

# Power Detector

## ZX47-40+ ZX47-40LN+

50Ω, -40dBm to +20dBm, 10 to 8000 MHz

### Maximum Ratings

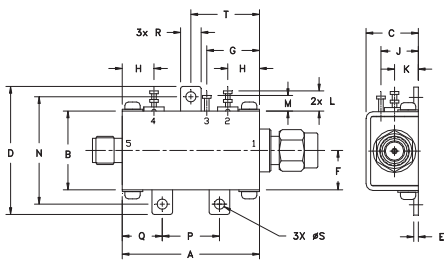
|                            |                |
|----------------------------|----------------|
| Operating Temperature      | -40°C to 85°C  |
| Storage Temperature        | -55°C to 100°C |
| DC Power:                  |                |
| Max. voltage               | 5.7V           |
| Max. current               | 120mA          |
| Internal Power Dissipation | 0.73W          |
| Input Power                | +27dBm         |

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 |

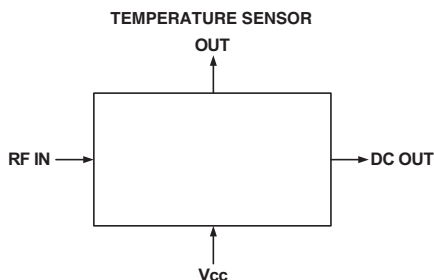
### Outline Drawing



### 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 DC Output for ZX47-40LN+, 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        | Price       | Qty.  |
|------------|--------------|-------------|-------|
| SMA        | ZX47-40-S+   | \$89.95 ea. | (1-9) |
| SMA        | ZX47-40LN-S+ | \$89.95 ea. | (1-9) |

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

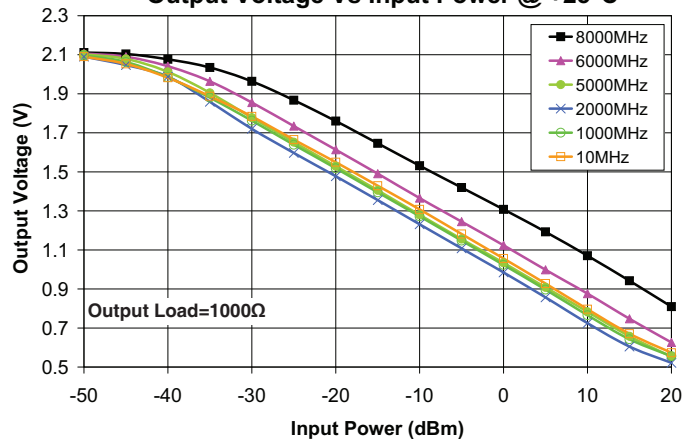
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

| FREQ. (MHz) | DYNAMIC RANGE AT ±1dB ERROR (dBm) | OUTPUT VOLT. RANGE (V) | SLOPE (mV/dB) (Note 1) | VSWR (:1) | PULSE RESPONSE TIME (nSec) |                 | TEMP. SENSOR OUTPUT SLOPE (mV/°C) (Note 2) | DC OPERATING POWER |      |                     |      |
|-------------|-----------------------------------|------------------------|------------------------|-----------|----------------------------|-----------------|--|--------------------|------|---------------------|------|
|             |                                   |                        |                        |           | ZX47-40+ Rise              | ZX47-40LN+ Fall |  | Vcc (Volts)        |      | Note 3 Current (mA) |      |
| Min.        | Max.                              | Typ.                   | Typ.                   | Typ.      |                            |                 | Typ.                                       | Min.               | Typ. | Max.                | Typ. |
| 10          | 1000                              | -40 to +20             |                        | 1.03      |                            |                 |  | 4.5                | 5.0  | 5.5                 | 100  |
| 1000        | 5000                              | -40 to +15             | 0.50 - 2.10            | 1.10      | 400                        | 10              | 800  | 400                |      |                     |      |
| 5000        | 6000                              | -35 to +20             |                        | 1.20      |                            |                 |  |                    |      |                     |      |
| 6000        | 8000                              | -30 to +20             |                        | 1.40      |                            |                 |  |                    |      |                     |      |

