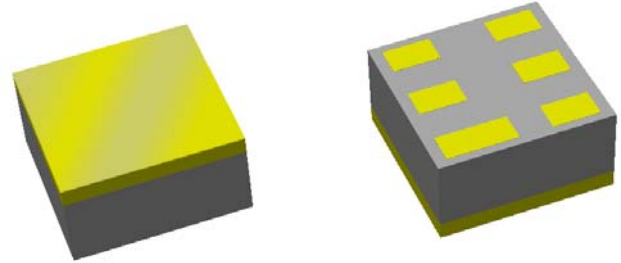


# Data Sheet

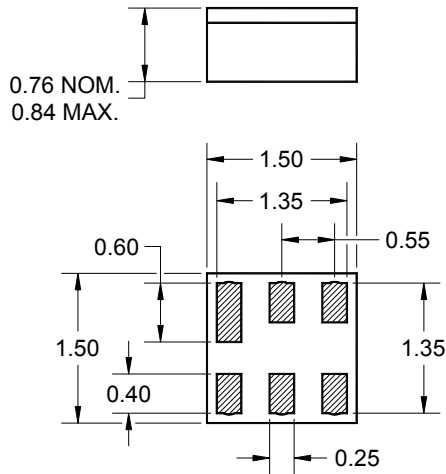
## Features

- For GSM-850 applications
- Usable bandwidth of 25 MHz
- Compatible with leading chipset suppliers
- Ultra low loss
- Single-ended input, 50Ω
- Balanced output, 200Ω
- Chip Scale Package (CSP)
- Hermetic



## Package

Surface Mount 1.50 x 1.50 x 0.76 mm

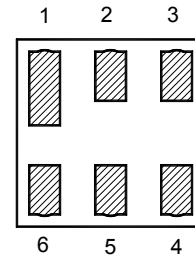


Dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.10\text{mm}$

Body:  $\text{Al}_2\text{O}_3$  ceramic  
 Lid: Kovar or Alloy 42, Au over Ni plated  
 Terminations: Au plating 0.5 - 1.0 $\mu\text{m}$ ,  
 over a 2 - 6 $\mu\text{m}$  Ni plating

## Pin Configuration

Bottom View



Pin No.	Description
2	Input
4,6	Output
1,3,5	Case ground

# Data Sheet

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

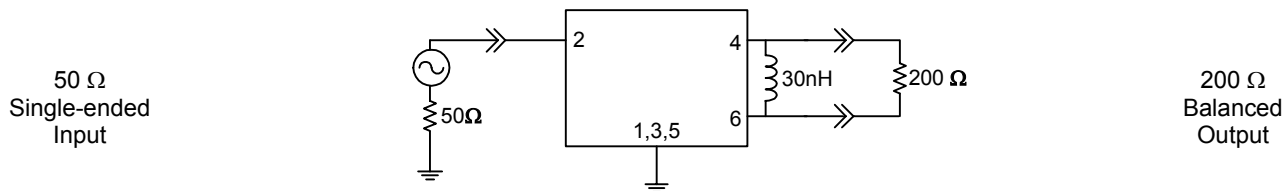
Operating Temperature Range: <sup>(2)</sup> +25 °C

Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	881.5	-	MHz
<b>Maximum Insertion Loss</b> 869 - 894 MHz	-	1.2	1.5	dB
<b>Amplitude Variation</b> 869 - 894 MHz	-	0.4	1.2	dB p-p
<b>Absolute Attenuation</b>				
10 - 824 MHz	30	42	-	dB
824 - 842 MHz	30	35	-	dB
842 - 849 MHz	22	24	-	dB
914 - 970 MHz	18	19.5	-	dB
970 - 2607 MHz	22	30	-	dB
2607 - 2682 MHz	41	52	-	dB
2682 - 4345 MHz	38	40	-	dB
4345 - 4470 MHz	37	55	-	dB
4470 - 6000 MHz	38	42	-	dB
<b>Output Amplitude Balance ( S<sub>31</sub>/S<sub>21</sub> )</b> 869 - 894 MHz	-1	0.7	1	dB
<b>Output Phase Balance [Φ(S<sub>31</sub>)-ΦS<sub>21</sub>+180]</b> 869 - 894 MHz	-10	7	10	degree
<b>Input/Output VSWR</b> 869 - 894 MHz	-	1.7	2.5	
<b>Source Impedance <sup>(4)</sup></b>	-	50	-	Ω
<b>Load Impedance (Balanced) <sup>(4)</sup></b>	-	200  30nH	-	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 optimum impedance in order to achieve the performance shown

