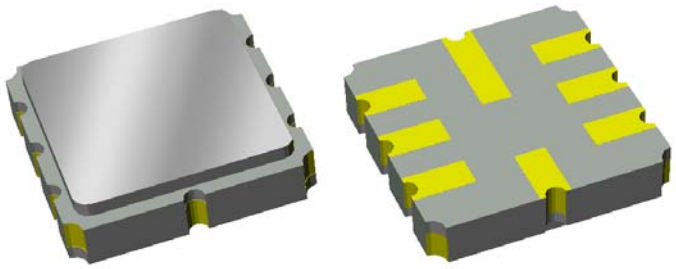
TriQuint SEMICONDUCTOR

Preliminary Data Sheet

Part Number 856820
452.4/462.4 MHz Duplexer

Features

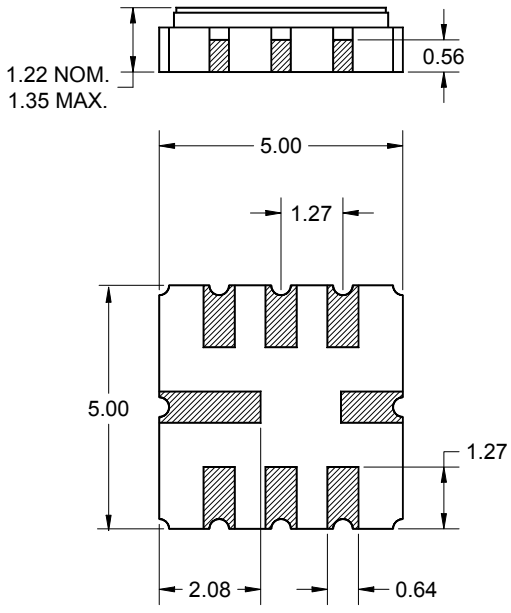
- For CDMA 450 MHz BC5 Block C applications
- Usable bandwidth 4.8 MHz (each band)
- High Tx/Rx isolation
- Low loss
- High attenuation
- Single-ended operation for Tx and Balanced operation for Rx
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free



Package

Surface Mount 5.00 x 5.00 x 1.22 mm

SMP-20G

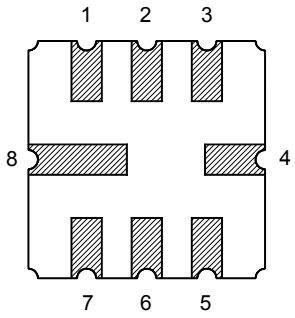


All tolerances are ±0.15mm except overall length and width +0.15/-0.10mm

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

Pin Configuration

Bottom View



Pin No.	Description
1	Rx Out +
2	Rx Out -
4	Ant
6	Tx input
3,5,7,8	Ground

Electrical Specifications [1]

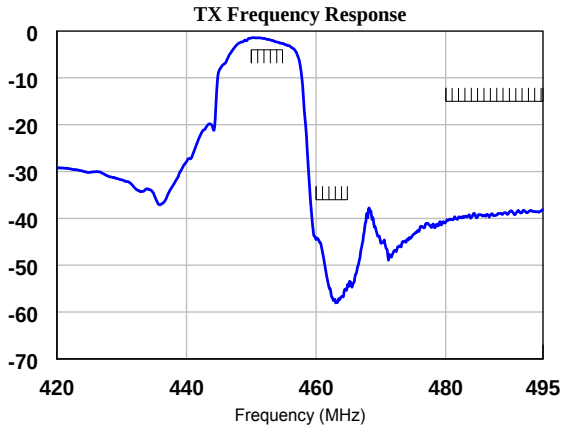
Operating Temperature Range: [2] -10 to +85 °C