Notes:

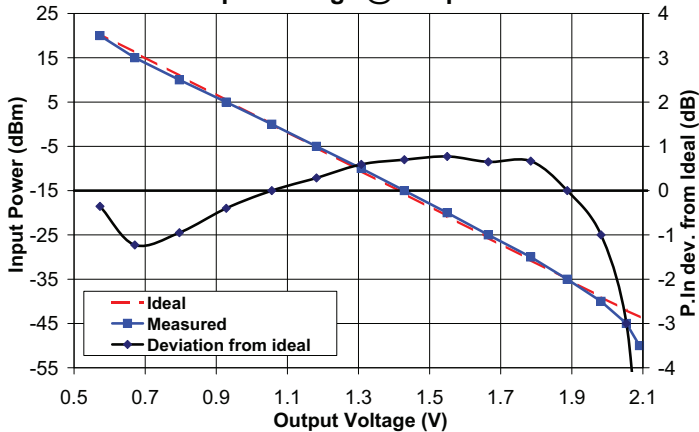
1. The negative slope indicates that Output Voltage decreases as Input Power increases. See "Output Voltage vs Input Power" graph below.
2. Temperature sensor output provides a DC Output Voltage which increases linearly with temperature rise. Recommended minimum load for this port is 2 kΩ.
3. Recommended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

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

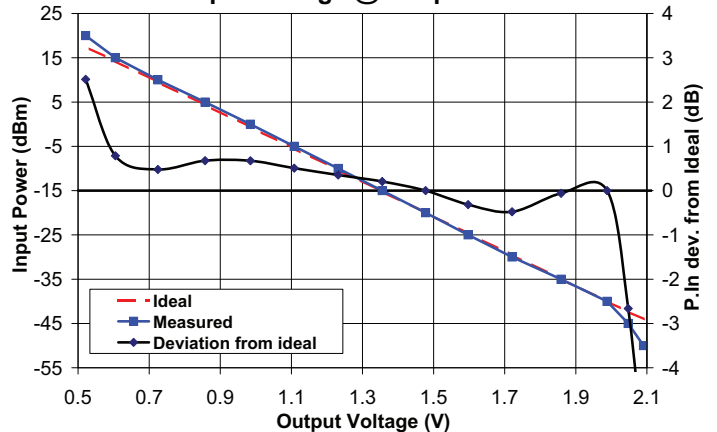


## Performance Curves

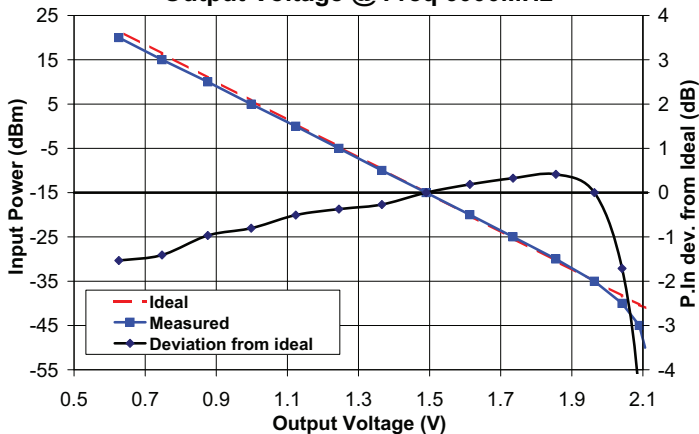
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 10MHz**



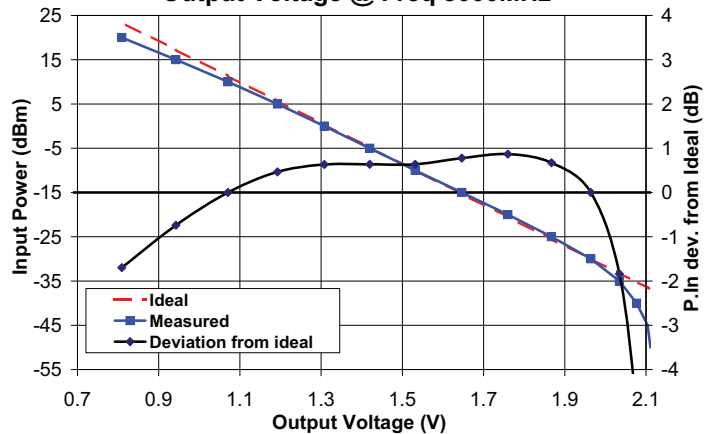
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 2000MHz**



