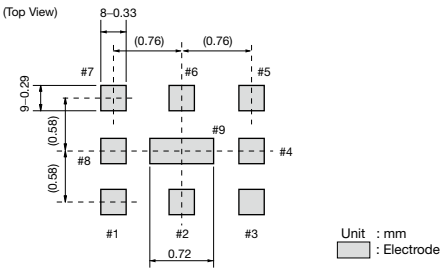
Dimensions



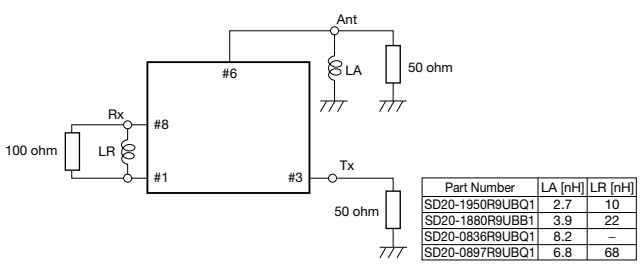
PIN No.	Function
#1	Rx
#2	GND
#3	Tx
#4	GND
#5	GND
#6	Ant
#7	GND
#8	Rx
#9	GND

Unit: mm
K : Kyocera logo
***: Identification no.
* : Monthly Code
⋮ : Index mark of ten days
(⋮1st-10th, ⋮11th-20th, ⋮21st-31st)
*1: 0.57 max./ SD20-1880R9UBB1

Recommended Land Pattern



Test Circuit

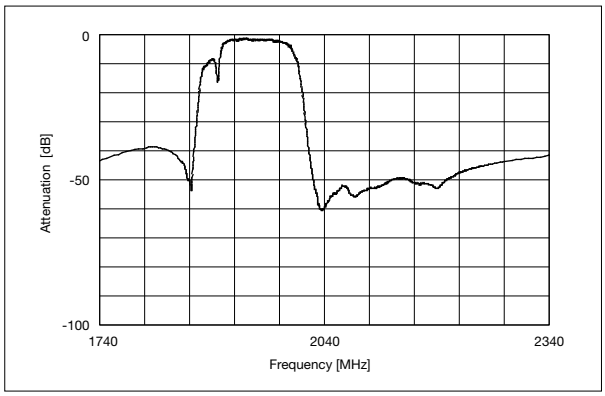


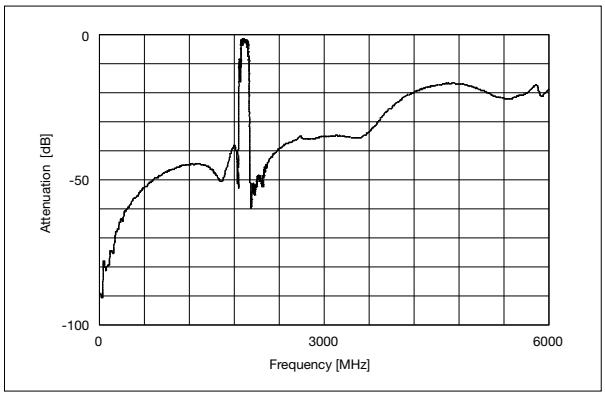
Part Number	LA [nH]	LR [nH]
SD20-1950R9UBQ1	2.7	10
SD20-1880R9UBB1	3.9	22
SD20-0836R9UBQ1	8.2	–
SD20-0897R9UBQ1	6.8	68

