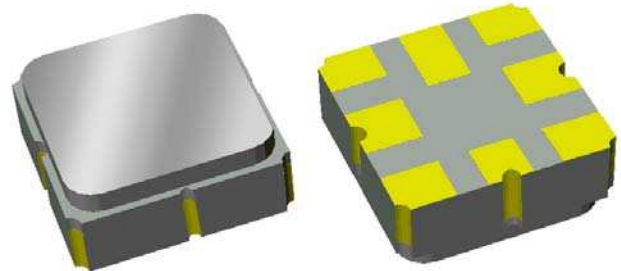


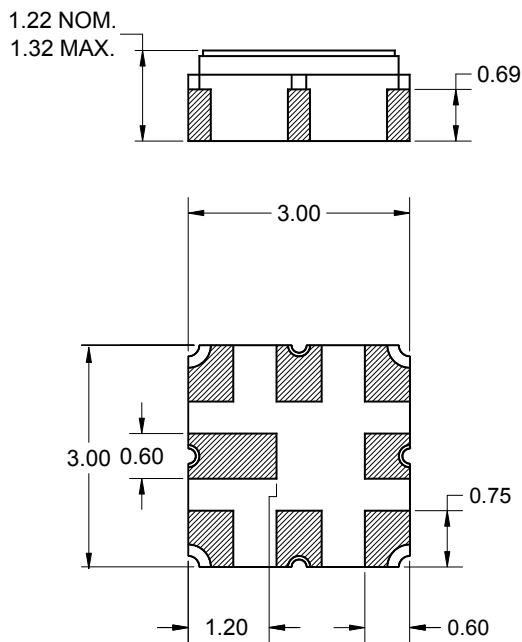
Features

- For broadband tuner applications
- Usable bandwidth 100 MHz
- High attenuation
- Balanced operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free (Pb)



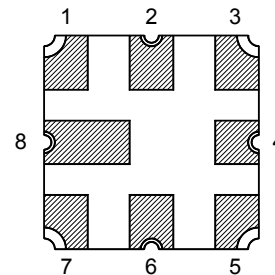
Package

Surface Mount 3.00 x 3.00 x 1.22 mm
SMP-12D



Pin Configuration

Bottom View



Pin No.	Description
1	Input +
2	Input -
5	Output +
6	Output -
3,4,7,8	Case Ground

Dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall
length and width ± 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⁾ 0 to +70 °C

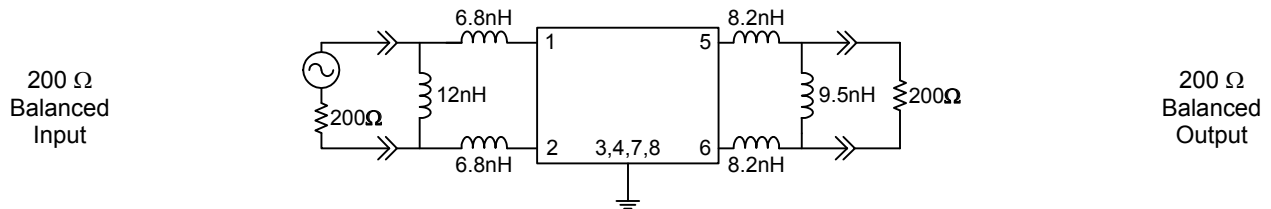
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	1250	-	MHz
Maximum Insertion Loss	-	6.8	8	dB
Amplitude Variation				
1200 – 1300 MHz	-	1.1	3.0	dB p-p
1200 – 1300 MHz (in any 8 MHz channel)	-	1.1	2.0	dB p-p
Group Delay Ripple				
1200 – 1300 MHz	-	18	60	ns
1200 – 1300 MHz (in any 8 MHz channel)	-	8	18	ns
Attenuation ⁽⁵⁾				
800 – 1052 MHz	45	55	-	dB
1052 – 1152 MHz	40	50	-	dB
1350 – 1450 MHz	20	25	-	dB
1450 – 2000 MHz	40	50	-	dB
Input/Output Return Loss	-	9	-	dB
Source Impedance (balanced) ⁽⁶⁾	-	200	-	Ω
Load Impedance (balanced) ⁽⁶⁾	-	200	-	Ω

