
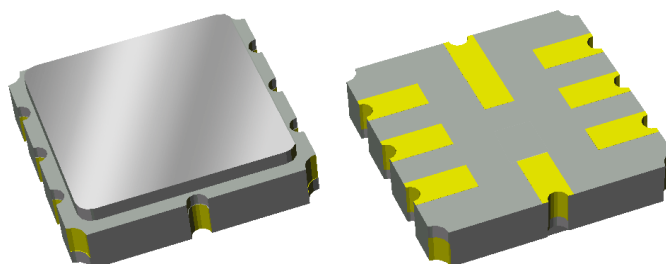


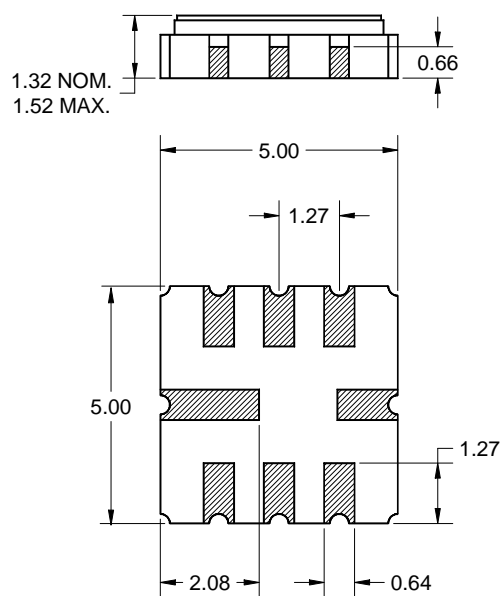
Features

- Usable bandwidth 11 MHz
- High attenuation
- Single ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



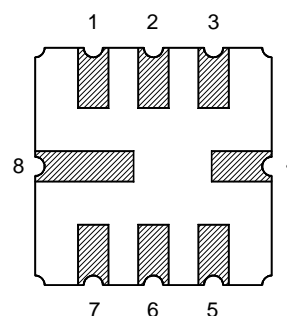
Package

Surface Mount 5.00 x 5.00 x 1.32 mm
SPM-20



Pin Configuration

Bottom View



Pin No.	Description
7	Input
1	Input return (GND)
3	Output
5	Output return (GND)
2,4,6,8	Case ground

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

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

Electrical Specifications ⁽¹⁾

Operating Temperature Range: ⁽²⁾ -40 to +85 °C

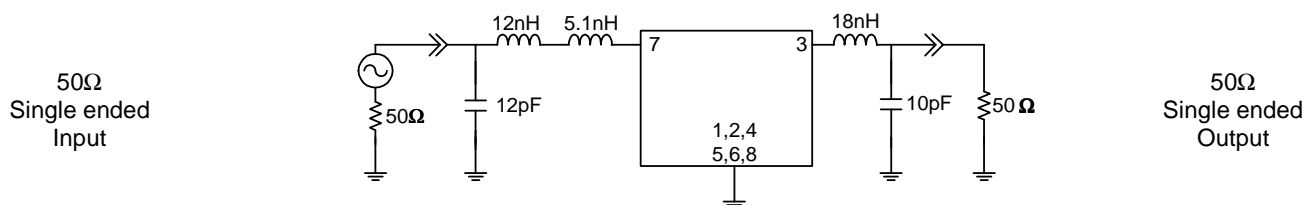
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	520	-	MHz
Insertion Loss at Center Frequency	-	9.5	12	dB
Lower 1 dB Bandedge ⁽⁵⁾	-	513.1	514.5	MHz
Upper 1 dB Bandedge	525.5	526.7	-	MHz
Lower 3 dB Bandedge ⁽⁵⁾	-	512.2	513.5	MHz
Upper 3 dB Bandedge	526.5	527.6	-	MHz
Lower 10 dB Bandedge ⁽⁵⁾	509.5	510.9	-	MHz
Upper 10 dB Bandedge	-	529.1	530.5	MHz
Lower 40 dB Bandedge ⁽⁵⁾	470	508.9	-	MHz
Upper 40 dB Bandedge	-	532.9	550	MHz
Amplitude Variation ⁽⁶⁾ 514.5 - 525.5 MHz	-	0.4	1.0	dB p-p
Group Delay Variation ⁽⁶⁾ 514.5 - 525.5 MHz	-	30	150	ns p-p
Relative Attenuation ⁽⁵⁾ 10 - 350 MHz	40	52	-	dB
350 - 470 MHz	40	46	-	dB
470 - 500 MHz	35	41	-	dB
500 - 506 MHz	35	41	-	dB
534 - 537 MHz	30	35	-	dB
537 - 550 MHz	35	39	-	dB
550 - 600 MHz	40	48	-	dB
600 - 800 MHz	40	66	-	dB
Source Impedance ⁽⁷⁾	-	50	-	Ω
Load Impedance ⁽⁷⁾	-	50	-	Ω

