



STB7102

0.5/2.5 GHz UHF LO BUFFER AMPLIFIER

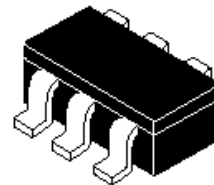
- OPERATING FREQUENCY 500-2500MHz
- LOW CURRENT CONSUMPTION
- EXCELLENT ISOLATION
- ULTRA MINIATURE SOT323-6L PACKAGE

APPLICATIONS

- BUFFER AMPLIFIER FOR 0.5/2.5 GHz APPLICATIONS
- CDMA/PCS LO BUFFER AMPLIFIER

DESCRIPTION

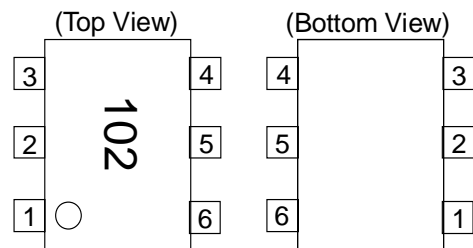
The STB7102, designed for RF Mobile Phone applications (0.5/2.5GHz), is an high isolation Local Oscillator Buffer Amplifier. Manufactured in the third generation of ST proprietary bipolar process, it offers an excellent isolation and a good linearity using only 4mA current consumption. The STB7102 is housed in an ultra miniature package SOT323-6L surface mount package.



SOT323-6L (SC70)

ORDER CODE
STB7102TR

BRANDING
102



PIN CONNECTION

| Pin No. | Pin Name |
|---------|----------|
| 1 | INPUT |
| 2 | GND |
| 3 | GND |
| 4 | OUTPUT |
| 5 | GND |
| 6 | VCC |

ABSOLUTE MAXIMUM RATINGS

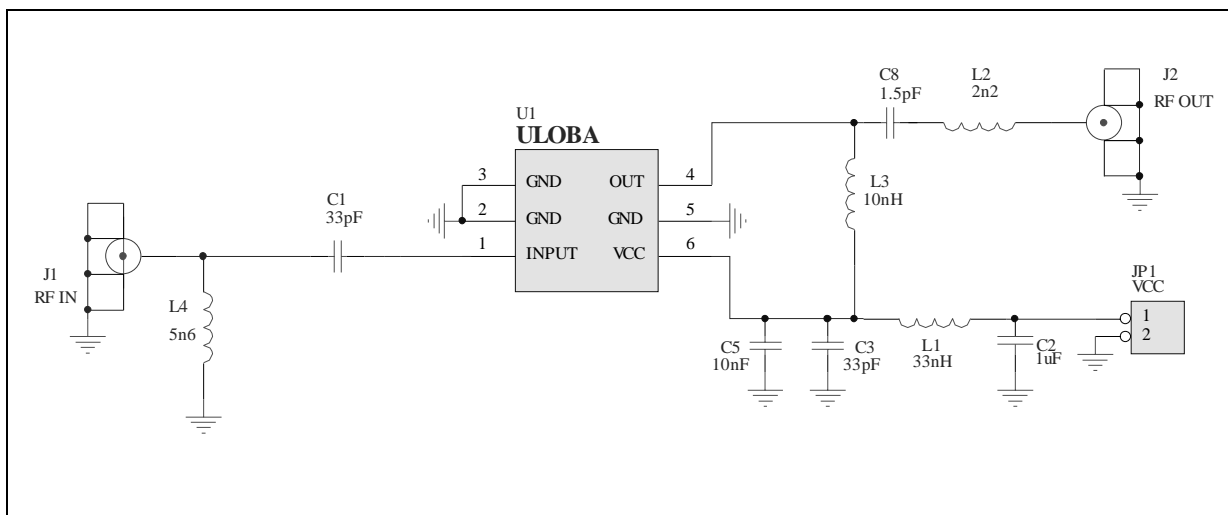
| Symbol | Parameter | Conditions | Value | Unit |
|------------------|-------------------------------|------------|-------------|------|
| V _{cc} | Supply voltage | | 3.3 | V |
| T _{stg} | Storage temperature | | -40 to +100 | °C |
| T _a | Operating ambient temperature | | -30 to +85 | °C |

ELECTRICAL CHARACTERISTICS (CELL BAND)

($T_a = +25^{\circ}\text{C}$, $V_{cc} = 2.7\text{V}$, $Z_s = Z_L = 50\Omega$, tested in circuit shown in fig.1, unless otherwise specified)

