

# Power Detector

50Ω, -40dBm to +20dBm, 10 to 8000 MHz

## ZX47-40+ ZX47-40LN+



CASE STYLE: HN1173

Connectors	Model
SMA	ZX47-40-S+
SMA	ZX47-40LN-S+

**+RoHS Compliant**

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

### Maximum Ratings

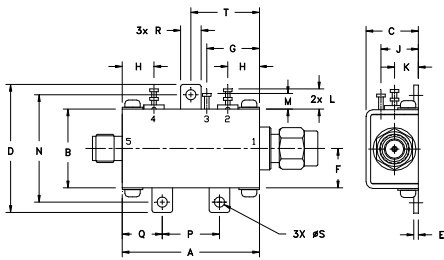
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Power:	
Max. voltage	5.7V
Max. current	120mA
Internal Power Dissipation	0.73W
Input Power	+27dBm

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

### Outline Drawing

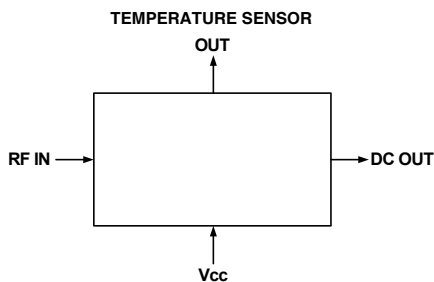


**NOTE:** When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note AN-40-10.

### 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 ZX47-40LN+, 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

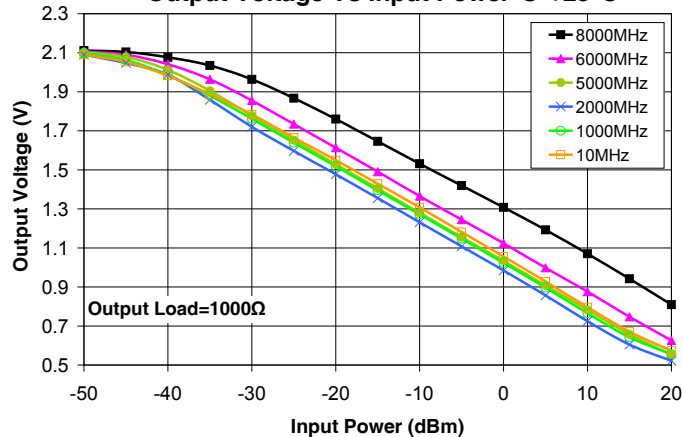
### Electrical Specifications (T<sub>AMB</sub> = 25°C)

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						
					Typ.			Vcc (Volts)		Note 3 Current (mA)				
Min.	Max.	Typ.	Typ.	Typ.	Typ.	ZX47-40+ Rise	ZX47-40LN+ Fall	Typ.	Min.	Typ.	Max.	Typ.		
10	1000	-40 to +20			1.03									
1000	5000	-40 to +15	0.50 - 2.10	-25	1.10	400	10	800	400	2.00	4.5	5.0	5.5	100
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



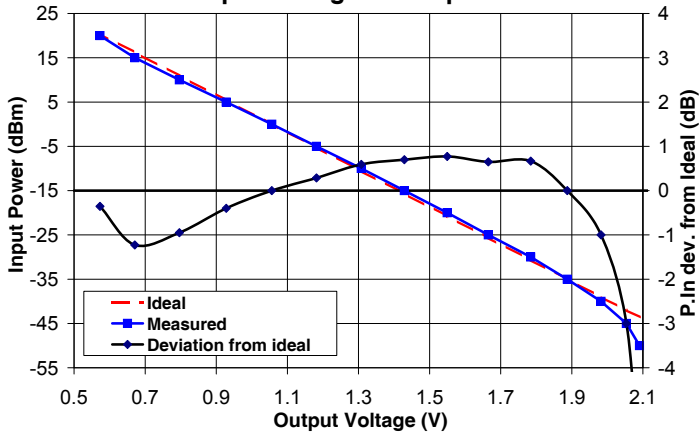
Notes

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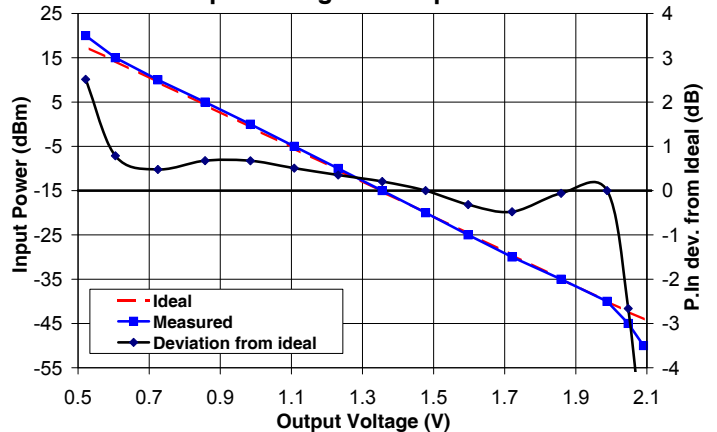


