

# Power Detector

50Ω, -50dBm to +15dBm, 10 to 8000 MHz

**ZX47-50+**  
**ZX47-50LN+**

## Maximum Ratings

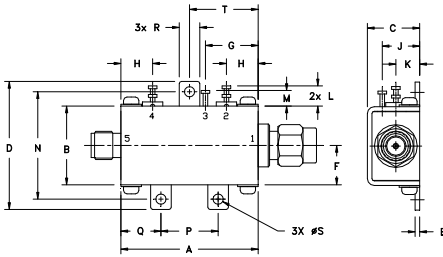
|                            |                |
|----------------------------|----------------|
| Operating Temperature      | -40°C to 85°C  |
| Storage Temperature        | -55°C to 100°C |
| DC Power:                  |                |
| Max. voltage               | 5.7V           |
| Max. current               | 120mA          |
| Internal Power Dissipation | 0.73W          |
| Input Power                | +22dBm         |

Permanent damage may occur if any of these limits are exceeded.

## Coaxial Connections

|                    |   |
|--------------------|---|
| RF IN              | 1 |
| DC OUT             | 5 |
| Vcc (+5V)          | 2 |
| TEMPERATURE SENSOR | 4 |
| GROUND             | 3 |

## Outline Drawing



**NOTE:** When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note [AN-40-10](#).

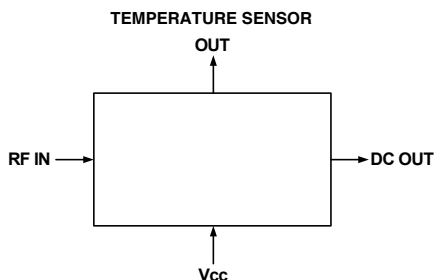
## Outline Dimensions (inch/mm)

|       |       |       |       |      |      |       |      |      |      |
|-------|-------|-------|-------|------|------|-------|------|------|------|
| A     | B     | C     | D     | E    | F    | G     | H    | J    | K    |
| 1.20  | .69   | .46   | 1.12  | .04  | .34  | .46   | .28  | .33  | .21  |
| 30.48 | 17.53 | 11.68 | 28.45 | 1.02 | 8.64 | 11.68 | 7.11 | 8.38 | 5.33 |

|      |      |       |       |      |      |      |       |       |
|------|------|-------|-------|------|------|------|-------|-------|
| L    | M    | N     | P     | Q    | R    | S    | T     | wt.   |
| .18  | .14  | .94   | .50   | .35  | .18  | .106 | .60   | grams |
| 4.57 | 3.56 | 23.88 | 12.70 | 8.89 | 4.57 | 2.69 | 15.24 | 31.8  |

## Simplified Functional Diagram



## Features

- Low Noise (Output Ripple) for ZX47-50LN+, 20mVp-p Typ. @ 10MHz
- High Dynamic Range
- Wide Bandwidth
- Single Supply Voltage: +5V
- Stability Over Temperature
- Built-in Temperature Sensor
- Protected by US patent 6,790,049

## Applications

- RF/IF Power Measurements
- Low Cost Power Monitoring System
- RF Leakage Monitors
- Fast feedback Levelling Circuits
- RF Power Control
- Receiver RF/IF Gain Control
- RSSI measurements



CASE STYLE: HN1173

| Connectors | Model        |
|------------|--------------|
| SMA        | ZX47-50-S+   |
| SMA        | ZX47-50LN-S+ |

## +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

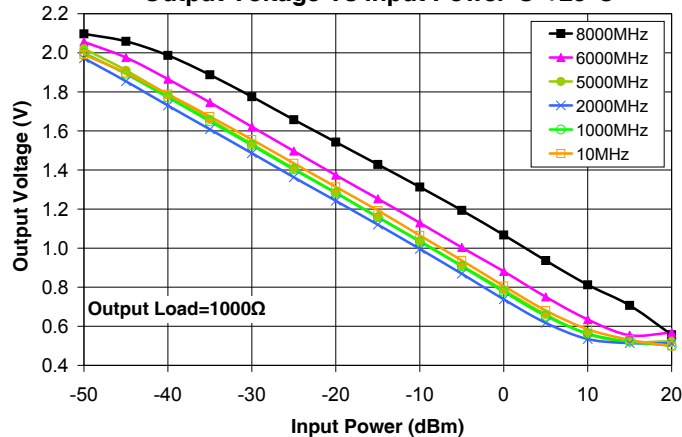
## Electrical Specifications (T<sub>AMB</sub> = 25°C)

| FREQ.<br>(MHz) |      | DYNAMIC<br>RANGE AT<br>±1dB<br>ERROR<br>(dBm) | OUTPUT<br>VOLT.<br>RANGE<br>(V) | SLOPE<br>(mV/dB)<br>(Note 1) | VSWR<br>(:1) | PULSE<br>RESPONSE<br>TIME<br>(nSec)<br>Typ. |    |                         |     | TEMP.<br>SENSOR<br>OUTPUT<br>SLOPE<br>(mV/°C)<br>(Note 2) | DC<br>OPERATING<br>POWER |      |                           |      |
|----------------|------|-----------------------------------------------|---------------------------------|------------------------------|--------------|---------------------------------------------|----|-------------------------|-----|-----------------------------------------------------------|--------------------------|------|---------------------------|------|
| Min.           | Max. | Typ.                                          | Typ.                            | Typ.                         | Typ.         | ZX47-50+<br>Rise Fall                       |    | ZX47-50LN+<br>Rise Fall |     | Typ.                                                      | Vcc<br>(Volts)           |      | Note 3<br>Current<br>(mA) |      |
|                |      |                                               |                                 |                              |              |                                             |    |                         |     |                                                           | Min.                     | Typ. | Max.                      | Typ. |
| 10             | 1000 | -45 to +10                                    | 0.50 - 2.10                     | -25                          | 1.05         | 400                                         | 10 | 800                     | 400 | 2.00                                                      | 4.5                      | 5.0  | 5.5                       | 100  |
| 1000           | 5000 | -50 to +5                                     |                                 |                              | 1.20         |                                             |    |                         |     |                                                           |                          |      |                           |      |
| 5000           | 6000 | -45 to +10                                    |                                 |                              | 1.30         |                                             |    |                         |     |                                                           |                          |      |                           |      |
| 6000           | 8000 | -40 to +15                                    |                                 |                              | 1.20         |                                             |    |                         |     |                                                           |                          |      |                           |      |

Notes:

1. The negative slope indicates that Output Voltage decreases as Input Power increases. See "Output Voltage vs Input Power" graph below.
2. Temperature sensor output provides a DC Output Voltage which increases linearly with temperature rise. Recommended minimum load for this port is 2 kΩ.
3. Recommended minimum load at DC out port is 100 Ω. See maximum ratings for no damage.

