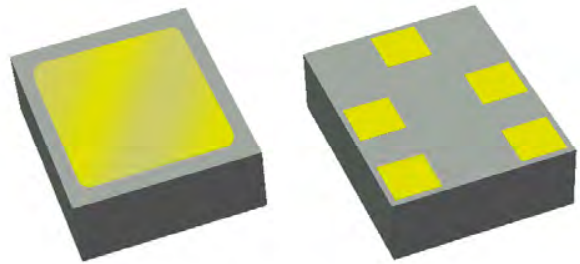


Data Sheet

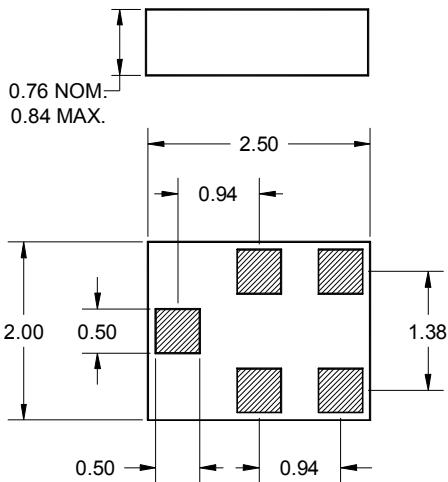
Features

- For EGSM applications
- Usable bandwidth 35 MHz
- High attenuation
- Superior amplitude and phase balance
- Single-ended input
- Balanced output
- Ceramic Surface Mount Package (SMP)
- Small size



Package

Surface Mount 2.50 x 2.00 x 0.76 mm

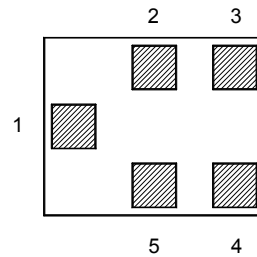


Dimensions shown are nominal in millimeters
 All tolerances are $\pm 0.10\text{mm}$

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

Pin Configuration

Bottom View



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

Data Sheet

Electrical Specifications ⁽¹⁾

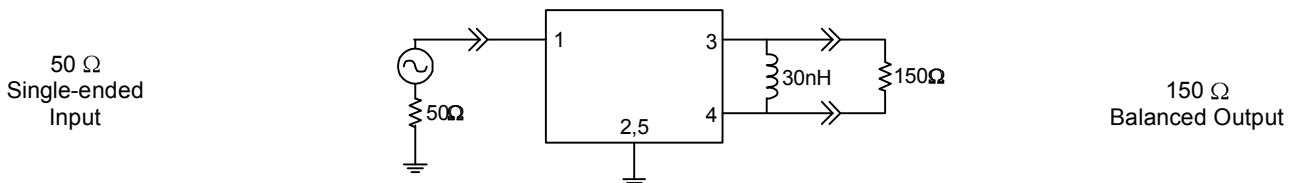
Operating Temperature Range: ⁽²⁾ +25 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	942.5	-	MHz
Maximum Insertion Loss 925 - 960 MHz Excluding losses due to matching Including losses in matching test circuit shown below	-	2.3 2.5	- 3.2	dB dB
Amplitude Ripple 925 - 960 MHz	-	0.2	1.6	dB p-p
Absolute Attenuation 0 - 880 MHz 880 - 905 MHz 905 - 915 MHz 980 - 1050 MHz 1050 - 6000 MHz	50 30 20 23 50	65 38 22 28 65	- - - - -	dB dB dB dB dB
Input VSWR 925 - 960 MHz	-	1.8	2.4	dB
Output VSWR 925 - 960 MHz	-	1.7	2.3	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 925 - 960 MHz	175	180	185	degree
Output Amplitude Balance (S_{31}/S_{21}) 925 - 960 MHz	-0.5	0	0.5	dB
Optimal Source Impedance ⁽⁴⁾	-	50	-	Ω
Optimal Load Impedance ⁽⁴⁾	-	225 48nH	-	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 complex conjugate of the unmatched filter's impedance resulting in maximum power transfer

Test Circuit:



Data Sheet

Electrical Specifications ⁽¹⁾

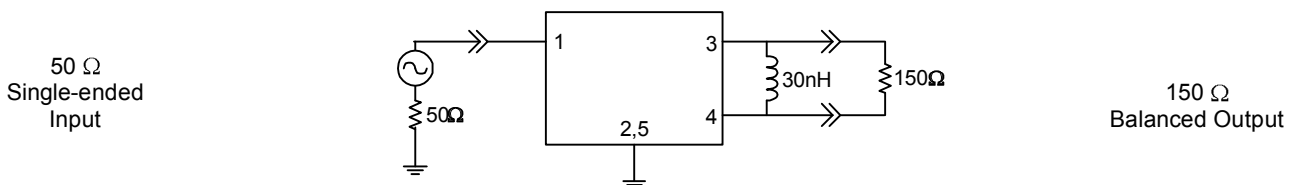
Operating Temperature Range: ⁽²⁾ -10 to +80 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	942.5	-	MHz
Maximum Insertion Loss 925 - 960 MHz Excluding losses due to matching Including losses in matching test circuit shown below	- -	2.5 2.7	- 3.5	dB dB
Amplitude Ripple 925 - 960 MHz	-	0.9	1.9	dB p-p
Absolute Attenuation 0 - 880 MHz 880 - 905 MHz 905 - 915 MHz 980 - 1050 MHz 1050 - 6000 MHz	50 30 18 23 50	65 38 22 27 65	- - - - -	dB dB dB dB dB
Input VSWR 925 - 960 MHz	-	2.1	2.4	dB
Output VSWR 925 - 960 MHz	-	2.1	2.3	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 925 - 960 MHz	175	180	185	degree
Output Amplitude Balance (S_{31}/S_{21}) 925 - 960 MHz	-0.5	0	0.5	dB
Optimal Source Impedance ⁽⁴⁾	-	50	-	Ω
Optimal Load Impedance ⁽⁴⁾	-	225 48nH	-	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 complex conjugate of the unmatched filter's impedance resulting in maximum power transfer

Test Circuit:



Data Sheet

Electrical Specifications ⁽¹⁾

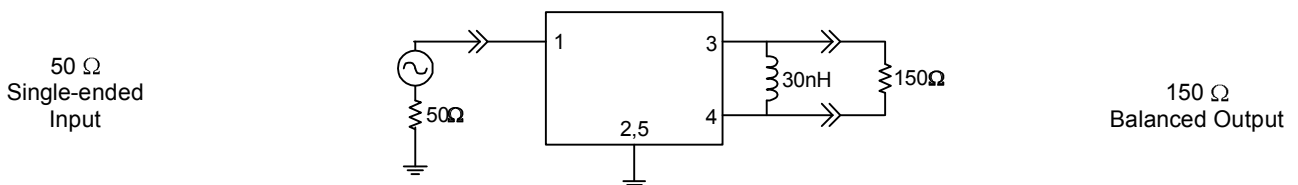
Operating Temperature Range: ⁽²⁾ -20 to +80 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	942.5	-	MHz
Maximum Insertion Loss 925 - 960 MHz Excluding losses due to matching Including losses in matching test circuit shown below	- -	2.6 2.7	- 3.7	dB dB
Amplitude Ripple 925 - 960 MHz	-	0.7	2.1	dB p-p
Absolute Attenuation 0 - 880 MHz 880 - 905 MHz 905 - 915 MHz 980 - 1050 MHz 1050 - 6000 MHz	50 30 18 22 50	65 38 22 27 65	- - - - -	dB dB dB dB dB
Input VSWR 925 - 960 MHz	-	1.8	2.4	dB
Output VSWR 925 - 960 MHz	-	1.8	2.3	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 925 - 960 MHz	175	180	185	degree
Output Amplitude Balance (S_{31}/S_{21}) 925 - 960 MHz	-0.5	0	0.5	dB
Optimal Source Impedance ⁽⁴⁾	-	50	-	Ω
Optimal Load Impedance ⁽⁴⁾	-	225 48nH	-	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 complex conjugate of the unmatched filter's impedance resulting in maximum power transfer

