
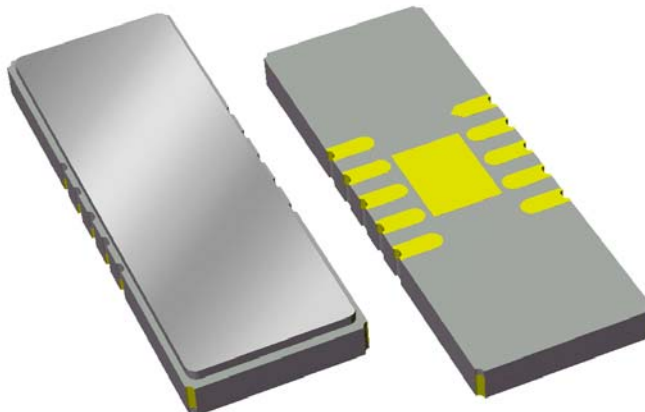


# Data Sheet

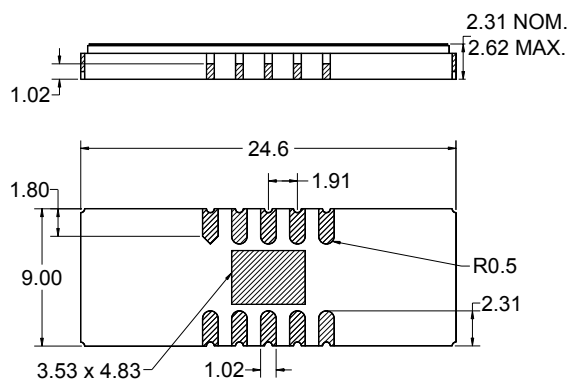
## Features

- For broadband applications
- Typical 3dB bandwidth of 1 MHz
- High attenuation
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Replaces Sawtek P/N 851544 (BW 3dB=1 MHz)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 



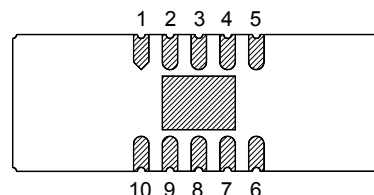
## Package

Surface Mount 24.60 x 9.00 x 2.31 mm



## Pin Configuration

Bottom View



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

Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15$  mm except overall  
 length  $\pm 0.20$  mm and width  $+0.13/-0.20$  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

# Data Sheet

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

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

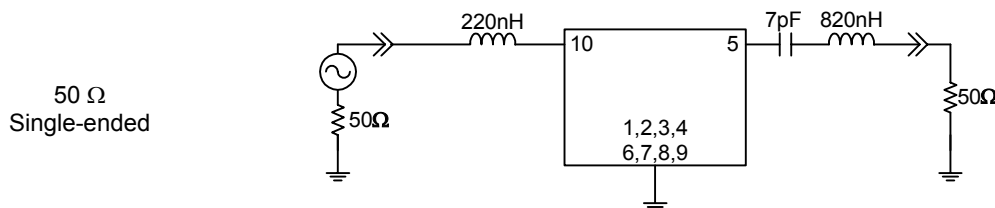
Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
Center Frequency	-	70	-	MHz
Minimum Insertion Loss	-	22.2	23	dB
Lower 1 dB Bandedge <sup>(4)</sup>	-	69.47	69.54	MHz
Upper 1 dB Bandedge	70.46	70.50	-	MHz
Lower 3 dB Bandedge <sup>(4)</sup>	-	69.37	69.41	MHz
Upper 3 dB Bandedge	70.59	70.62	-	MHz
Lower 40 dB Bandedge <sup>(4)</sup>	68.91	68.95	-	MHz
Upper 40 dB Bandedge	-	71.06	71.09	MHz
Amplitude Variation 69.54 - 70.46 MHz	-	0.55	1	dB p-p
Phase Linearity 69.54 - 70.46 MHz	-	2.2	5	deg p-p
Group Delay Variation 69.54 - 70.46 MHz	-	100	190	nsec
Relative Attenuation <sup>(4)</sup>				
10 - 68.5 MHz	48	53	-	dB
68.5 - 68.91 MHz	40	45	-	dB
71.09 - 75 MHz	40	45	-	dB
75 - 110 MHz	50	55	-	dB
110 - 122 MHz	35	37	-	dB
122 - 135 MHz	36	40	-	dB
135 - 200 MHz	50	65	-	dB
Source Impedance <sup>(5)</sup>	-	50	-	Ω
Load Impedance <sup>(5)</sup>	-	50	-	Ω
Substrate Material	-	Quartz	-	-