Characteristics

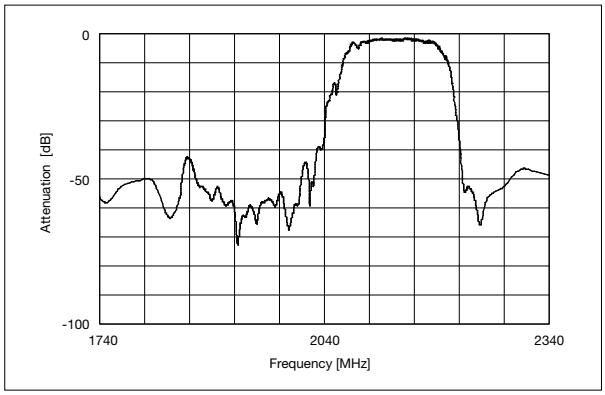
<Band1> Part No.: SD20-1950R9UBQ1

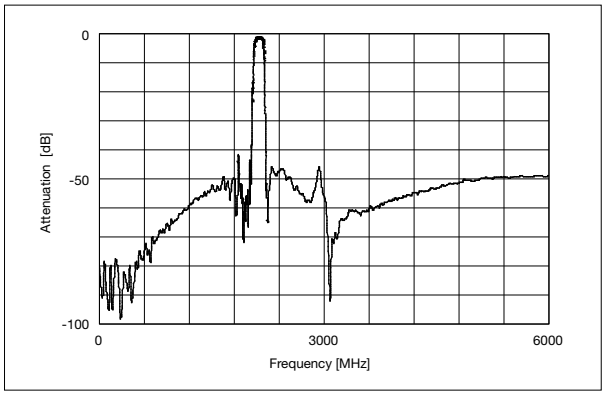
Tx to Ant



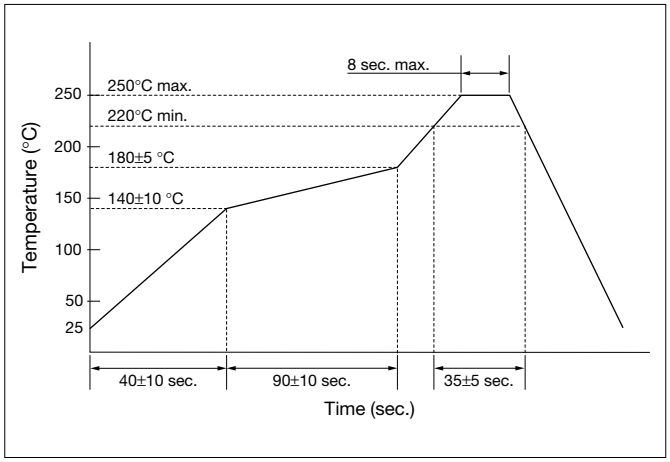


Ant to Rx





Recommended Reflow Profile



1. Operating Environment

1) Use products within the rated operating temperature, otherwise it may not satisfy electrical characteristics specifications. It might work initially, but there is a high possibility that it will cause degradation, breakdown and lower reliability.

2) This product is designed and manufactured with intention to be used in electronic devices for standard applications, but not in the following environment which may affect performance of the product. Be sure not to use products in the following conditions which may cause electrical characteristics and reliability degradation.
   · Under corrosive gas (Cl_2, H_2S, NH_3, SOx, NOx, etc.)
   · Under volatile and inflammability gas
   · Dusty environment
   · Direct exposure to water, or high humidity environment
   · Direct sunlight
   · High static electricity, or high electric intensity.

   Please consult with us if you intend to use products in the above environment.

3) This product can not be used in liquid such as water, oil, chemical and organic solvent.

4) Operate under rated voltage, otherwise it may not satisfy electrical characteristics specifications. It might work initially, but there is high possibility that it will cause degradation, breakdown and lower the reliability.

5) Avoid contact with other components on the board, since outer resin is not intended for the insulation with other components.

6) There might be a strong electrical charge when rapid thermal change is applied to this product. This charge may damage the product and the peripheral circuit. Therefore, insert load discharge path between input/output and ground.

7) Do not apply larger load greater than the one loaded in the environmental test. It might work initially, but there is a high possibility that it will cause degradation, breakdown and lower the reliability.

8) Do not use transfer mold for this product. It may break hermetic seal and cause abnormal operation. Please consult us when molding by resin.

2. Storage instructions

1) Do not store products in the following environment which may deteriorate solderability.
   · Under corrosive gas (Cl_2, H_2S, NH_3, SOx, NOx, etc.)
   · Under volatile and inflammability gas
   · Dusty environment
   · Direct exposure to water, or high humidity environment
   · Direct sunlight
   · High static electricity, or high electric intensity

   Please consult with us if you intend to use products in the above environment.

2) Store products under normal temperature and humidity in the sealed or unopened package.
   Storage of products for over 12months after shipment may deteriorate solderability, and it is advised to perform solderability test before use. Also, be cautioned that color of electrode might change after a long term storage.

3) Open the sealed pack just before use.
   Practice assembly within 168 hours after opening the pack, and in the condition of 5-30deg.C and below 60%RH.

4) Stacking the box too high may cause fall over. It is advised to stack the box at the maximum of 5 boxes.

3. Handling instructions

1) Do not apply larger vibration or shock greater than specified, since it may cause degradation, breakdown and lower reliability.

