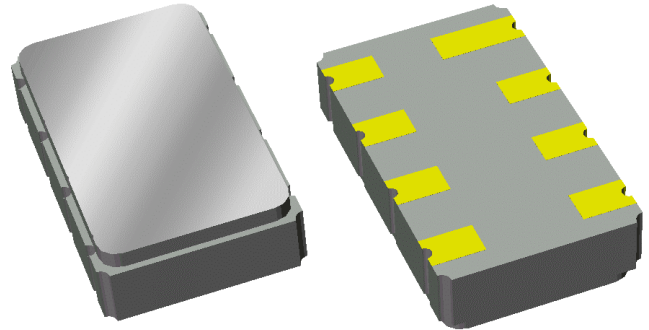


Data Sheet

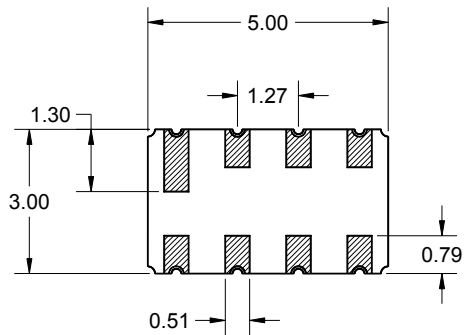
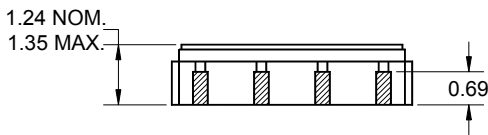
Features

- For GSM applications, IF stage
- Usable bandwidth 166 KHz
- Low loss
- Low group delay variation
- Single-ended or balanced operation
- Ceramic Surface Mount Package (SMP)
- Small size



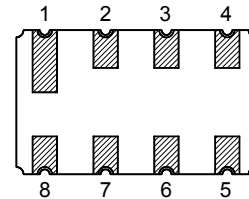
Package

Surface Mount 5.00 x 3.00 x 1.24 mm



Pin Configuration

Bottom View



Pin No.	Description
1	Input
2	Input return or ground
5	Output
6	Output return or ground
8	Coupling inductor
3,4,7	Case ground

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

Data Sheet

Electrical Specifications ⁽¹⁾

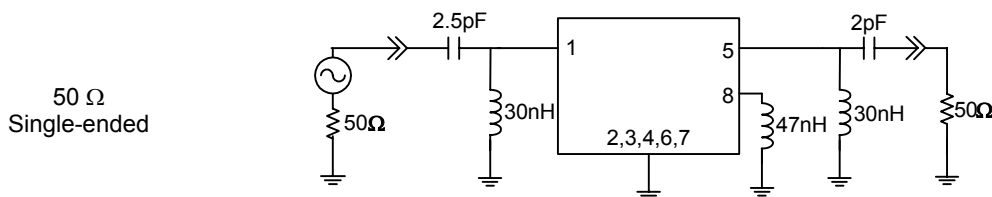
Operating Temperature Range: ⁽²⁾ -40 to +85 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency, fo	-	400	-	MHz
Insertion Loss at 400 MHz				
Excluding losses due to matching	-	2.6	4.2	dB
Including losses in matching test circuit shown below	-	4.4	6.0	dB
Lower 2 dB Bandedge	-	399.8	399.917	MHz
Upper 2 dB Bandedge	400.083	400.2	-	MHz
9 dB Bandwidth	-	0.55	0.8	MHz
12 dB Bandwidth	-	0.58	1.2	MHz
22 dB Bandwidth	-	0.69	1.6	MHz
Amplitude Variation 399.917 - 400.083 MHz	-	0.21	2	dB
Group Delay Variation 399.917 - 400.083 MHz	-	300	1000	nsec
Rejection ⁽⁴⁾				
398.5 - 399.2 MHz	22	37	-	dB
399.2 - 399.4 MHz	12	34	-	dB
399.4 - 399.6 MHz	9	28	-	dB
400.4 - 400.6 MHz	9	26	-	dB
400.6 - 400.8 MHz	12	34	-	dB
400.8 - 401.5 MHz	22	37	-	dB
Out of Band Rejection				
50 - 398.5 MHz	37	45	-	dB
401.5 - 500 MHz	37	45	-	dB
Optimal Source Impedance ⁽⁵⁾	-	560Ω 44nH	-	Ω
Optimal Impedance ⁽⁵⁾	-	860Ω 34nH	-	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. Relative to insertion loss at 400 MHz
5. This is the complex conjugate of the unmatched filter's impedance resulting in maximum power transfer

