*Coaxial*

# Power Detector

## ZX47-40+
## ZX47-40LN+

50Ω, -40dBm to +20dBm, 10 to 8000 MHz

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*

### 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 |

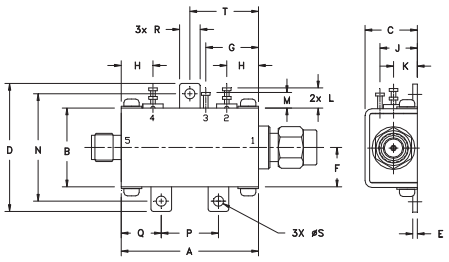
### Features

- 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

### Outline Drawing

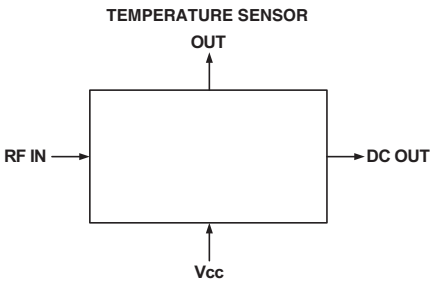



### Outline Dimensions (inch / mm)

| 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

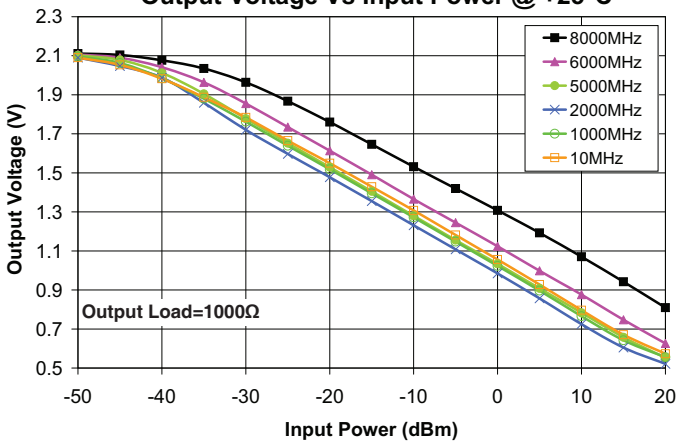



### Electrical Specifications ($T_{AMB}$ = 25°C)

| FREQ. (MHz) Min. | FREQ. (MHz) Max. | DYNAMIC RANGE AT ±1dB ERROR (dBm) Typ. | OUTPUT VOLT. RANGE (V) Typ. | SLOPE (mV/dB) (Note 1) Typ. | VSWR (:1) Typ. | PULSE RESPONSE TIME (nSec) Typ. ZX47-40+ Rise | ZX47-40+ Fall | ZX47-40LN+ Rise | ZX47-40LN+ Fall | TEMP. SENSOR OUTPUT SLOPE (mV/°C) (Note 2) Typ. | DC OPERATING POWER Vcc (Volts) Min. | Vcc (Volts) Typ. | Vcc (Volts) Max. | Note 3 Current (mA) Typ. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1000 | -40 to +20 | 0.50 - 2.10 | -25 | 1.03 | 400 | 10 | 800 | 400 | 2.00 | 4.5 | 5.0 | 5.5 | 100 |
| 1000 | 5000 | -40 to +15 | | | 1.10 | | | | | | | | | |
| 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