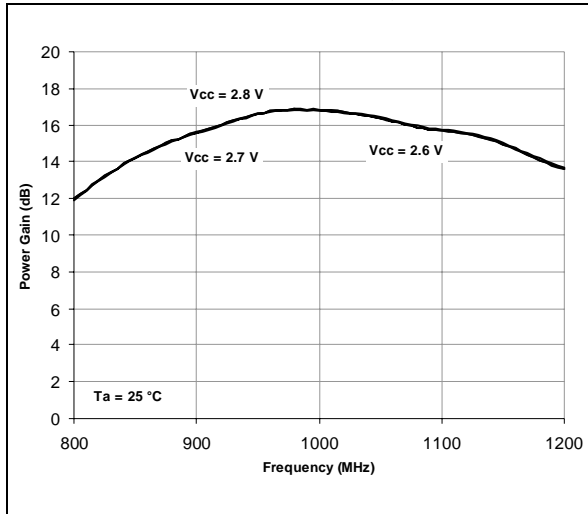
| Symbol | Parameters | Test Conditions | Min | Typ | Max | Unit |
|--------|---------------------------------------|-----------------|-----|------|------|------|
| Freq. | Frequency Range | | 990 | | 1030 | MHz |
| Vcc | Supply Voltage | | 2.6 | 2.7 | 2.8 | V |
| Icc | Current Consumption | | 3.3 | 4.3 | 5.3 | mA |
| P1dB | Output Power at 1dB Compression Point | F = 1010 MHz | | -2 | | dBm |
| Gp | Power Gain | F = 1010 MHz | | 16.7 | | dB |
| NF | Noise Figure | F = 1010 MHz | | 2.7 | | dB |
| Isol. | Reverse Isolation | F = 1010 MHz | | 45 | | dB |
| RLin | Input Return Loss | F = 1010 MHz | | 30 | | dB |
| RLout | Output Return Loss | F = 1010 MHz | | 17.8 | | dB |

Figure 1 Cell Band Application Circuit Configuration

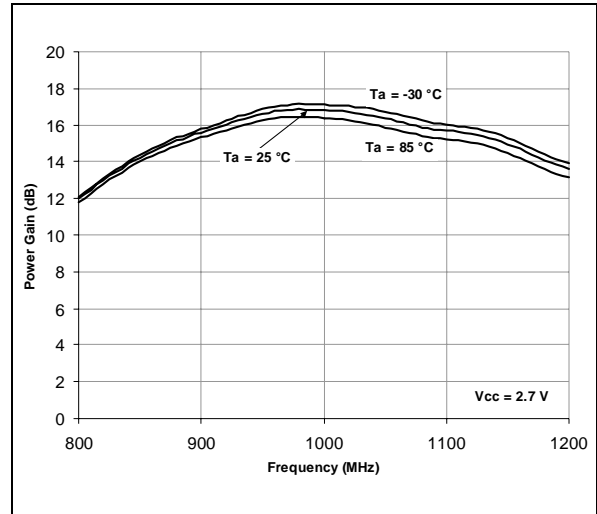


TYPICAL PERFORMANCE (CELL BAND)

