SAWTEK a TriQuint company

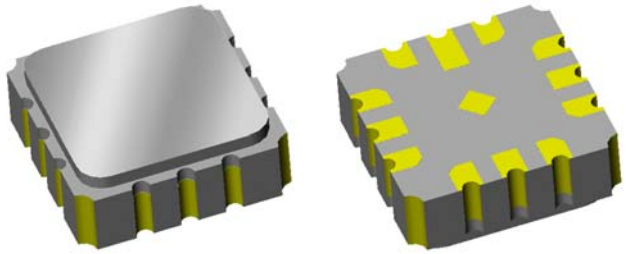
Data Sheet

Part Number 856331

836.5/881.5 MHz SAW Duplexer

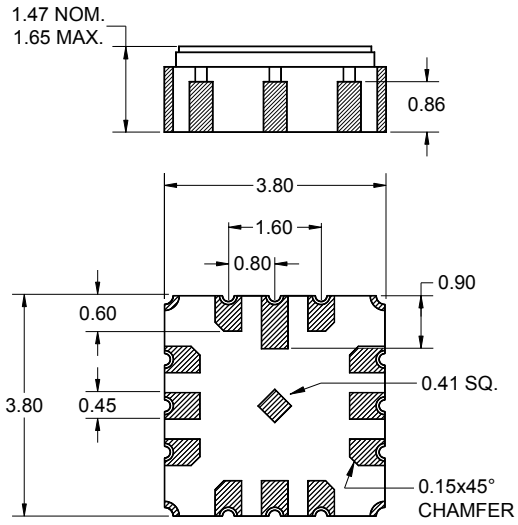
Features

- For AMPS, CDMA and TDMA applications
- Usable bandwidth 25 MHz (each band)
- High Tx-Rx isolation
- Low insertion loss
- High attenuation
- Single-ended operation
- No matching required for operation at 50Ω
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



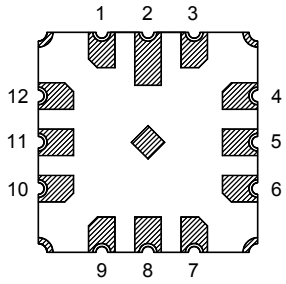
Package

Surface Mount 3.80 x 3.80 x 1.47 mm



Pin Configuration

Bottom View



Pin No.	Description
5	Tx
8	Antenna
11	Rx
1,2,3,4,6	Case ground
7,9,10,12	Case ground

Dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

Body: Al_2O_3 ceramic
Lid: *Kovar*, *Ni* plated
Terminations: *Au* plating 0.5 - 1.0μm, over a 2 - 6μm *Ni* plating

Electrical Specifications [1]

Operating Temperature: [2] +25 °C

Parameter [3]	Minimum	Typical	Maximum	Unit
Tx-Ant Specification				
Center Frequency	-	836.5	-	MHz
Maximum Insertion Loss [4]				
824 - 849 MHz	-	1.8	2.3	dB
Amplitude Ripple				
824 - 849 MHz	-	0.4	0.9	dB
Absolute Attenuation				
869 - 894 MHz	45	49	-	dB
1050 - 1100 MHz	18	22	-	dB
1250 - 1325 MHz	12	16	-	dB
Second Harmonic Attenuation				
1648 - 1698 MHz	7	9	-	dB
Third Harmonic Attenuation				
2472 - 2547 MHz	8	10	-	dB
Return Loss at Tx Terminal [4]				
824 - 849 MHz	10	13	-	dB
Ant-Rx Specification				
Center Frequency	-	881.5	-	MHz
Maximum Insertion Loss [4]				
869 - 894 MHz	-	2.5	3.0	dB
Amplitude Ripple				
869 - 894 MHz	-	1.0	1.4	dB
Absolute Attenuation				
779 - 804 MHz	35	40	-	dB
824 - 849 MHz	51	55	-	dB
1039 - 1065 MHz	35	40	-	dB
1100 - 1270 MHz	38	45	-	dB
1648 - 1698 MHz	30	41	-	dB
2472 - 2547 MHz	15	20	-	dB
Return Loss at Rx Terminal [4]				
869 - 894 MHz	10	13	-	dB
Tx-Rx Specification				
Tx to Rx Isolation				
824 - 849 MHz	55	59	-	dB
869 - 894 MHz	45	48	-	dB