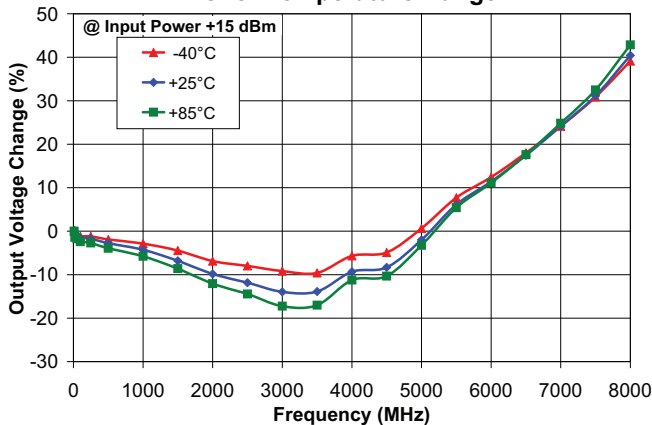
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 6000MHz**



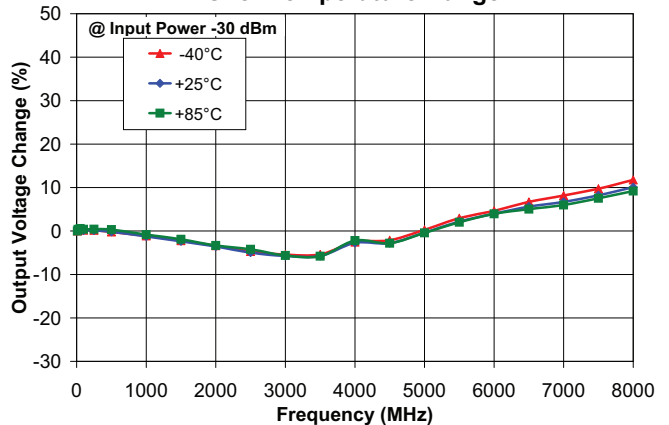
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 8000MHz**



**Output Voltage Change Vs Freq Over Temperature Range**



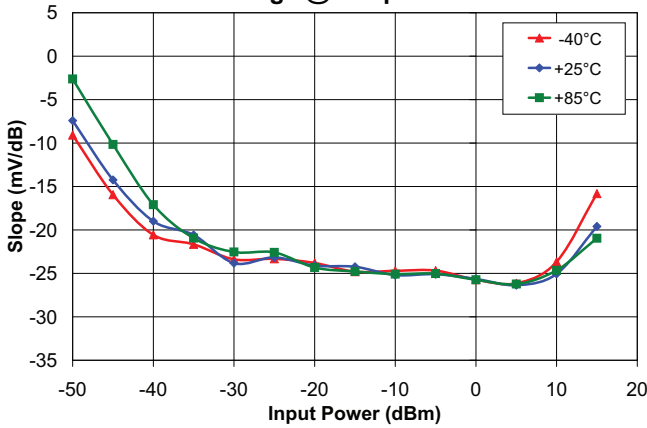
**Output Voltage Change Vs Freq Over Temperature Range**