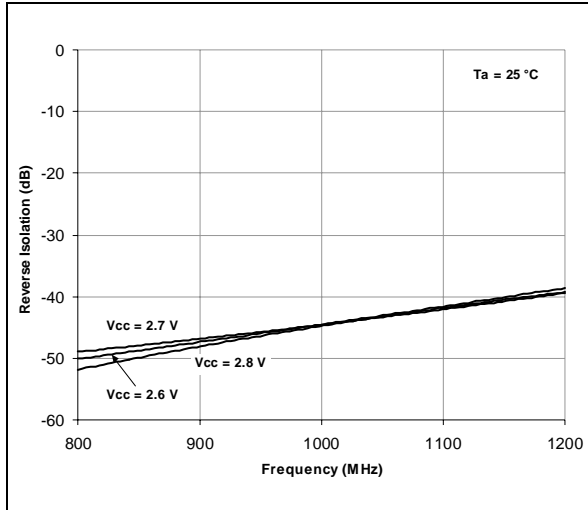
Power Gain vs. Frequency and Voltage



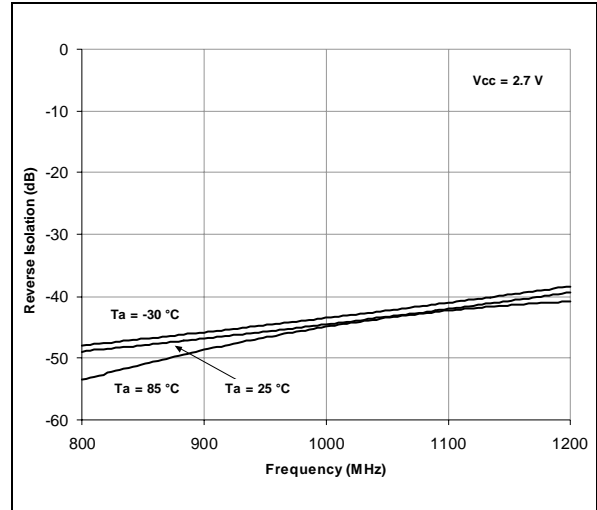
Power Gain vs. Frequency and Temperature



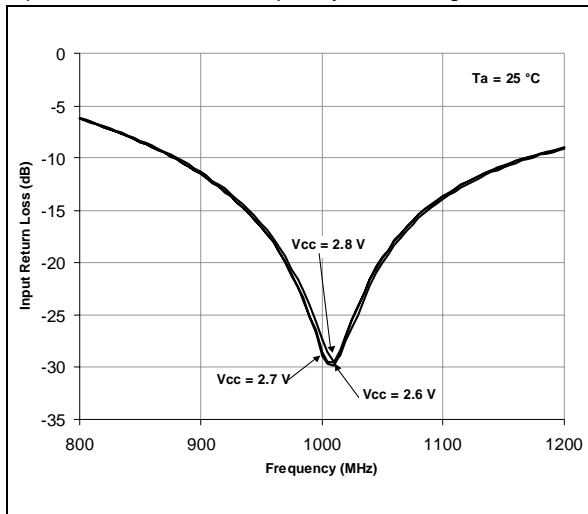
Reverse Isolation vs. Frequency and Voltage



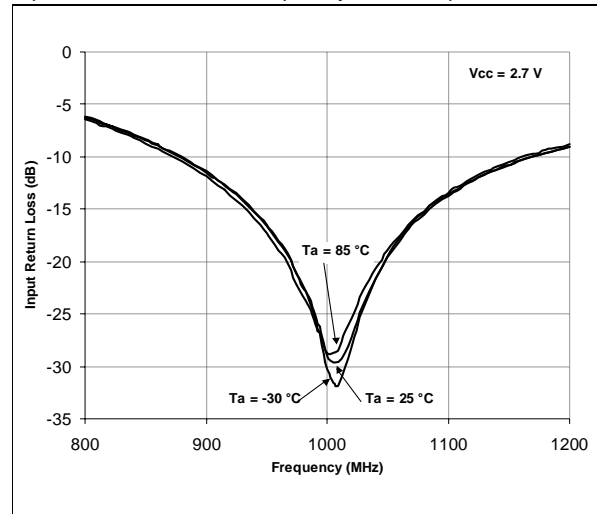
Reverse Isolation vs. Frequency and Temperature



Input Return Loss vs. Frequency and Voltage



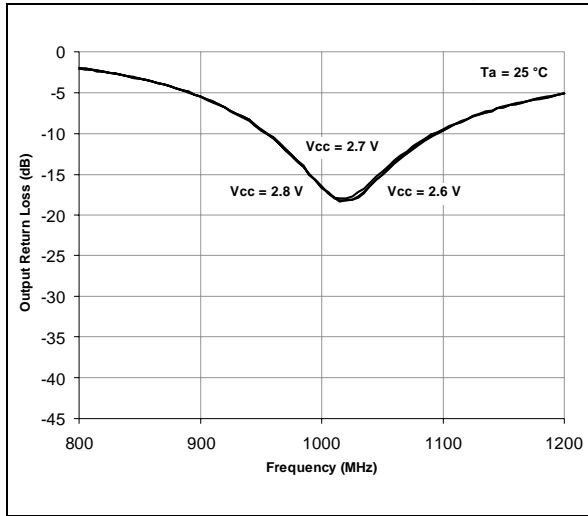
Input Return Loss vs. Frequency and Temperature



