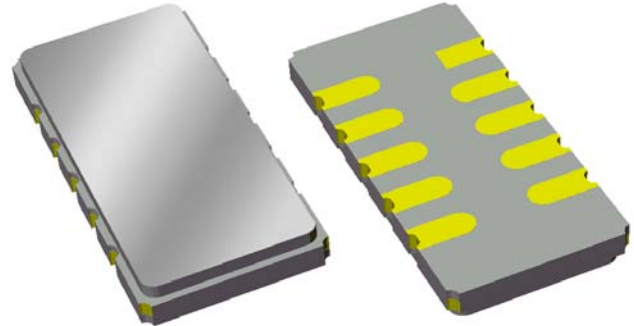


# Preliminary Data Sheet

## Features

- For UMTS basestation applications
- Usable bandwidth 4 MHz
- Low loss
- Single-ended to balanced operation
- Ceramic Surface Mount Package (SMP)

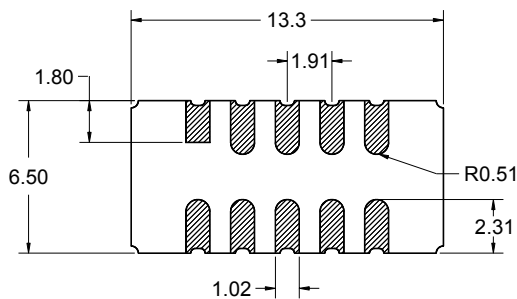
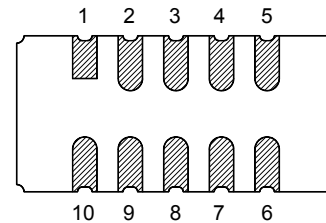
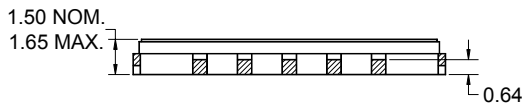


## Package

Surface Mount 13.3 x 6.50 x 1.50 mm

## Pin Configuration

Bottom View



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

Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15\text{mm}$  except overall  
 length and width  $\pm 0.10\text{mm}$

Body:  $\text{Al}_2\text{O}_3$  ceramic  
 Lid: Kovar, Ni plated  
 Terminations: Au plating 0.5 - 1.0 $\mu\text{m}$ ,  
 over a 2 - 6 $\mu\text{m}$  Ni plating

# Preliminary Data Sheet

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

Operating Temperature Range: <sup>(2)</sup> -10 to +85 °C

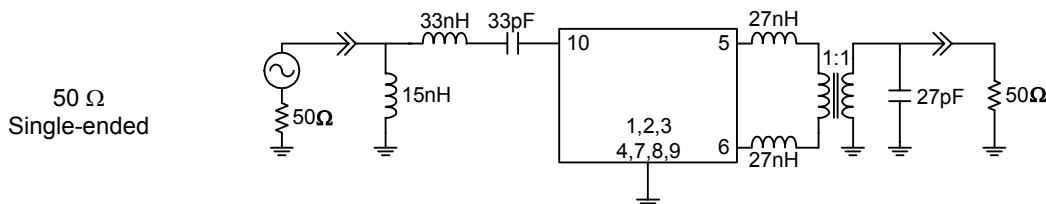
| Parameter <sup>(3)</sup>                       | Minimum | Typical | Maximum | Unit   |
|--|---------|---------|---------|--------|
| <b>Center Frequency</b>                        | -       | 169     | -       | MHz    |
| <b>Maximum Insertion Loss</b><br>167 - 171 MHz | -       | 10.4    | 14      | dB     |
| <b>10 dB Lower Bandedge</b>                    | 166     | 166.187 | -       | MHz    |
| <b>10 dB Upper Bandedge</b>                    | -       | 171.860 | 172     | MHz    |
| <b>25 dB Lower Bandedge</b>                    | 165.5   | 165.869 | -       | MHz    |
| <b>25 dB Upper Bandedge</b>                    | -       | 172.147 | 172.5   | MHz    |
| <b>40 dB Lower Bandedge</b>                    | 164     | 165.470 | -       | MHz    |
| <b>40 dB Upper Bandedge</b>                    | -       | 172.695 | 174     | MHz    |
| <b>Relative Attenuation <sup>(4)</sup></b>     |         |         |         |        |
| 0.3 - 144 MHz                                  | 50      | 57      | -       | dB     |
| 194 - 500 MHz                                  | 50      | 61      | -       | dB     |
| 500 - 2000 MHz                                 | 40      | 50      | -       | dB     |
| <b>Amplitude Variation</b><br>167 - 171 MHz    | -       | 0.44    | 0.8     | dB p-p |
| <b>Group Delay Variation</b><br>167 - 171 MHz  | -       | 82      | 150     | nsec   |
| <b>Phase Ripple</b><br>167 - 171 MHz           | -       | 3.6     | 6       | deg    |
| <b>Input/Output VSWR</b><br>167 - 171 MHz      | -       | 1.4     | 2       | -      |
| <b>Source Impedance <sup>(5)</sup></b>         | -       | 50      | -       | Ω      |
| <b>Load Impedance <sup>(5)</sup></b>           | -       | 200     | -       | 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. All attenuation measurements are measure relative to maximum insertion loss
5. This is the optimum impedance in order to achieve the performance shown

