

# Power Detector

# ZX47-40+

## Typical Performance Data

Output Voltage vs. Input Power @+25°C						
POWER IN (dBm)	@10MHz (V)	@1000MHz (V)	@2000MHz (V)	@5000MHz (V)	@6000MHz (V)	@8000MHz (V)
-50	2.09	2.10	2.09	2.10	2.11	2.11
-45	2.05	2.06	2.05	2.08	2.09	2.10
-40	1.98	1.98	1.99	2.01	2.04	2.08
-35	1.89	1.88	1.86	1.91	1.96	2.03
-30	1.78	1.76	1.72	1.78	1.86	1.96
-25	1.67	1.64	1.60	1.65	1.73	1.87
-20	1.55	1.52	1.48	1.53	1.61	1.76
-15	1.43	1.40	1.36	1.41	1.49	1.65
-10	1.31	1.27	1.23	1.28	1.37	1.53
-5	1.18	1.15	1.11	1.16	1.25	1.42
0	1.06	1.02	0.98	1.03	1.12	1.31
5	0.93	0.90	0.86	0.91	1.00	1.19
10	0.80	0.77	0.72	0.78	0.88	1.07
15	0.67	0.64	0.60	0.66	0.75	0.94
20	0.57	0.56	0.52	0.55	0.63	0.81

Output Voltage Change Vs Freq						
FREQ (MHz)	@ Input Power -30 dBm			@ Input Power +15dBm		
	-40°C	+25°C	+85°C	-40°C	+25°C	+85°C
10	0.00	0.00	0.00	0.00	0.00	0.00
20	0.20	0.08	0.37	0.18	-0.34	-1.41
50	0.36	0.29	0.57	-0.71	-0.94	-1.76
100	0.20	0.12	0.40	-1.19	-1.52	-2.42
250	0.18	0.13	0.42	-1.20	-1.73	-2.72
500	-0.20	-0.18	0.32	-1.92	-2.77	-3.94
1000	-1.13	-1.24	-0.82	-2.85	-4.29	-5.77
1500	-2.23	-2.36	-1.91	-4.44	-6.81	-8.61
2000	-3.38	-3.58	-3.32	-6.88	-9.85	-12.08
2500	-4.71	-4.96	-4.21	-7.99	-11.85	-14.44
3000	-5.42	-5.74	-5.62	-9.18	-13.95	-17.23
3500	-5.39	-5.76	-5.80	-9.61	-13.89	-17.03
4000	-2.55	-2.74	-2.20	-5.67	-9.31	-11.23
4500	-2.13	-2.79	-2.81	-4.90	-8.33	-10.33
5000	0.28	-0.38	-0.43	0.64	-2.00	-3.26
5500	2.94	2.15	2.01	7.69	6.10	5.41
6000	4.64	3.97	3.95	12.43	11.39	11.11
6500	6.69	5.62	5.02	18.00	17.45	17.60
7000	8.17	6.70	5.99	24.13	24.13	24.83
7500	9.74	8.20	7.52	30.86	31.13	32.49
8000	11.77	10.07	9.20	39.13	40.43	42.86



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## Typical Performance Data

Sensitivity vs. Input Power @+25°C						
Measured	@10MHz(mV/dB)			@2000MHz(mV/dB)		
	Output Voltage (V)	Ideal	Deviation from idea	Output Voltage (V)	Ideal	Deviation from idea
-50	2.09	-43.56	-6.44	2.09	-44.03	-5.97
-45	2.05	-42.00	-3.00	2.05	-42.34	-2.66
-40	1.98	-39.00	-1.00	1.99	-40.00	0.00
-35	1.89	-35.00	0.00	1.86	-34.94	-0.06
-30	1.78	-30.67	0.67	1.72	-29.52	-0.48
-25	1.67	-25.65	0.65	1.60	-24.68	-0.32
-20	1.55	-20.77	0.77	1.48	-20.00	0.00
-15	1.43	-15.70	0.70	1.36	-15.21	0.21
-10	1.31	-10.59	0.59	1.23	-10.35	0.35
-5	1.18	-5.29	0.29	1.11	-5.51	0.51
0	1.06	0.00	0.00	0.98	-0.67	0.67
5	0.93	5.40	-0.40	0.86	4.32	0.68
10	0.80	10.95	-0.95	0.72	9.52	0.48
15	0.67	16.23	-1.23	0.60	14.21	0.79
20	0.57	20.36	-0.36	0.52	17.49	2.51