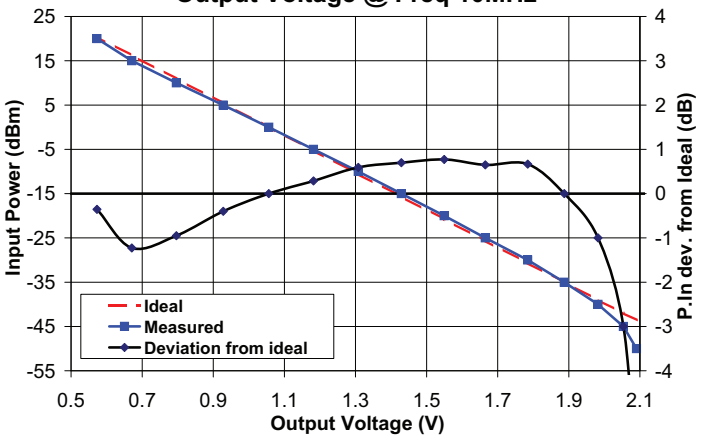




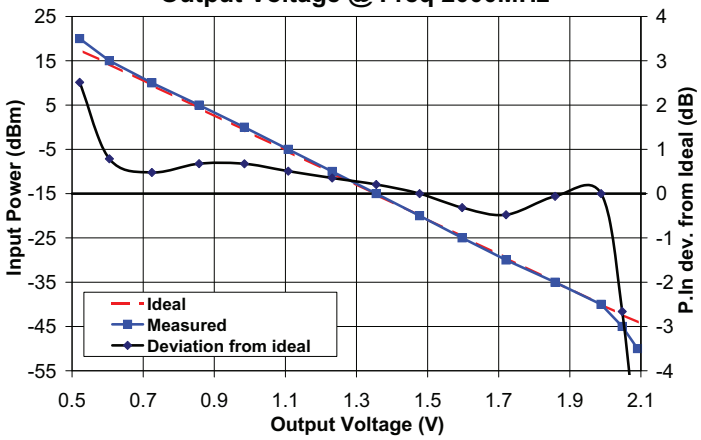
REV. B
M117976
ZX47-40+
ZX47-40LN+
EDR-7800U
EDR-7800/2RE
URJ/RAV
121025

# Performance Curves

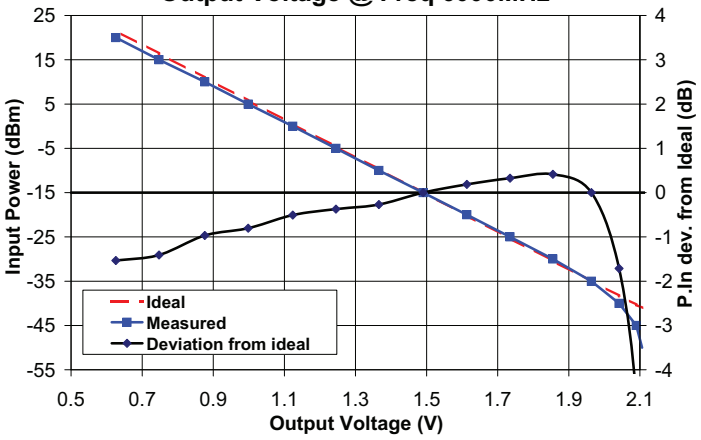
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 10MHz**



