
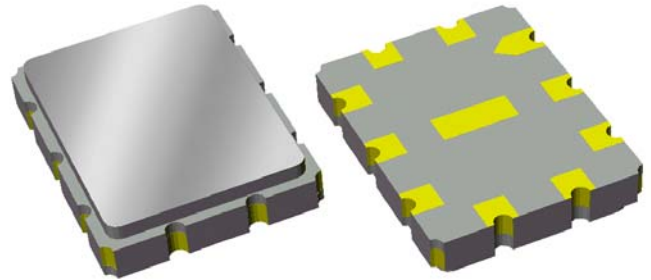


# Preliminary Data Sheet

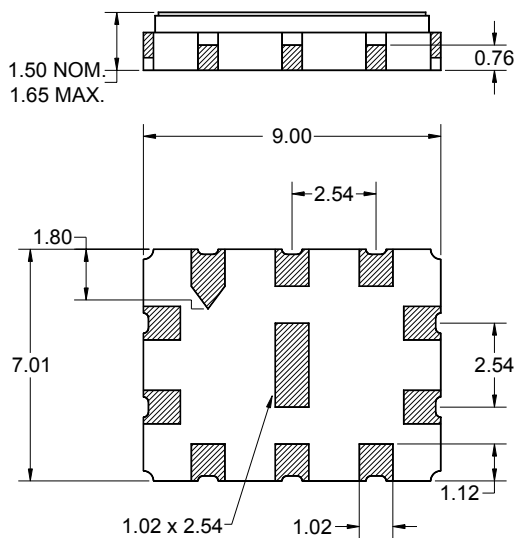
## Features

- For broadband applications
- Typical 3 dB bandwidth of 28.5 MHz
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Replaces Sawtek P/N 851935
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



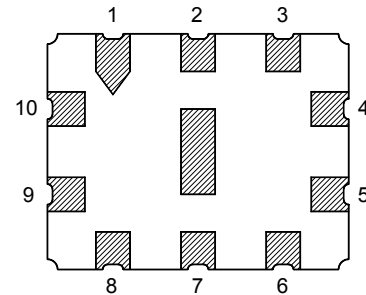
## Package

Surface Mount 9.00 x 7.01 x 1.50 mm



## Pin Configuration

Bottom View



Pin No.	Description
4	Output
5	Output return
9	Input
10	Input return
1,2,3,6,7,8	Case ground

Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15$ mm except overall  
 length and width  $+0.10$ mm/ $-0.15$ mm

Body:  $Al_2O_3$  ceramic  
 Lid: Kovar, Ni plated  
 Terminations: Au plating 0.5 - 1.0 $\mu$ m,  
 over a 2 - 6 $\mu$ m Ni plating

# Preliminary Data Sheet

## Electrical Specifications <sup>(1)</sup>

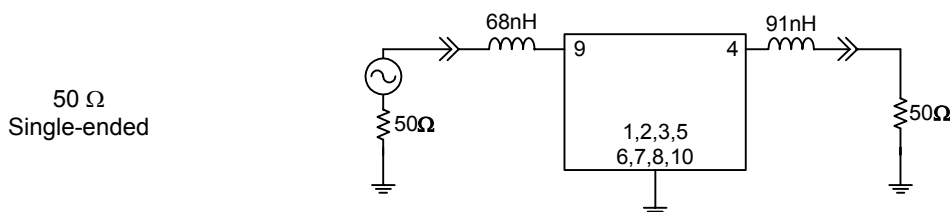
Operating Temperature Range: <sup>(2)</sup> 0 to +70 °C

Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
Center Frequency	-	140	-	MHz
Maximum Insertion Loss	-	20	21	dB
Lower 1 dB Bandedge <sup>(4)</sup>	-	126.45	127.2	MHz
Upper 1 dB Bandedge	152.8	153.75	-	
Lower 3 dB Bandedge <sup>(4)</sup>	-	125.53	126.3	MHz
Upper 3 dB Bandedge	153.7	154.46	-	
Lower 40 dB Bandedge <sup>(4)</sup>	121.5	122.45	-	MHz
Upper 40 dB Bandedge	-	157.41	158.5	
Amplitude Variation 127.2 - 152.8 MHz	-	0.7	1.0	dB p-p
Phase Linearity 127.2 - 152.8 MHz	-	4.3	7	deg p-p
Group Delay Variation 127.2 - 152.8 MHz	-	22	50	ns p-p
Absolute Delay	-	0.66	-	μsec
Relative Attenuation <sup>(4)</sup>				
15 - 90 MHz	45	50	-	dB
90 - 121.5 MHz	40	45	-	dB
158.5 - 190 MHz	37	43	-	dB
190 - 350 MHz	42	51	-	dB
Terminating Source Impedance <sup>(5)</sup>	-	50	-	Ω
Terminating Load Impedance <sup>(5)</sup>	-	50	-	Ω
Substrate Material	-	128 LiNbO <sub>3</sub>	-	-
Temperature Coefficient of Frequency	-	-74	-	ppm/°C