## Output Voltage Vs Input Power @ +25°C



## Notes

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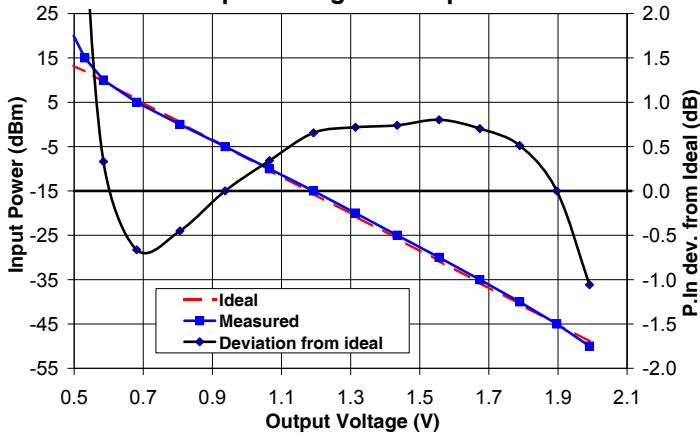


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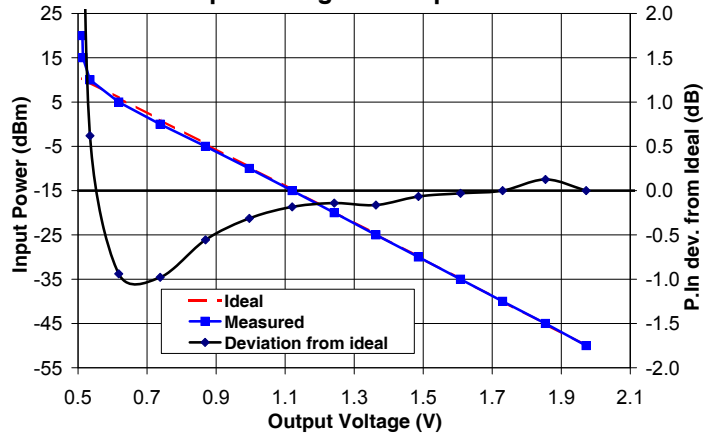
# Performance Curves

ZX47-50+  
ZX47-50LN+

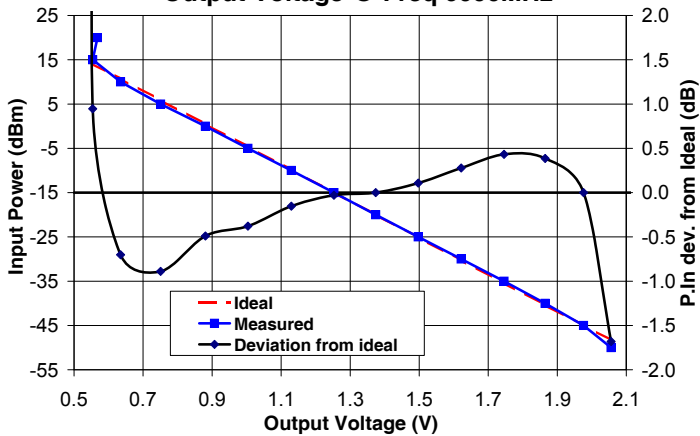
Power Input Deviation from Ideal Vs  
Output Voltage @ Freq 10MHz



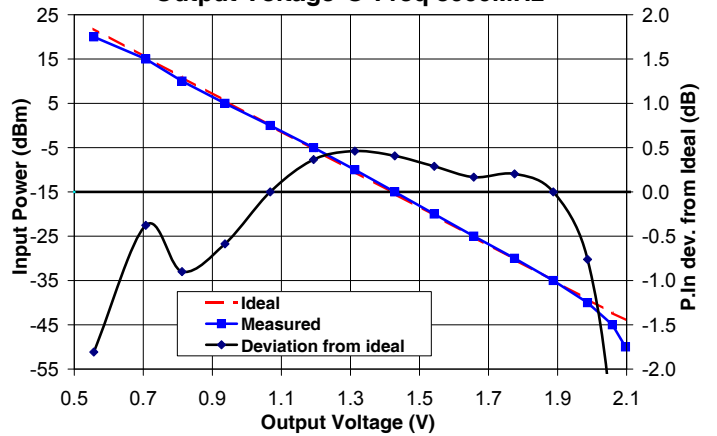
Power Input Deviation from Ideal Vs  
Output Voltage @ Freq 2000MHz



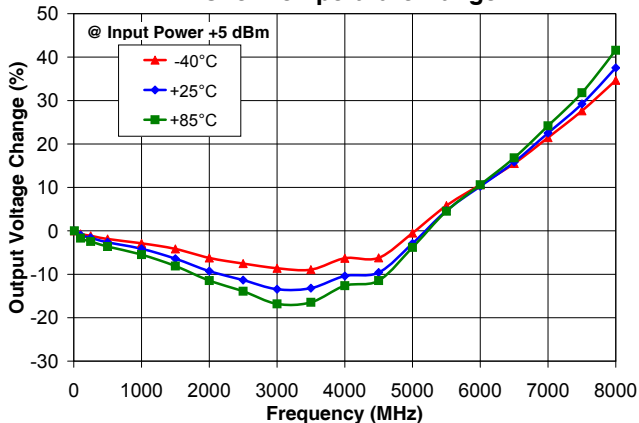
Power Input Deviation from Ideal Vs  
Output Voltage @ Freq 6000MHz



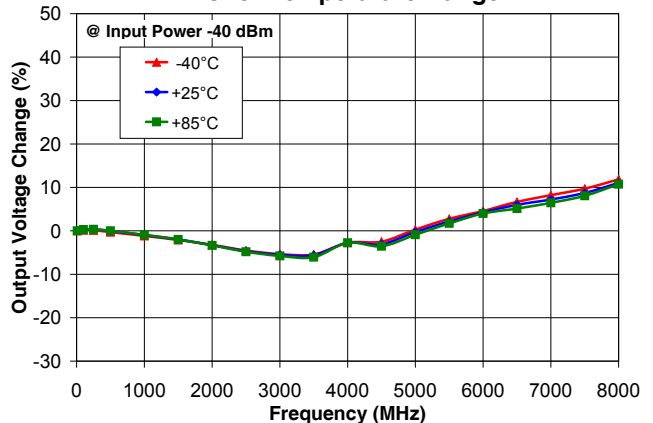
Power Input Deviation from Ideal Vs  
Output Voltage @ Freq 8000MHz



Output Voltage Change Vs Freq  
Over Temperature Range



Output Voltage Change Vs Freq  
Over Temperature Range



## Notes

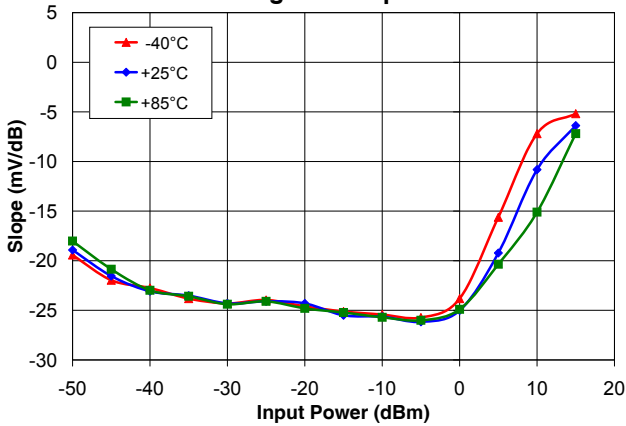
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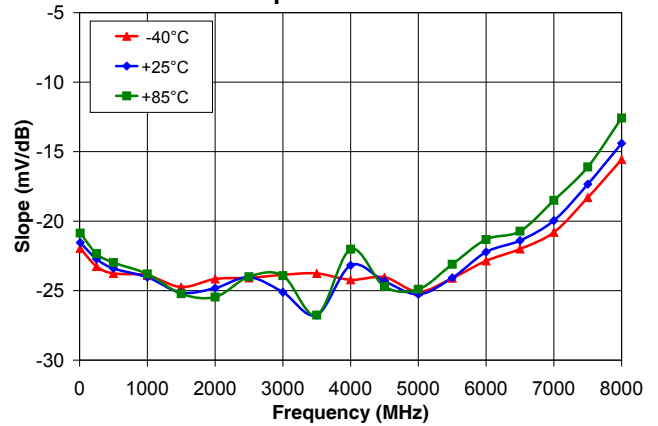
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ZX47-50+  
ZX47-50LN+