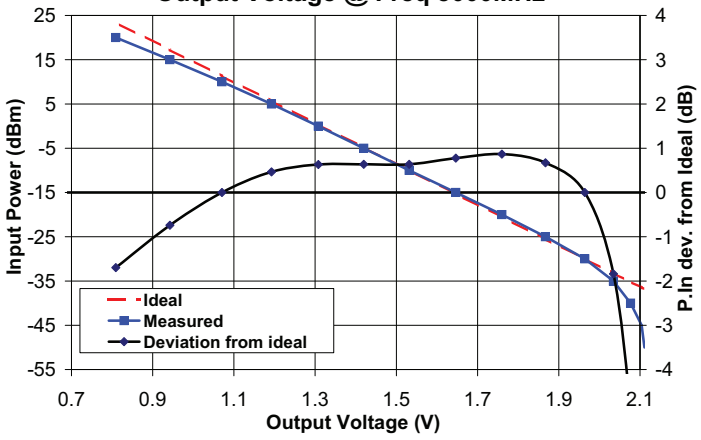

**Power Input Deviation from Ideal Vs Output Voltage @ Freq 2000MHz**



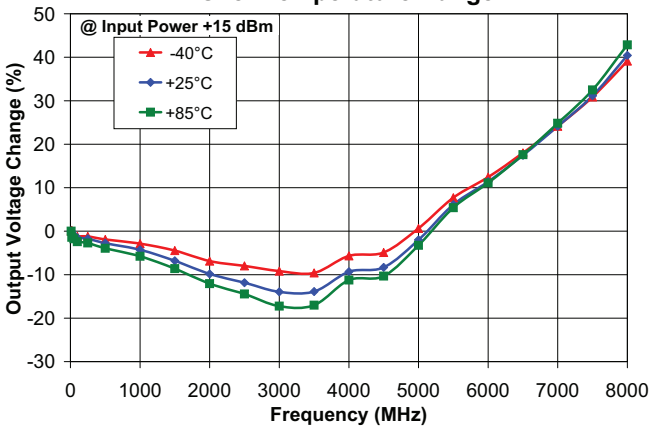

**Power Input Deviation from Ideal Vs Output Voltage @ Freq 6000MHz**



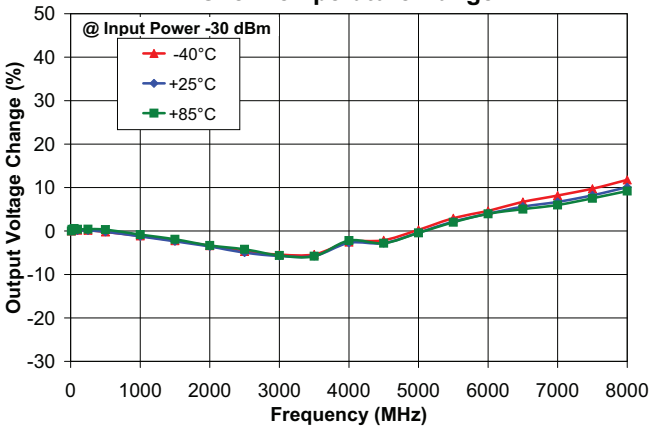

**Power Input Deviation from Ideal Vs Output Voltage @ Freq 8000MHz**




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

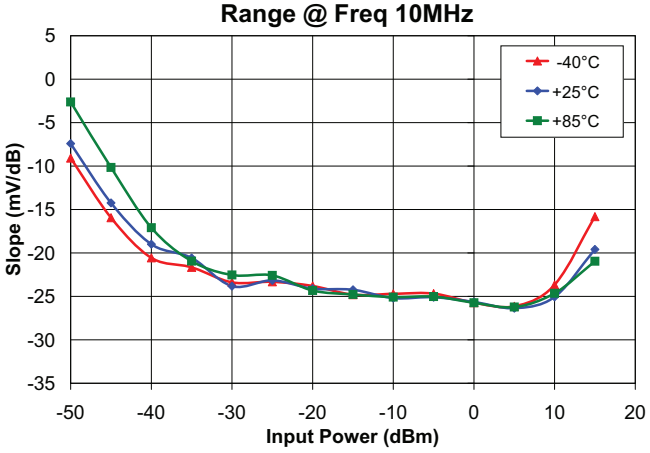



**Output Voltage Change Vs Freq Over Temperature Range**

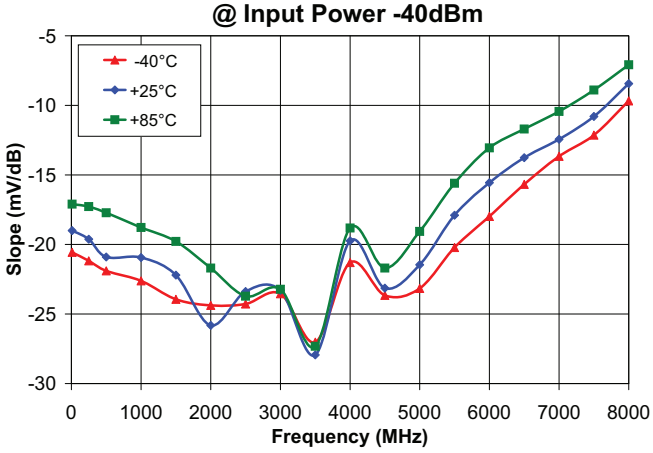


# Performance Curves

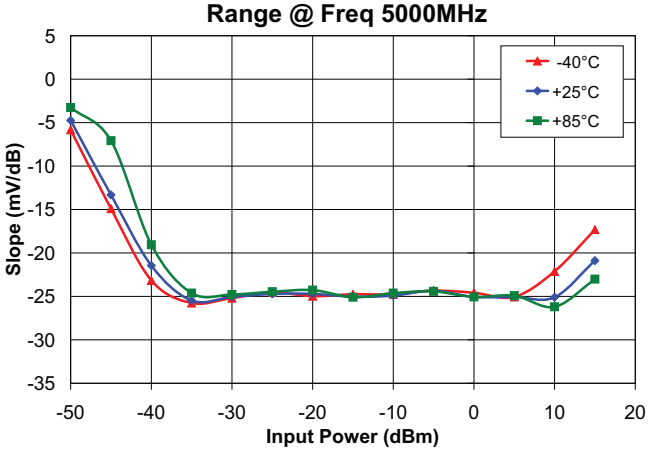
**Slope Vs Input Power Over Temperature Range @ Freq 10MHz**