## Performance Curves

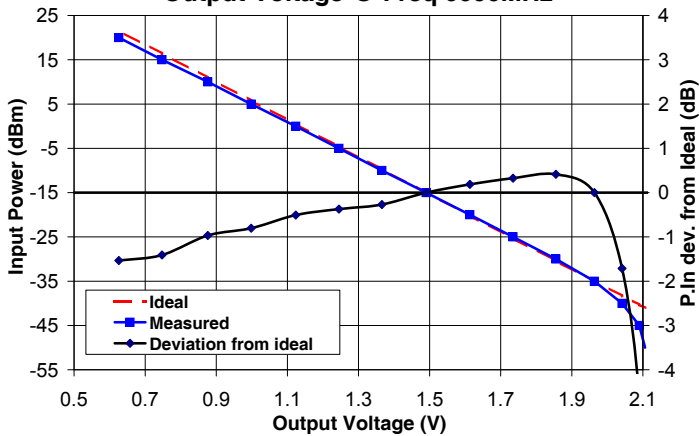
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 10MHz**



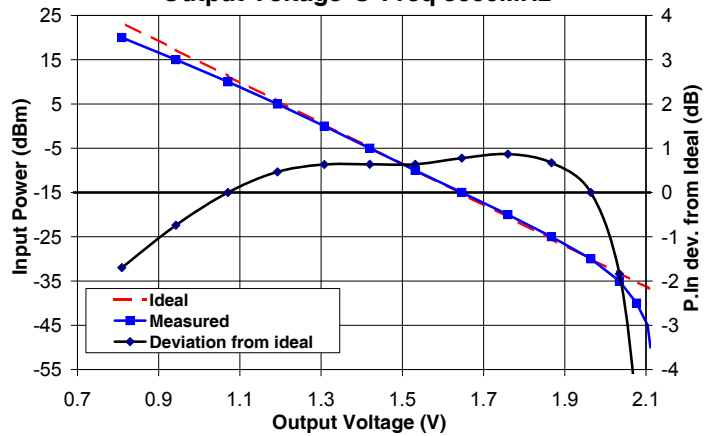
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 2000MHz**



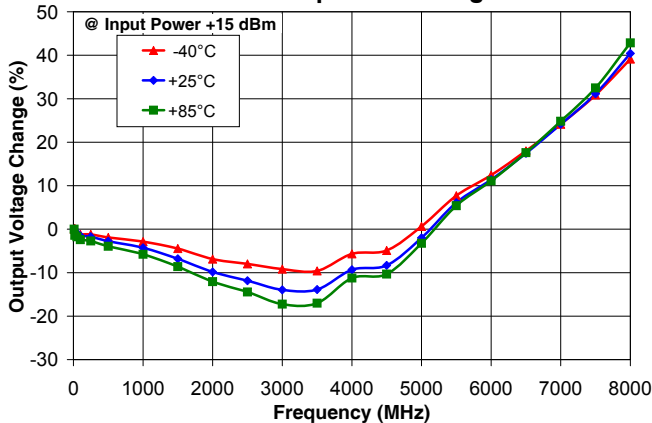
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 6000MHz**



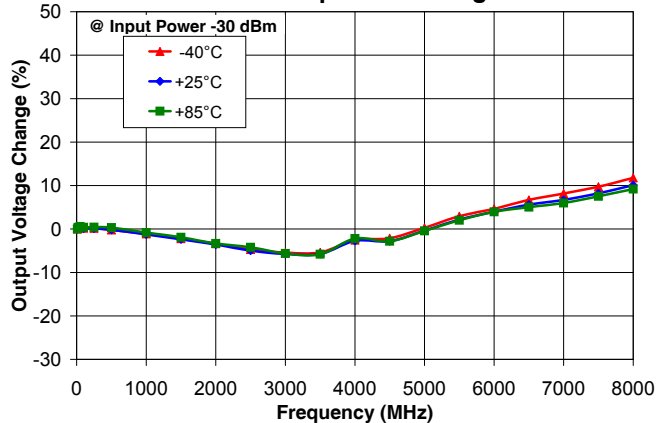
**Power Input Deviation from Ideal Vs Output Voltage @ Freq 8000MHz**