Notes:

1. All specifications are based on the TriQuint test circuit shown below
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

Test Circuit:

Actual matching values may vary due to PCB layout and parasitics



Electrical Specifications ⁽¹⁾

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

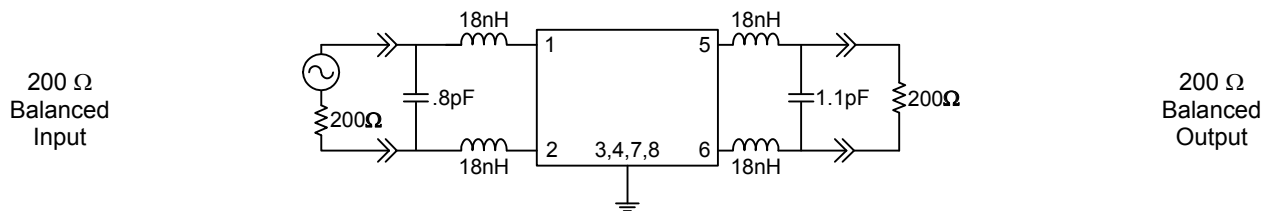
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	1250	-	MHz
Maximum Insertion Loss	-	6.8	8.5	dB
Amplitude Variation				
1200 – 1300 MHz	-	1.1	3.0	dB p-p
1200 – 1300 MHz (in any 8 MHz channel)	-	1.1	2.0	dB p-p
Group Delay Ripple				
1200 – 1300 MHz	-	18	60	ns
1200 – 1300 MHz (in any 8 MHz channel)	-	8	18	ns
Attenuation ⁽⁵⁾				
800 – 1052 MHz	45	55	-	dB
1052 – 1152 MHz	40	50	-	dB
1350 – 1450 MHz	20	25	-	dB
1450 – 2000 MHz	40	50	-	dB
Input/Output Return Loss	-	9	-	dB
Source Impedance (balanced) ⁽⁶⁾	-	200	-	Ω
Load Impedance (balanced) ⁽⁶⁾	-	200	-	Ω

Notes:

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

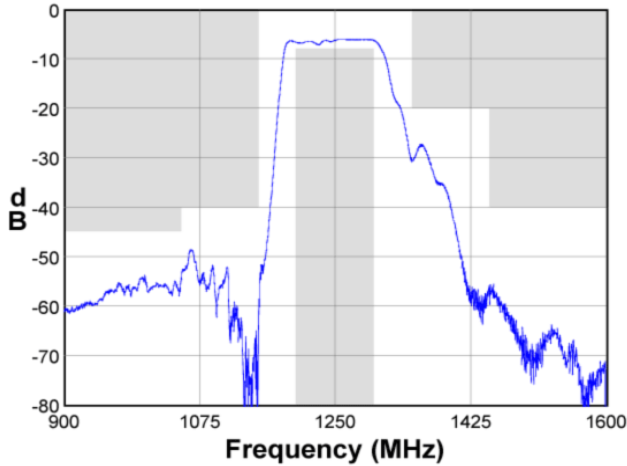
Test Circuit:

Actual matching values may vary due to PCB layout and parasitics
Test circuit optimized for extended temp range

