

Power Detector

50Ω, -50dBm to +15dBm, 10 to 8000 MHz

ZX47-50+ ZX47-50LN+



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

Maximum Ratings

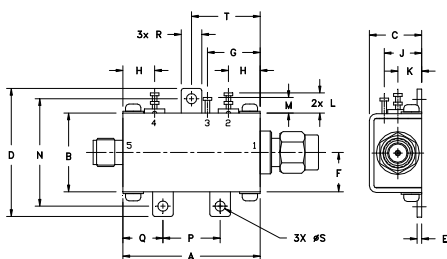
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
DC Power:	
Max. voltage	5.7V
Max. current	120mA
Internal Power Dissipation	0.73W
Input Power	+22dBm

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

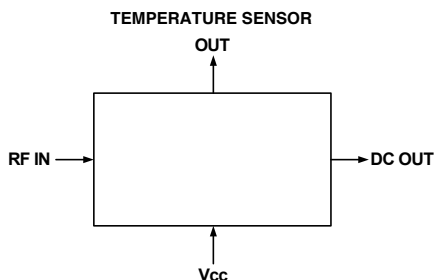


NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note [AN-40-10](#).

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

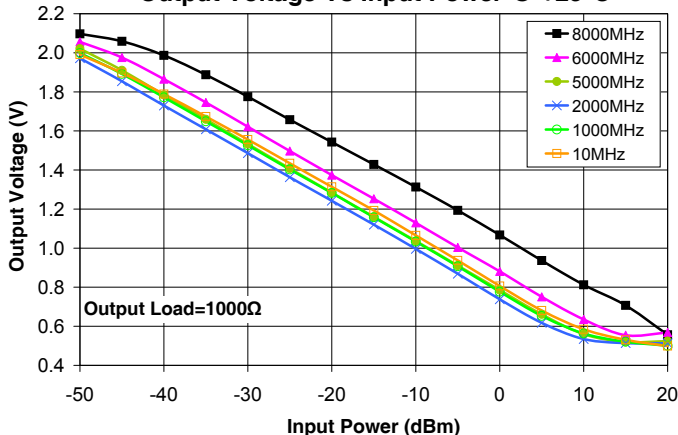
Electrical Specifications (T_{AMB} = 25°C)

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			
					ZX47-50+ Rise	ZX47-50LN+ Fall		Vcc (Volts)			Note 3 Current (mA)
Min.	Max.	Typ.	Typ.	Typ.			Typ.	Min.	Typ.	Max.	Typ.
10	1000	-45 to +10		1.05				4.5	5.0	5.5	100
1000	5000	-50 to +5	0.50 - 2.10	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



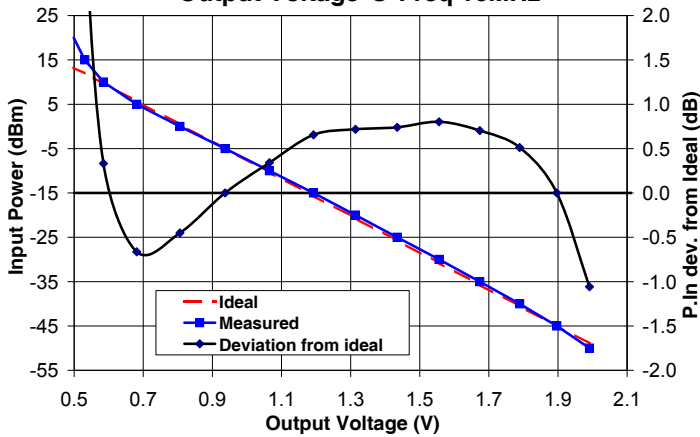
Notes

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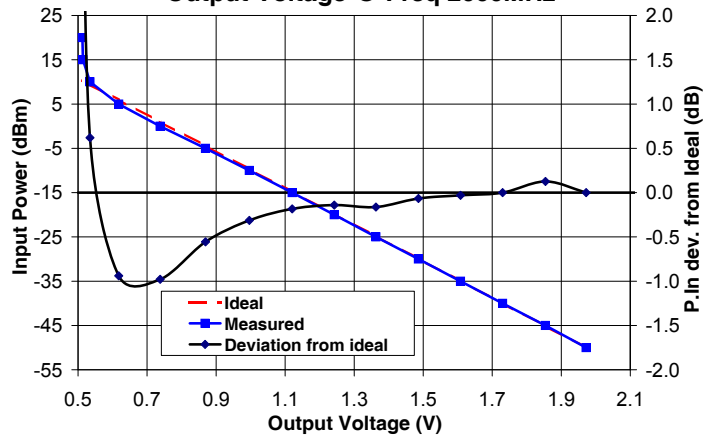