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



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

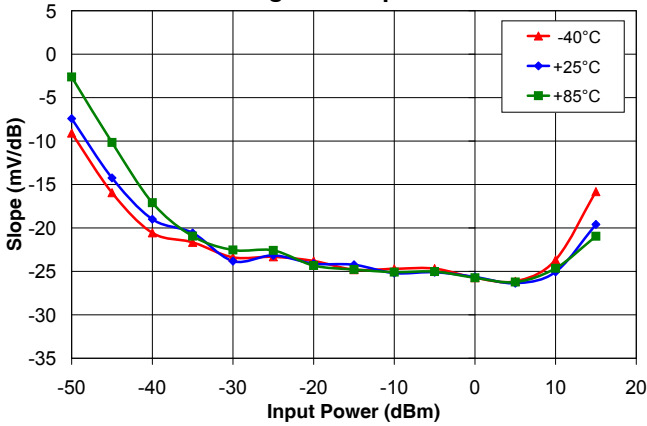


**Notes**

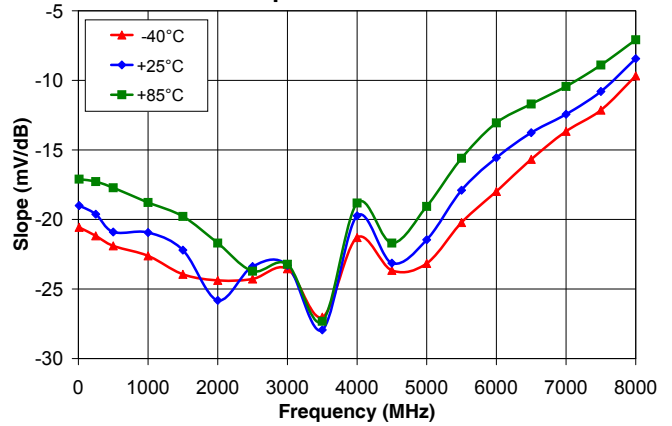
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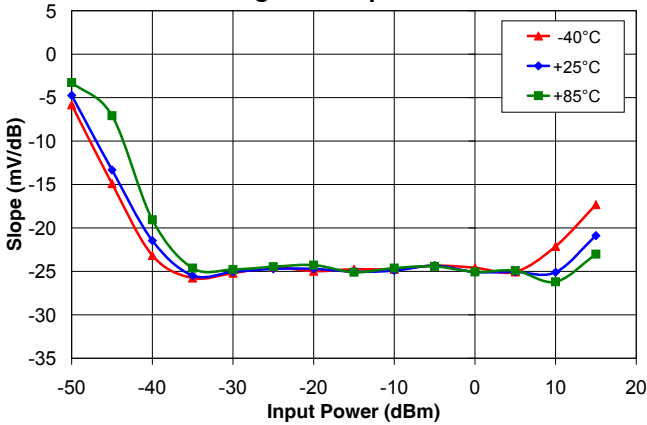
**Slope Vs Input Power Over Temperature Range @ Freq 10MHz**



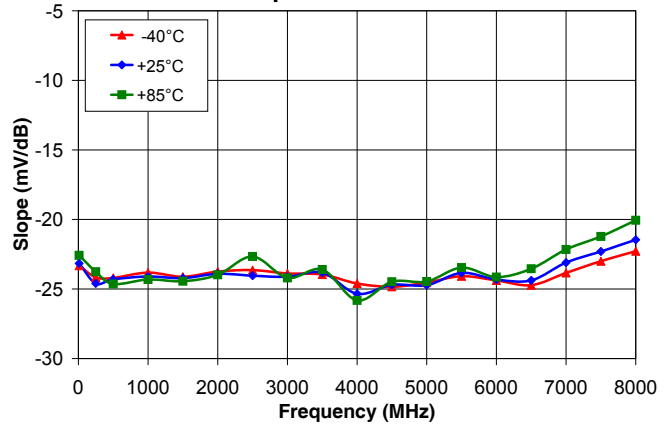
**Slope Vs Freq Over Temperature Range @ Input Power -40dBm**



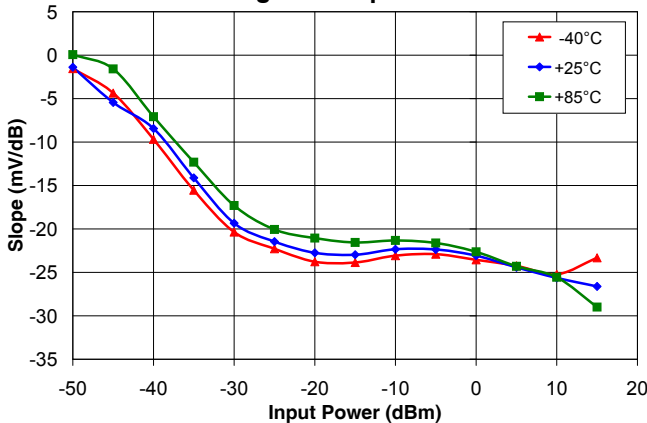
**Slope Vs Input Power Over Temperature Range @ Freq 5000MHz**