2) Do not apply larger shock or load greater than specified, while carrying the board with products mounted.

3) Take appropriate measure to avoid static electricity and high voltage when handling products, since it may cause degradation or damage to the products.

4) Do not handle this product with bear hands.

4. Assembly instructions

1) Place products in the place to avoid stress from bending and camber of the board.
   There may be a large stress or shock when the product is placed near the connection parts with other outer parts.

2) Please do not apply larger stress greater than the one loaded in the environmental test when mounting on the board.

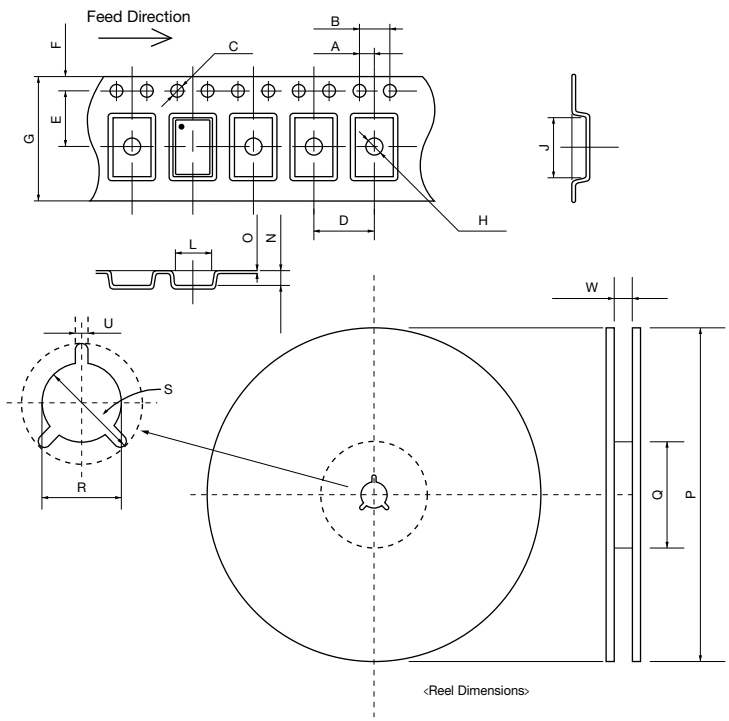
3) Make sure to solder all electrodes to the board, otherwise it may cause lower electrode strength.

Tape & Reel Specifications

■ SAW Duplexers/ SAW Filters

(Unit: mm)

		SAW Duplexers		SAW Filters				
		SD18	SD20	SF14	SF15	SF16	SF18	SF20
TAPE	A	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05	2.0±0.05
	B	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	C	ϕ1.5+0.1/ -0	1.5±0.1	ϕ1.5±0.1	1.5±0.1	1.5±0.1	ϕ1.5+0.1/ -0	1.5±0.1
	D	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
	E	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05	3.5±0.05
	F	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
	G	8.0±0.1	8.0±0.2	8.0±0.2	8.0±0.2	8.0±0.2	8.0±0.1	8.0±0.2
	H	ϕ0.8±0.05	1.1±0.1	ϕ0.5±0.05	0.5±0.1	1.1±0.1	ϕ0.8±0.05	1.1±0.1
	J	2.05±0.1	2.25±0.1	1.7±0.1	1.80±0.1	1.90±0.1	2.05±0.1	2.25±0.1
	L	1.7±0.1	1.8±0.1	1.4±0.1	1.4±0.1	1.85±0.1	1.7±0.1	1.8±0.1
	N	0.85+0/ -0.5	0.7±0.1	0.8±0.1	0.7±0.1	0.95±0.2	0.85+0/ -0.5	0.7±0.1
	O	0.2±0.05	0.2±0.05	0.2±0.05	0.2±0.05	0.25±0.05	0.2±0.05	0.2±0.05
REEL	P	ϕ178±2	ϕ178±2	ϕ178±2	ϕ178±2	ϕ178±2	ϕ178±2	ϕ178±2
	Q	ϕ60±2	ϕ60±2	ϕ60±2	ϕ60±2	ϕ60±2	ϕ60±2	ϕ60±2
	R	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2	ϕ13±0.2
	S	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8	ϕ21±0.8
	U	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5	2±0.5
	W	9.5±1	9.5±1	9.5±1	9.5±1	9.5±1	9.5±1	9.5±1
Qty.		3000	3000	3000	3000	3000	3000	3000



‹Reel Dimensions›