Performance Curves

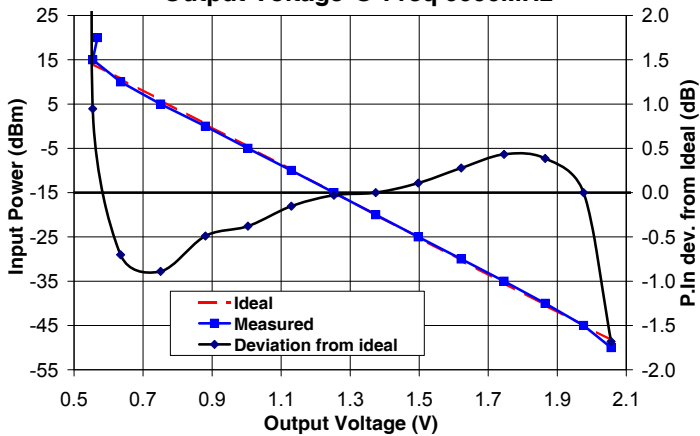
Power Input Deviation from Ideal Vs Output Voltage @ Freq 10MHz



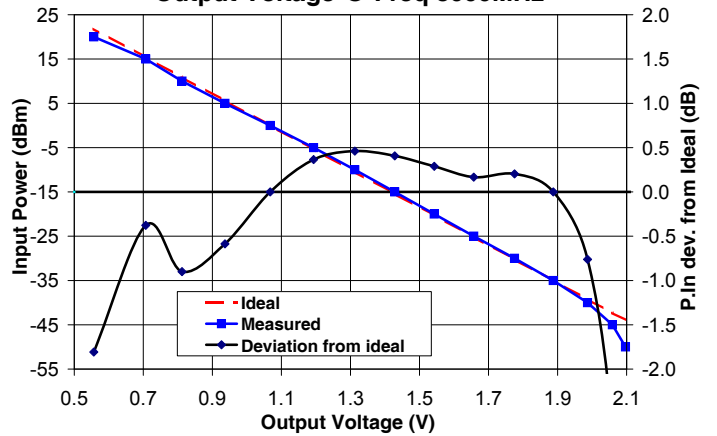
Power Input Deviation from Ideal Vs Output Voltage @ Freq 2000MHz



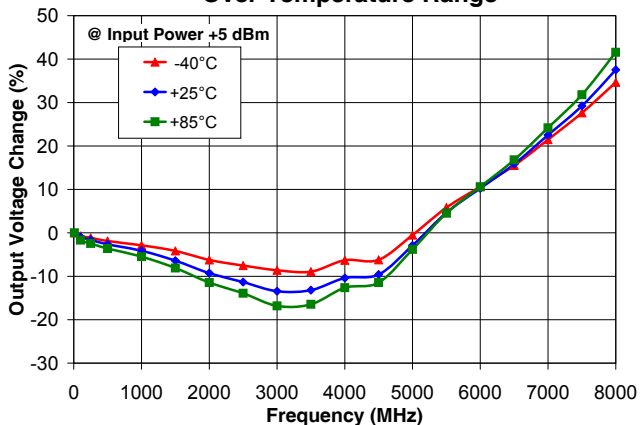
Power Input Deviation from Ideal Vs Output Voltage @ Freq 6000MHz



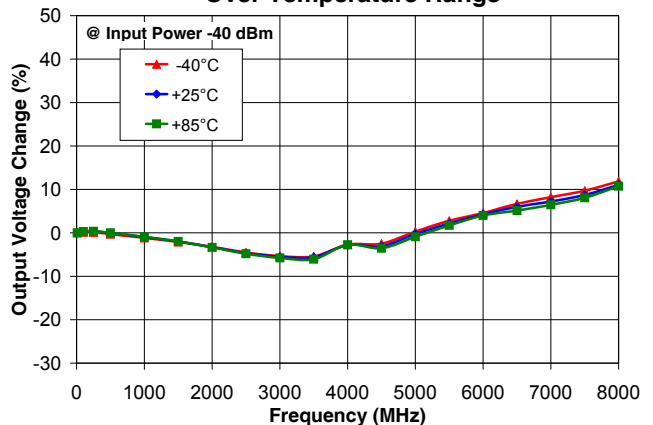
Power Input Deviation from Ideal Vs Output Voltage @ Freq 8000MHz



