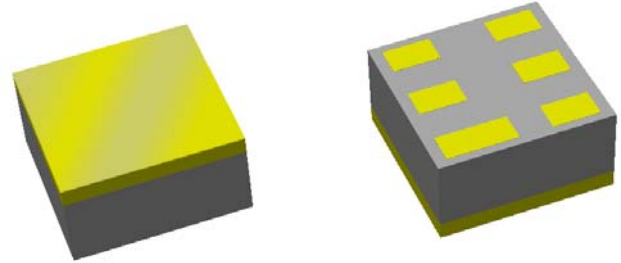


Data Sheet

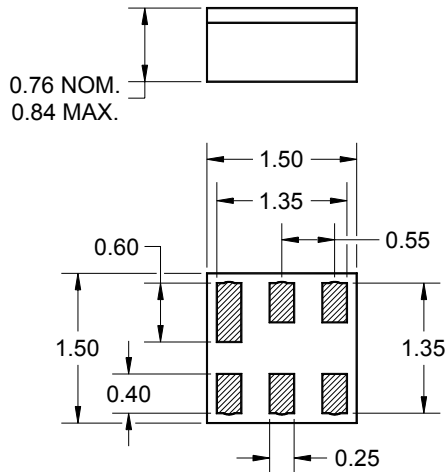
Features

- For GSM-1900 applications
- Usable bandwidth of 60 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

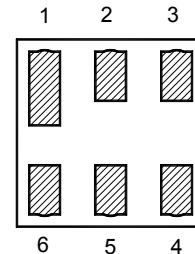


Dimensions shown are nominal in millimeters
 All tolerances are $\pm 0.10\text{mm}$

Body: 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
2	Input
4,6	Output
1,3,5	Case ground

Data Sheet

Electrical Specifications ⁽¹⁾

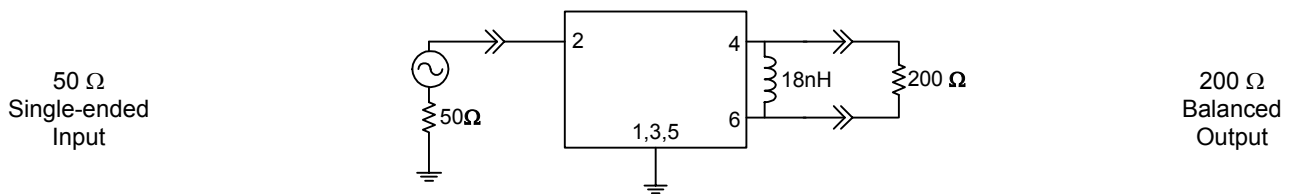
Operating Temperature Range: ⁽²⁾ +25 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	1960	-	MHz
Maximum Insertion Loss 1930 - 1990 MHz	-	1.5	2.1	dB
Absolute Attenuation				
100 - 1830 MHz	25	35	-	dB
1830 - 1902 MHz	10	17	-	dB
1902 - 1910 MHz	7	10	-	dB
2010 - 2030 MHz	5	6.5	-	dB
2030 - 2070 MHz	10	15	-	dB
2070 - 3000 MHz	16	18	-	dB
3000 - 5790 MHz	30	40	-	dB
5790 - 6000 MHz	35	40	-	dB
Output Amplitude Balance (S_{31}/S_{21}) 1930 - 1990 MHz	-1.5	1.3	1.5	dB
Output Phase Balance [$\Phi(S_{31})-\Phi S_{21}+180$] 1930 - 1990 MHz	-10	2	10	degree
Input/Output VSWR 1930 - 1990 MHz	-	2.0	2.5	-
Source Impedance ⁽⁴⁾	-	50	-	Ω
Load Impedance (Balanced) ⁽⁴⁾	-	200 18nH	-	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 ⁽¹⁾