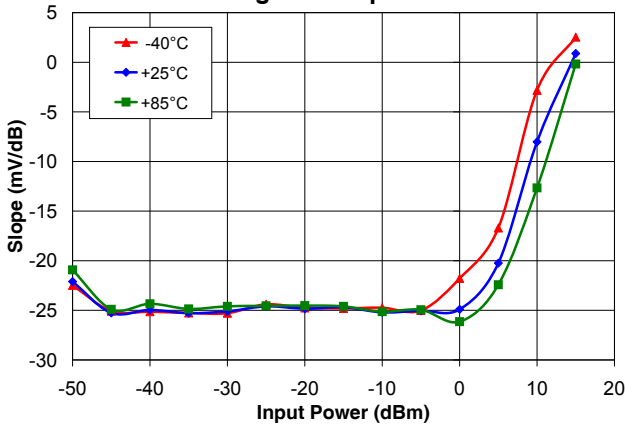
**Slope Vs Input Power Over Temperature Range @ Freq 10MHz**



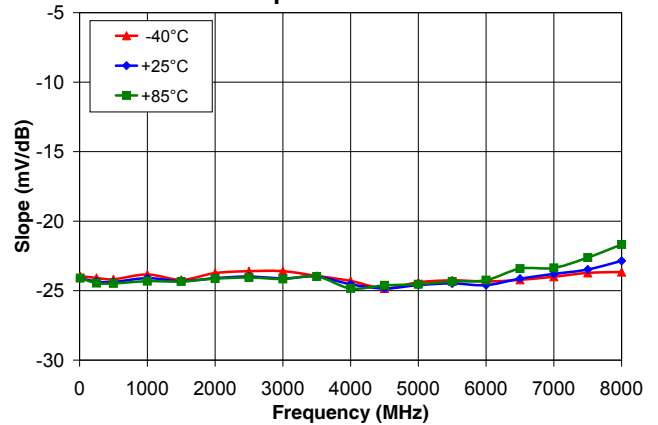
**Slope Vs Freq Over Temperature Range @ Input Power -45dBm**



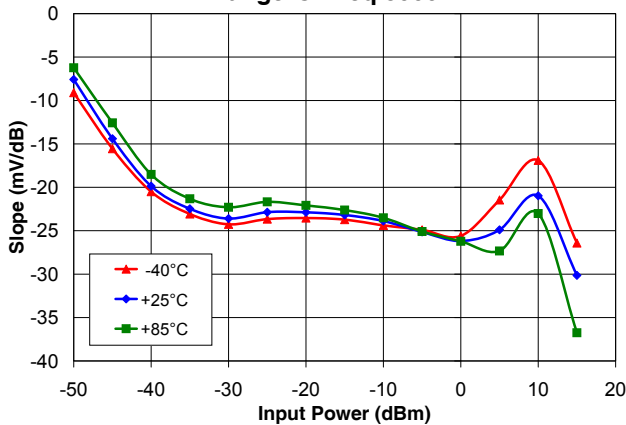
**Slope Vs Input Power Over Temperature Range @ Freq 5000MHz**



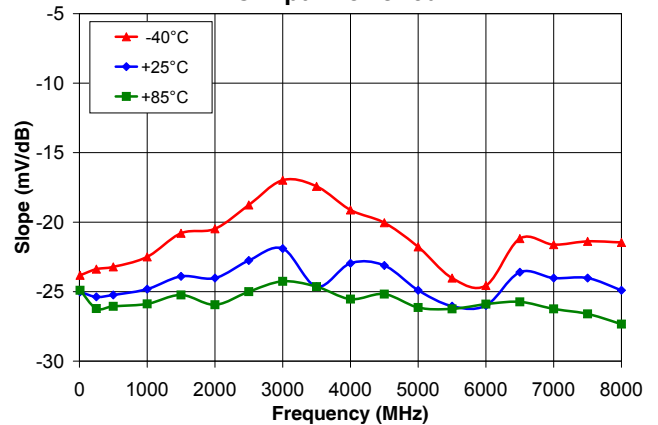
**Slope Vs Freq Over Temperature Range @ Input Power -25dBm**



**Slope Vs Input Power Over Temperature Range @ Freq 8000MHz**



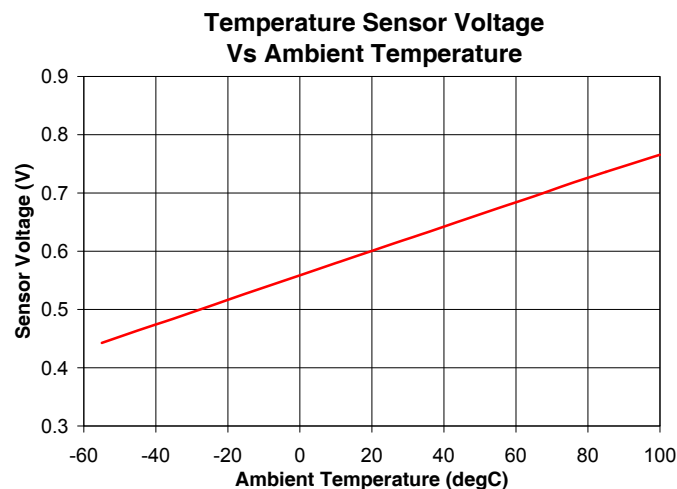
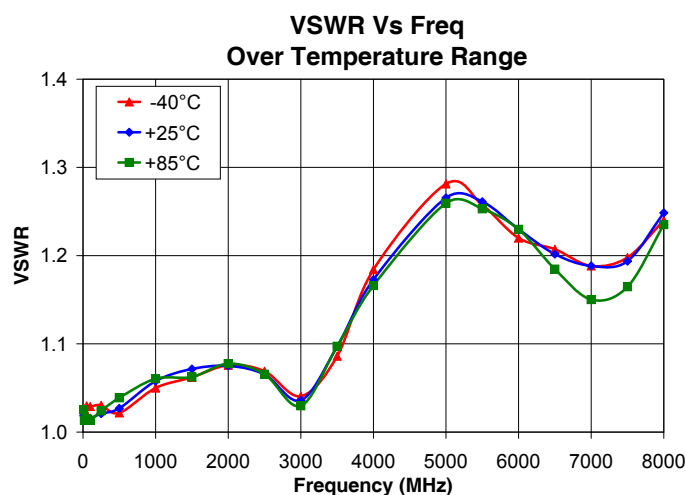
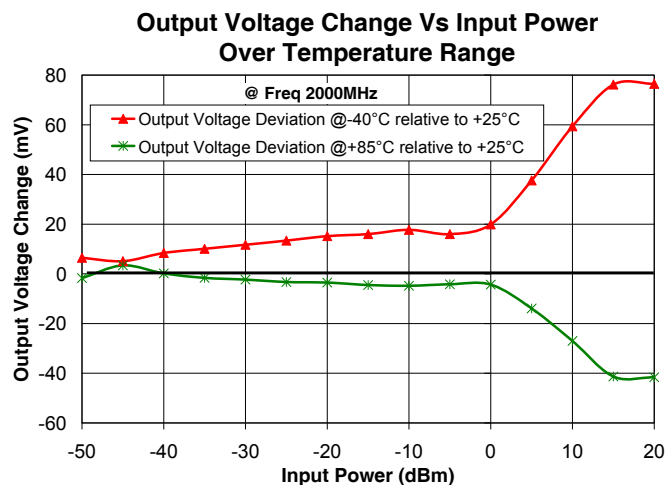
**Slope Vs Freq Over Temperature Range @ Input Power 0dBm**