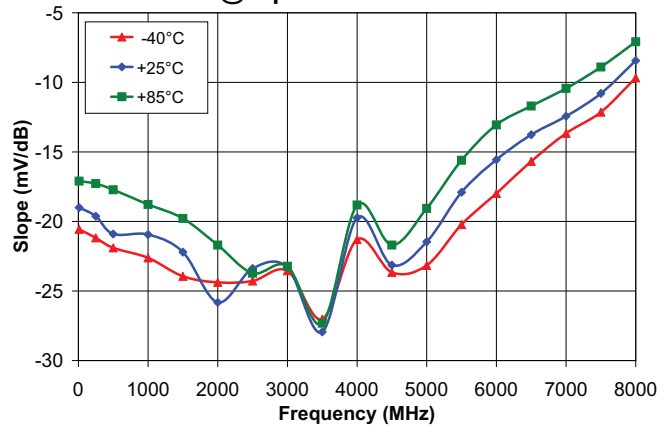
# Performance Curves

# ZX47-40+ ZX47-40LN+

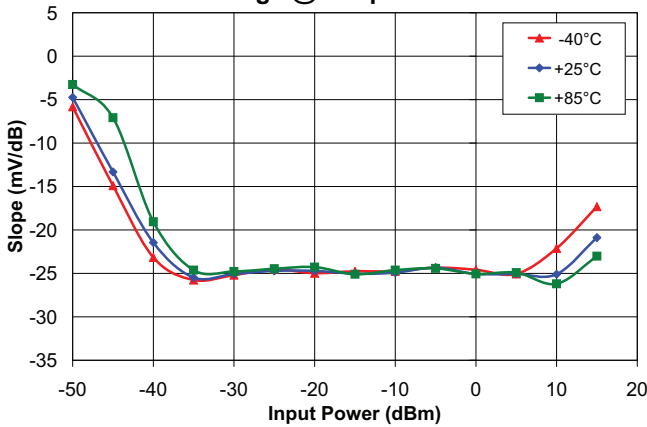
**Slope Vs Input Power Over Temperature Range @ Freq 10MHz**



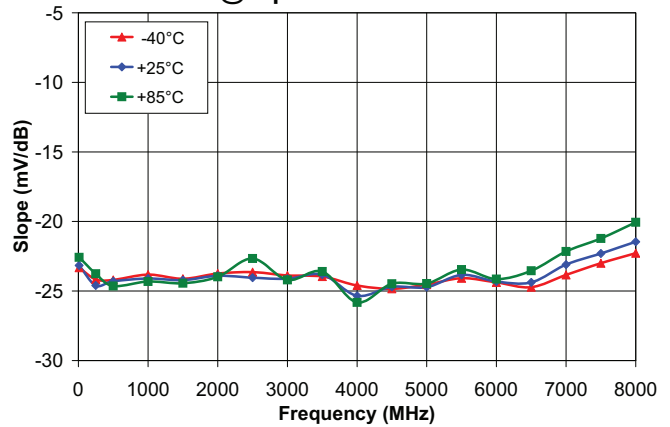
**Slope Vs Freq Over Temperature Range @ Input Power -40dBm**



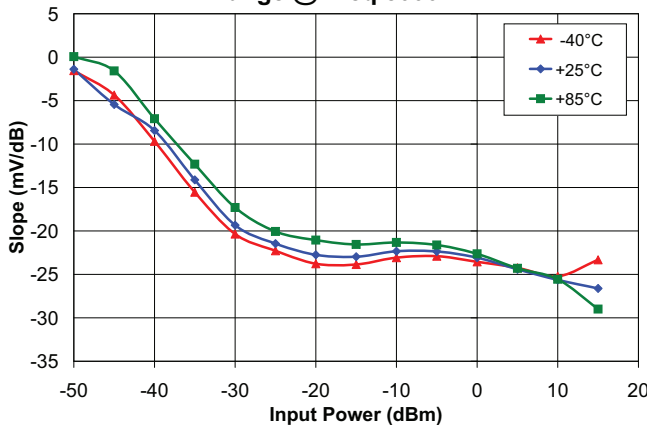
**Slope Vs Input Power Over Temperature Range @ Freq 5000MHz**