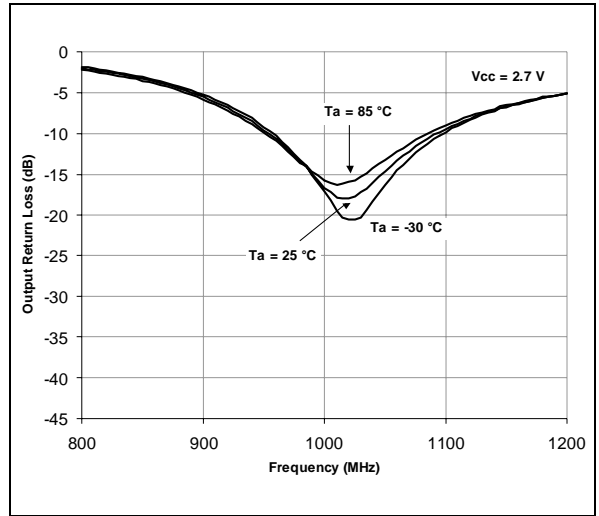
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TYPICAL PERFORMANCE (CELL BAND)

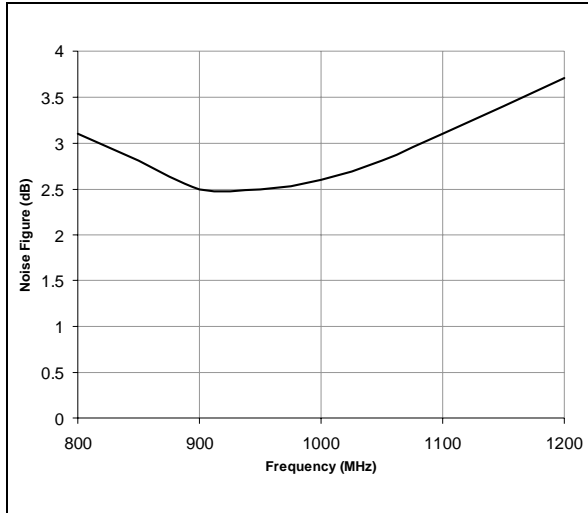
Output Return Loss vs. Frequency and Voltage



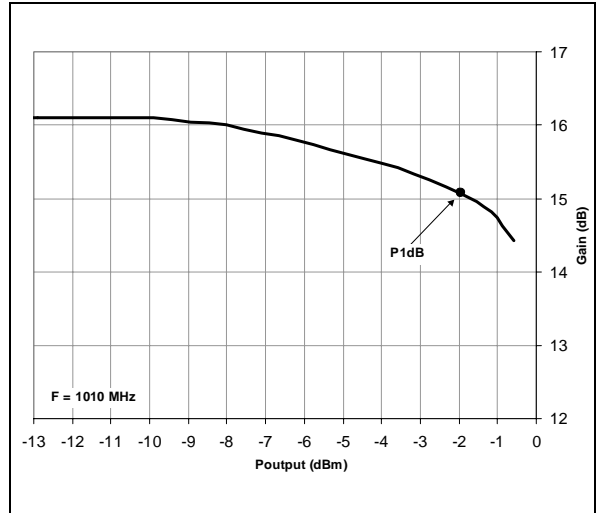
Output Return Loss vs. Frequency and Temperature