### Notes:

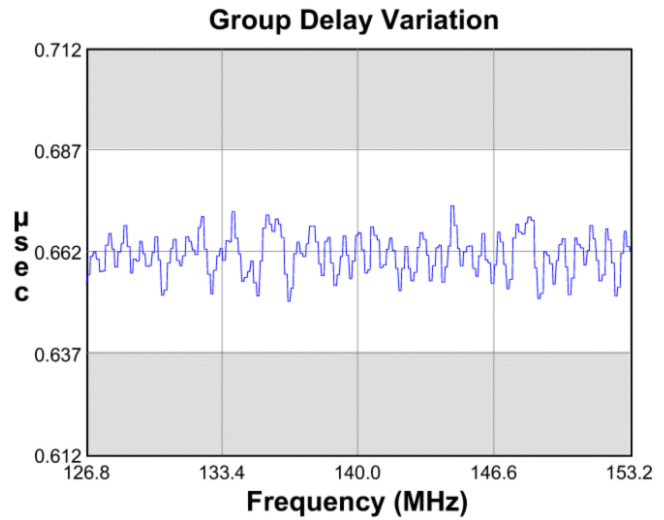
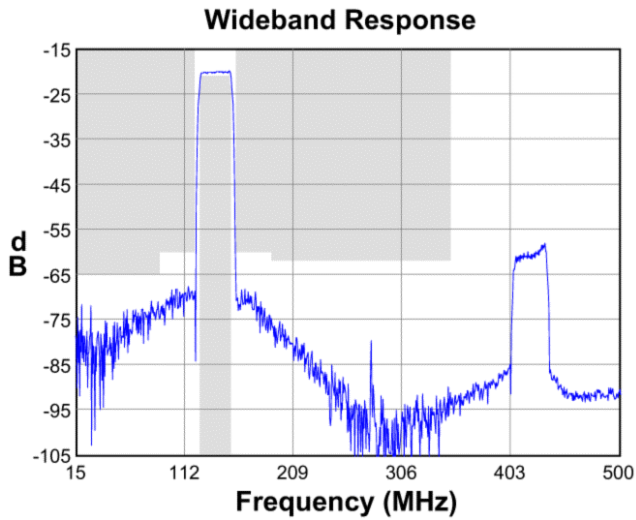
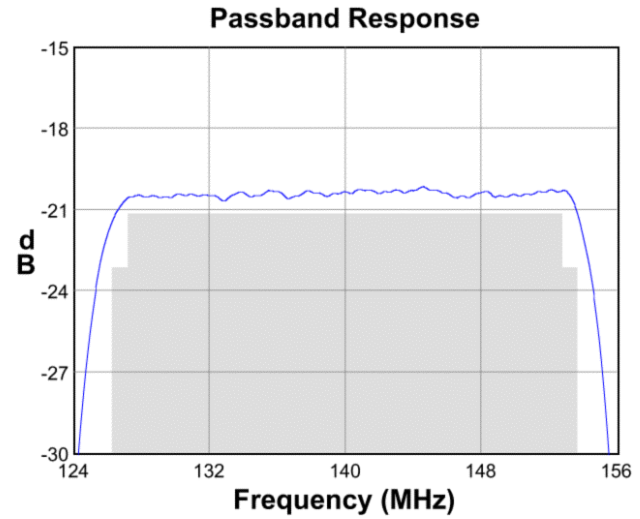
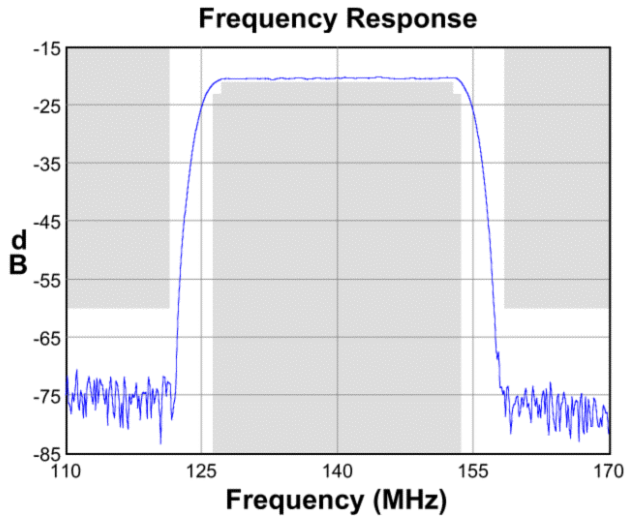
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature and manufacturing tolerances
4. All attenuation measurements are measured relative to minimum insertion loss
5. This is the optimum impedance in order to achieve the performance shown