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# Power Detector

**ZX47-50LN+**

## Typical Performance Data

| Output Voltage vs. Input Power @+25°C |               |                 |                 |                 |                 |                 |
|---------------------------------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| POWER IN<br>(dBm)                     | @10MHz<br>(V) | @1000MHz<br>(V) | @2000MHz<br>(V) | @5000MHz<br>(V) | @6000MHz<br>(V) | @8000MHz<br>(V) |
| -50                                   | 1.98          | 1.99            | 1.97            | 2.00            | 2.04            | 2.08            |
| -45                                   | 1.89          | 1.89            | 1.86            | 1.90            | 1.97            | 2.05            |
| -40                                   | 1.79          | 1.77            | 1.73            | 1.77            | 1.86            | 1.98            |
| -35                                   | 1.68          | 1.65            | 1.61            | 1.65            | 1.74            | 1.89            |
| -30                                   | 1.56          | 1.53            | 1.48            | 1.53            | 1.62            | 1.78            |
| -25                                   | 1.44          | 1.40            | 1.36            | 1.41            | 1.49            | 1.67            |
| -20                                   | 1.32          | 1.28            | 1.24            | 1.28            | 1.37            | 1.56            |
| -15                                   | 1.19          | 1.16            | 1.12            | 1.16            | 1.25            | 1.45            |
| -10                                   | 1.07          | 1.03            | 0.99            | 1.04            | 1.13            | 1.34            |
| -5                                    | 0.94          | 0.90            | 0.87            | 0.91            | 1.01            | 1.22            |
| 0                                     | 0.81          | 0.77            | 0.73            | 0.79            | 0.88            | 1.10            |
| 5                                     | 0.68          | 0.64            | 0.60            | 0.66            | 0.75            | 0.97            |
| 10                                    | 0.58          | 0.54            | 0.51            | 0.54            | 0.63            | 0.83            |
| 15                                    | 0.50          | 0.49            | 0.47            | 0.48            | 0.53            | 0.71            |
| 20                                    | 0.47          | 0.46            | 0.47            | 0.48            | 0.52            | 0.53            |

| Output Voltage Change Vs Freq |                       |       |       |                     |        |        |
|-------------------------------|-----------------------|-------|-------|---------------------|--------|--------|
| FREQ<br>(MHz)                 | @ Input Power -40 dBm |       |       | @ Input Power +5dBm |        |        |
|                               | -40°C                 | +25°C | +85°C | -40°C               | +25°C  | +85°C  |
| 10                            | 0.00                  | 0.00  | 0.00  | 0.00                | 0.00   | 0.00   |
| 100                           | 0.16                  | 0.34  | 0.31  | -0.72               | -0.98  | -1.69  |
| 250                           | 0.14                  | 0.37  | 0.35  | -1.14               | -1.62  | -2.43  |
| 500                           | -0.28                 | -0.03 | 0.01  | -1.87               | -2.63  | -3.62  |
| 1000                          | -1.17                 | -0.97 | -0.92 | -2.88               | -4.14  | -5.47  |
| 1500                          | -2.10                 | -1.99 | -1.97 | -4.15               | -6.40  | -8.11  |
| 2000                          | -3.23                 | -3.30 | -3.36 | -6.24               | -9.28  | -11.45 |
| 2500                          | -4.53                 | -4.66 | -4.83 | -7.54               | -11.34 | -13.91 |
| 3000                          | -5.35                 | -5.51 | -5.78 | -8.63               | -13.44 | -16.82 |
| 3500                          | -5.42                 | -5.61 | -6.07 | -8.93               | -13.20 | -16.45 |
| 4000                          | -2.74                 | -2.78 | -2.73 | -6.31               | -10.40 | -12.62 |
| 4500                          | -2.48                 | -3.07 | -3.55 | -6.22               | -9.59  | -11.45 |
| 5000                          | 0.27                  | -0.27 | -0.89 | -0.52               | -2.91  | -3.81  |
| 5500                          | 2.78                  | 2.17  | 1.71  | 5.82                | 4.63   | 4.50   |
| 6000                          | 4.56                  | 4.24  | 3.99  | 10.60               | 10.23  | 10.62  |
| 6500                          | 6.67                  | 5.99  | 5.13  | 15.52               | 15.83  | 16.82  |
| 7000                          | 8.22                  | 7.22  | 6.45  | 21.46               | 22.53  | 24.18  |
| 7500                          | 9.70                  | 8.72  | 8.07  | 27.64               | 29.22  | 31.80  |
| 8000                          | 11.86                 | 11.06 | 10.72 | 34.66               | 37.53  | 41.57  |



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# Power Detector

**ZX47-50LN+**

## Typical Performance Data

| Sensitivity vs. Input Power @+25°C |                    |        |                     |                    |        |                     |
|------------------------------------|--------------------|--------|---------------------|--------------------|--------|---------------------|
| Measured                           | @10MHz(mV/dB)      |        |                     | @2000MHz(mV/dB)    |        |                     |
|                                    | Output Voltage (V) | Ideal  | Deviation from idea | Output Voltage (V) | Ideal  | Deviation from idea |
| -50                                | 1.99               | -48.94 | -1.06               | 1.97               | -50.00 | 0.00                |
| -45                                | 1.90               | -45.00 | 0.00                | 1.85               | -45.13 | 0.13                |
| -40                                | 1.79               | -40.51 | 0.51                | 1.73               | -40.00 | 0.00                |
| -35                                | 1.67               | -35.70 | 0.70                | 1.61               | -34.97 | -0.03               |
| -30                                | 1.56               | -30.80 | 0.80                | 1.49               | -29.93 | -0.07               |
| -25                                | 1.43               | -25.74 | 0.74                | 1.36               | -24.84 | -0.16               |
| -20                                | 1.31               | -20.72 | 0.72                | 1.24               | -19.86 | -0.14               |
| -15                                | 1.19               | -15.66 | 0.66                | 1.12               | -14.82 | -0.18               |
| -10                                | 1.07               | -10.34 | 0.34                | 1.00               | -9.69  | -0.31               |
| -5                                 | 0.94               | -5.00  | 0.00                | 0.87               | -4.44  | -0.56               |
| 0                                  | 0.81               | 0.45   | -0.45               | 0.74               | 0.98   | -0.98               |
| 5                                  | 0.68               | 5.66   | -0.66               | 0.62               | 5.94   | -0.94               |
| 10                                 | 0.58               | 9.67   | 0.33                | 0.53               | 9.38   | 0.62                |
| 15                                 | 0.53               | 11.92  | 3.08                | 0.51               | 10.22  | 4.78                |
| 20                                 | 0.50               | 13.25  | 6.75                | 0.51               | 10.28  | 9.72                |