Noise Figure vs. Frequency



Output Power @ 1dB compression point

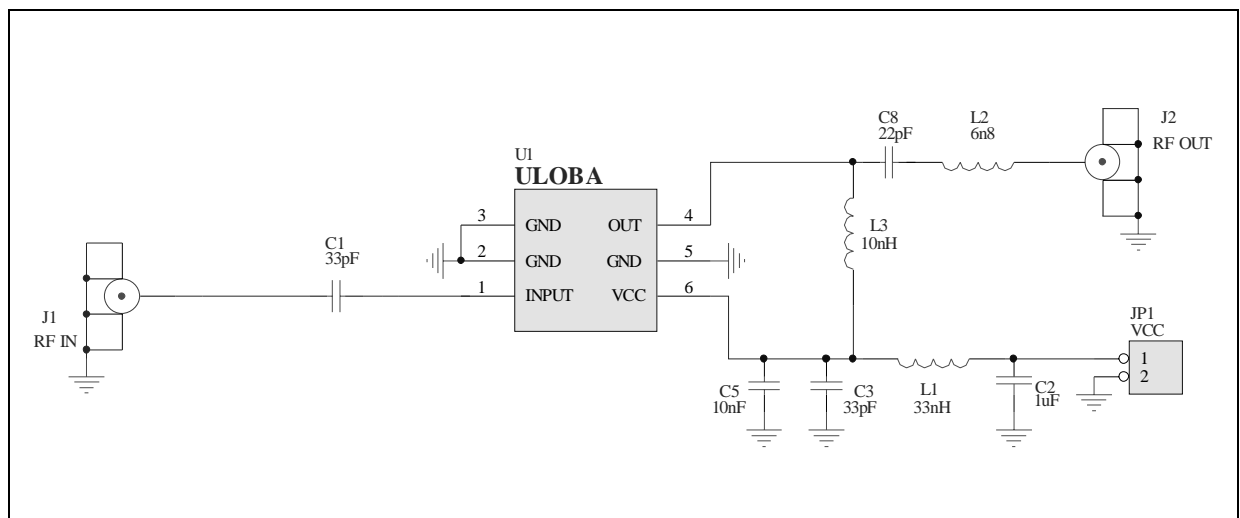


ELECTRICAL CHARACTERISTICS (PCS BAND)

($T_a = +25^{\circ}\text{C}$, $V_{cc} = 2.7\text{V}$, $Z_s = Z_L = 50\Omega$, tested in circuit shown in fig.2, unless otherwise specified)

| Symbol | Parameters | Test Conditions | Min | Typ | Max | Unit |
|--------|---------------------------------------|-----------------|------|-----|------|------|
| Freq. | Frequency Range | | 2040 | | 2135 | MHz |
| Vcc | Supply Voltage | | 2.6 | 2.7 | 2.8 | V |
| Icc | Current Consumption | | 3.3 | 4.3 | 5.3 | mA |
| P1dB | Output Power at 1dB Compression Point | F = 2085 MHz | | -1 | | dBm |
| Gp | Power Gain | F = 2085 MHz | | 10 | | dB |
| NF | Noise Figure | F = 2085 MHz | | 5 | | dB |
| Isol. | Reverse Isolation | F = 2085 MHz | | 41 | | dB |
| RLin | Input Return Loss | F = 2085 MHz | | 17 | | dB |
| RLout | Output Return Loss | F = 2085 MHz | | 24 | | dB |

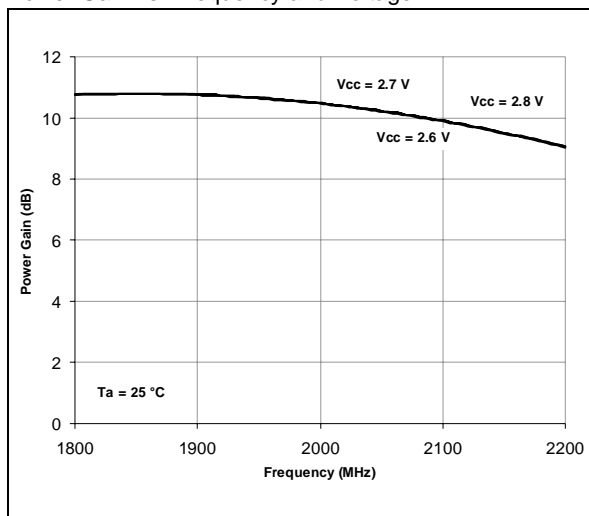
Figure 2 PCS Band Application Circuit Configuration



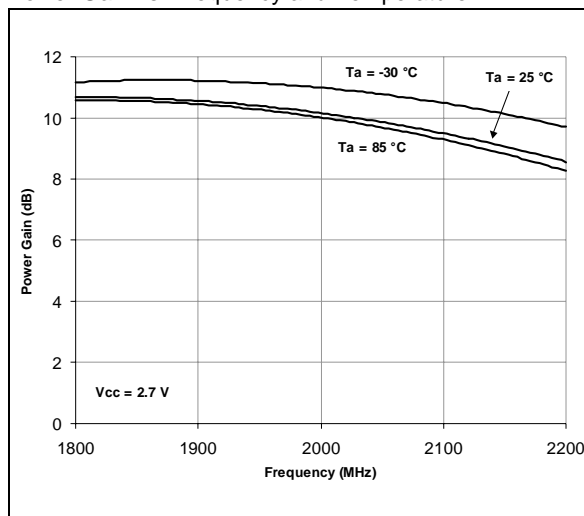
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TYPICAL PERFORMANCE (PCS BAND)