Output Voltage Change Vs Freq Over Temperature Range



Output Voltage Change Vs Freq Over Temperature Range



Notes

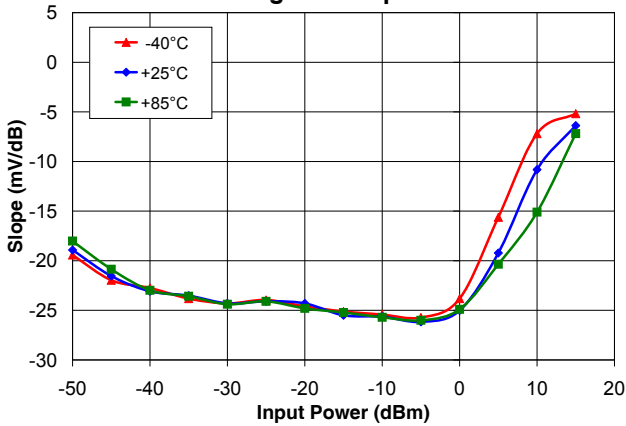
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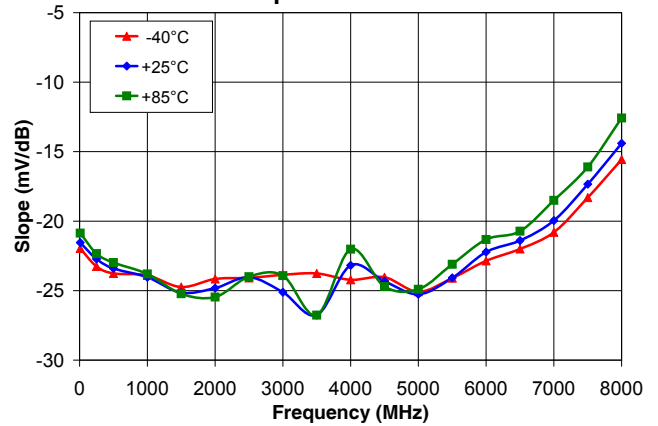
Performance Curves

ZX47-50+ ZX47-50LN+

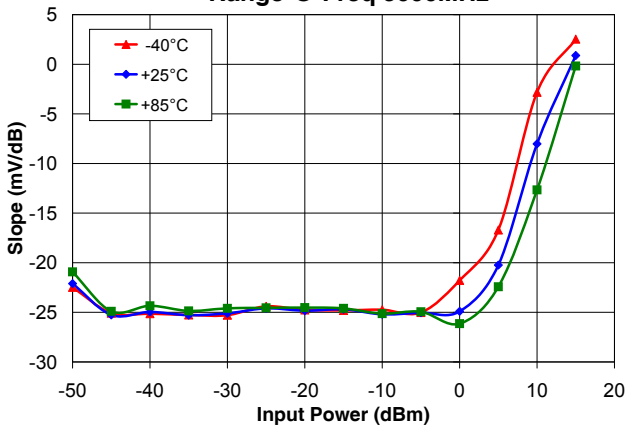
Slope Vs Input Power Over Temperature Range @ Freq 10MHz



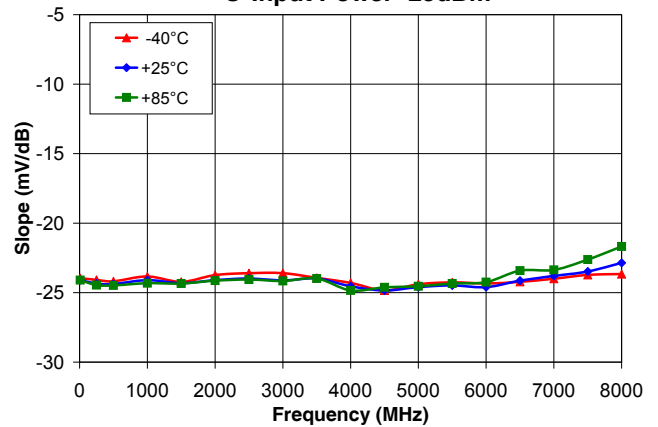
Slope Vs Freq Over Temperature Range @ Input Power -45dBm



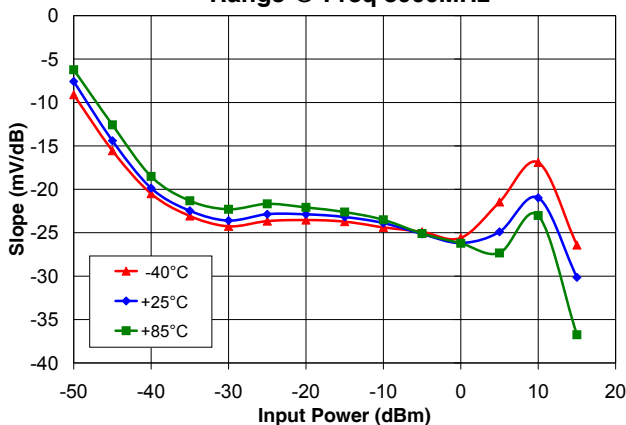
Slope Vs Input Power Over Temperature Range @ Freq 5000MHz



