
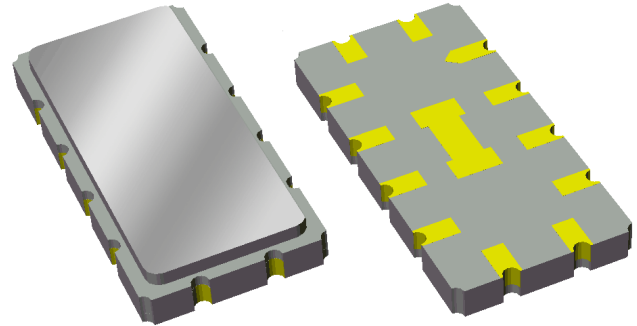


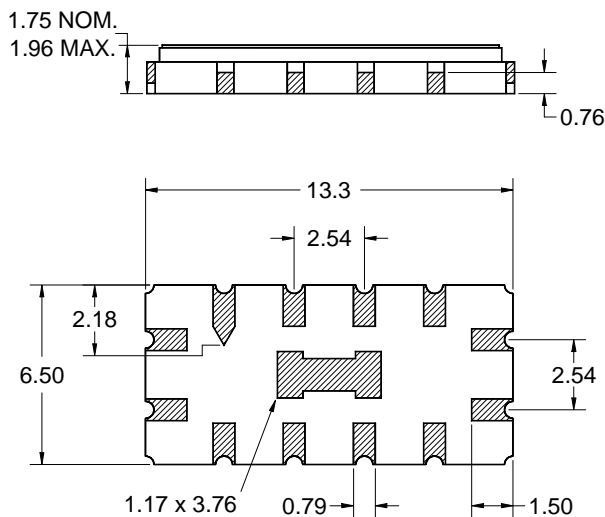
Features

- For Broadband applications
- Usable bandwidth of 22 MHz
- Typical 3 dB bandwidth of 23.16 MHz
- Low loss
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



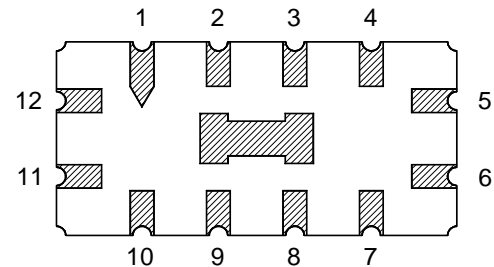
Package

Surface Mount 13.30 x 6.50 x 1.75 mm
SMP-53



Pin Configuration

Bottom View



Single-ended Configuration

Pin No.	Description
11	Input
5	Output
6,12	Ground
1,2,3,4	CaseGround
7,8,9,10	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⁾ -40 to +85 °C

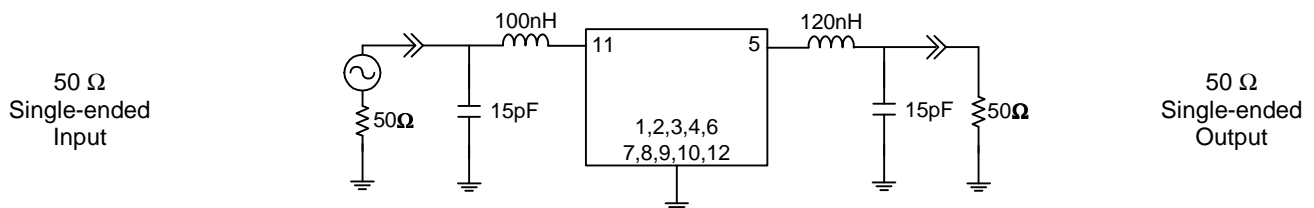
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	139.6	140	140.4	MHz
Insertion Loss at Center Frequency	-	11.33	13	dB
1 dB Bandwidth	22	23.16	-	MHz
3 dB Bandwidth	23.9	24.26	-	MHz
35 dB Bandwidth	-	28.85	33.5	MHz
Passband Ripple 130.44 – 149.56 MHz	-	0.56	1	dB p-p
Phase Linearity 130.44 – 149.56 MHz	-	6.1	14	° p-p
Group Delay Variation 130.44 – 149.56 MHz	-	34	100	ns p-p
Absolute Delay	-	0.8	-	nsec
Temperature Coefficient	-	-94	-	ppm/°C
Source Impedance (single-ended) ⁽⁵⁾	-	50	-	Ω
Load Impedance (single-ended) ⁽⁵⁾	-	50	-	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. This is the optimum impedance in order to achieve the performance shown

