

# Power Detector

50Ω, -40dBm to +20dBm, 10 to 8000 MHz

**ZX47-40+**  
**ZX47-40LN+**

## Maximum Ratings

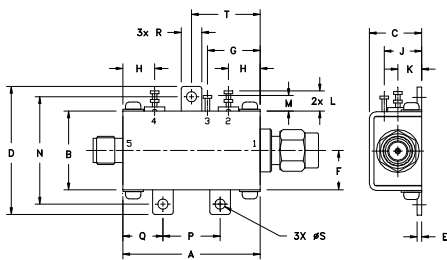
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Power:	
Max. voltage	5.7V
Max. current	120mA
Internal Power Dissipation	0.73W
Input Power	+27dBm

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

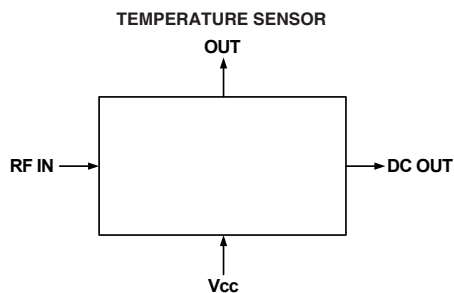
## Outline Drawing



## 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
30.5	17.5	11.6	28.4	1.0	8.7	11.7	7.1	8.3	5.3
L	M	N	P	Q	R	S	T	wt.	
.18	.14	.94	.50	.35	.18	.106	.60	grams	
4.5	3.5	23.8	12.7	8.9	4.6	2.3	15.2	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 in accordance with EU Directive (2002/95/EC)**

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

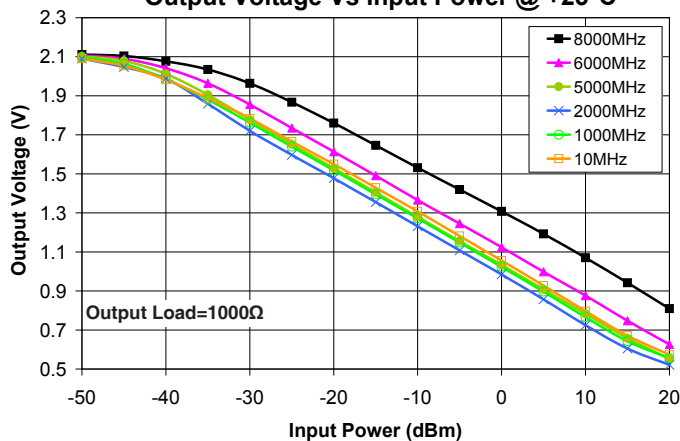
## Electrical Specifications (T<sub>AMB</sub> = 25°C)

FREQ. (MHz)		DYNAMIC RANGE AT ±1dB ERROR (dBm)	OUTPUT VOLT. RANGE (V)	SLOPE (mV/dB) (Note 1)	VSWR (:1)	PULSE RESPONSE TIME (nSec) Typ.				TEMP. SENSOR OUTPUT SLOPE (mV/°C) (Note 2)	DC OPERATING POWER			
Min.	Max.	Typ.	Typ.	Typ.	Typ.	ZX47-40+ Rise Fall		ZX47-40LN+ Rise Fall		Typ.	Min.	Typ.	Max.	Note 3 Current (mA)
10	1000	-40 to +20	0.50 - 2.10	-25	1.03									
1000	5000	-40 to +15			1.10									
5000	6000	-35 to +20			1.20	400	10	800	400	2.00	4.5	5.0	5.5	100
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



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ISO 9001 ISO 14001 AS 9100 CERTIFIED

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

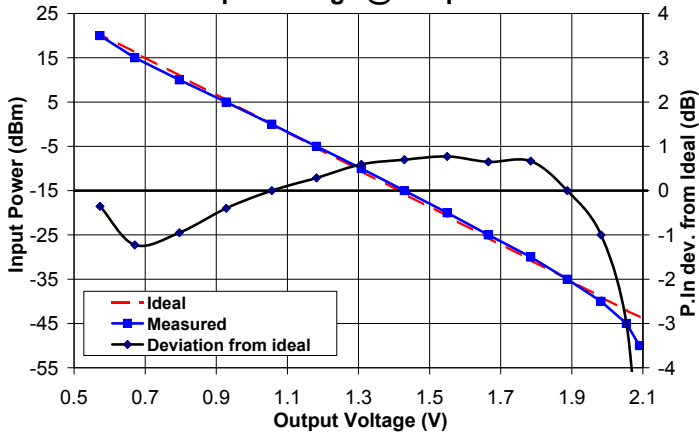
For detailed performance specs & shopping online see web site