Notes:

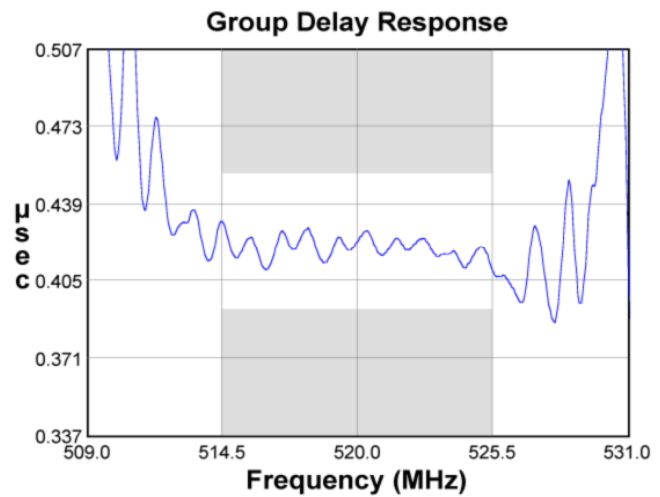
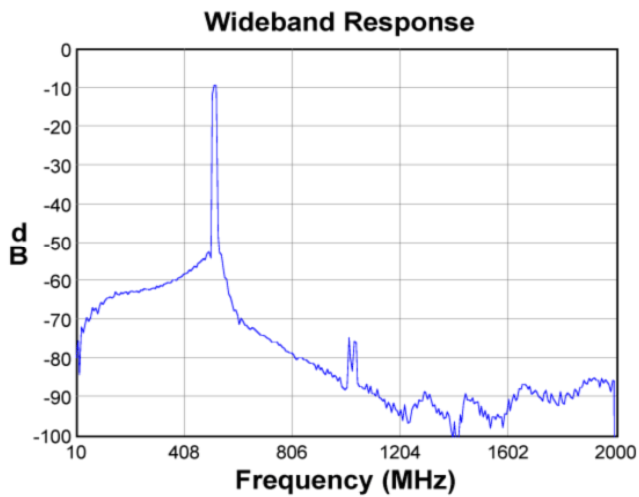
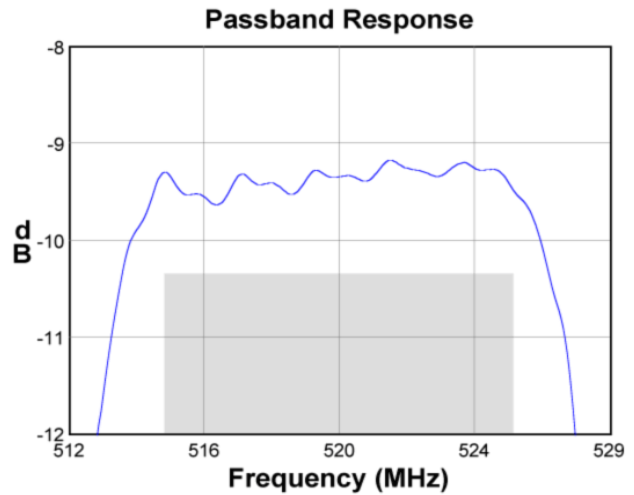
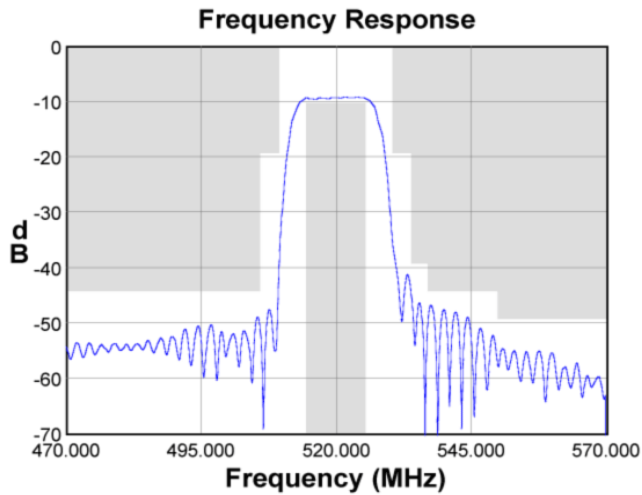
- All specifications are based on the TriQuint test circuit shown below
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Electrical margin has been built into the design to account for the variations due to manufacturing tolerances
- Typical values are based on average measurements at room temperature
- All attenuation measurements are referenced to IL at center frequency
- Variation is the total peak to peak variation over the defined frequency range
- This is optimal impedance in order to achieve the performance shown

Test Circuit:

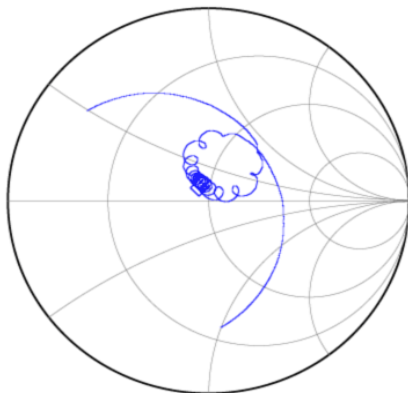
Actual matching values may vary due to PCB layout and parasitics



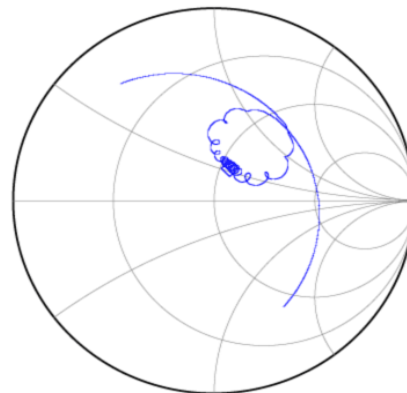
Typical Performance (at room temperature)



Input Smith Chart

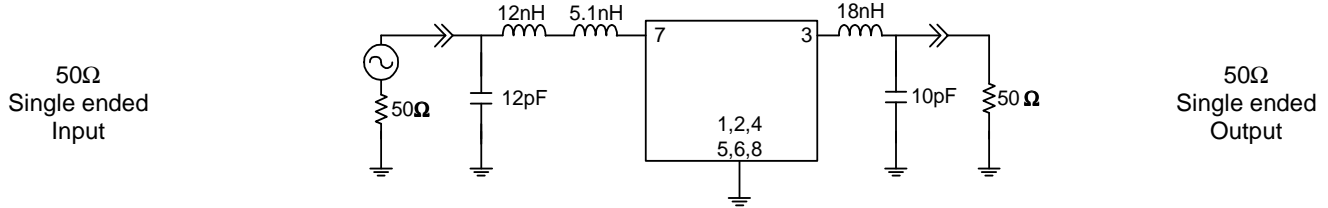


Output Smith Chart

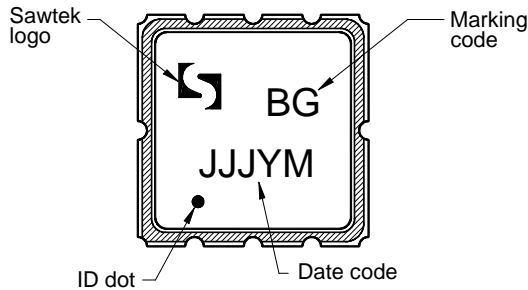


Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

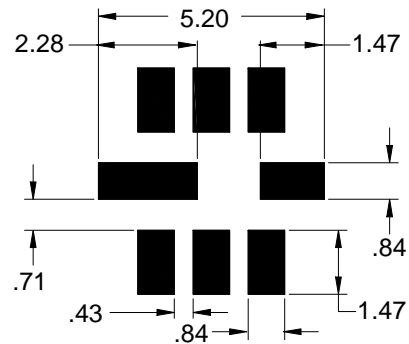


Marking



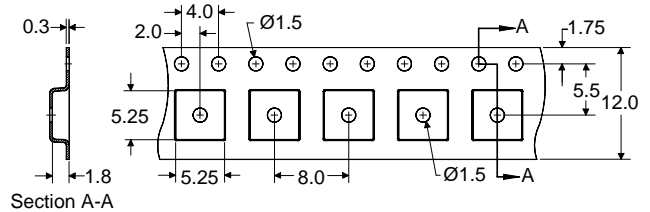
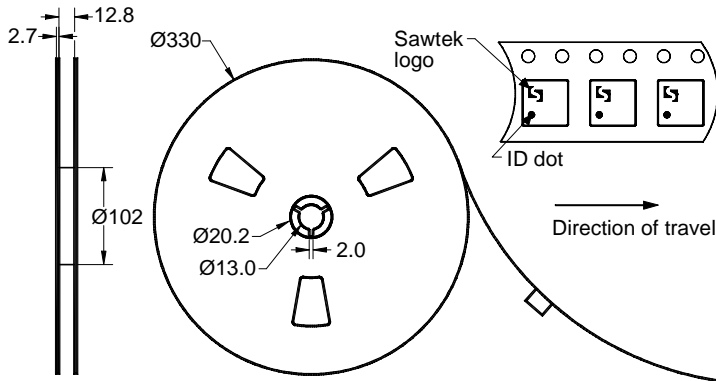
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

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

Maximum Ratings


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	°C
Storage Temperature Range	T _{stg}	-40	+85	°C

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 JESD22-B102, Pb-free process, 260C 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](#)

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Contact Information

TriQuint 
SEMICONDUCTOR
PO Box 609501
Orlando, FL 32860-9501
USA

Phone: +1 (407) 886-8860
Fax: +1 (407) 886-7061
Email: info-product@tqs.com
Web: www.triquint.com

Or contact one of our worldwide
Network of [sales offices](#),
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