Notes:

1. All specifications are based on the test circuit shown on page 5
2. This specification is valid for room temperature only. The specification over the full temperature range(s) is available on the next page(s)
3. Electrical margin has been built into the design to account for the variations due to manufacturing tolerances
4. Excluding losses due to PCB

Electrical Specifications [1]

Operating Temperature Range: [2] -30 to +85 °C

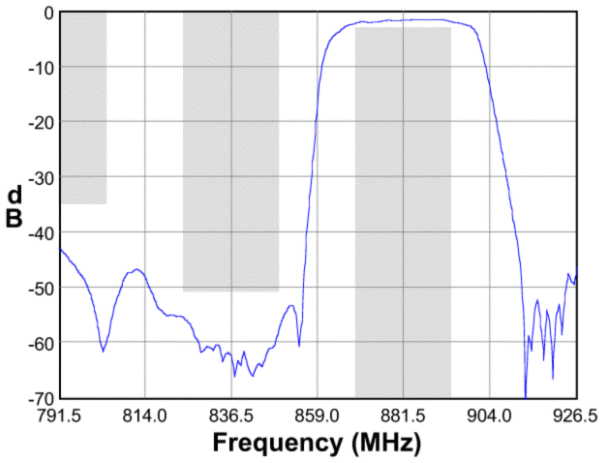
Parameter [3]	Minimum	Typical	Maximum	Unit
Tx-Ant Specification				
Center Frequency	-	836.5	-	MHz
Maximum Insertion Loss [4]				
824 - 849 MHz	-	1.8	2.5	dB
Amplitude Ripple				
824 - 849 MHz	-	0.4	1.1	dB
Absolute Attenuation				
869 - 894 MHz	45	48	-	dB
1050 - 1100 MHz	18	22	-	dB
1250 - 1325 MHz	12	16	-	dB
Second Harmonic Attenuation				
1648 - 1698 MHz	7	9	-	dB
Third Harmonic Attenuation				
2472 - 2547 MHz	8	10	-	dB
Return Loss at Tx Terminal [4]				
824 - 849 MHz	10	13	-	dB
Ant-Rx Specification				
Center Frequency	-	881.5	-	MHz
Maximum Insertion Loss [4]				
869 - 894 MHz	-	2.5	3.5	dB
Amplitude Ripple				
869 - 894 MHz	-	1.0	2.2	dB
Absolute Attenuation				
779 - 804 MHz	35	40	-	dB
824 - 849 MHz	50	54	-	dB
1039 - 1065 MHz	35	40	-	dB
1100 - 1270 MHz	38	45	-	dB
1648 - 1698 MHz	30	41	-	dB
2472 - 2547 MHz	15	20	-	dB
Return Loss at Rx Terminal [4]				
869 - 894 MHz	9	12	-	dB
Tx-Rx Specification				
Tx to Rx Isolation				
824 - 849 MHz	54	58	-	dB
869 - 894 MHz	44	48	-	dB

Notes:

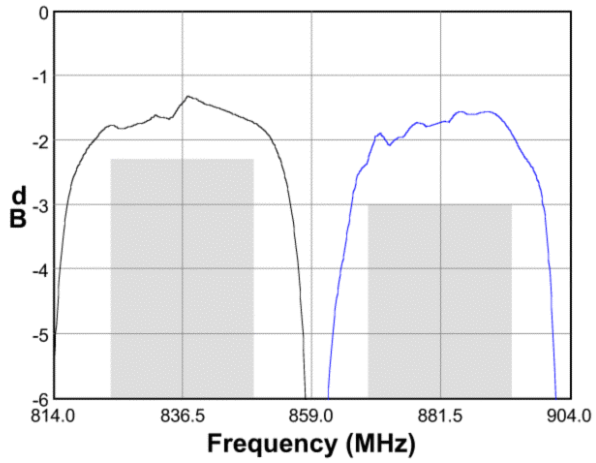
1. All specifications are based on the test circuit shown on page 5
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Excluding losses due to PCB