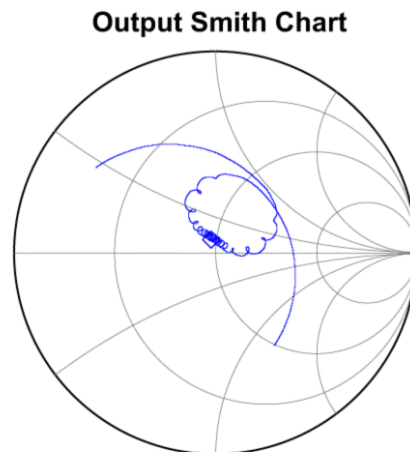
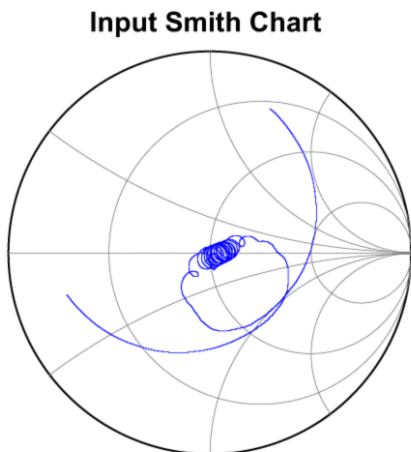
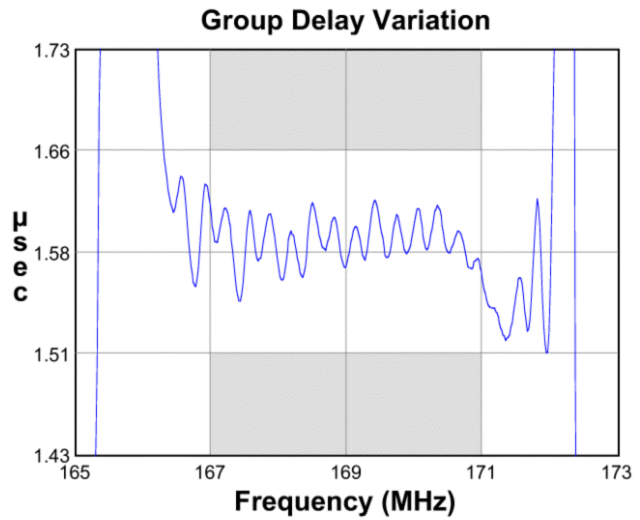
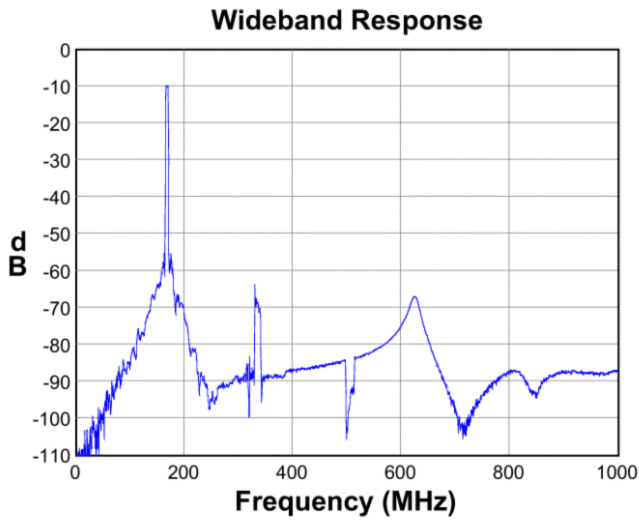
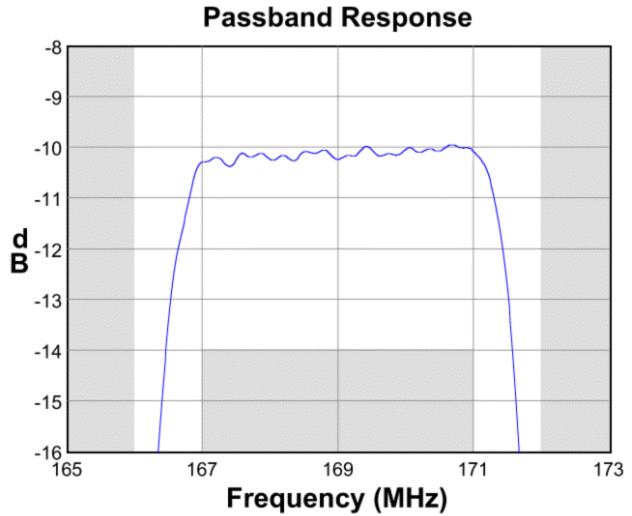
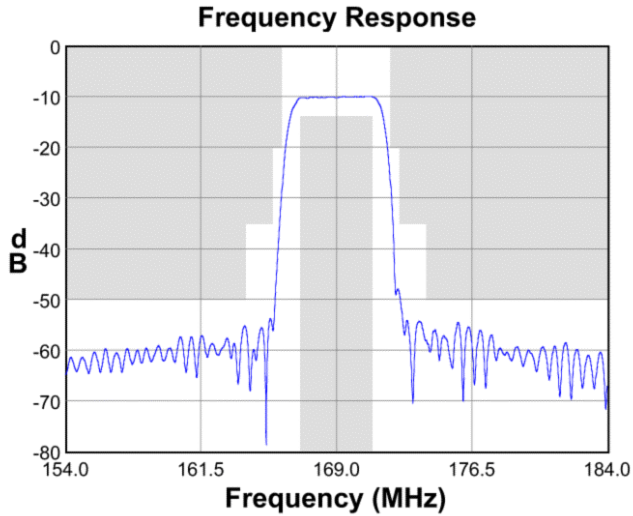
### Test Circuit:

Actual matching values may vary due to PCB layout and parasitics



**Preliminary Data Sheet**

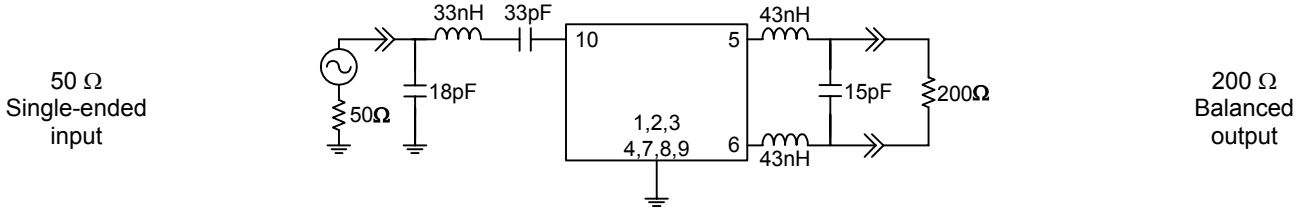
**Typical Performance (at +25°C)**



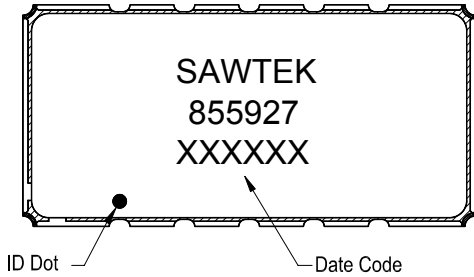
**Preliminary Data Sheet**

**Matching Schematics**

Actual matching values may vary due to PCB layout and parasitics

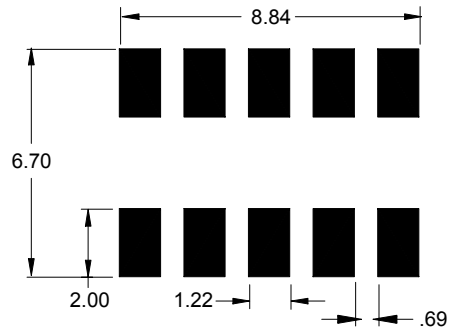


**Marking**



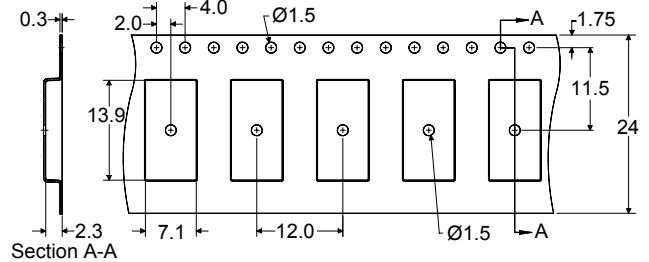
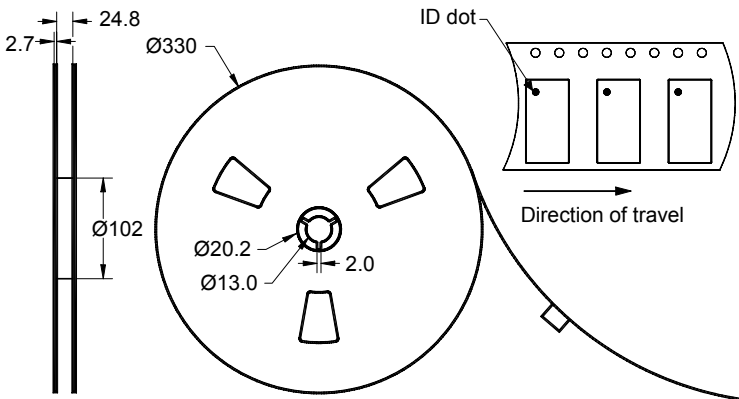
The date code consists of: JJJ = Julian day,  
Y = last digit of year, M = manufacturing site code

**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:2000 units/reel

# Preliminary Data Sheet

## Maximum Ratings

| Parameter                   | Symbol           | Minimum | Maximum | Unit |
|-----------------------------|------------------|---------|---------|------|
| Operating Temperature Range | T                | -10     | +85     | °C   |
| Storage Temperature Range   | T <sub>stg</sub> | -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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