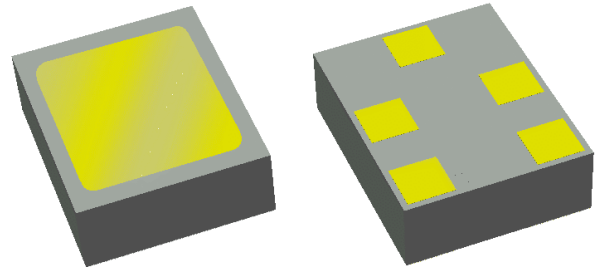


Preliminary Data Sheet

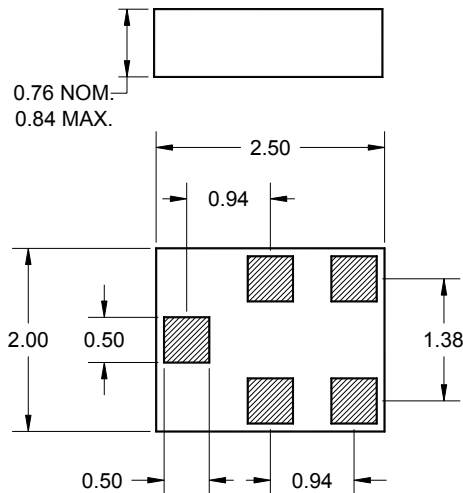
Features

- For GPS applications
- Usable bandwidth 2 MHz
- Super low loss
- High attenuation
- No impedance matching required for operation at 100 Ω
- Single-ended input
- Balanced output
- Superior amplitude and phase balance
- Ceramic Surface Mount Package (SMP)
- Small size



Package

Surface Mount 2.50 x 2.00 x 0.76 mm

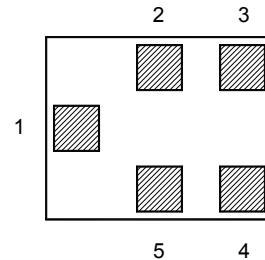


Dimensions shown are nominal in millimeters
All tolerances are ± 0.10 mm

Body: Al_2O_3 ceramic
Lid: Kovar or Alloy 42, Au over Ni plated
Terminations: Au plating 0.5 - 1.0 μ m,
over a 2 - 6 μ m Ni plating

Pin Configuration

Bottom View



Pin No.	Description
1	Input
2,5	Case ground
3,4	Balanced output

Preliminary Data Sheet

Electrical Specifications ⁽¹⁾

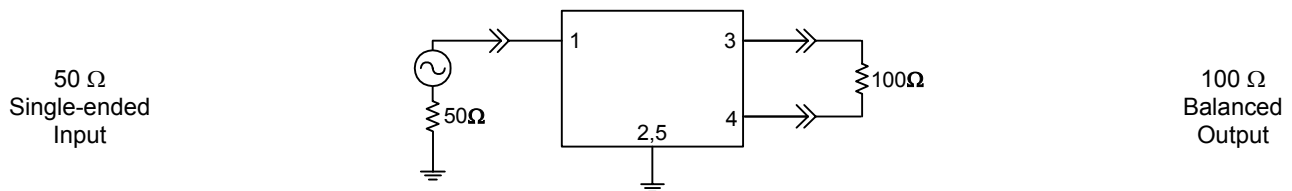
Operating Temperature: ⁽²⁾ +25 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	1575.42	-	MHz
Maximum Insertion Loss 1574.42 - 1576.42 MHz	-	1.4	1.5	dB
Absolute Attenuation				
DC - 1450 MHz	30	38	-	dB
1450 - 1475 MHz	27	31	-	dB
1475 - 1525 MHz	15	26	-	dB
1625 - 1675 MHz	12	14	-	dB
1675 - 1775 MHz	20	22	-	dB
1775 - 3155 MHz	30	35	-	dB
3155 - 6000 MHz	35	45	-	dB
Input/Output Return Loss 1574.42 - 1576.42 MHz	10	16	-	dB
Output Amplitude Balance (S₃₁/S₂₁) 1574.42 - 1576.42 MHz	-	0.5	0.75	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 1574.42 - 1576.42 MHz	180	185	190	degree
Nominal Source Impedance	-	50	-	Ω
Optimal Load Impedance (balanced) ⁽⁴⁾	-	120 + j35	-	Ω

Notes:

1. All specifications are based on the test circuit shown below
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. This is the optimum impedance for maximum power transfer over passband

Test Circuit:



Preliminary Data Sheet

Electrical Specifications ⁽¹⁾

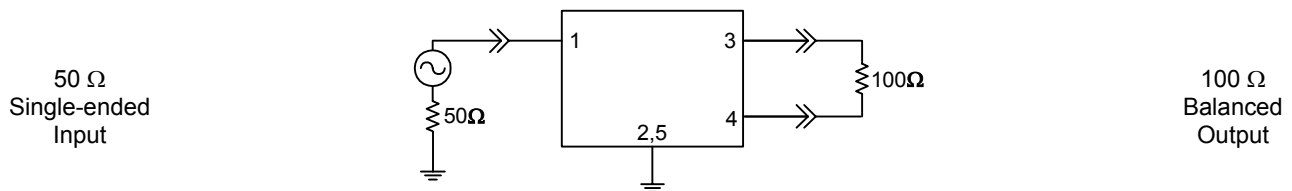
Operating Temperature Range: ⁽²⁾ -30 to +85 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	1575.42	-	MHz
Maximum Insertion Loss 1574.42 - 1576.42 MHz	-	1.4	1.7	dB
Absolute Attenuation				
DC - 1450 MHz	30	38	-	dB
1450 - 1475 MHz	27	31	-	dB
1475 - 1525 MHz	14	20	-	dB
1625 - 1675 MHz	10	13	-	dB
1675 - 1775 MHz	20	22	-	dB
1775 - 3155 MHz	30	35	-	dB
3155 - 6000 MHz	35	45	-	dB
Input/Output Return Loss 1574.42 - 1576.42 MHz	10	16	-	dB
Output Amplitude Balance (S₃₁/S₂₁) 1574.42 - 1576.42 MHz	-	0.6	1	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 1574.42 - 1576.42 MHz	180	187.5	195	degree
Nominal Source Impedance	-	50	-	Ω
Optimal Load Impedance (balanced) ⁽⁴⁾	-	120 + j35	-	Ω

Notes:

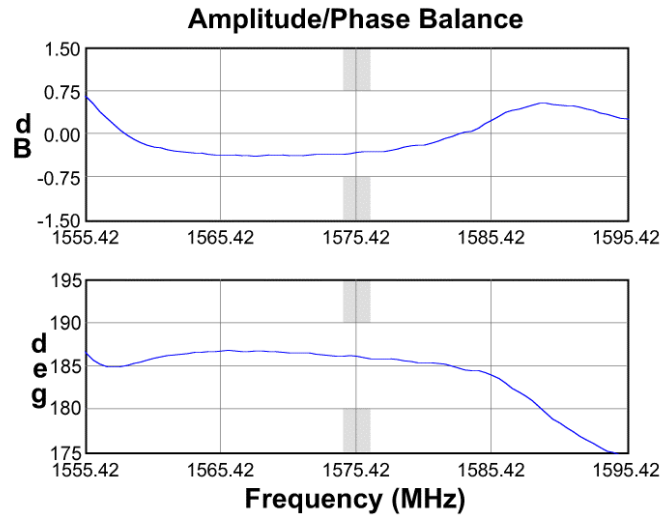
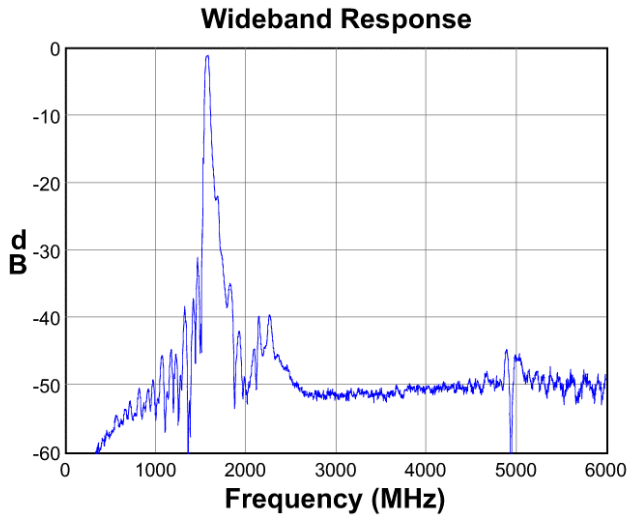
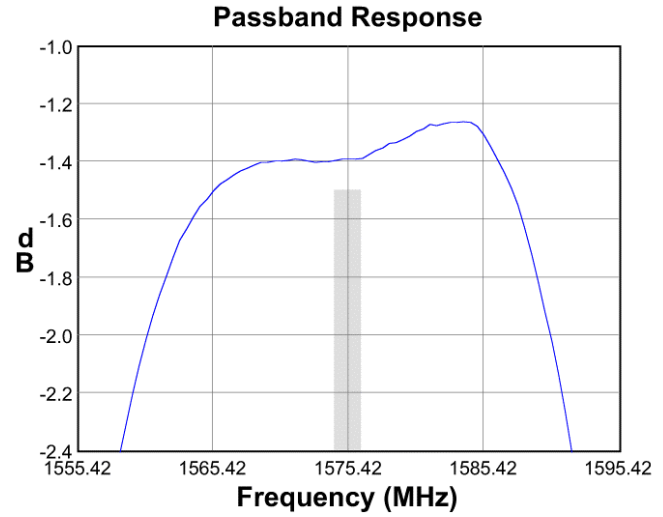
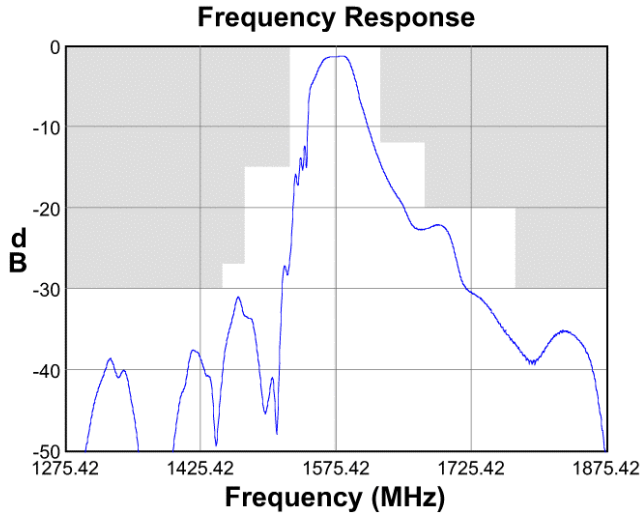
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. This is the optimum impedance for maximum power transfer over passband