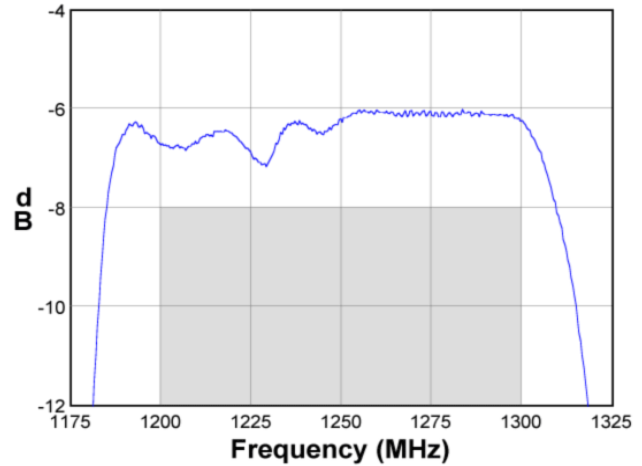


Typical Performance (at room temperature)

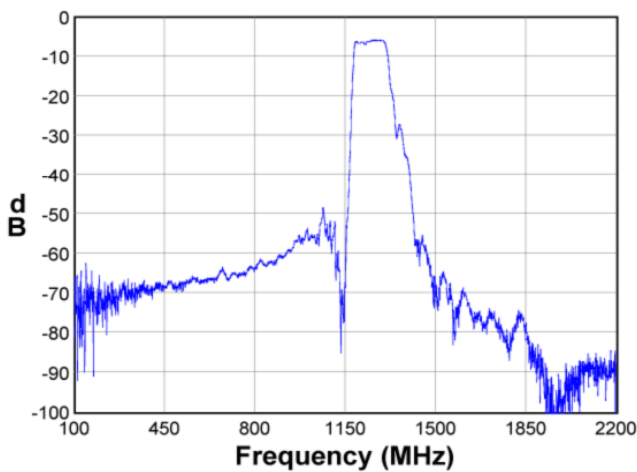
Frequency Response



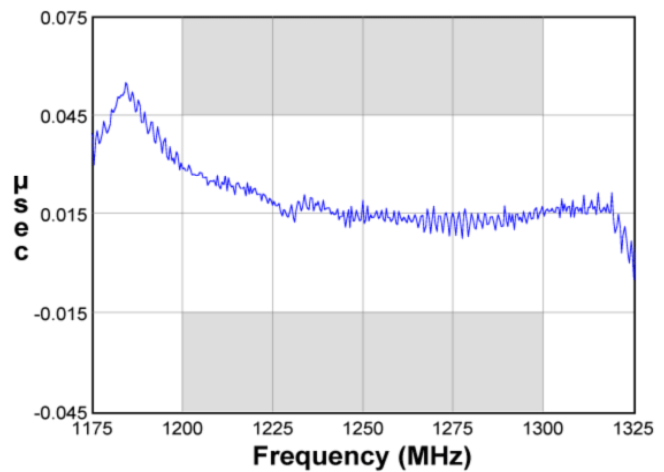
Passband Response



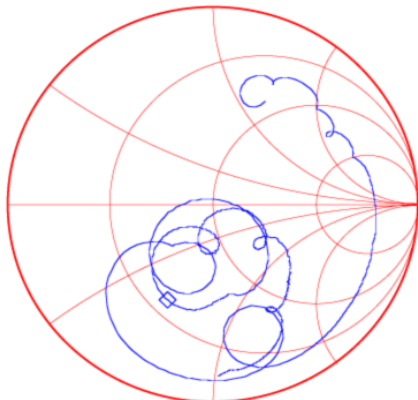
Wideband Response



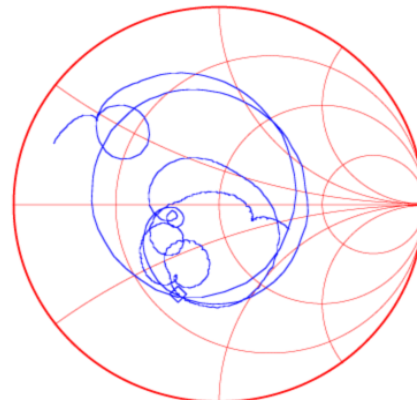
Group Delay Response



Input Smith Chart

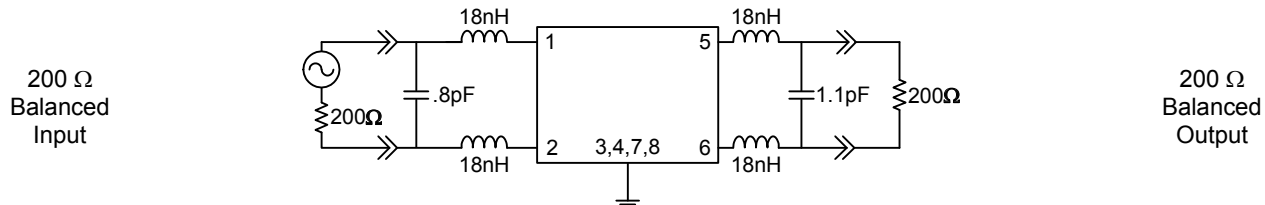


Output Smith Chart

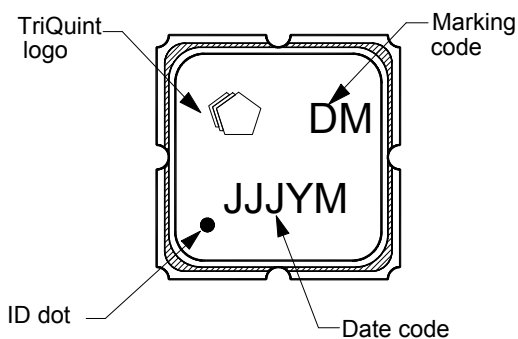


Matching Schematics

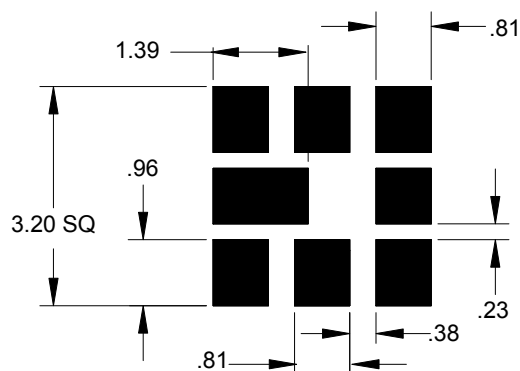