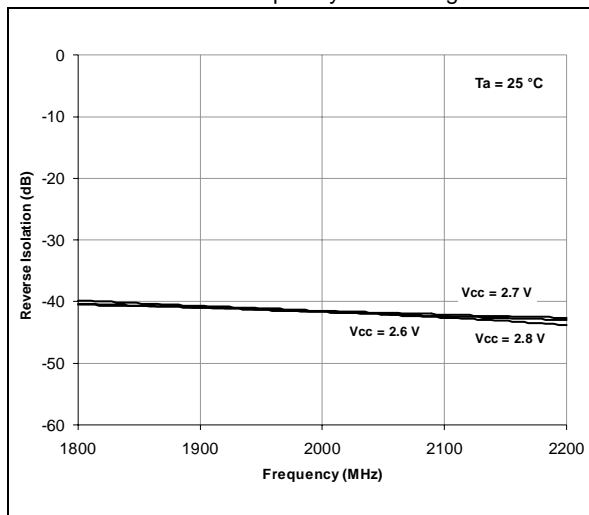
Power Gain vs. Frequency and Voltage



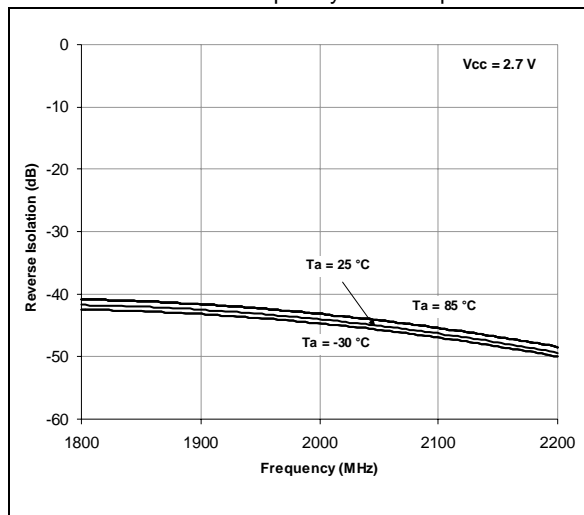
Power Gain vs. Frequency and Temperature



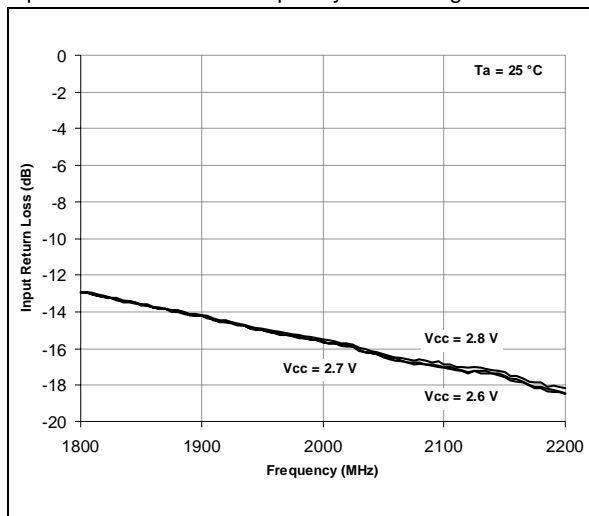
Reverse Isolation vs. Frequency and Voltage



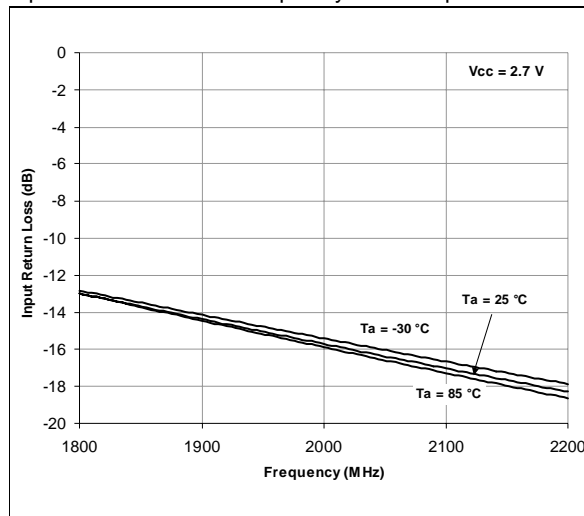
Reverse Isolation vs. Frequency and Temperature



