SAW Duplexers
SD20 Series (Balanced Type)

Features
- High attenuation
- High isolation
- Rx balanced output type

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

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Band Condition</th>
<th>Pass Band Frequency</th>
<th>Insertion Loss (dB)</th>
<th>Return Loss (dB)</th>
<th>VSWR</th>
<th>Absolute Rejection (dB)</th>
<th>Isolation Tx to Rx (dB)</th>
<th>Oper. Temperature</th>
<th>Storage Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD20-1950R9UBQ1</td>
<td>Band1</td>
<td>Tx to Ant</td>
<td>1920.48MHz</td>
<td>0.0 max</td>
<td>0.5 max</td>
<td>2.3 max</td>
<td>843MHz 817MHz 820MHz 815MHz 810MHz 805MHz 800MHz 795MHz</td>
<td>230MHz 225MHz 220MHz 215MHz 210MHz 205MHz 200MHz 195MHz</td>
<td>21MHz 20MHz 19MHz 18MHz 17MHz 16MHz 15MHz 14MHz</td>
</tr>
<tr>
<td>Ant to Rx</td>
<td>1979.52MHz</td>
<td>2.5 max</td>
<td>0.5 max</td>
<td>2.1 max</td>
<td>920MHz 890MHz 860MHz 830MHz 800MHz 770MHz 740MHz 710MHz</td>
<td>300MHz 275MHz 250MHz 225MHz 200MHz 175MHz 150MHz 125MHz</td>
<td>20MHz 19MHz 18MHz 17MHz 16MHz 15MHz 14MHz 13MHz</td>
<td>-40°C to 85°C</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>SD20-1880R9UBB1</td>
<td>Band2</td>
<td>Tx to Ant</td>
<td>1930.48MHz</td>
<td>0.0 max</td>
<td>0.5 max</td>
<td>2.1 max</td>
<td>950MHz 920MHz 890MHz 860MHz 830MHz 800MHz 770MHz 740MHz</td>
<td>300MHz 275MHz 250MHz 225MHz 200MHz 175MHz 150MHz 125MHz</td>
<td>35MHz 34MHz 33MHz 32MHz 31MHz 30MHz 29MHz 28MHz</td>
</tr>
<tr>
<td>Ant to Rx</td>
<td>1980.52MHz</td>
<td>4.6 max</td>
<td>2.5 max</td>
<td>2.1 max</td>
<td>980MHz 950MHz 920MHz 890MHz 860MHz 830MHz 800MHz 770MHz</td>
<td>300MHz 275MHz 250MHz 225MHz 200MHz 175MHz 150MHz 125MHz</td>
<td>35MHz 34MHz 33MHz 32MHz 31MHz 30MHz 29MHz 28MHz</td>
<td>-40°C to 85°C</td>
<td>-40°C to 85°C</td>
</tr>
<tr>
<td>SD20-0836R9UBQ1</td>
<td>Band3</td>
<td>Ant to Rx</td>
<td>86MHz</td>
<td>2.1 max</td>
<td>1.0 max</td>
<td>1.9 max</td>
<td>912.6MHz</td>
<td>882MHz 852MHz 822MHz 792MHz 762MHz 732MHz 702MHz 672MHz</td>
<td>10MHz 8MHz 6MHz 4MHz 2MHz 1MHz 500kHz 300kHz</td>
</tr>
<tr>
<td>SD20-0897R9UBQ1</td>
<td>Band4</td>
<td>Ant to Rx</td>
<td>912.6MHz</td>
<td>2.1 max</td>
<td>1.0 max</td>
<td>1.9 max</td>
<td>912.6MHz</td>
<td>882MHz 852MHz 822MHz 792MHz 762MHz 732MHz 702MHz 672MHz</td>
<td>10MHz 8MHz 6MHz 4MHz 2MHz 1MHz 500kHz 300kHz</td>
</tr>
</tbody>
</table>

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

Dimensions

**Recommended Land Pattern**

**Test Circuit**

Downloaded from Arrow.com.
SAW Duplexers
SD20 Series (Balanced Type)

Characteristics

<Band1> Part No.: SD20-1950R9UBQ1

Recommended Reflow Profile

Downloaded from Arrow.com.
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 (Cl₂, H₂S, NH₃, 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 (Cl₂, H₂S, NH₃, 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 12 months 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 bare 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

<table>
<thead>
<tr>
<th>SAW Duplexers</th>
<th>SAW Filters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(Unit: mm)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>2.0±0.05</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>4.0±0.1</td>
</tr>
<tr>
<td><strong>C</strong></td>
<td>1.5±0.1</td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>4.0±0.1</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>3.5±0.05</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>1.75±0.1</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>8.0±0.1</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>0.8±0.05</td>
</tr>
<tr>
<td><strong>J</strong></td>
<td>2.0±0.1</td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>1.7±0.1</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>0.85±0.05</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>0.2±0.05</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td>ϕ178±1.2</td>
</tr>
<tr>
<td><strong>Q</strong></td>
<td>ϕ60±1.2</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>ϕ13±0.2</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>ϕ21±0.8</td>
</tr>
<tr>
<td><strong>U</strong></td>
<td>2±0.5</td>
</tr>
<tr>
<td><strong>W</strong></td>
<td>9.5±1</td>
</tr>
<tr>
<td>Qty.</td>
<td>3000</td>
</tr>
</tbody>
</table>

### Diagram