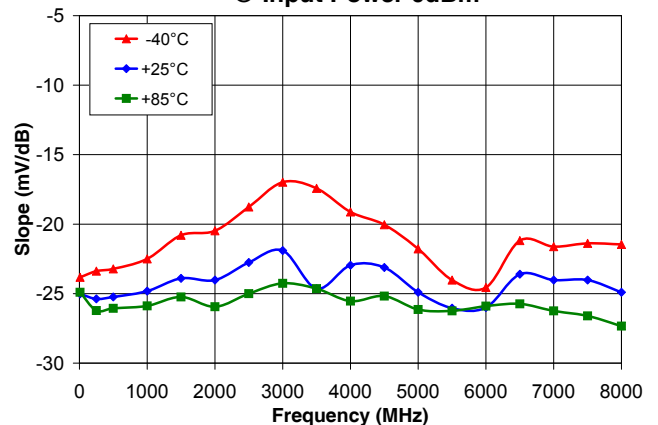
Slope Vs Freq Over Temperature Range @ Input Power -25dBm



Slope Vs Input Power Over Temperature Range @ Freq 8000MHz



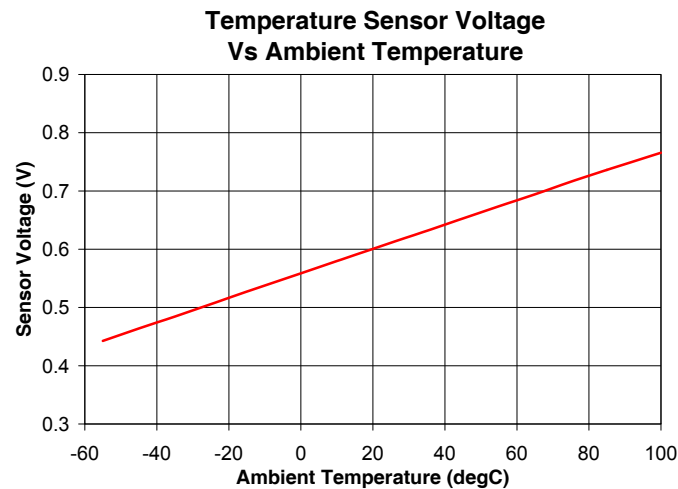
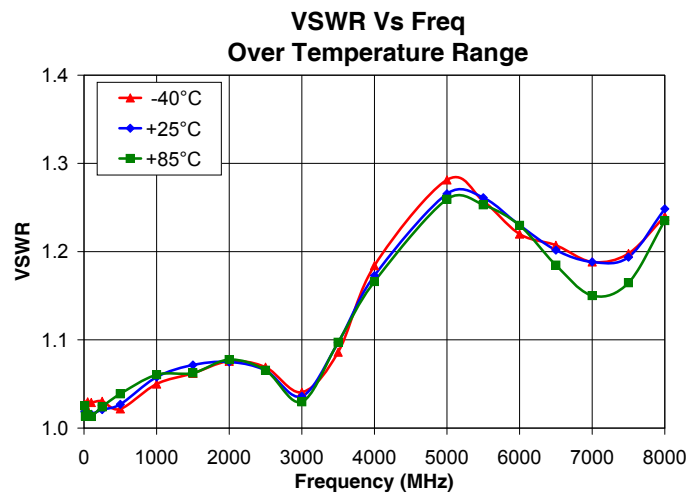
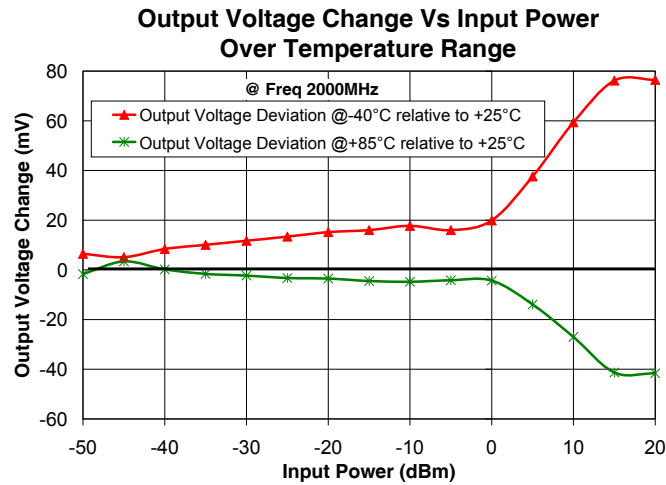
Slope Vs Freq Over Temperature Range @ Input Power 0dBm



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