| Sensitivity vs. Input Power @+25°C |                    |        |                     |                    |        |                     |
|------------------------------------|--------------------|--------|---------------------|--------------------|--------|---------------------|
| Measured                           | @6000MHz(mV/dB)    |        |                     | @8000MHz(mV/dB)    |        |                     |
|                                    | Output Voltage (V) | Ideal  | Deviation from idea | Output Voltage (V) | Ideal  | Deviation from idea |
| -50                                | 2.06               | -48.32 | -1.68               | 2.10               | -43.93 | -6.07               |
| -45                                | 1.98               | -45.00 | 0.00                | 2.06               | -42.31 | -2.69               |
| -40                                | 1.87               | -40.39 | 0.39                | 1.99               | -39.24 | -0.76               |
| -35                                | 1.75               | -35.43 | 0.43                | 1.89               | -35.00 | 0.00                |
| -30                                | 1.62               | -30.28 | 0.28                | 1.78               | -30.20 | 0.20                |
| -25                                | 1.50               | -25.11 | 0.11                | 1.66               | -25.17 | 0.17                |
| -20                                | 1.37               | -20.00 | 0.00                | 1.54               | -20.29 | 0.29                |
| -15                                | 1.25               | -14.97 | -0.03               | 1.43               | -15.41 | 0.41                |
| -10                                | 1.13               | -9.85  | -0.15               | 1.31               | -10.46 | 0.46                |
| -5                                 | 1.00               | -4.62  | -0.38               | 1.19               | -5.36  | 0.36                |
| 0                                  | 0.88               | 0.49   | -0.49               | 1.07               | 0.00   | 0.00                |
| 5                                  | 0.75               | 5.89   | -0.89               | 0.94               | 5.59   | -0.59               |
| 10                                 | 0.63               | 10.70  | -0.70               | 0.81               | 10.90  | -0.90               |
| 15                                 | 0.55               | 14.05  | 0.95                | 0.71               | 15.38  | -0.38               |
| 20                                 | 0.57               | 13.48  | 6.52                | 0.56               | 21.81  | -1.81               |



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# Power Detector

**ZX47-50LN+**

## Typical Performance Data

| POWER IN<br>(dBm) | Slope Vs Input Power Over Temperature |        |        |                      |        |        |                      |        |        |
|-------------------|---------------------------------------|--------|--------|----------------------|--------|--------|----------------------|--------|--------|
|                   | Range @ Freq 10MHz                    |        |        | Range @ Freq 5000MHz |        |        | Range @ Freq 8000MHz |        |        |
|                   | -40°C                                 | +25°C  | +85°C  | -40°C                | +25°C  | +85°C  | -40°C                | +25°C  | +85°C  |
| -50               | -19.42                                | -18.92 | -18.02 | -22.48               | -22.10 | -20.92 | -9.10                | -7.58  | -6.24  |
| -45               | -21.96                                | -21.54 | -20.86 | -25.08               | -25.26 | -24.90 | -15.56               | -14.40 | -12.58 |
| -40               | -22.74                                | -23.08 | -22.98 | -25.14               | -24.96 | -24.34 | -20.50               | -19.86 | -18.52 |
| -35               | -23.82                                | -23.52 | -23.58 | -25.26               | -25.28 | -24.86 | -23.08               | -22.48 | -21.32 |
| -30               | -24.30                                | -24.30 | -24.38 | -25.28               | -25.10 | -24.60 | -24.26               | -23.60 | -22.30 |
| -25               | -23.96                                | -24.10 | -24.10 | -24.40               | -24.60 | -24.54 | -23.66               | -22.86 | -21.68 |
| -20               | -24.60                                | -24.30 | -24.80 | -24.76               | -24.84 | -24.52 | -23.54               | -22.88 | -22.08 |
| -15               | -25.12                                | -25.50 | -25.22 | -24.80               | -24.70 | -24.60 | -23.72               | -23.18 | -22.62 |
| -10               | -25.42                                | -25.64 | -25.70 | -24.74               | -25.20 | -25.14 | -24.38               | -23.88 | -23.52 |
| -5                | -25.72                                | -26.16 | -26.00 | -25.02               | -25.04 | -24.94 | -24.90               | -25.14 | -25.10 |
| 0                 | -23.82                                | -25.02 | -24.90 | -21.78               | -24.90 | -26.14 | -25.60               | -26.18 | -26.22 |
| 5                 | -15.62                                | -19.22 | -20.36 | -16.70               | -20.24 | -22.42 | -21.46               | -24.90 | -27.34 |
| 10                | -7.20                                 | -10.82 | -15.10 | -2.82                | -8.02  | -12.66 | -16.90               | -20.98 | -23.02 |
| 15                | -5.18                                 | -6.38  | -7.20  | 2.54                 | 0.88   | -0.18  | -26.42               | -30.14 | -36.76 |

| FREQ<br>(MHz) | Slope Vs Freq Over Temperature Range |        |        |                      |        |        |                    |        |        |
|---------------|--------------------------------------|--------|--------|----------------------|--------|--------|--------------------|--------|--------|
|               | @ Input Power -45dBm                 |        |        | @ Input Power -25dBm |        |        | @ Input Power 0dBm |        |        |
|               | -40°C                                | +25°C  | +85°C  | -40°C                | +25°C  | +85°C  | -40°C              | +25°C  | +85°C  |
| 10            | -21.96                               | -21.54 | -20.86 | -23.96               | -24.10 | -24.1  | -23.82             | -25.02 | -24.90 |
| 250           | -23.26                               | -22.72 | -22.34 | -24.08               | -24.34 | -24.46 | -23.38             | -25.38 | -26.22 |
| 500           | -23.76                               | -23.40 | -22.98 | -24.18               | -24.38 | -24.48 | -23.22             | -25.24 | -26.06 |
| 1000          | -23.90                               | -24.04 | -23.80 | -23.84               | -24.10 | -24.32 | -22.50             | -24.82 | -25.88 |
| 1500          | -24.74                               | -25.14 | -25.22 | -24.22               | -24.32 | -24.34 | -20.80             | -23.90 | -25.24 |
| 2000          | -24.16                               | -24.82 | -25.46 | -23.74               | -24.10 | -24.14 | -20.48             | -24.02 | -25.94 |
| 2500          | -24.08                               | -24.04 | -24.00 | -23.60               | -23.98 | -24.06 | -18.76             | -22.76 | -25.00 |
| 3000          | -23.86                               | -25.12 | -23.92 | -23.60               | -24.12 | -24.16 | -16.98             | -21.90 | -24.26 |
| 3500          | -23.76                               | -26.76 | -26.76 | -23.94               | -23.98 | -23.98 | -17.42             | -24.64 | -24.64 |
| 4000          | -24.22                               | -23.18 | -22.02 | -24.30               | -24.54 | -24.84 | -19.12             | -22.96 | -25.54 |
| 4500          | -24.04                               | -24.32 | -24.70 | -24.84               | -24.84 | -24.62 | -20.04             | -23.12 | -25.18 |
| 5000          | -25.08                               | -25.26 | -24.90 | -24.40               | -24.60 | -24.54 | -21.78             | -24.90 | -26.14 |
| 5500          | -24.10                               | -24.08 | -23.10 | -24.26               | -24.48 | -24.34 | -24.02             | -26.04 | -26.24 |
| 6000          | -22.86                               | -22.22 | -21.32 | -24.34               | -24.60 | -24.24 | -24.56             | -26.00 | -25.90 |
| 6500          | -22.00                               | -21.40 | -20.72 | -24.22               | -24.14 | -23.42 | -21.18             | -23.60 | -25.74 |
| 7000          | -20.80                               | -19.96 | -18.50 | -24.00               | -23.80 | -23.36 | -21.62             | -24.02 | -26.24 |
| 7500          | -18.30                               | -17.34 | -16.10 | -23.72               | -23.48 | -22.62 | -21.38             | -24.02 | -26.60 |
| 8000          | -15.56                               | -14.40 | -12.58 | -23.66               | -22.86 | -21.68 | -21.46             | -24.90 | -27.34 |