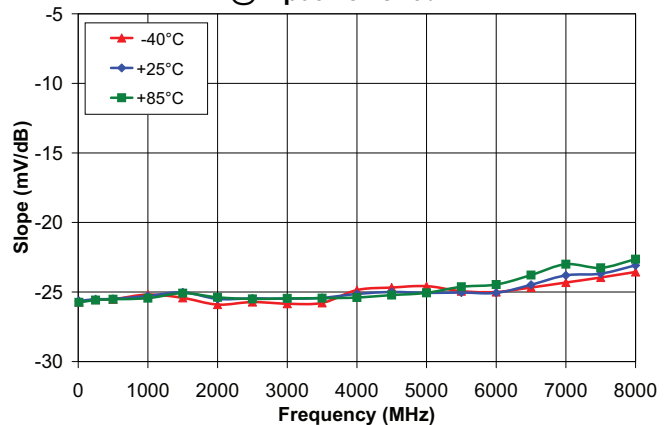
**Slope Vs Freq Over Temperature Range @ Input Power -25dBm**



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



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

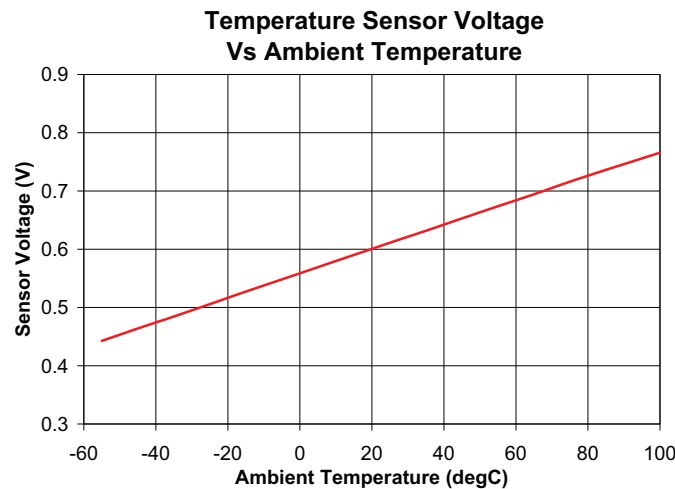
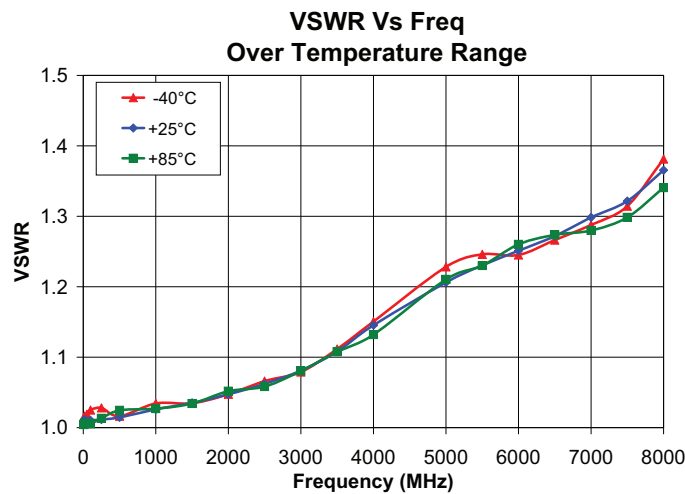
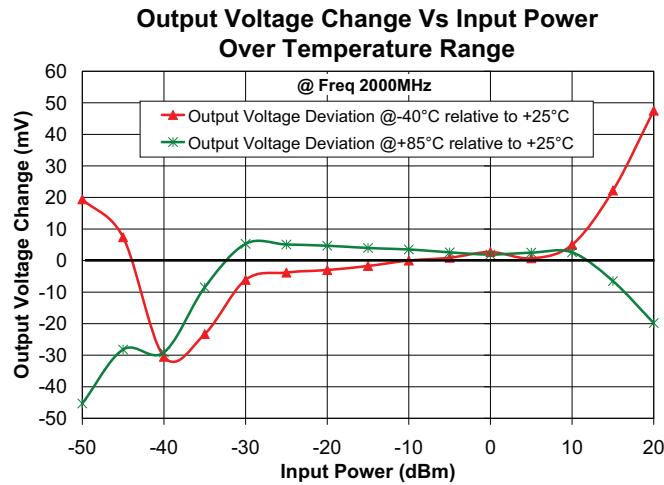


For detailed performance specs & shopping online see web site

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IF/RF MICROWAVE COMPONENTS

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