Input Return Loss vs. Frequency and Voltage

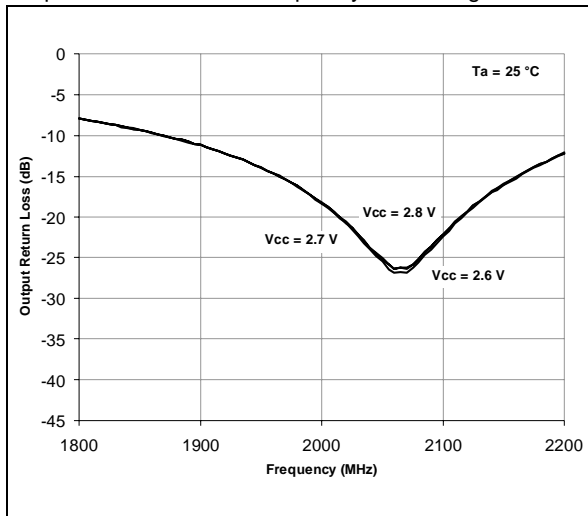


Input Return Loss vs. Frequency and Temperature

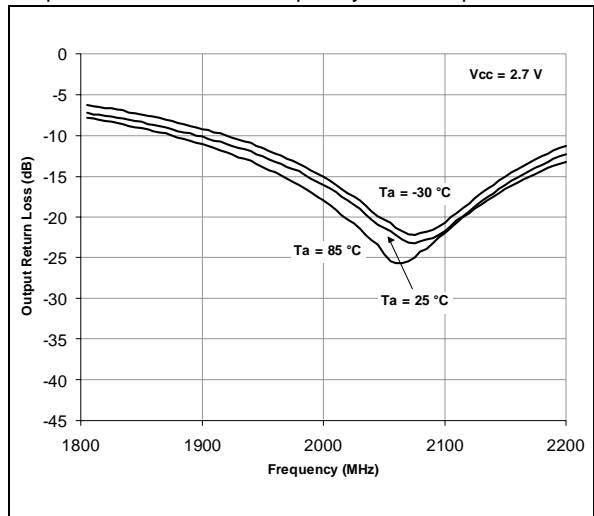


TYPICAL PERFORMANCE (PCS BAND)

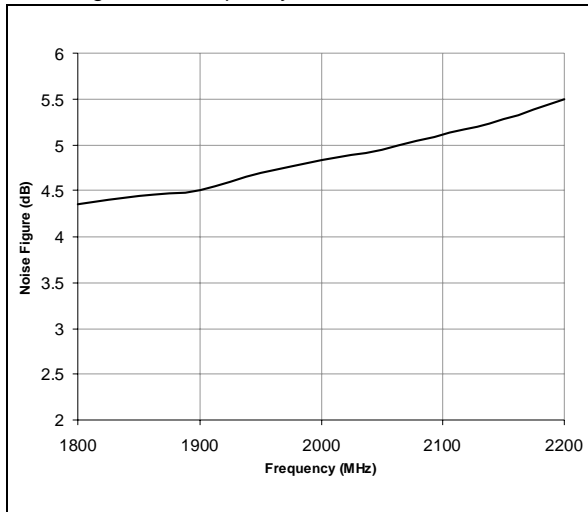
Output Return Loss vs. Frequency and Voltage



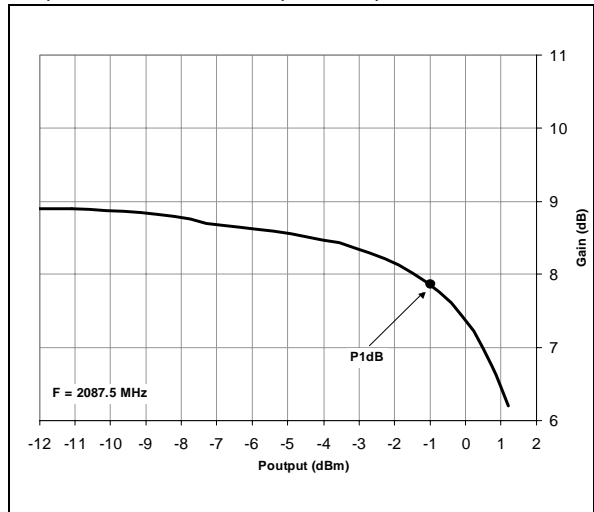
Output Return Loss vs. Frequency and Temperature