Test Circuit:



Data Sheet

Electrical Specifications ⁽¹⁾

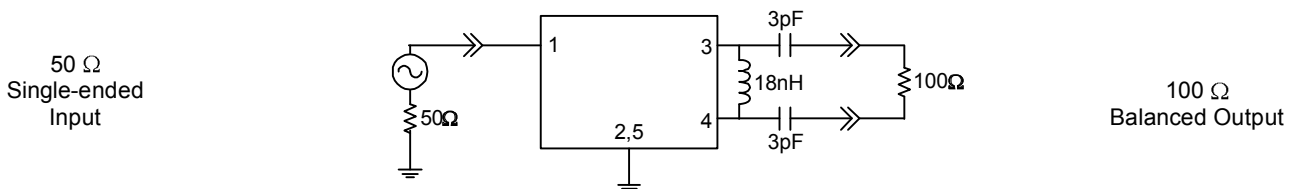
Operating Temperature Range: ⁽²⁾ -20 to +80 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	942.5	-	MHz
Maximum Insertion Loss 925 - 960 MHz Excluding losses due to matching Including losses in matching test circuit shown below	- -	2.6 2.9	- 3.9	dB dB
Amplitude Ripple 925 - 960 MHz	-	0.7	2.1	dB p-p
Absolute Attenuation 0 - 880 MHz 880 - 905 MHz 905 - 915 MHz 980 - 1050 MHz 1050 - 6000 MHz	50 30 18 22 50	65 38 22 27 65	- - - - -	dB dB dB dB dB
Input VSWR 925 - 960 MHz	-	1.8	2.4	dB
Output VSWR 925 - 960 MHz	-	1.8	2.3	dB
Output Phase Balance $\phi(S_{31}) - \phi(S_{21})$ 925 - 960 MHz	175	180	185	degree
Output Amplitude Balance (S_{31}/S_{21}) 925 - 960 MHz	-0.5	0	0.5	dB
Optimal Source Impedance ⁽⁴⁾	-	50	-	Ω
Optimal Load Impedance ⁽⁴⁾	-	225 48nH	-	Ω

Notes:

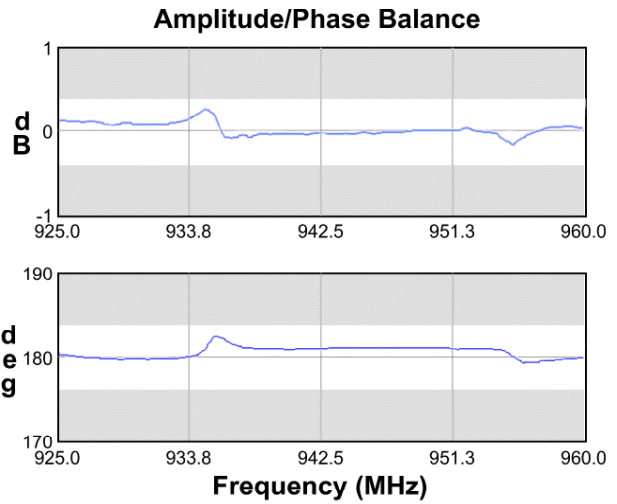
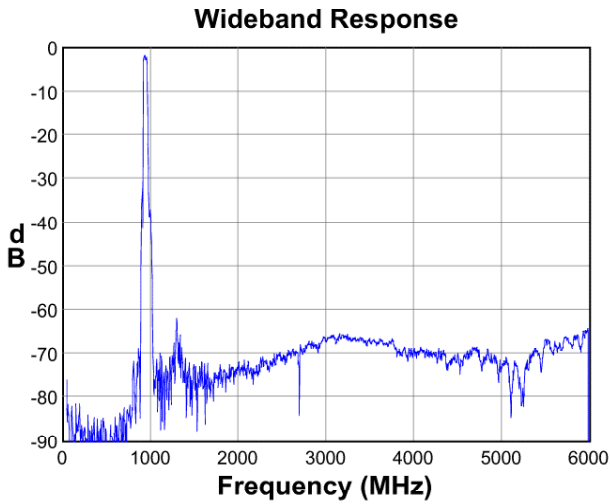
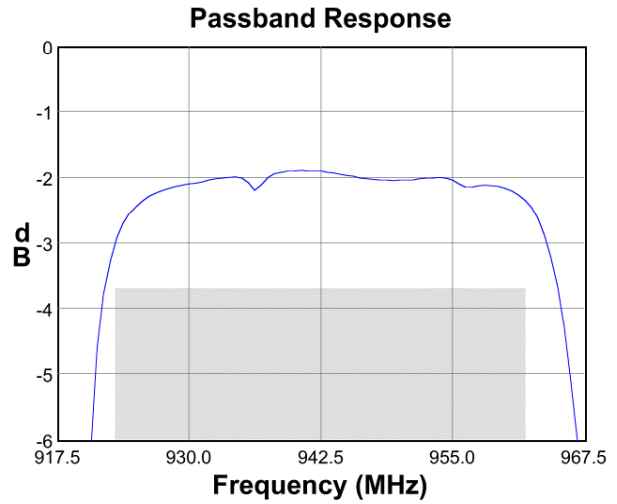
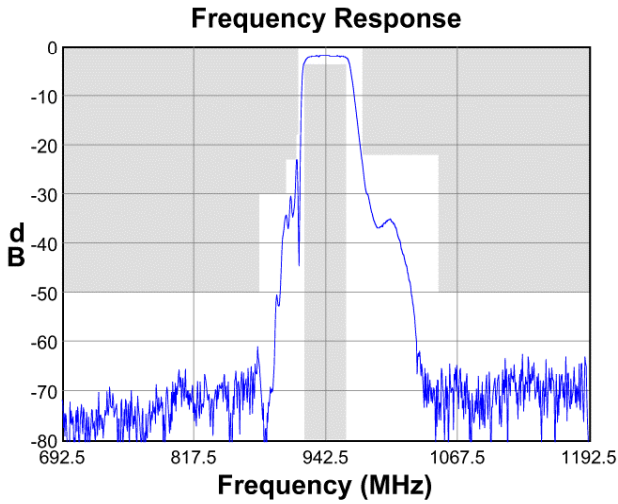
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature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

Test Circuit:

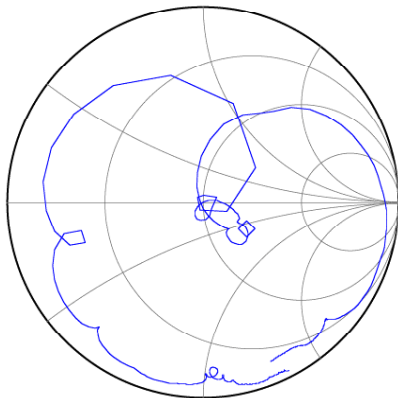


Data Sheet

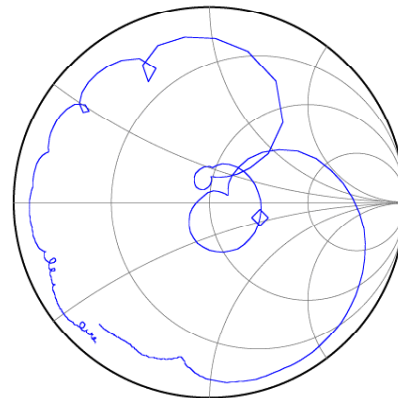
Typical Performance (at +25°C)



Input Smith Chart



Output Smith Chart

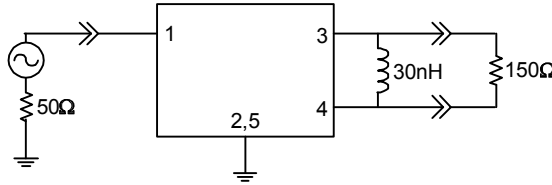


Data Sheet

Matching Schematics

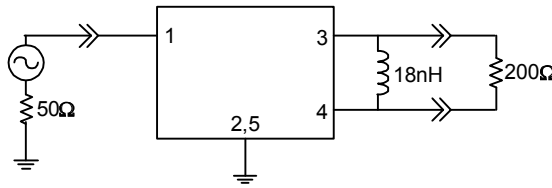
Actual matching values may vary due to PCB layout and parasitics