Test Circuit:

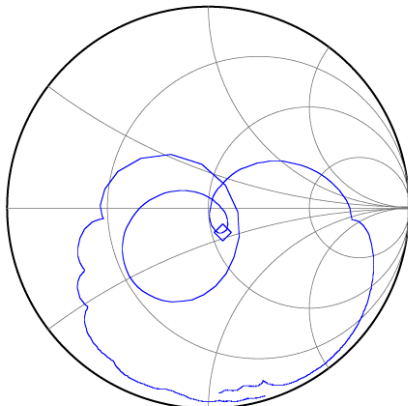


Preliminary Data Sheet

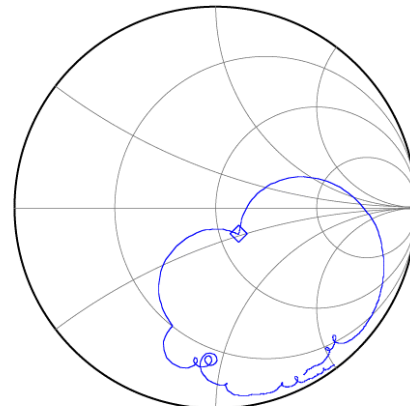
Typical Performance (at +25°C)



Input Smith Chart



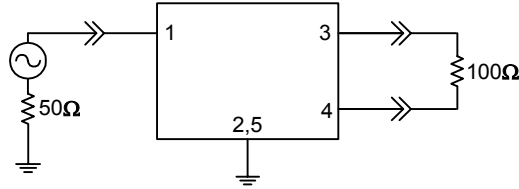
Output Smith Chart



Preliminary Data Sheet

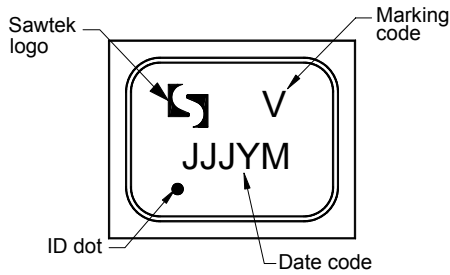
Matching Schematics

50 Ω
Single-ended
Input



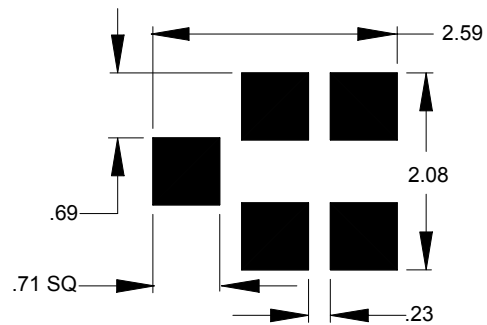
100 Ω
Balanced
Output

Marking



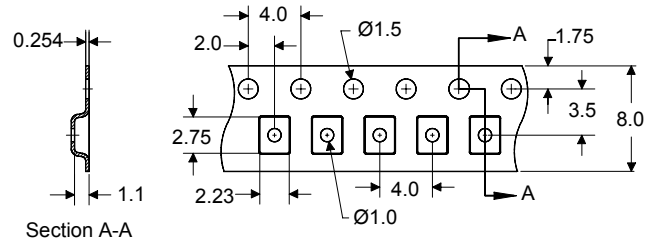
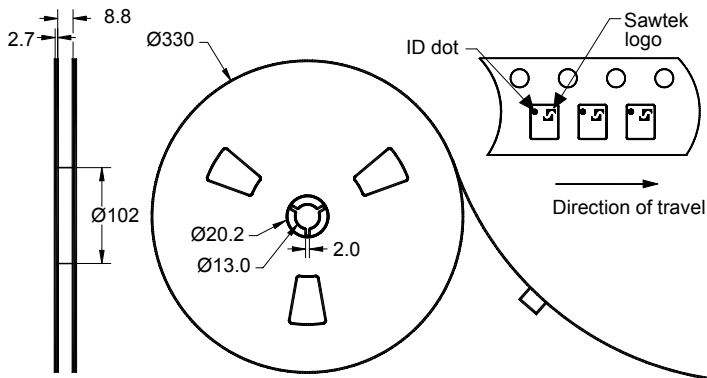
The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code

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: 10000 units/reel

Preliminary Data Sheet

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-30	+85	°C
Storage Temperature Range	T _{stg}	-40	+85	°C

Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[Other Technical Information](#)

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

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[Representatives or distributors](#)