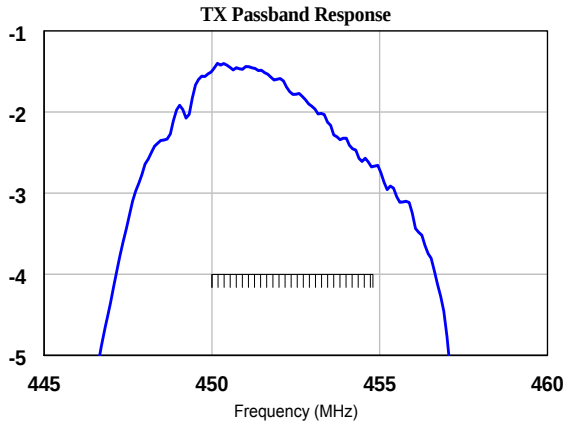
Parameter [3]	Minimum	Typical [4]	Maximum	Unit
Tx-Ant Specification				
Center Frequency	-	452.4	-	MHz
Maximum Insertion Loss				
450 – 454.8 MHz	-	2.7	4.0	dB
Absolute Attenuation [5]				
460 – 464.8 MHz	36	44	-	dB
480 – 1200 MHz	15	18	-	dB
1200 – 2100 MHz	5	7	-	dB
1574 MHz	6	9	-	dB
Return Loss at Tx Terminal				
450 – 454.8 MHz	10	14	-	dB
Ant-Rx Specification				
Center Frequency	-	462.4	-	MHz
Maximum Insertion Loss				
460 – 464.8 MHz	-	3.0	4.0	dB
Amplitude Imbalance				
460 – 464.8 MHz	-1.0	-0.7/0.3	1.0	dB
Phase Imbalance				
460 – 464.8 MHz	-10	0.5/6	10	deg
Absolute Attenuation [5]				
450 – 454.8 MHz	47	55	-	dB
474.5 – 480 MHz	20	24	-	dB
480 – 1200 MHz	25	29	-	dB
1200 – 2100 MHz	35	41	-	dB
Return Loss at Rx Terminal				
460 – 464.8 MHz	10	13	-	dB
Tx-Rx Specification				
Tx to Rx Isolation				
450 – 454.8 MHz	52	56	-	dB
460 – 464.8 MHz	42	48	-	dB
Tx Impedance: (Single-ended) [6]	-	50	-	Ω
Rx Impedance: (Balanced) [6]	-	150	-	Ω
ANT Impedance: (Single-ended) [6]	-	50	-	Ω

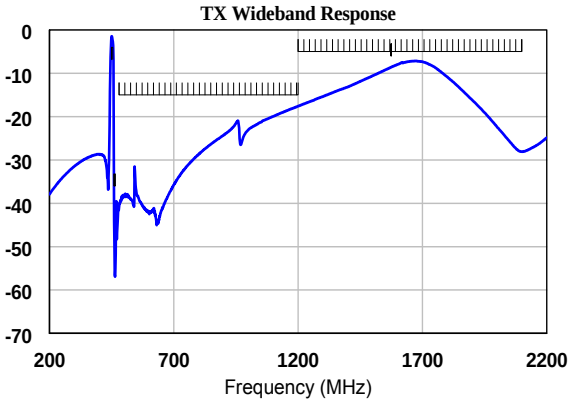
Notes:

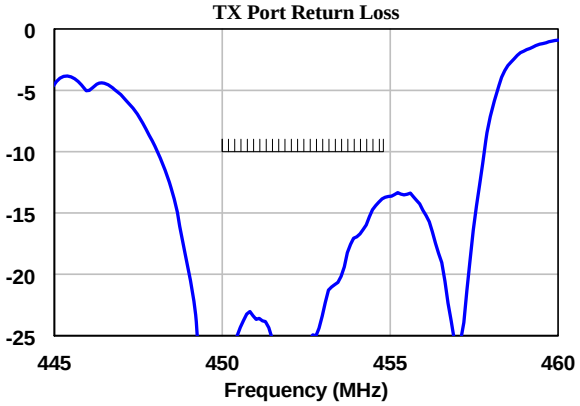
1. All specifications are based on the TriQuint test circuit shown on page 6
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements at room temperature
5. Relative to zero dB
6. This is the optimum impedance in order to achieve the performance shown

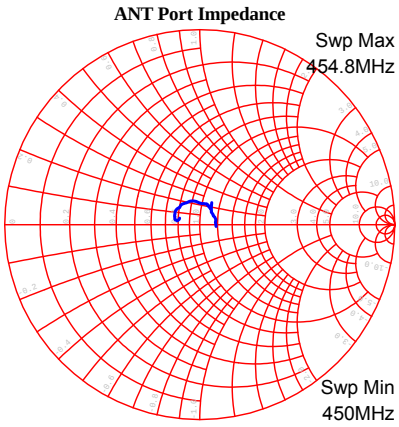
Tx Typical Performance (at room temperature)