REV. B  
M117976  
ZX47-40+  
ZX47-40LN+  
EDR-7800U  
URJ/RAV  
100805  
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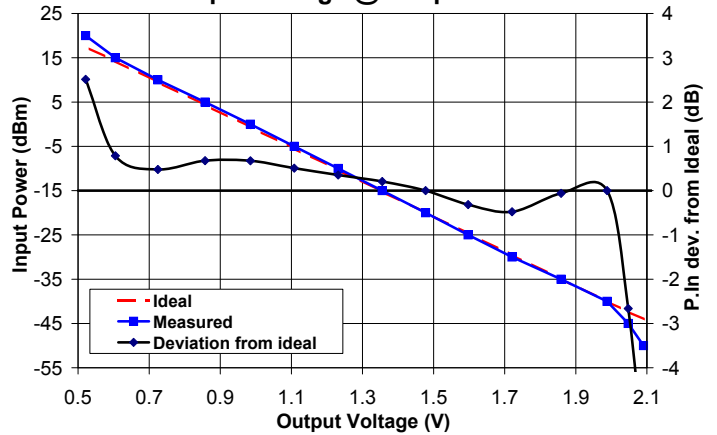
# Performance Curves

**ZX47-40+**  
**ZX47-40LN+**

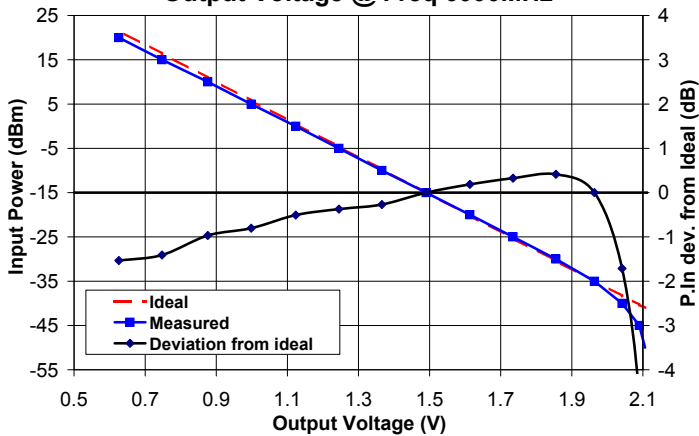
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 10MHz**



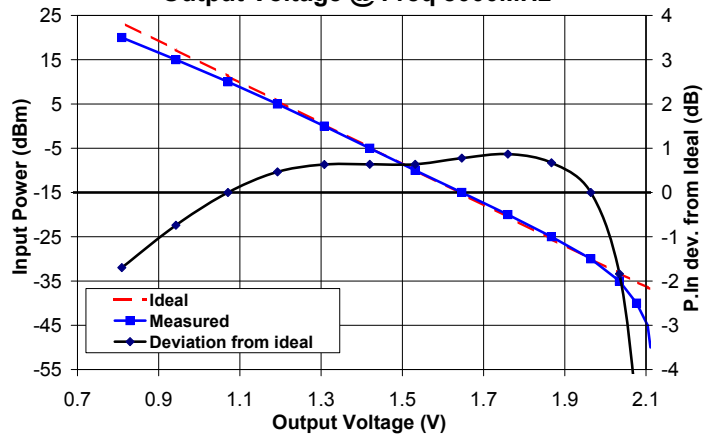
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 2000MHz**



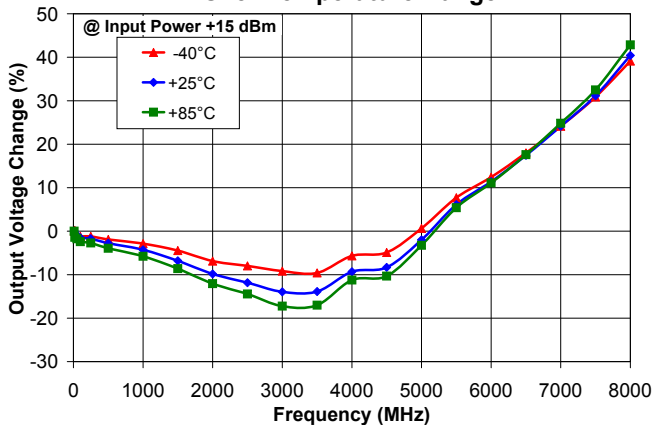
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 6000MHz**



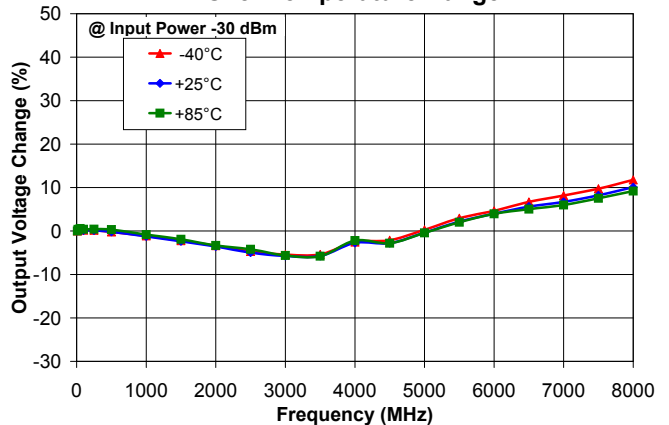
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 8000MHz**