**Test Circuit:**



# Data Sheet

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

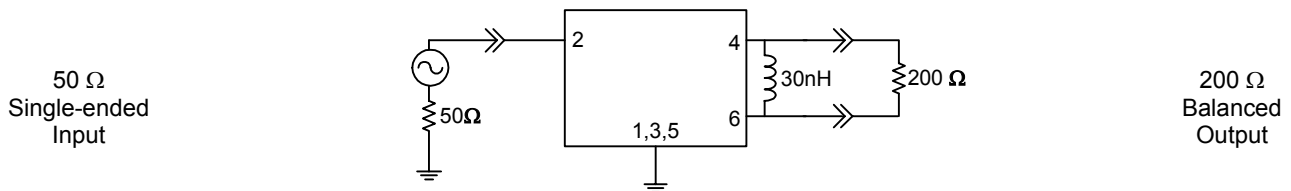
Operating Temperature Range: <sup>(2)</sup>      -25 to +80 °C

Parameter <sup>(3)</sup>	Minimum	Typical	Maximum	Unit
<b>Center Frequency</b>	-	881.5	-	MHz
<b>Maximum Insertion Loss</b> 869 - 894 MHz	-	1.2	1.9	dB
<b>Amplitude Variation</b> 869 - 894 MHz	-	0.4	1.2	dB p-p
<b>Absolute Attenuation</b>				
10 - 824 MHz	30	42	-	dB
824 - 842 MHz	30	35	-	dB
842 - 849 MHz	22	24	-	dB
914 - 970 MHz	18	19.5	-	dB
970 - 2607 MHz	22	30	-	dB
2607 - 2682 MHz	41	52	-	dB
2682 - 4345 MHz	38	40	-	dB
4345 - 4470 MHz	37	55	-	dB
4470 - 6000 MHz	38	42	-	dB
<b>Output Amplitude Balance ( S<sub>31</sub>/S<sub>21</sub> )</b> 869 - 894 MHz	-1	0.7	1	dB
<b>Output Phase Balance [Φ(S<sub>31</sub>)-ΦS<sub>21</sub>+180]</b> 869 - 894 MHz	-10	7	10	degree
<b>Input/Output VSWR</b> 869 - 894 MHz	-	1.7	2.5	
<b>Source Impedance <sup>(4)</sup></b>	-	50	-	Ω
<b>Load Impedance (Balanced) <sup>(4)</sup></b>	-	200  30nH	-	Ω