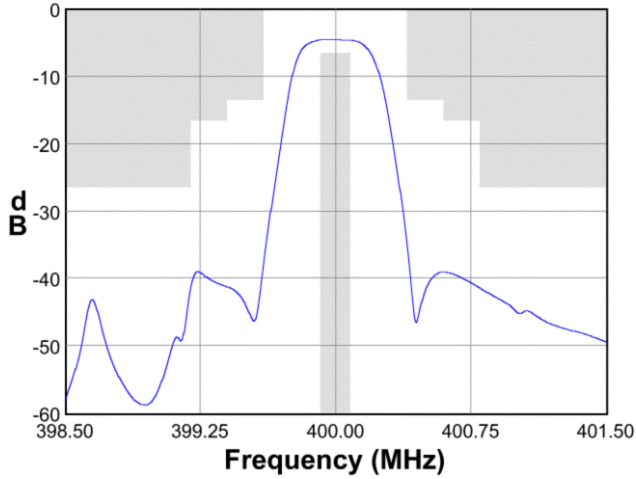
Test Circuit:



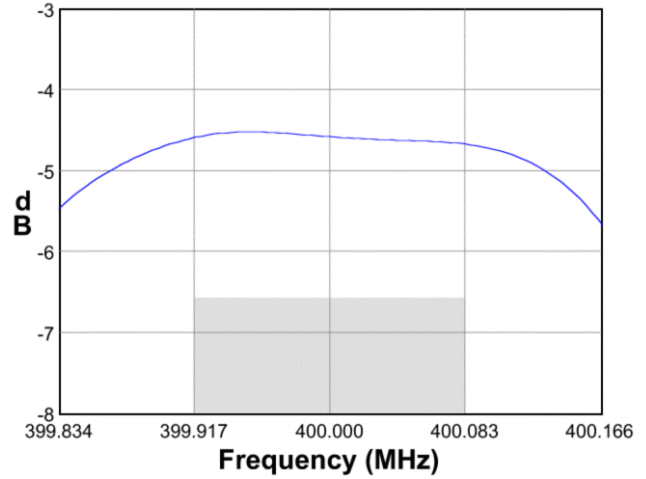
Data Sheet

Typical Performance (at +25°C)