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# Power Detector

ZX47-50LN+

## Typical Performance Data

| Output Voltage Change Vs Input Power |                                                      |                                                      |
|--------------------------------------|------------------------------------------------------|------------------------------------------------------|
| POWER IN<br>(dBm)                    | Output Voltage Deviation<br>@-40°C relative to +25°C | Output Voltage Deviation<br>@+80°C relative to +25°C |
| -50                                  | 6.50                                                 | -1.70                                                |
| -45                                  | 5.10                                                 | 3.40                                                 |
| -40                                  | 8.40                                                 | 0.20                                                 |
| -35                                  | 10.10                                                | -1.60                                                |
| -30                                  | 11.70                                                | -2.30                                                |
| -25                                  | 13.40                                                | -3.30                                                |
| -20                                  | 15.20                                                | -3.50                                                |
| -15                                  | 16.00                                                | -4.50                                                |
| -10                                  | 17.70                                                | -4.80                                                |
| -5                                   | 16.00                                                | -4.20                                                |
| 0                                    | 19.90                                                | -4.30                                                |
| 5                                    | 37.60                                                | -13.90                                               |
| 10                                   | 59.40                                                | -27.00                                               |
| 15                                   | 76.20                                                | -41.30                                               |
| 20                                   | 76.50                                                | -41.60                                               |

| VSWR Vs Freq |        |        |        |
|--------------|--------|--------|--------|
| FREQ (MHz)   | -40dBm | +25dBm | +85dBm |
| 10           | 1.03   | 1.02   | 1.03   |
| 20           | 1.03   | 1.02   | 1.01   |
| 50           | 1.03   | 1.02   | 1.02   |
| 100          | 1.03   | 1.02   | 1.01   |
| 250          | 1.03   | 1.02   | 1.02   |
| 500          | 1.02   | 1.03   | 1.04   |
| 1000         | 1.05   | 1.06   | 1.06   |
| 1500         | 1.06   | 1.07   | 1.06   |
| 2000         | 1.08   | 1.07   | 1.08   |
| 2500         | 1.07   | 1.07   | 1.07   |
| 3000         | 1.04   | 1.04   | 1.03   |
| 3500         | 1.09   | 1.10   | 1.10   |
| 4000         | 1.18   | 1.17   | 1.17   |
| 5000         | 1.28   | 1.27   | 1.26   |
| 5500         | 1.26   | 1.26   | 1.25   |
| 6000         | 1.22   | 1.23   | 1.23   |
| 6500         | 1.21   | 1.20   | 1.18   |
| 7000         | 1.19   | 1.19   | 1.15   |
| 7500         | 1.20   | 1.19   | 1.16   |
| 8000         | 1.24   | 1.25   | 1.24   |

| Temperature Sensor Voltage Vs Ambient |                   |
|---------------------------------------|-------------------|
| Temp (°C)                             | Voltage @ 8000MHz |
| -55                                   | 0.44              |
| -45                                   | 0.46              |
| -35                                   | 0.48              |
| -25                                   | 0.51              |
| -15                                   | 0.53              |
| 0                                     | 0.56              |
| 10                                    | 0.58              |
| 20                                    | 0.60              |
| 27                                    | 0.62              |
| 35                                    | 0.63              |
| 45                                    | 0.65              |
| 55                                    | 0.67              |
| 65                                    | 0.69              |
| 75                                    | 0.72              |
| 85                                    | 0.74              |
| 100                                   | 0.77              |



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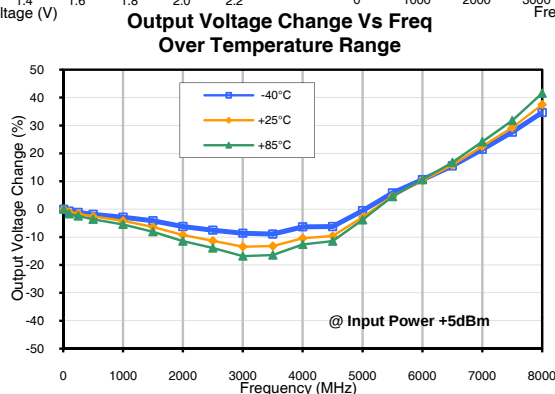
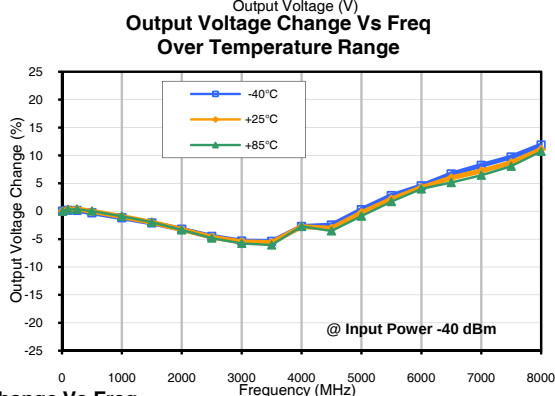
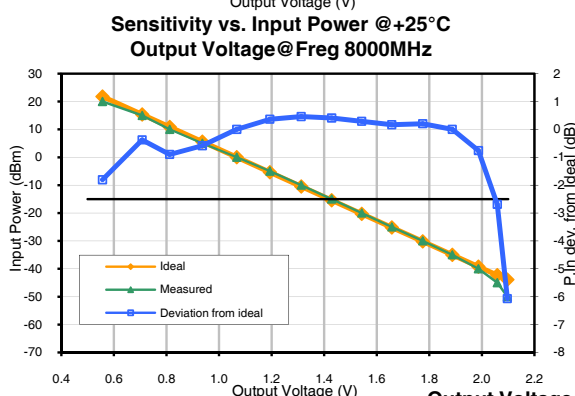
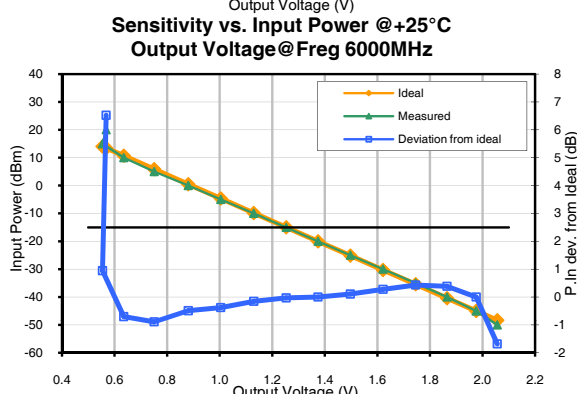
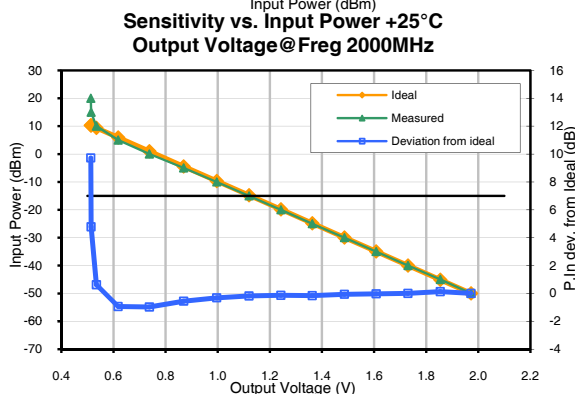
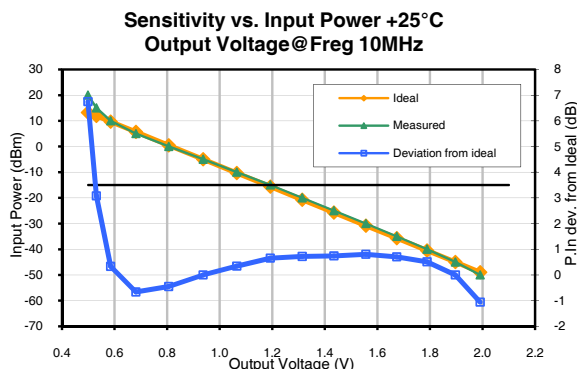
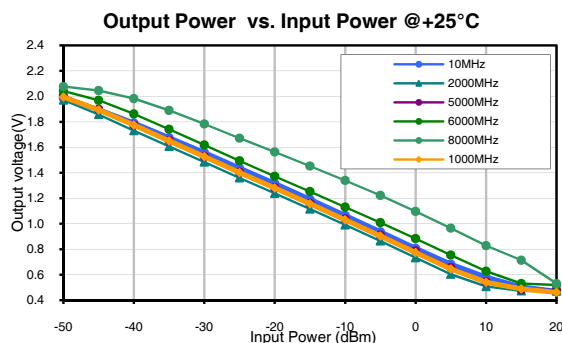
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# Power Detector