Noise Figure vs. Frequency

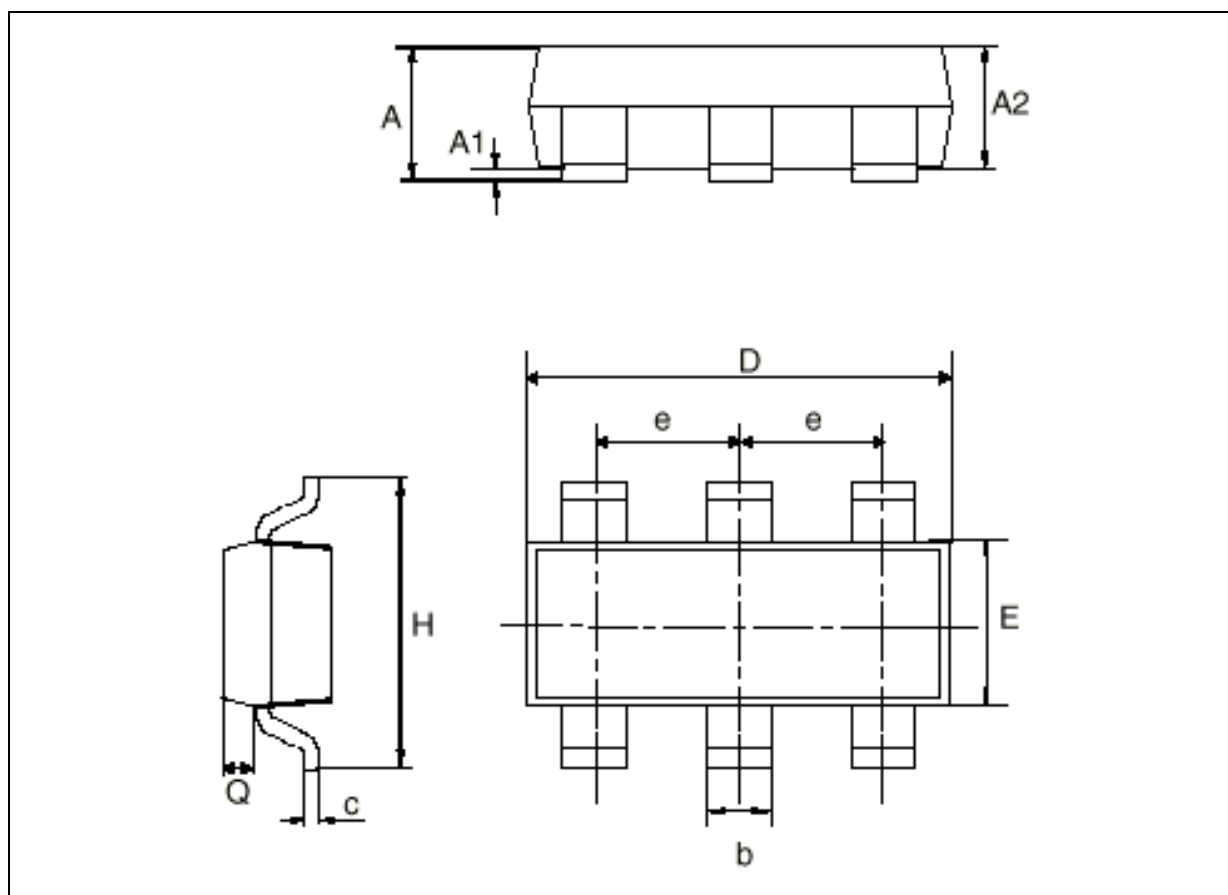


Output Power @ 1dB compression point



SOT323-6L MECHANICAL DATA

| DIM. | mm | | | Inch | | |
|------|------|------|------|--------|-------|-------|
| | MIN. | TYP. | MAX | MIN. | TYP. | MAX |
| A | 0.8 | | 1.1 | 0.031 | | 0.043 |
| A1 | 0 | | 0.1 | 0 | | 0.004 |
| A2 | 0.8 | | 1 | 0.0031 | | 0.039 |
| b | 0.15 | | 0.3 | 0.006 | | 0.012 |
| c | 0.1 | | 0.18 | 0.004 | | 0.007 |
| D | 1.8 | | 2.2 | 0.071 | | 0.088 |
| E | 1.15 | | 1.35 | 0.045 | | 0.59 |
| e | | 0.65 | | | 0.025 | |
| H | 1.8 | | 2.4 | 0.071 | | 0.094 |
| Q | 0.1 | | 0.4 | 0.004 | | 0.016 |



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