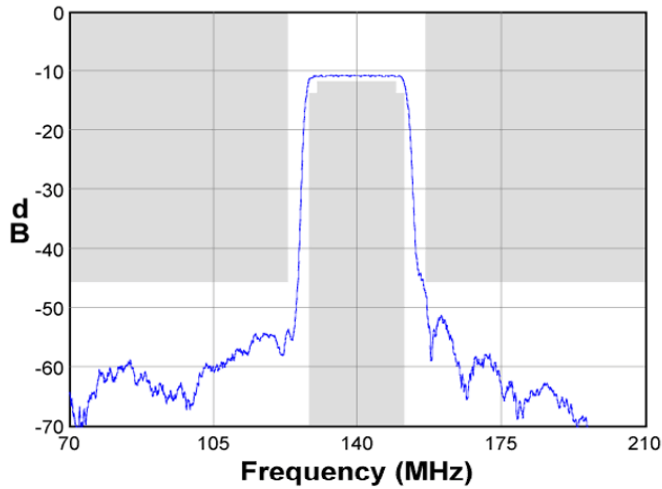
Test Circuit:

Actual matching values may vary due to PCB layout and parasitics

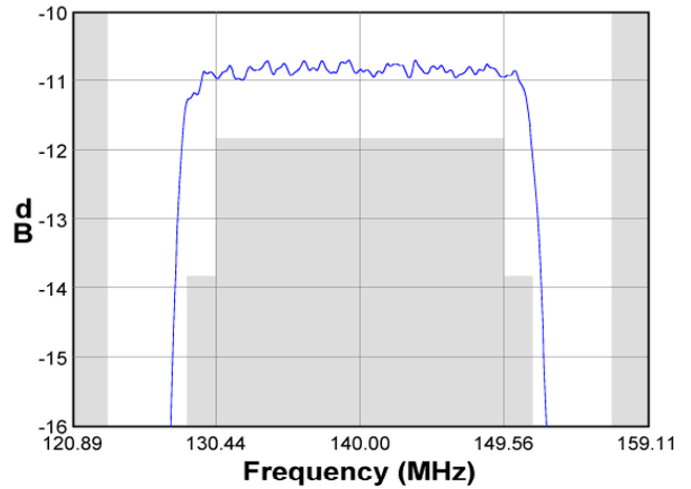


Typical Performance (at room temperature)