ZX47-50LN+

## Typical Performance Curves



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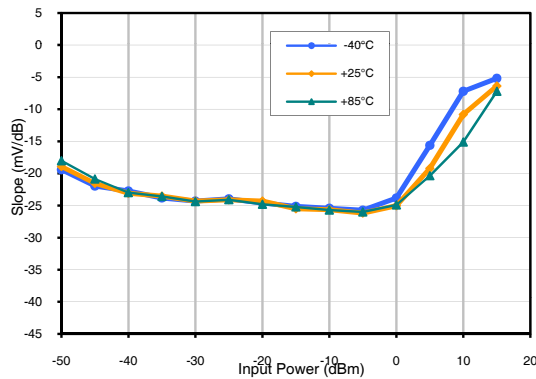
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# Power Detector

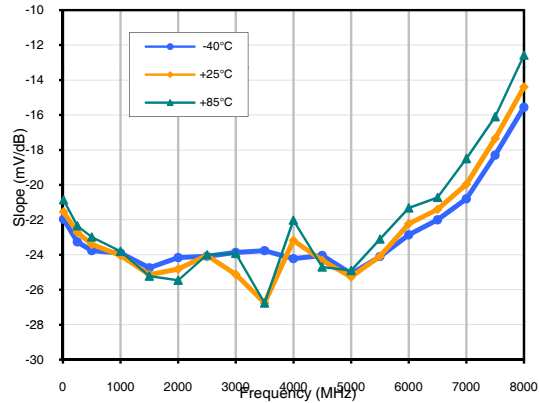
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## Typical Performance Curves

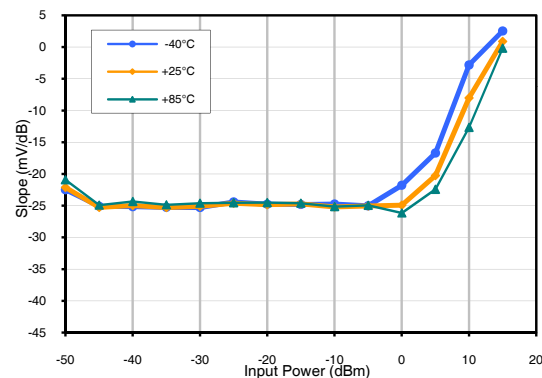
Slope Vs Input Power Over Temperature Range @ Freq 10MHz



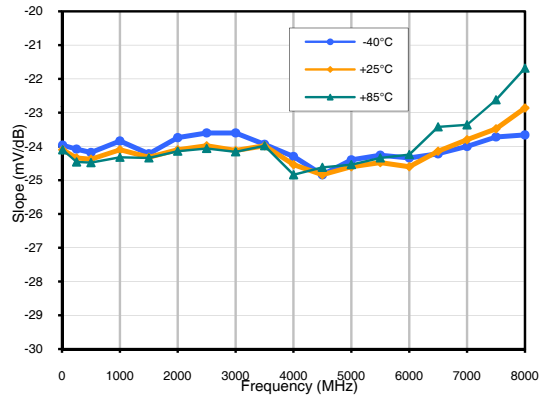
Slope Vs Freq Over Temperature Range @ Input Power -45dBm



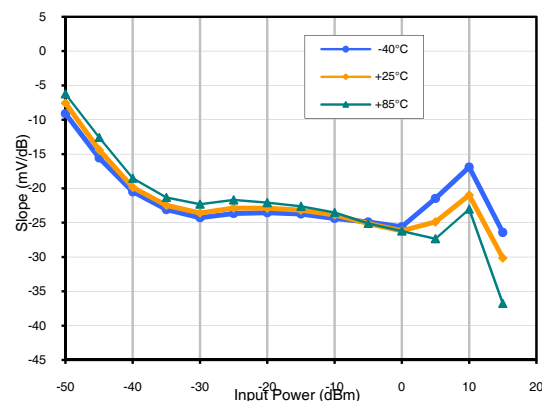
Slope Vs Input Power Over Temperature Range @ Freq 5000MHz



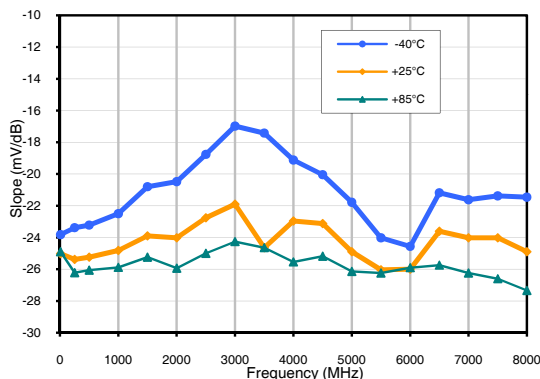
Slope Vs Freq Over Temperature Range @ Input Power -25dBm