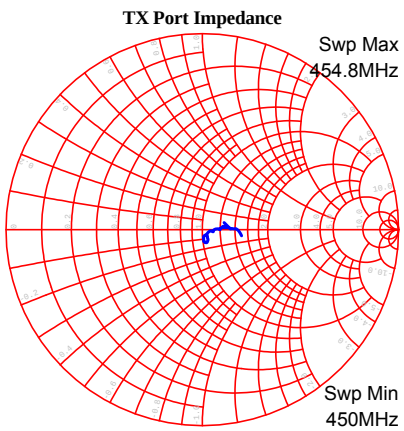




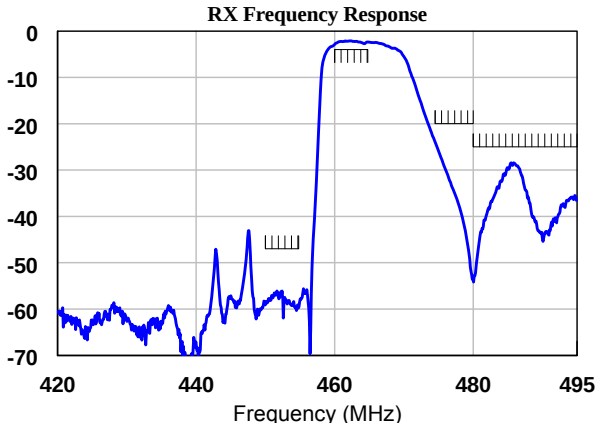


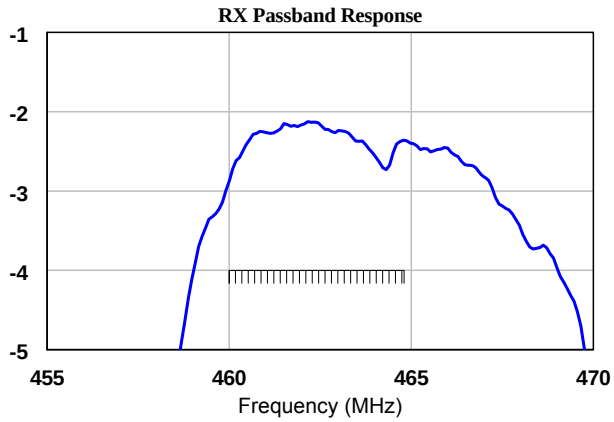


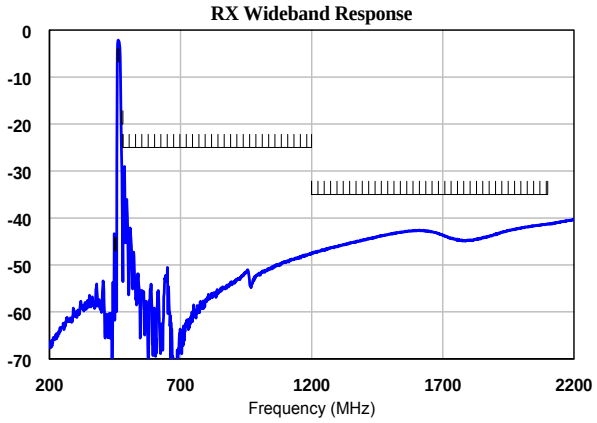


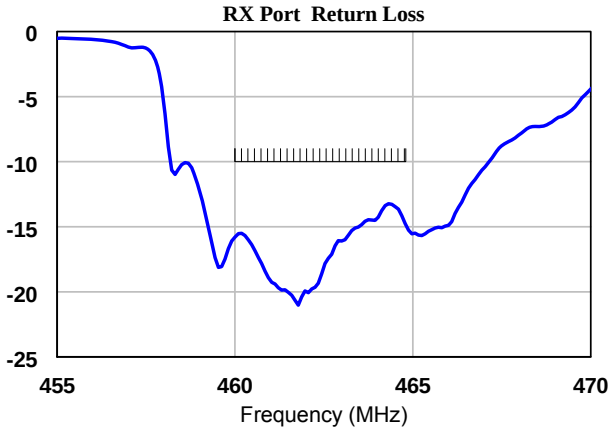


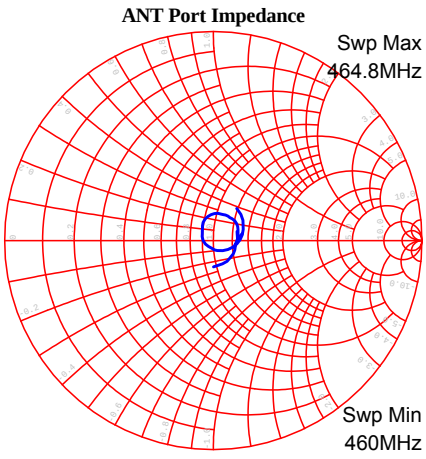
Rx Typical Performance (at room temperature)