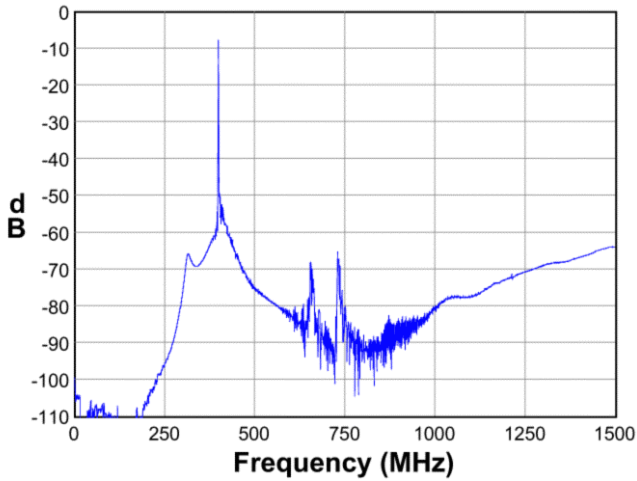
Frequency Response



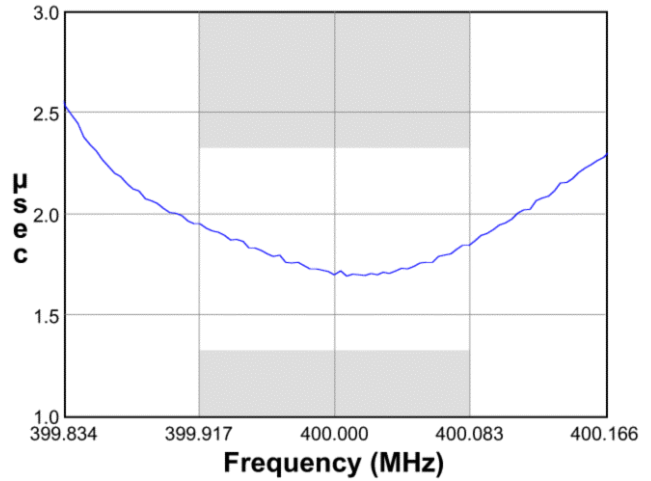
Passband Response



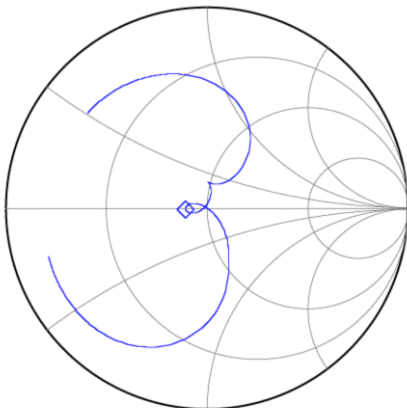
Wideband Response



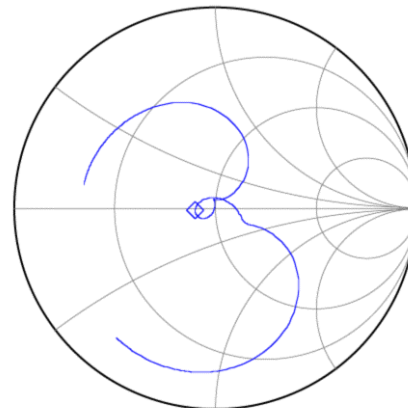
Group Delay



Input Smith Chart



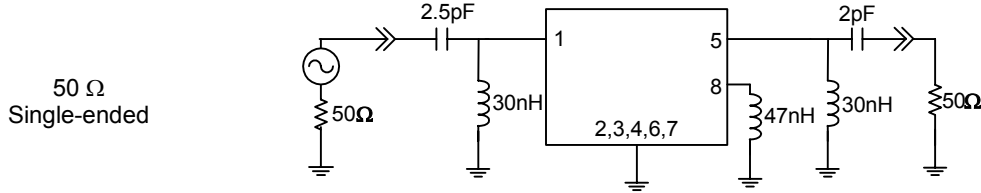
Output Smith Chart



Data Sheet

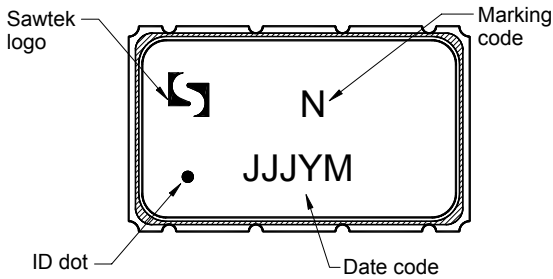
Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

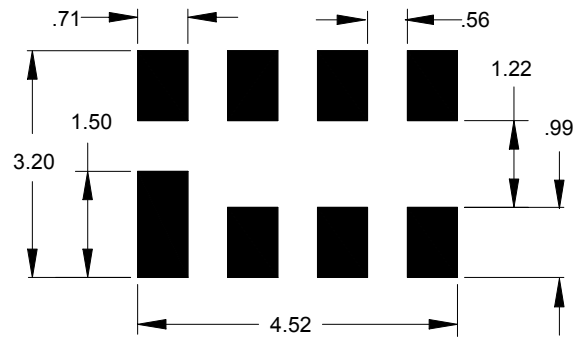


Marking

PCB Footprint

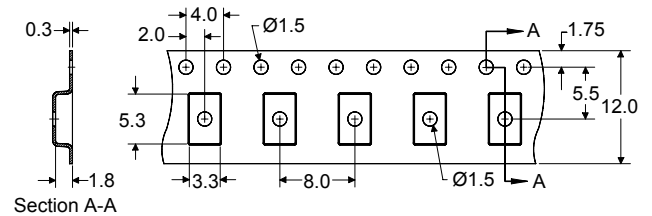
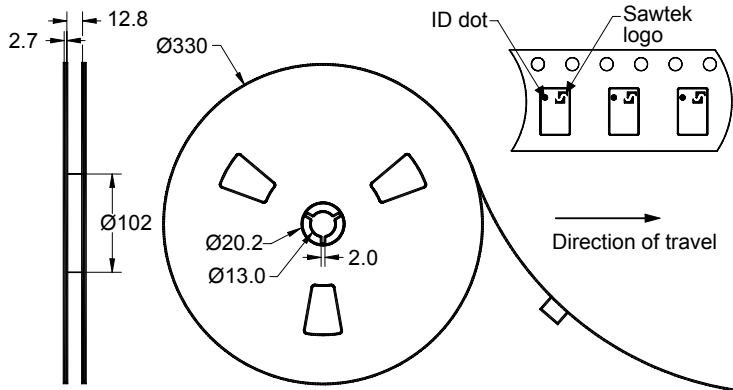


The date code consists of: JJJ = Julian day,
Y = last digit of year, M = manufacturing site code



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

Tape and Reel




Dimensions shown are nominal in millimeters
Packaging quantity: 4000 units/reel

Data Sheet

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+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](#)

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[Representatives or distributors](#)