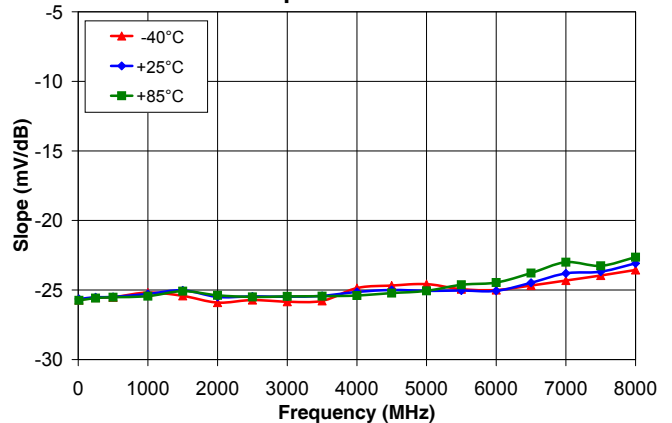
**Slope Vs Freq Over Temperature Range @ Input Power -25dBm**



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



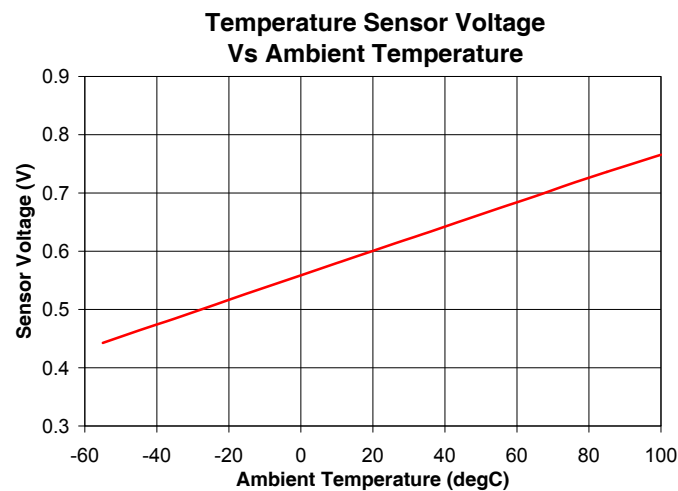
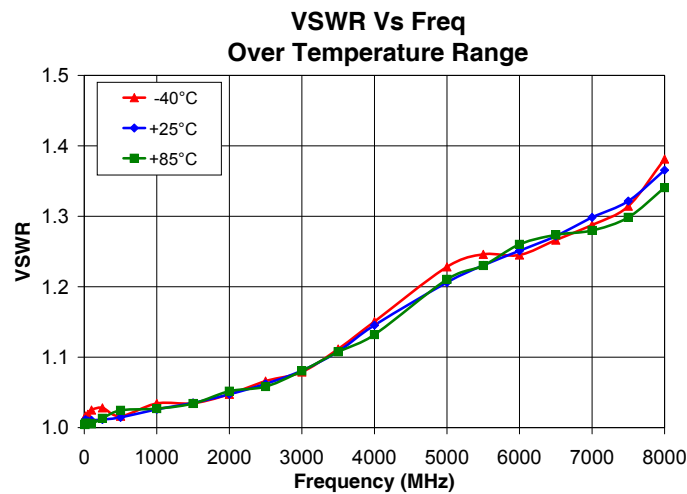
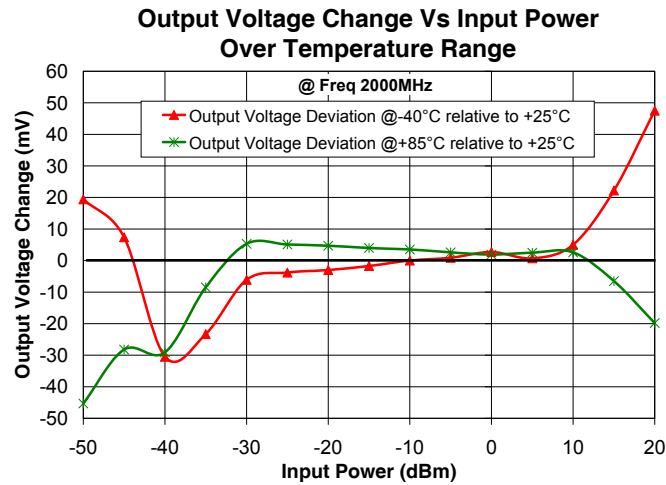
**Slope Vs Freq Over Temperature Range @ Input Power 0dBm**



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