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



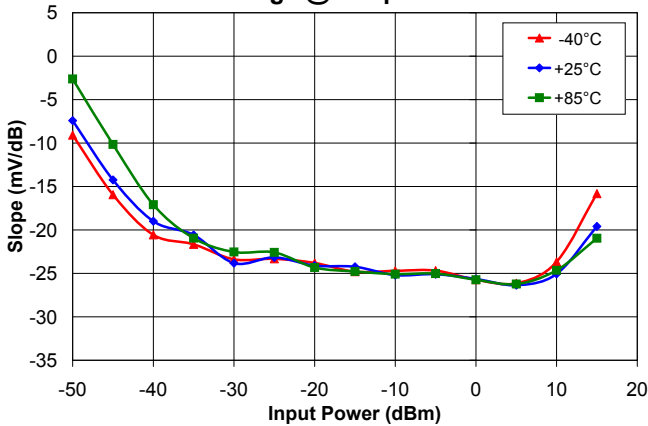
**Output Voltage Change Vs Freq Over Temperature Range**



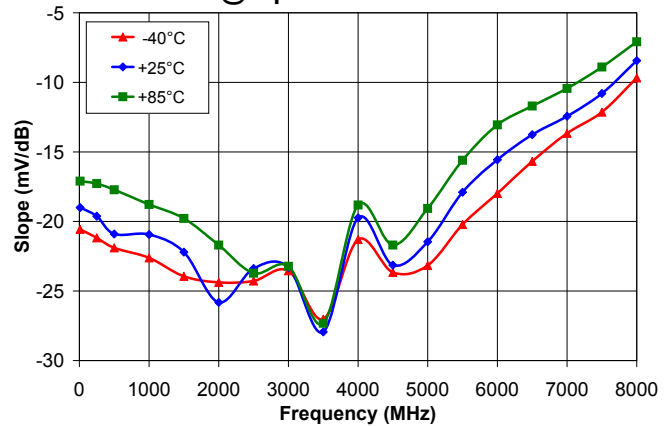
# Performance Curves

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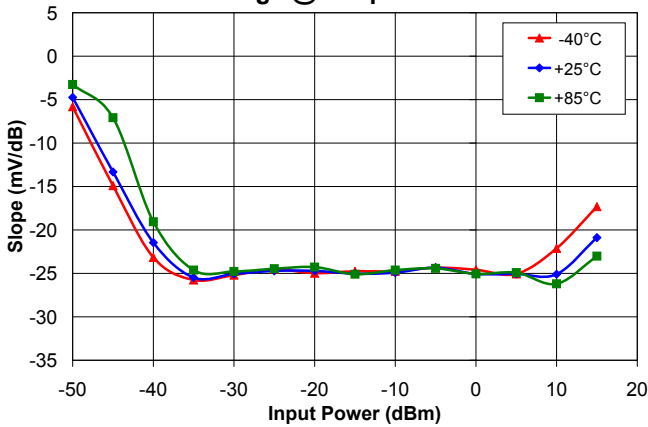
Slope Vs Input Power Over Temperature Range @ Freq 10MHz



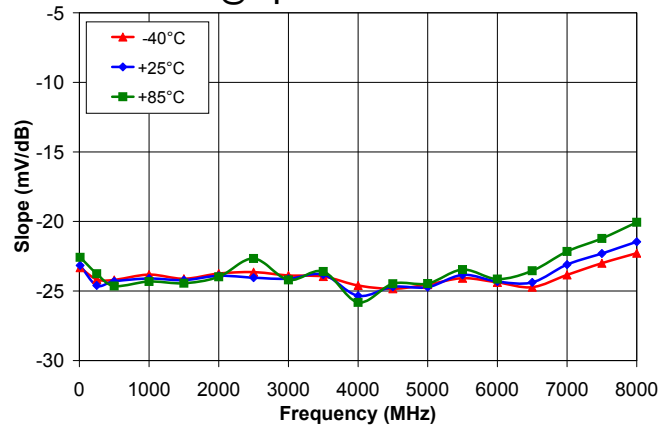
Slope Vs Freq Over Temperature Range @ Input Power -40dBm



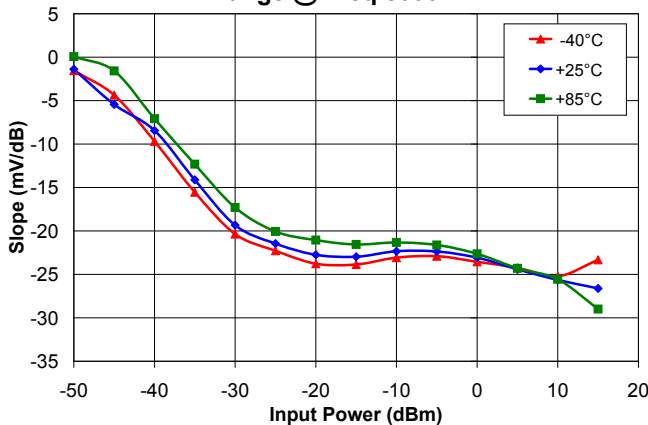
Slope Vs Input Power Over Temperature Range @ Freq 5000MHz



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