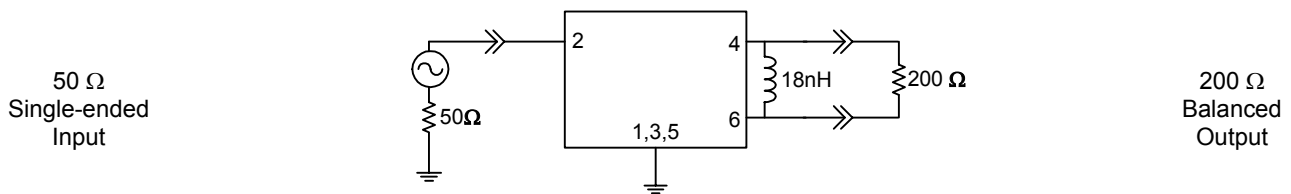
Operating Temperature Range: ⁽²⁾ -10 to +80 °C

Parameter ⁽³⁾	Minimum	Typical	Maximum	Unit
Center Frequency	-	1960	-	MHz
Maximum Insertion Loss 1930 - 1990 MHz	-	1.5	2.3	dB
Absolute Attenuation				
100 - 1830 MHz	25	35	-	dB
1830 - 1902 MHz	10	17	-	dB
1902 - 1910 MHz	6	10	-	dB
2010 - 2030 MHz	5	6.5	-	dB
2030 - 2070 MHz	10	15	-	dB
2070 - 3000 MHz	16	18	-	dB
3000 - 5790 MHz	30	40	-	dB
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Output Phase Balance [$\Phi(S_{31})-\Phi S_{21}+180$] 1930 - 1990 MHz	-10	2	10	degree
Input/Output VSWR 1930 - 1990 MHz	-	2.0	2.5	-
Source Impedance ⁽⁴⁾	-	50	-	Ω
Load Impedance (Balanced) ⁽⁴⁾	-	200 18nH	-	Ω

Notes:

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2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
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Test Circuit:



Data Sheet

Electrical Specifications ⁽¹⁾

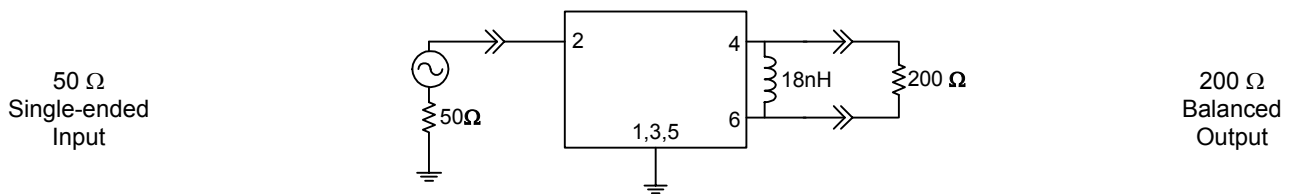
Operating Temperature Range: ⁽²⁾ -25 to +80 °C

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Source Impedance ⁽⁴⁾	-	50	-	Ω
Load Impedance (Balanced) ⁽⁴⁾	-	200 18nH	-	Ω

Notes:

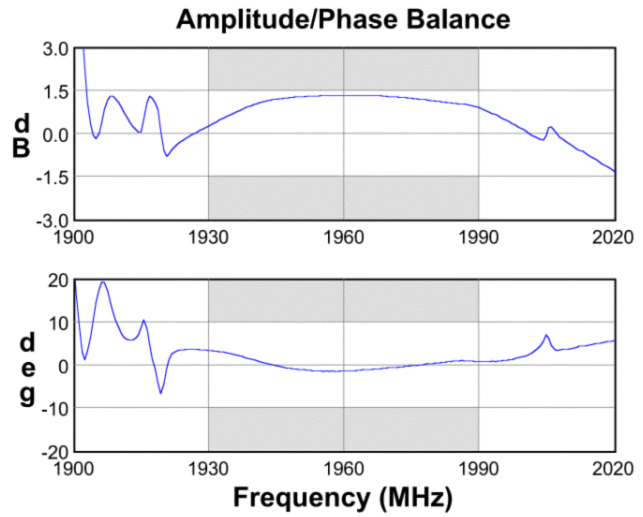
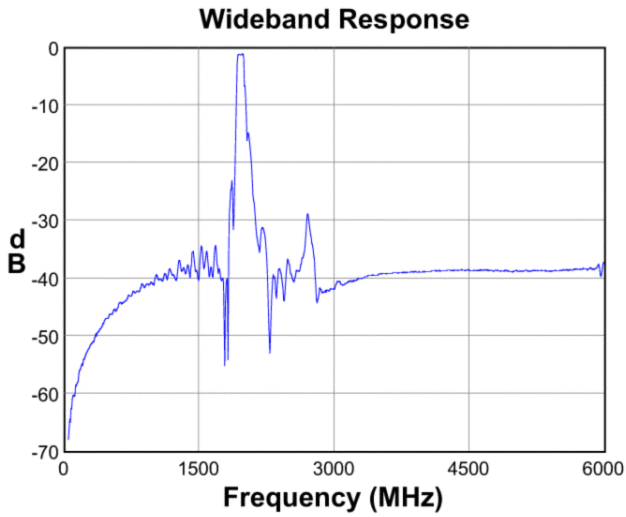
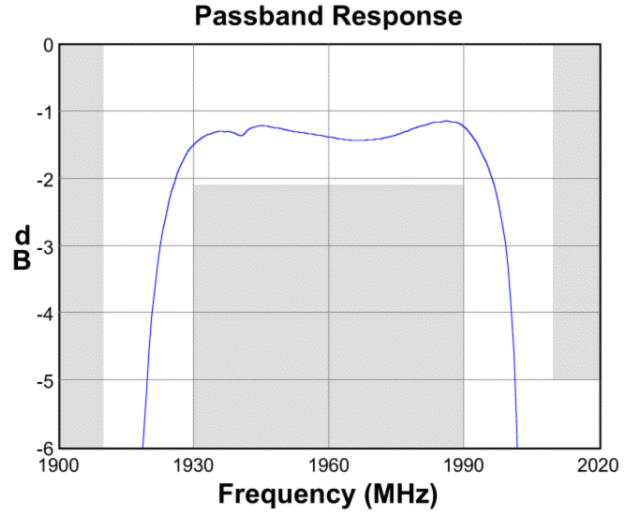
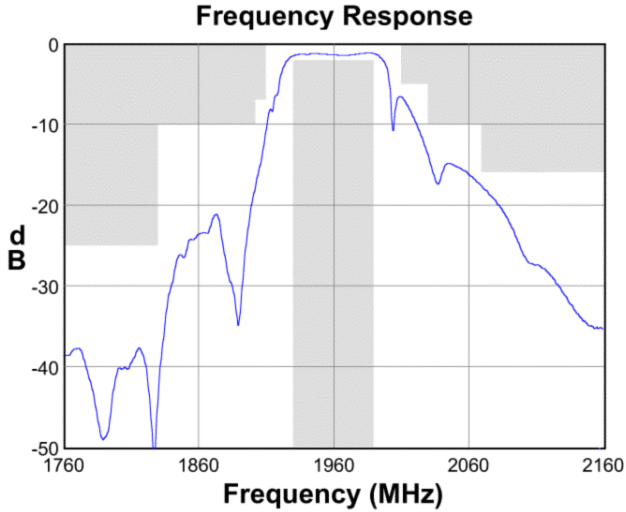
1. All specifications are based on the test circuit shown below
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
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Test Circuit:

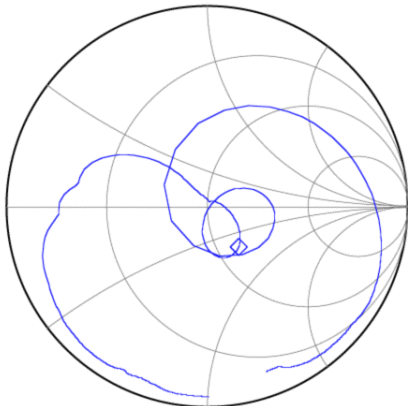


Data Sheet

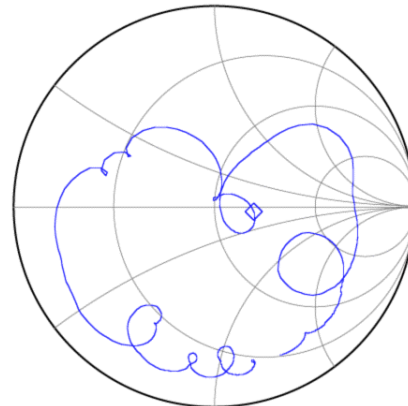
Typical Performance (at +25°C)



Input Smith Chart

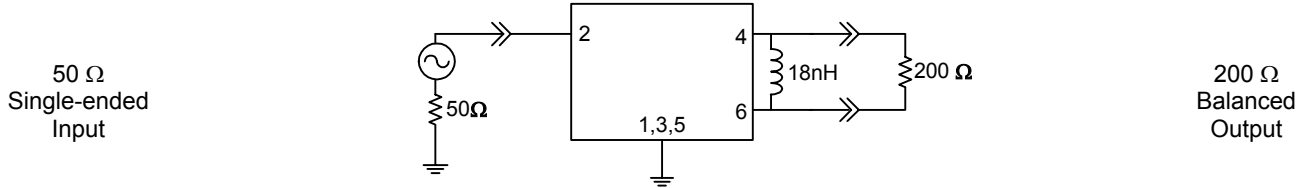


Output Smith Chart

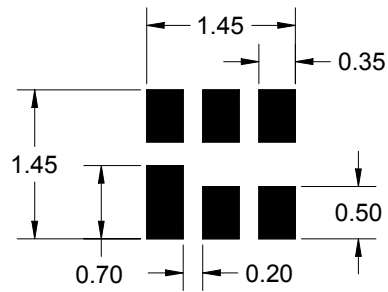
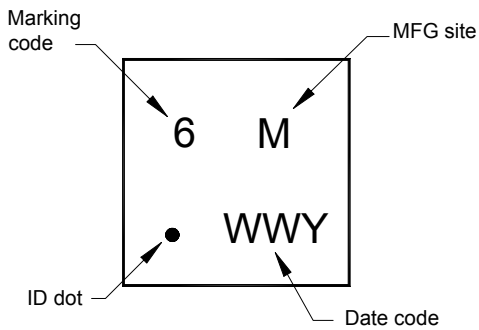


Data Sheet

Matching Schematics



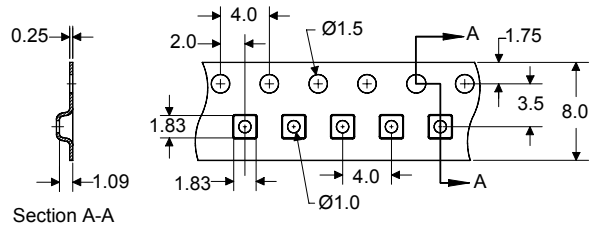
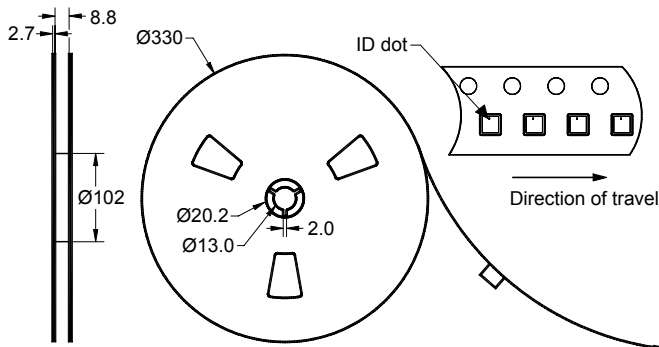
Marking PCB Footprint



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 _{stg}	-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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 Network of [sales offices](#),
[Representatives or distributors](#)