### Test Circuit:

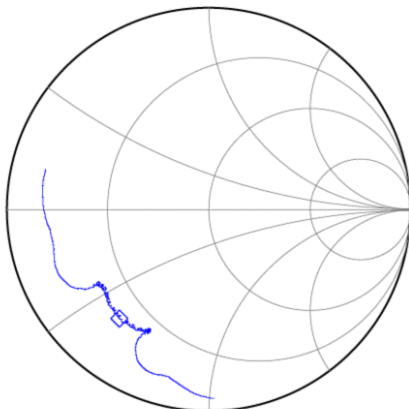


**Preliminary Data Sheet**

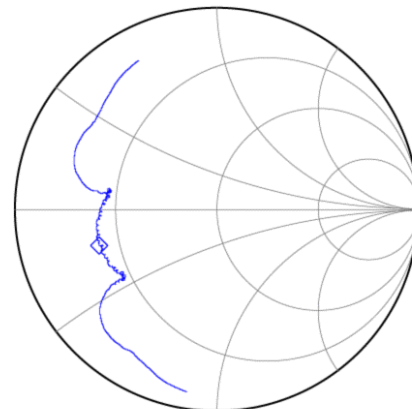
**Typical Performance (at +25°C)**



**Input Smith Chart**

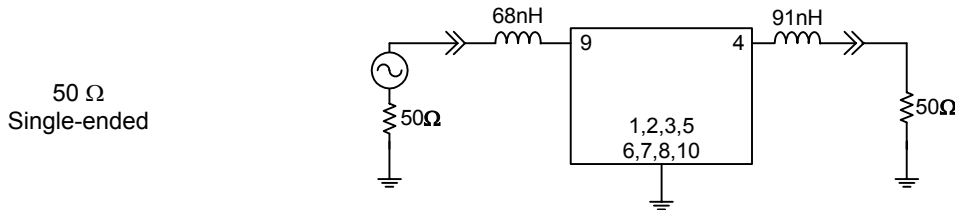


**Output Smith Chart**

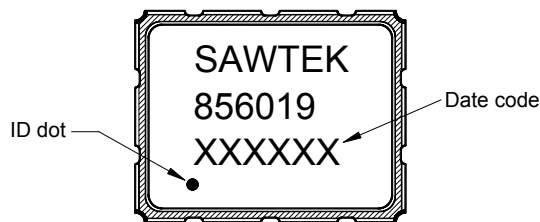


**Preliminary Data Sheet**

**Matching Schematics**

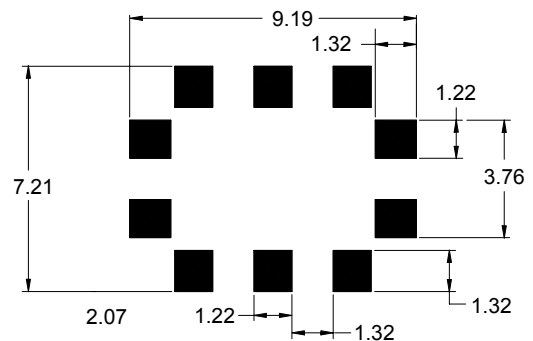


**Marking**



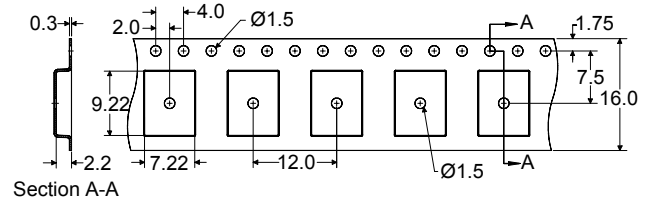
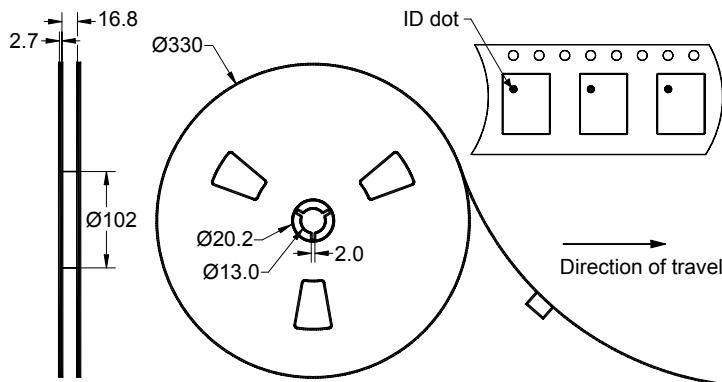
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

**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


# Preliminary Data Sheet

## Maximum Ratings


Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Temperature Range	T	0	+25	+70	°C
Storage Temperature Range	T <sub>stg</sub>	-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 JEDEC J-STD-020C **Pb**-free process, **260°C** 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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## Contact Information



PO Box 609501  
 Orlando, FL 32860-9501  
 USA

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

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