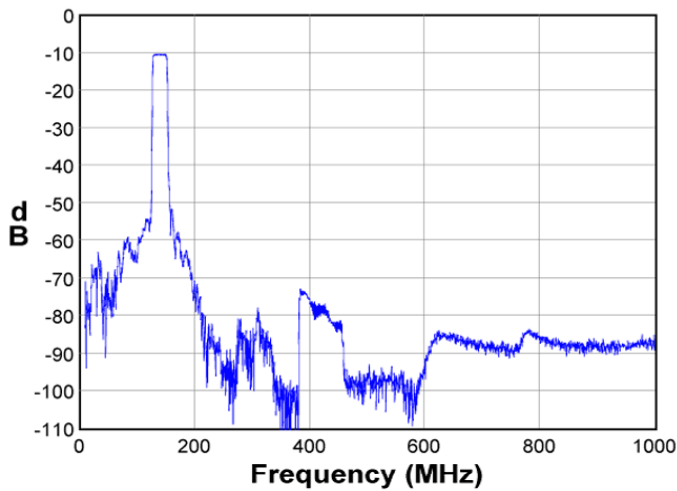
Frequency Response



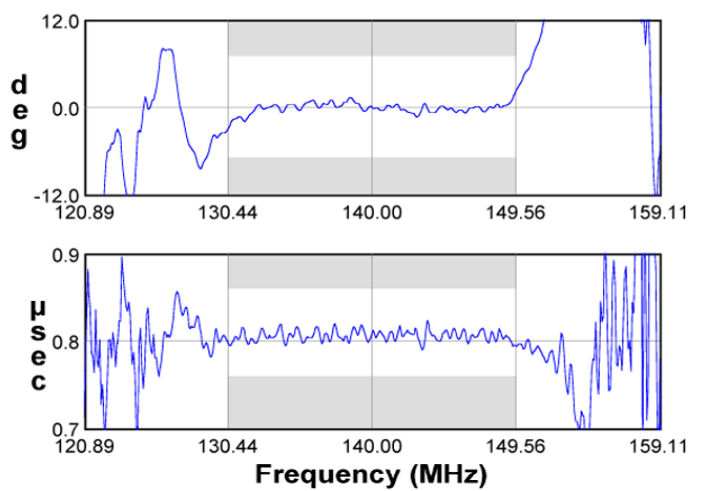
Passband Response



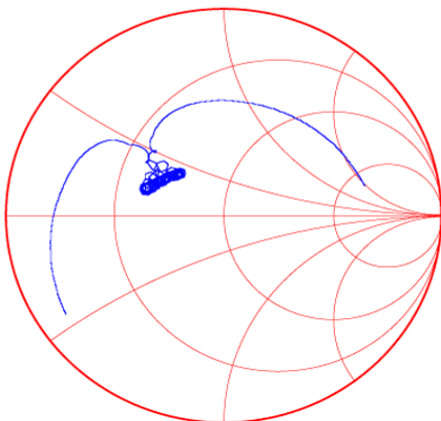
Wide Response



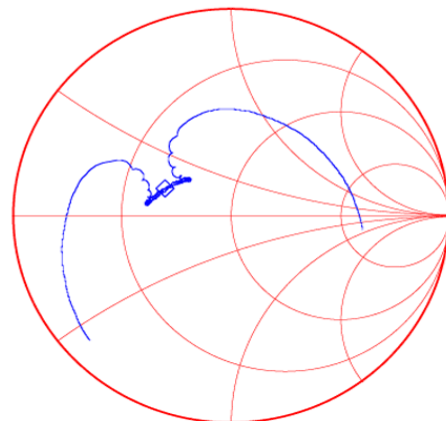
Phase \ Group Delay



Input Smith Chart

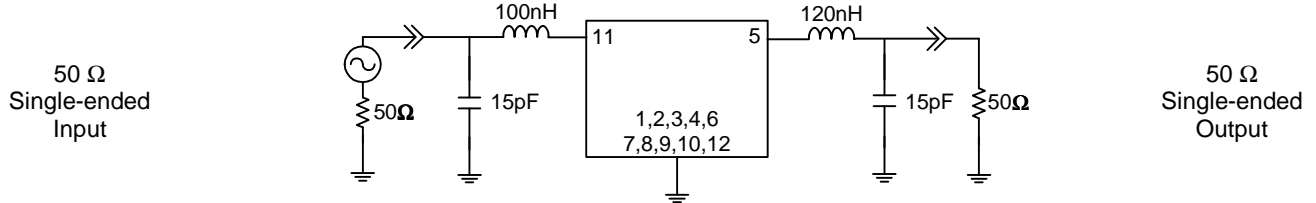


Output Smith Chart

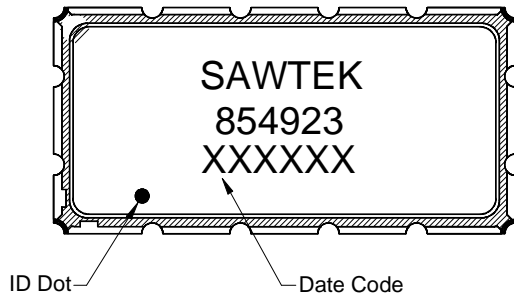


Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

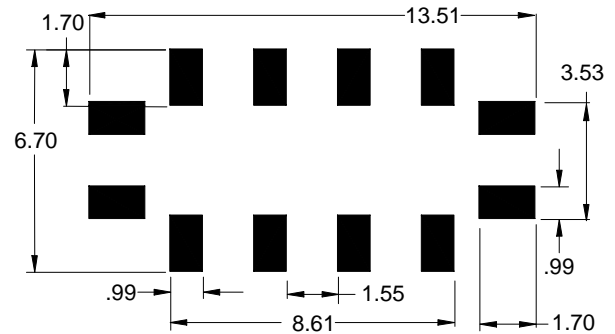


Marking



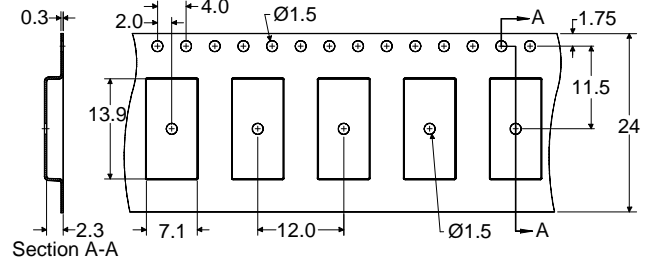
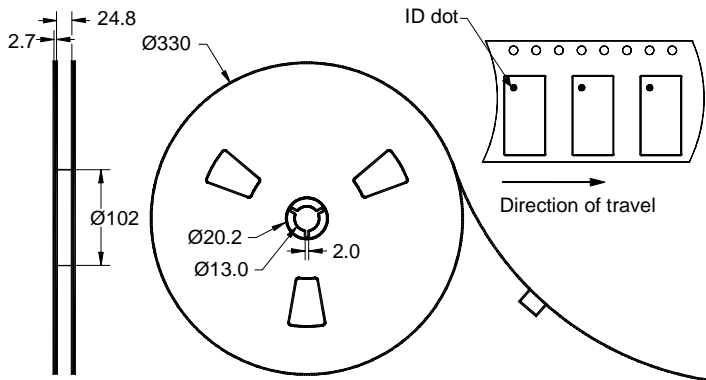
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

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: 2000 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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