### 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. 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:

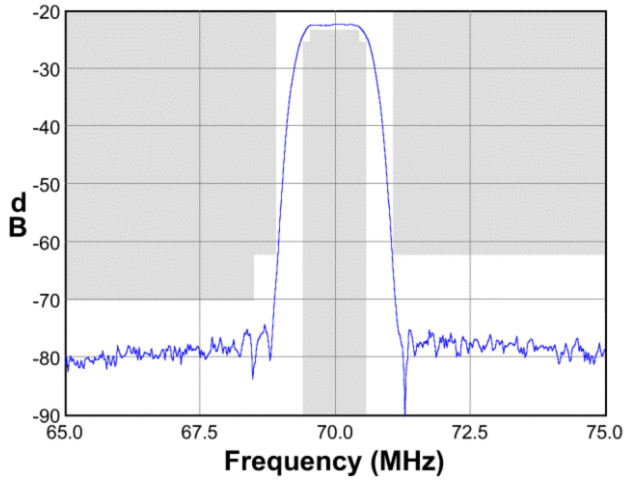
Actual matching values may vary due to PCB layout and parasitics



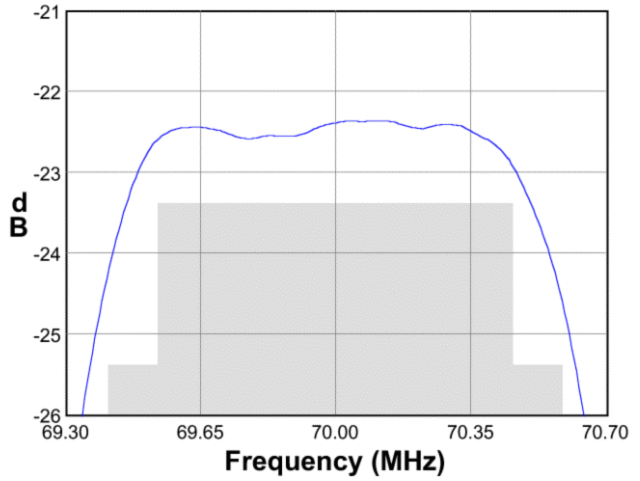
**Data Sheet**

**Typical Performance (at +25°C)**

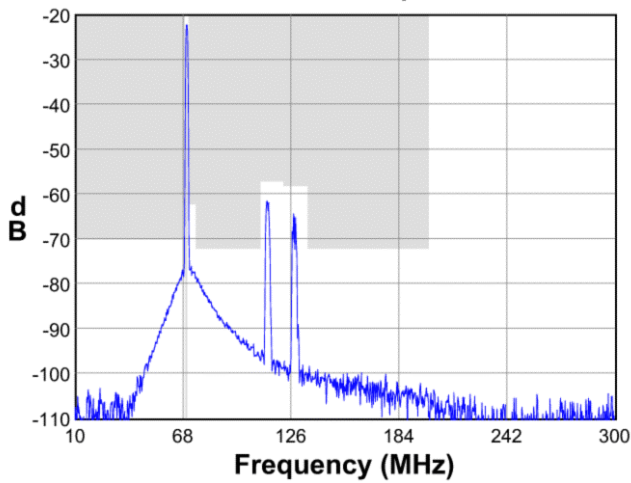
**Frequency Response**



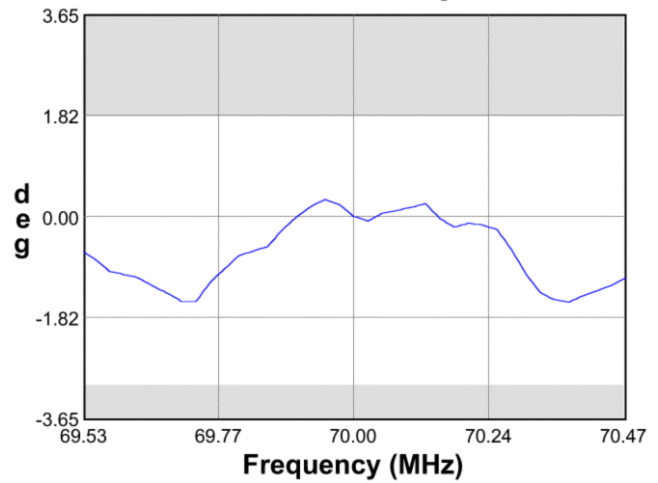
**Passband Response**



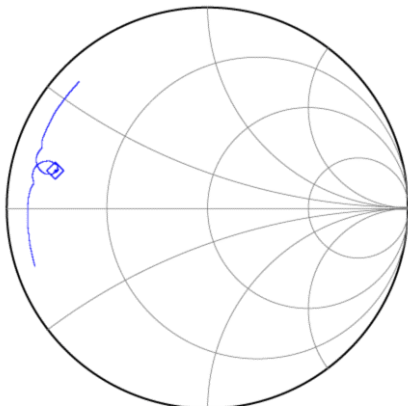
**Wideband Response**



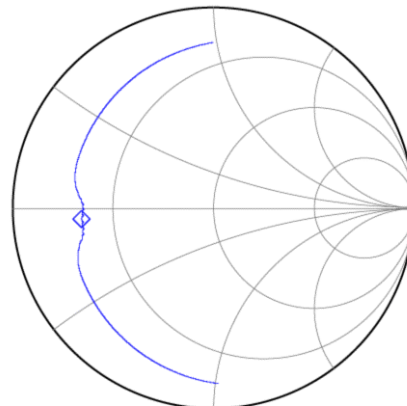
**Phase Linearity**



**Input Smith Chart**

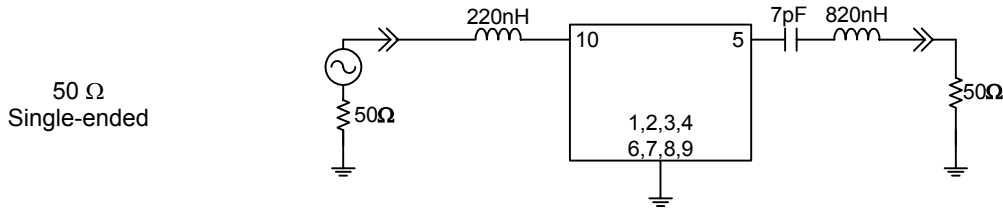


**Output Smith Chart**

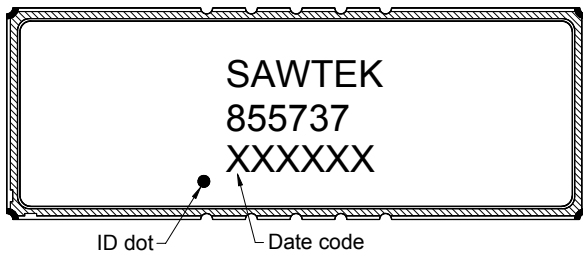