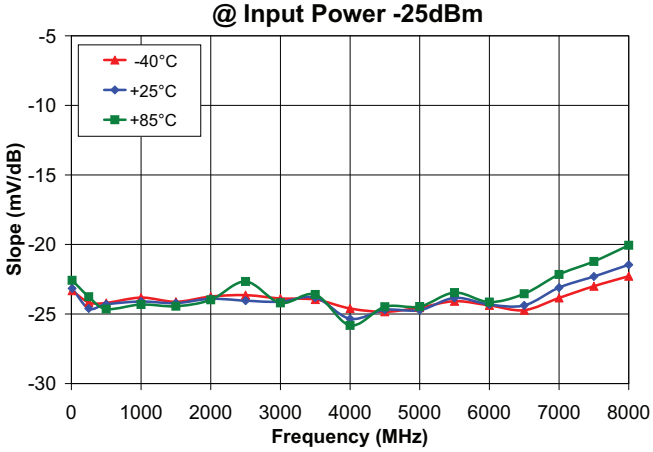

**Slope Vs Freq Over Temperature Range @ Input Power -40dBm**



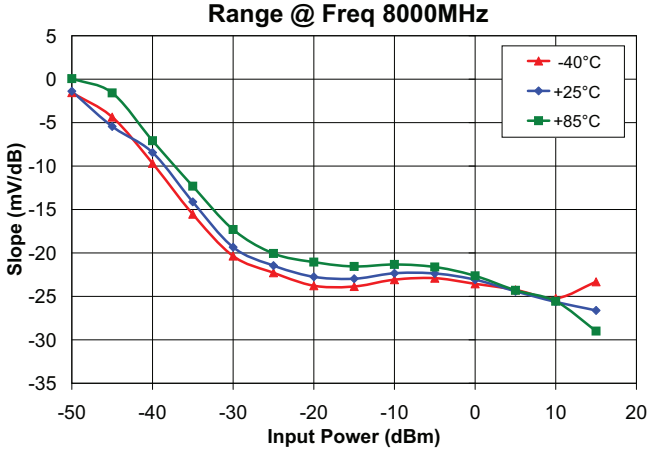

**Slope Vs Input Power Over Temperature Range @ Freq 5000MHz**



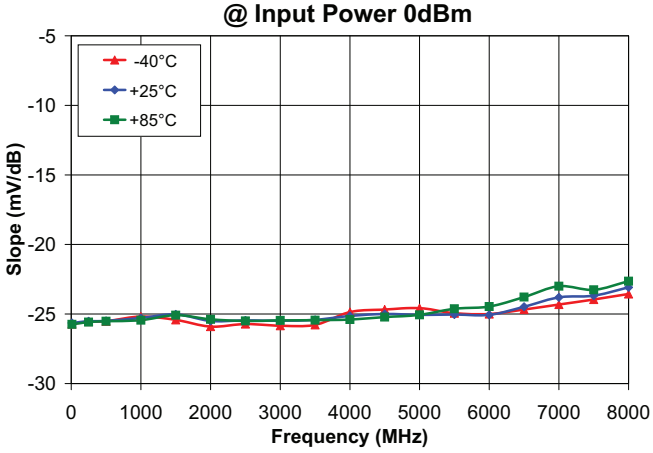

**Slope Vs Freq Over Temperature Range @ Input Power -25dBm**




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

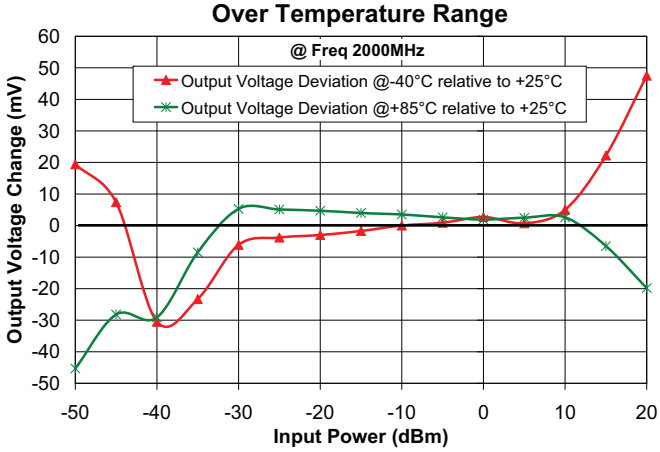



**Slope Vs Freq Over Temerature Range @ Input Power 0dBm**

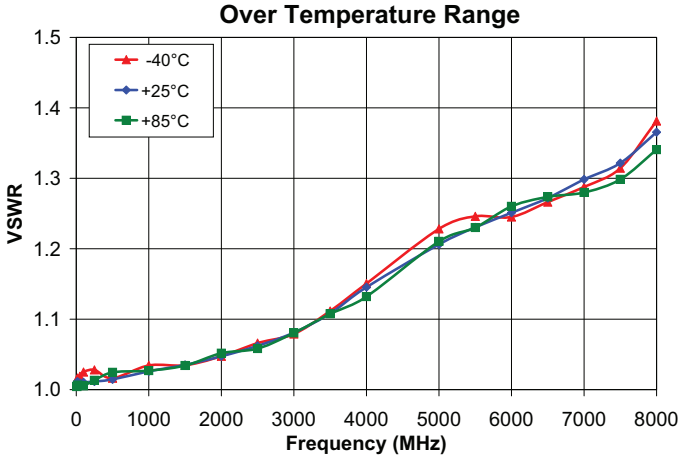


# Performance Curves

**Output Voltage Change Vs Input Power Over Temperature Range**




**VSWR Vs Freq Over Temperature Range**




**Temperature Sensor Voltage Vs Ambient Temperature**