Slope Vs Input Power Over Temperature Range @ Freq 8000MHz



Slope Vs Freq Over Temperature Range @ Input Power 0dBm



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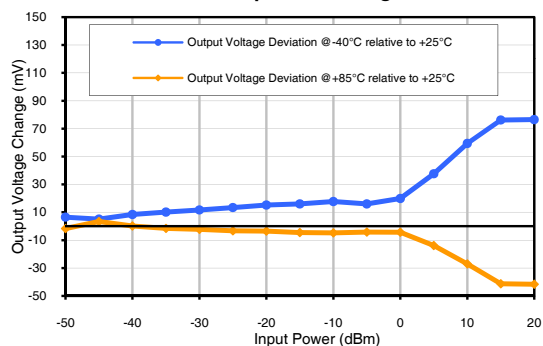
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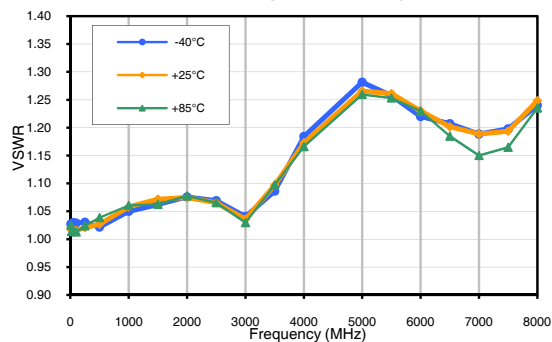
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## Typical Performance Curves

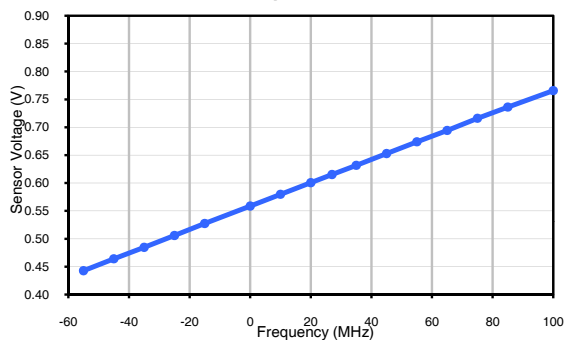
Output Voltage Change Vs Input Power Over Temperature Range



VSWR Vs Freq Over Temperature Range



Temperature Sensor Voltage Vs Ambient Temperature

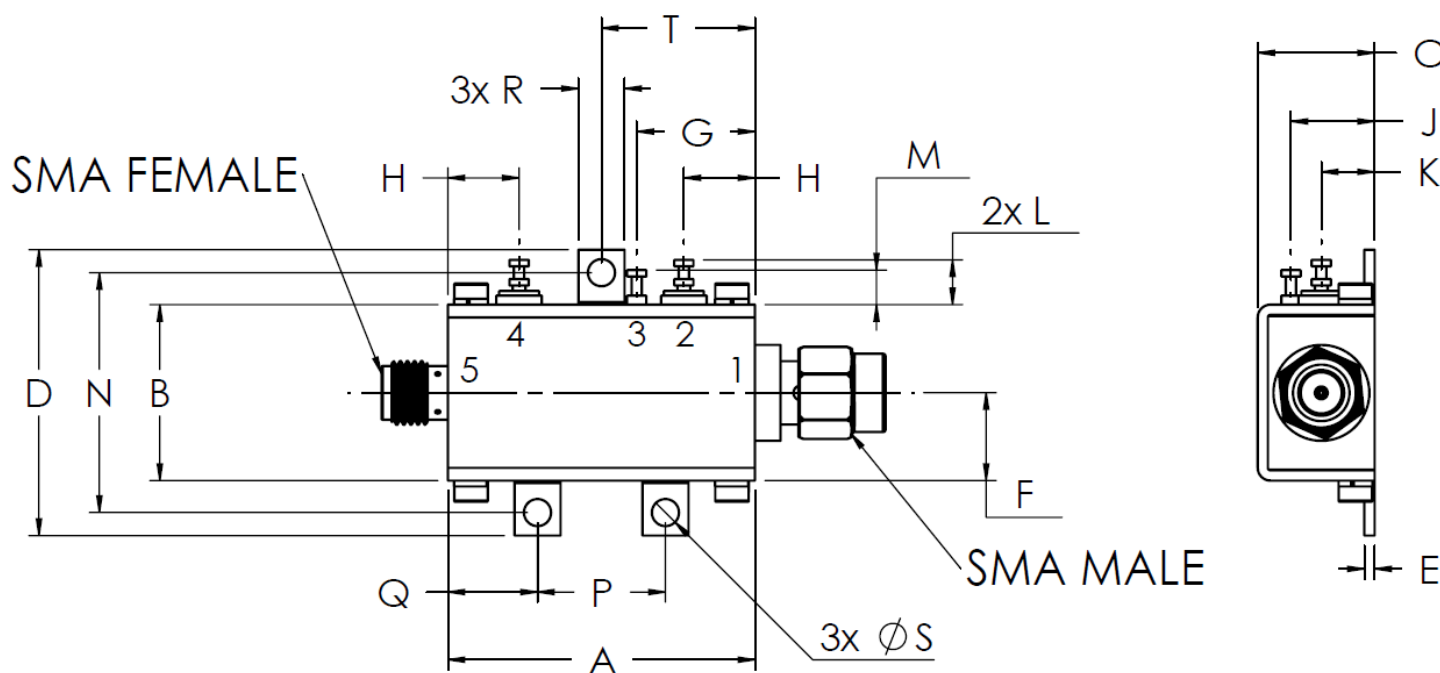


# Case Style

# HN

## Outline Dimensions

HN1173



| CASE #. | A               | B              | C              | D               | E             | F             | G              | H             | J             | K             | L             | M             | N              |
|---------|-----------------|----------------|----------------|-----------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|----------------|
| HN1173  | 1.20<br>(30.48) | .69<br>(17.53) | .46<br>(11.68) | 1.12<br>(28.45) | .04<br>(1.02) | .34<br>(8.64) | .46<br>(11.68) | .28<br>(7.11) | .35<br>(8.89) | .21<br>(5.28) | .18<br>(4.57) | .14<br>(3.56) | .94<br>(23.88) |

| CASE #. | P              | Q             | R             | S              | T              | WT GRAMS |
|---------|----------------|---------------|---------------|----------------|----------------|----------|
| HN1173  | .50<br>(12.70) | .35<br>(8.89) | .18<br>(4.57) | .106<br>(2.69) | .60<br>(15.24) | 31.8     |

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$   
Tolerance on hole size and interaxes dimensions to be  $\pm .005$ .

### Note:

1. Case material: Brass
2. Case finish: Nickel plate



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| Specification              | Test/Inspection Condition                                                              | Reference/Spec                       |
|----------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| Operating Temperature      | -40° to 85°C                                                                           | Individual Model Data Sheet          |
| Storage Temperature        | -55° to 100° C<br>Ambient Environment                                                  | Individual Model Data Sheet          |
| Barometric Pressure        | 100,000 Feet                                                                           | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103              |
| Thermal Shock              | -65° to 125°C, 5 cycles                                                                | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)    | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock           | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)                          | MIL-STD-202, Method 213, Condition I |