**Data Sheet**

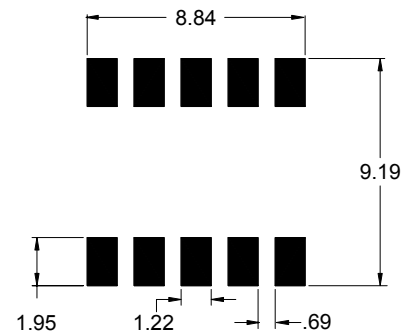
**Matching Schematic**



**Marking**



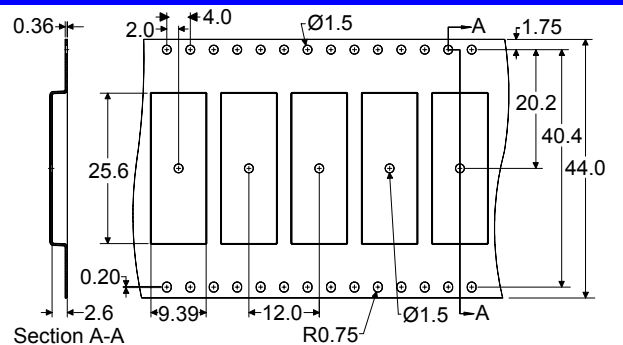
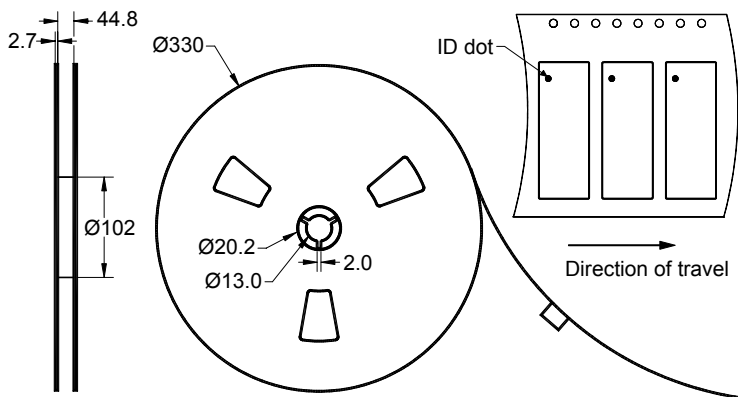
**PCB Footprint**



Date code is the day of the current year in Julian format, last digit of the year, and hour of the day

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

**Tape and Reel**



Dimensions shown are nominal in millimeters  
Packaging quantity: 1000 units/reel


# Data Sheet

## Maximum Ratings


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	0	+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](#)

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](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](#)