50 Ω
Single-ended
Input



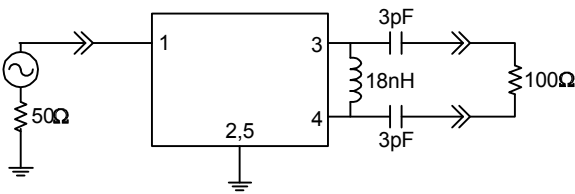
150 Ω
Balanced Output

50 Ω
Single-ended
Input



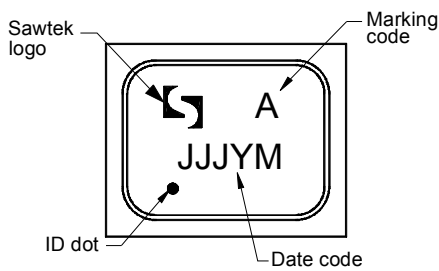
200 Ω
Balanced Output

50 Ω
Single-ended
Input



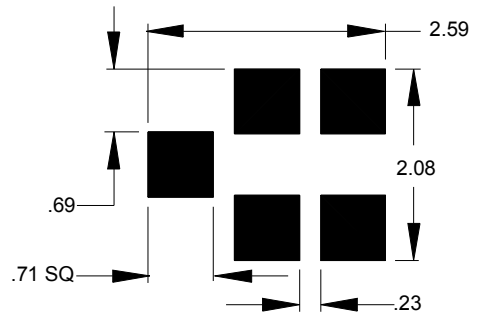
100 Ω
Balanced Output

Marking



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

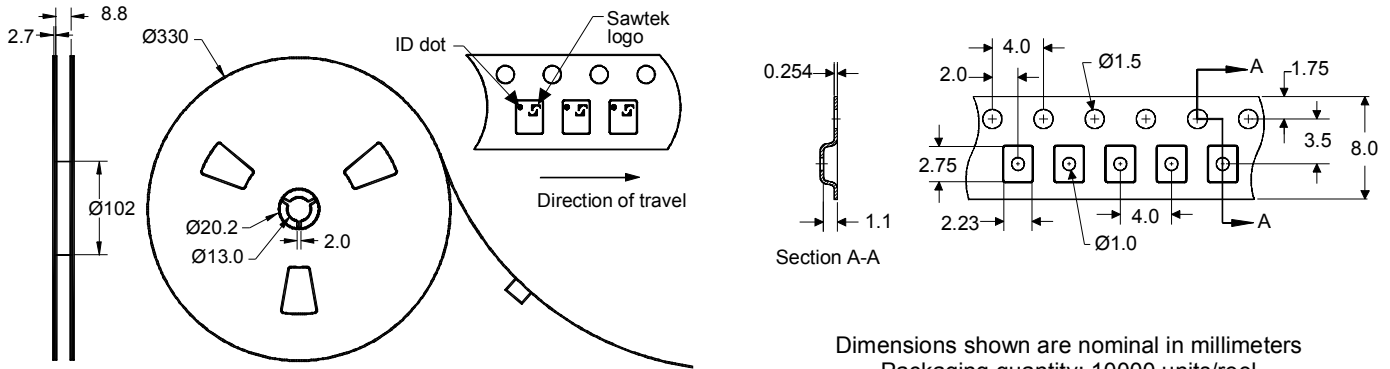
PCB Footprint



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

Data Sheet

Tape and Reel




Dimensions shown are nominal in millimeters
 Packaging quantity: 10000 units/reel

Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-20	+80	°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.

Contact Information


 PO Box 609501
 Orlando, FL 32860-9501
 USA

Phone: +1 (407) 886-8860
 Fax: +1 (407) 886-7061
 Email: custservice@sawtek.com
 Web: www.sawtek.com

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