**Notes:**

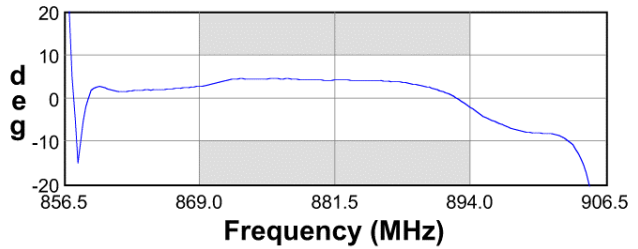
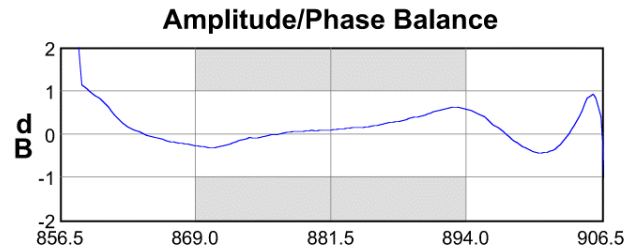
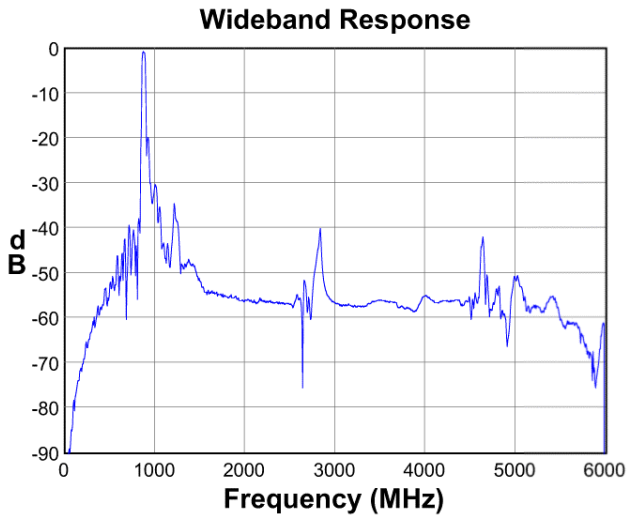
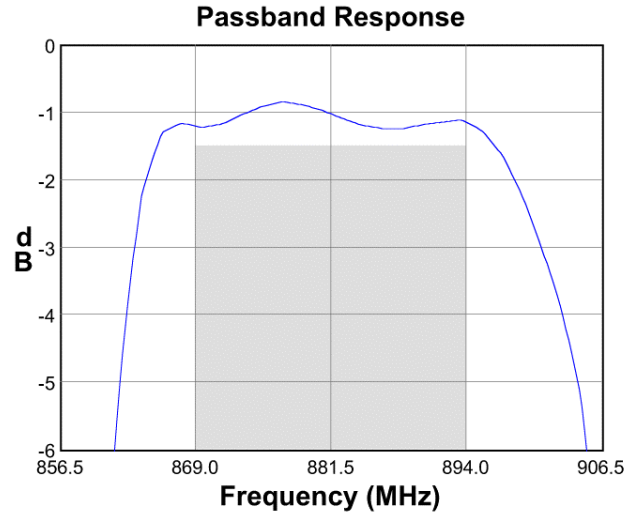
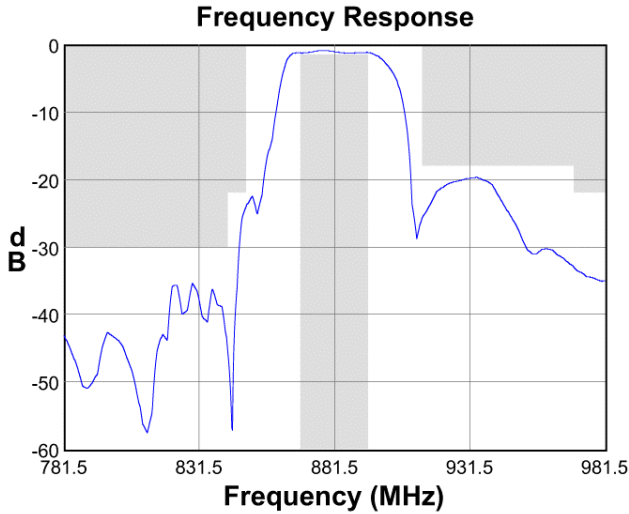
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature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