Actual matching values may vary due to PCB layout and parasitics



Marking



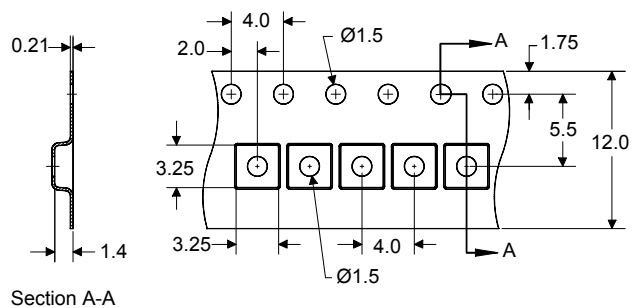
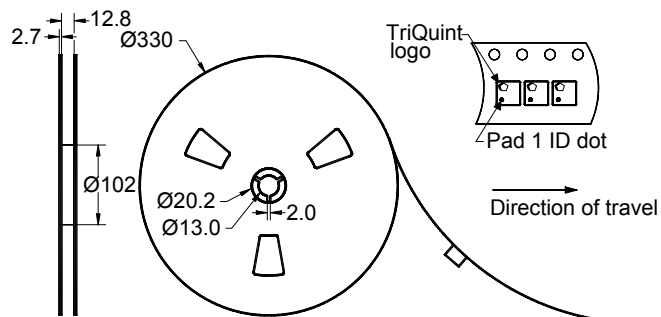
PCB Footprint



The date code consists of: day of the current year (Julian 3 digits), Y, last digit of the year and M, manufacturing site code

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

Tape and Reel




Dimensions shown are nominal in millimeters
Packaging quantity: 5000 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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[Representatives or distributors](#)