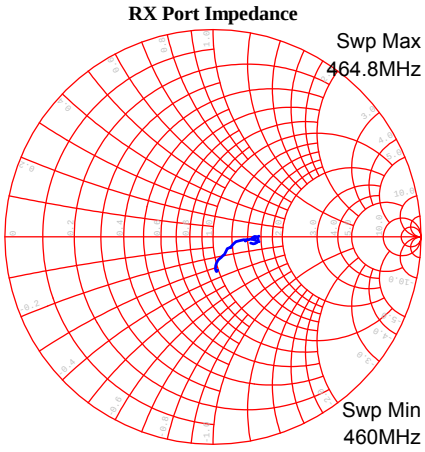




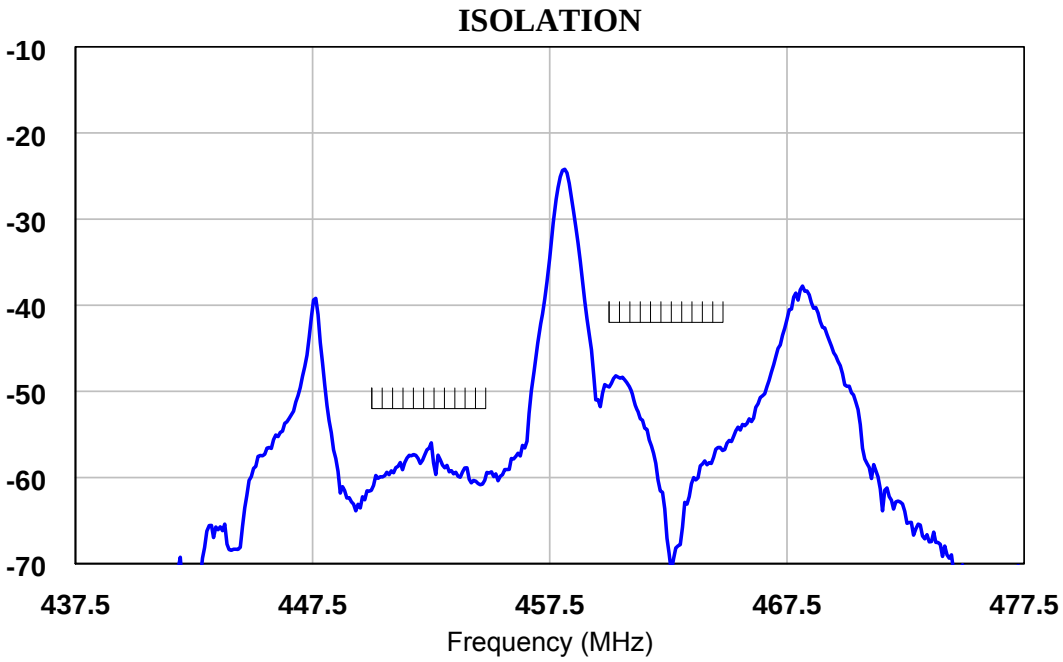


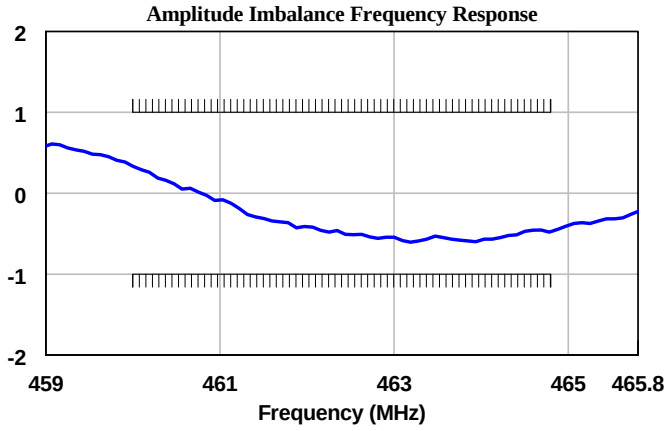


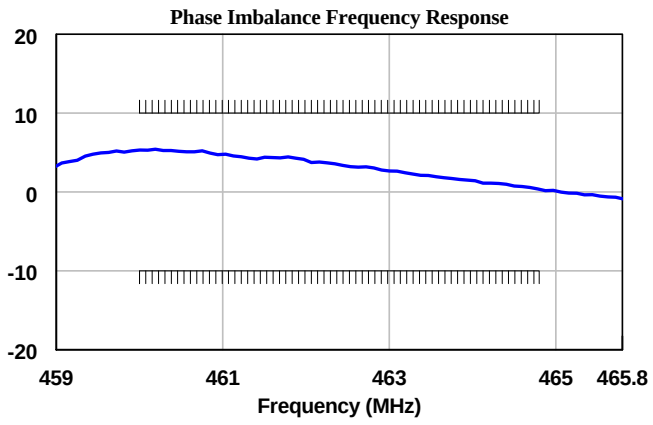




Isolation/Imbalance Typical Performance (at room temperature)