Typical Performance

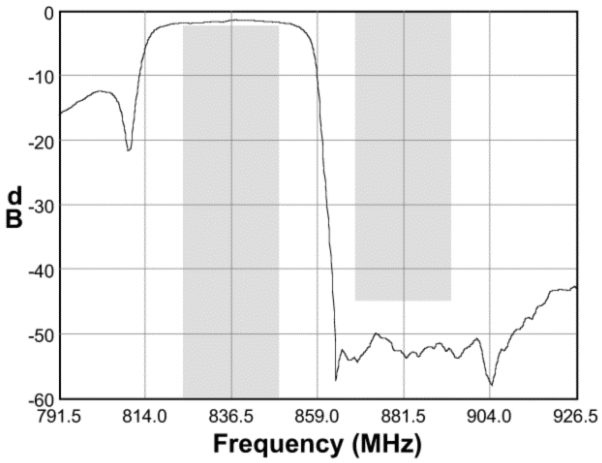
Rx Response



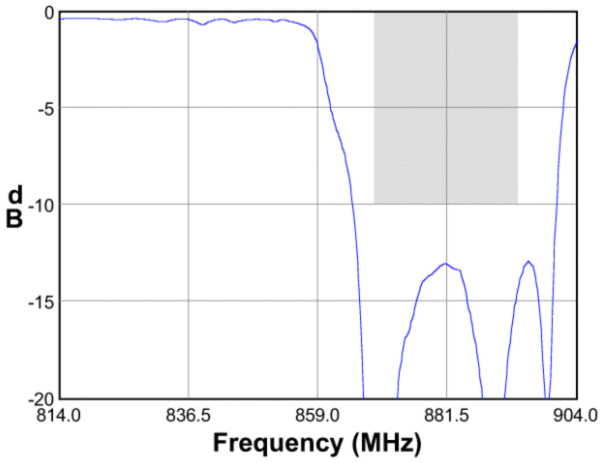
Passband Response



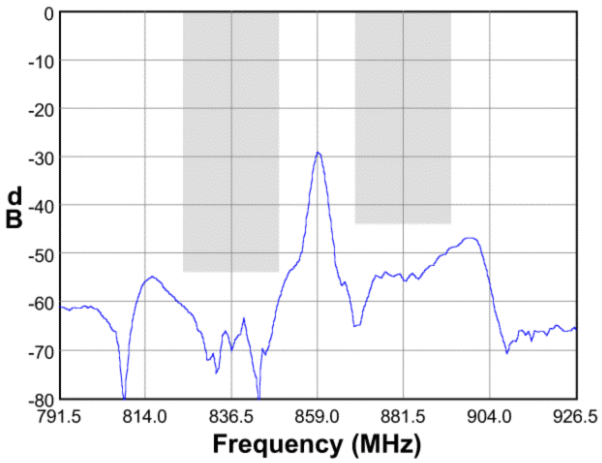
Tx Response



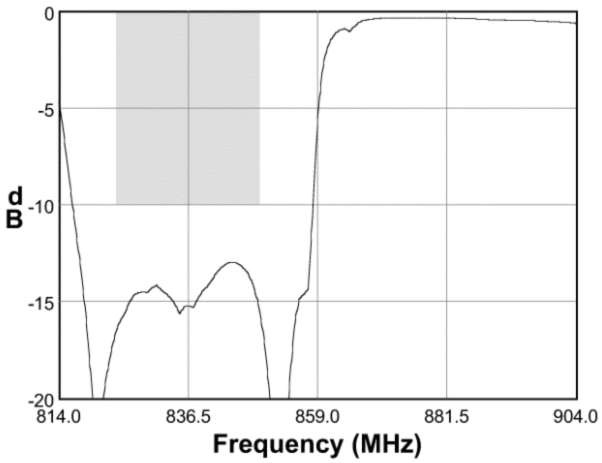
Rx Return Loss



Isolation Response

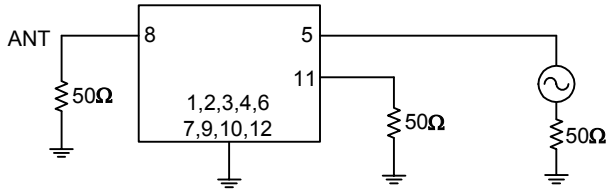


Tx Return Loss



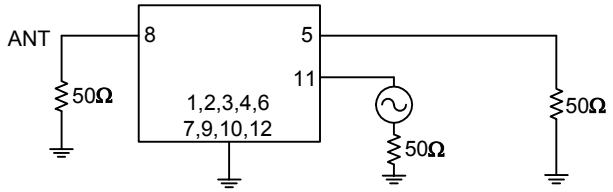
Test Circuits

50 Ω
Single-ended



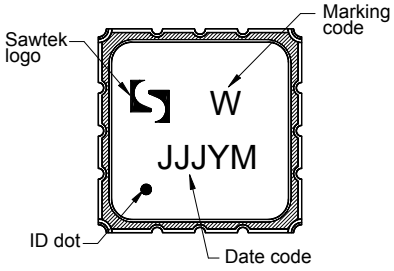
No impedance matching required

50 Ω
Single-ended



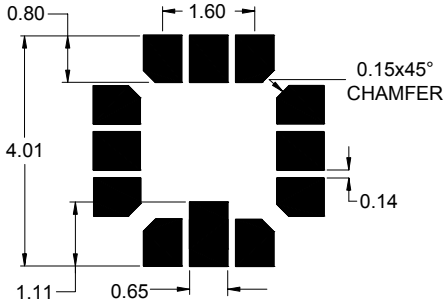
No impedance matching required

Marking



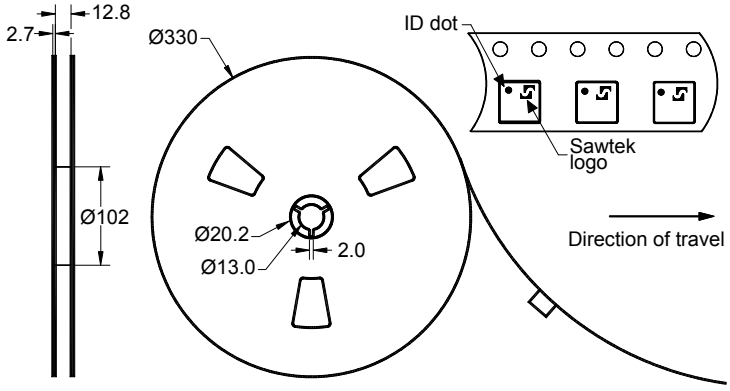
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

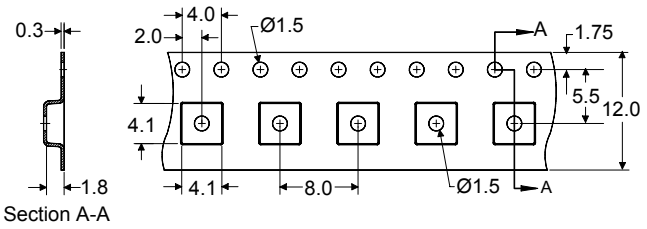
PCB Footprint



This footprint represents a recommendation only
Dimensions shown are nominal in millimeters

Tape and Reel





Dimensions shown are nominal in millimeters
Packaging quantity: 4000 units/reel

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Data Sheet

Part Number 856331

836.5/881.5 MHz SAW Duplexer

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-30	+85	°C
Storage Temperature Range	T_{stg}	-40	+85	°C
RF Power	P_{in}	-	+31	dBm

Important Notes

Warnings

- Electrostatic Sensitive Device (ESD)
- Avoid ultrasonic exposure

RoHS Compliance

- This product complies with EU directive 2002/95/EC (RoHS)

Solderability

- Compatible with JEDEC J-STD-020C **Pb**-free process, **260°C** peak reflow temperature (see soldering profile)

Links to Additional Technical Information

PCB Layout Tips | Qualification Flowchart | Soldering Profile

S-Parameters | RoHS information | Other Technical Information

Contact Information

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