**Test Circuit:**

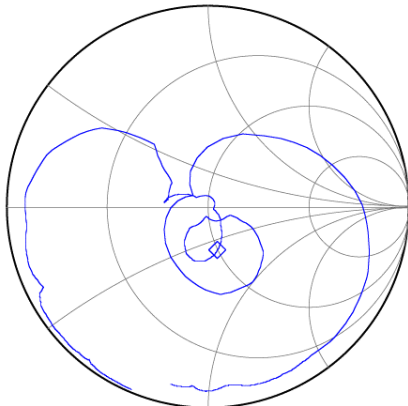


**Data Sheet**

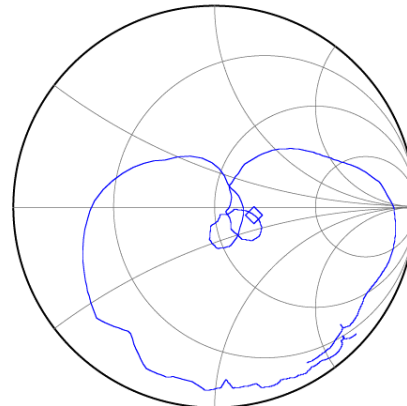
**Typical Performance (at +25°C)**



**Input Smith Chart**

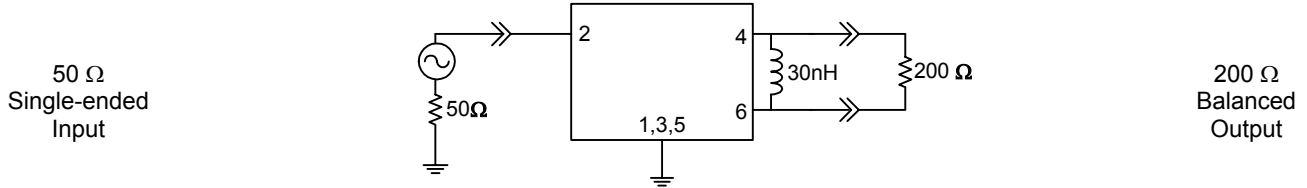


**Output Smith Chart**

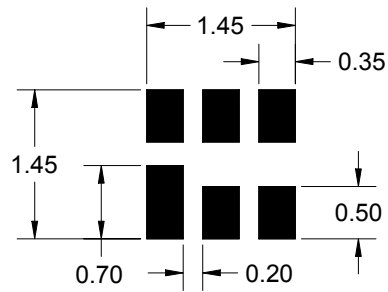
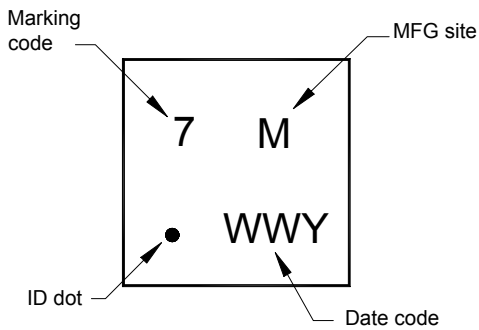


**Data Sheet**

**Matching Schematics**



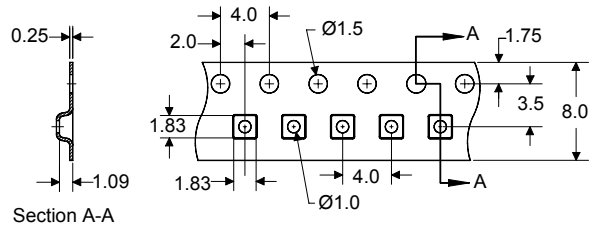
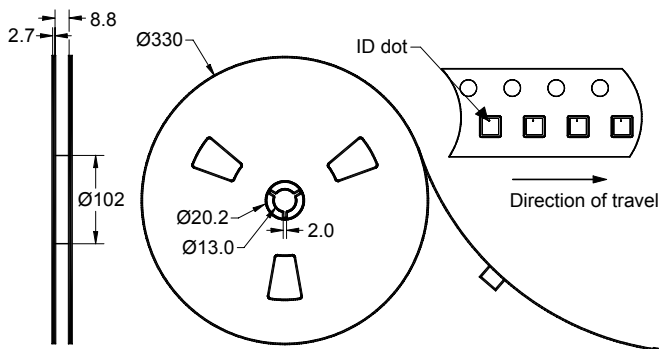
**Marking PCB Footprint**



The date code consists of: WW = 2 digit week, 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: 10000 units/reel

# Data Sheet

## Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-25	+80	°C
Storage Temperature Range	T <sub>stg</sub>	-40	+85	°C

### Warnings

- Electrostatic Sensitive Device (ESD)
- Avoid ultrasonic exposure



### Material Content

- Does not contain lead (Pb) or other RoHS restricted materials

## Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[Other Technical Information](#)

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