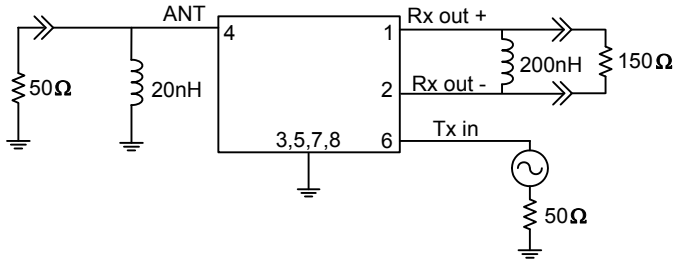




Matching Schematics

Actual matching values may vary due to PCB layout and parasitic
Note: For the matching components, the inductors Q=40 at 460 MHz is recommended.

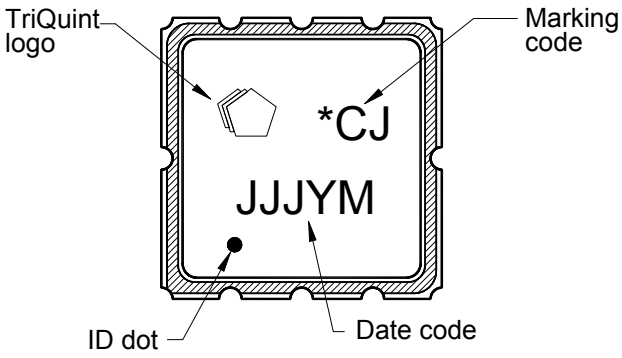
ANT
50 Ω
Single-ended



Rx Output
150 Ω
Balanced

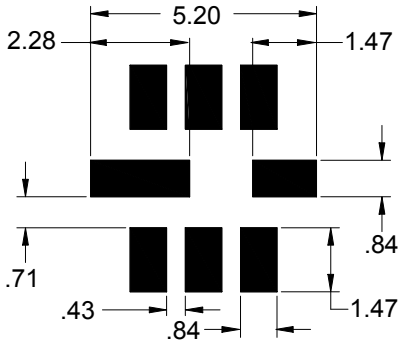
Tx Input
50 Ω
Single-ended

Marking



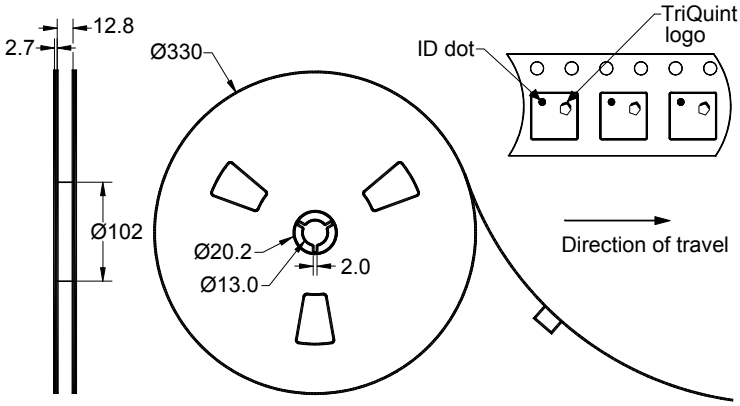
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

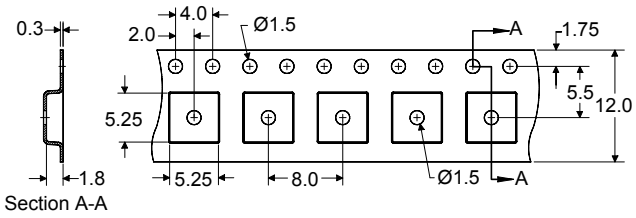
PCB Footprint



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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Preliminary Data Sheet

Part Number 856820
452.4/462.4 MHz Duplexer

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-10	+85	°C
Storage Temperature Range	T_{stg}	-40	+85	°C
Power Handling at Tx Port (**50 °C**, > 50,000 hrs)			+30	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

TriQuint's liability is limited only to the Surface Acoustic Wave (SAW) component(s) described in this data sheet. TriQuint does not accept any liability for applications, processes, circuits or assemblies, which are implemented using any TriQuint component described in this data sheet.

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