Sensitivity vs. Input Power @+25°C						
Measured	@6000MHz(mV/dB)			@8000MHz(mV/dB)		
	Output Voltage (V)	Ideal	Deviation from idea	Output Voltage (V)	Ideal	Deviation from idea
-50	2.11	-41.01	-8.99	2.11	-36.79	-13.42
-45	2.09	-40.34	-4.66	2.10	-36.47	-8.73
-40	2.04	-38.29	-1.71	2.08	-35.22	-4.95
-35	1.96	-35.00	0.00	2.03	-33.26	-1.84
-30	1.86	-30.41	0.41	1.96	-30.00	0.00
-25	1.73	-25.33	0.33	1.87	-25.53	0.67
-20	1.61	-20.19	0.19	1.76	-20.57	0.87
-15	1.49	-15.00	0.00	1.65	-15.31	0.78
-10	1.37	-9.73	-0.27	1.53	-10.00	0.64
-5	1.25	-4.63	-0.37	1.42	-4.83	0.64
0	1.12	0.51	-0.51	1.31	0.34	0.63
5	1.00	5.80	-0.80	1.19	5.67	0.47
10	0.88	10.97	-0.97	1.07	11.32	0.00
15	0.75	16.41	-1.41	0.94	17.25	-0.74
20	0.63	21.53	-1.53	0.81	23.40	-1.70



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POWER IN (dBm)	Slope Vs Input Power Over Temperature								
	Range @ Freq 10MHz			Range @ Freq 5000MHz			Range @ Freq 8000MHz		
	-40°C	+25°C	+85°C	-40°C	+25°C	+85°C	-40°C	+25°C	+85°C
-50	-9.08	-7.42	-2.62	-5.82	-4.74	-3.26	-1.54	-1.38	0.06
-45	-15.94	-14.24	-10.16	-14.90	-13.32	-7.08	-4.36	-5.44	-1.58
-40	-20.56	-19.00	-17.10	-23.16	-21.46	-19.06	-9.68	-8.44	-7.08
-35	-21.66	-20.58	-20.94	-25.76	-25.48	-24.62	-15.54	-14.12	-12.32
-30	-23.38	-23.82	-22.54	-25.20	-25.06	-24.78	-20.36	-19.34	-17.30
-25	-23.32	-23.16	-22.58	-24.54	-24.72	-24.46	-22.28	-21.46	-20.06
-20	-23.80	-24.10	-24.32	-24.98	-24.70	-24.28	-23.78	-22.74	-21.06
-15	-24.80	-24.24	-24.78	-24.76	-25.04	-25.10	-23.86	-22.96	-21.56
-10	-24.70	-25.20	-25.08	-24.76	-24.92	-24.62	-23.08	-22.34	-21.32
-5	-24.68	-25.10	-25.02	-24.34	-24.34	-24.42	-22.90	-22.36	-21.62
0	-25.72	-25.64	-25.74	-24.58	-25.06	-25.06	-23.56	-23.08	-22.64
5	-26.14	-26.36	-26.22	-25.06	-25.06	-24.92	-24.24	-24.42	-24.30
10	-23.68	-25.06	-24.64	-22.12	-25.10	-26.20	-25.22	-25.64	-25.56
15	-15.82	-19.60	-20.96	-17.32	-20.88	-23.02	-23.32	-26.62	-29.00

FREQ (MHz)	Slope Vs Freq Over Temperature Range								
	@ Input Power -40dBm			@ Input Power -25dBm			@ Input Power 0dBm		
	-40°C	+25°C	+85°C	-40°C	+25°C	+85°C	-40°C	+25°C	+85°C
10	-20.56	-19.00	-17.10	-23.32	-23.16	-22.58	-25.72	-25.64	-25.74
250	-21.18	-19.62	-17.28	-24.16	-24.60	-23.76	-25.54	-25.52	-25.58
500	-21.90	-20.90	-17.72	-24.20	-24.30	-24.64	-25.52	-25.50	-25.52
1000	-22.62	-20.94	-18.78	-23.82	-24.10	-24.32	-25.18	-25.28	-25.44
1500	-23.94	-22.20	-19.78	-24.12	-24.22	-24.44	-25.42	-25.02	-25.08
2000	-24.38	-25.82	-21.70	-23.74	-23.90	-23.98	-25.90	-25.50	-25.38
2500	-24.28	-23.38	-23.72	-23.64	-24.04	-22.66	-25.72	-25.46	-25.50
3000	-23.54	-23.30	-23.22	-23.88	-24.12	-24.20	-25.84	-25.48	-25.46
3500	-27.02	-27.94	-27.32	-23.96	-23.82	-23.60	-25.78	-25.42	-25.44
4000	-21.30	-19.74	-18.82	-24.60	-25.34	-25.82	-24.86	-25.14	-25.40
4500	-23.66	-23.14	-21.70	-24.84	-24.70	-24.48	-24.68	-25.00	-25.22
5000	-23.16	-21.46	-19.06	-24.54	-24.72	-24.46	-24.58	-25.06	-25.06
5500	-20.22	-17.90	-15.60	-24.08	-23.84	-23.46	-24.94	-25.04	-24.62
6000	-17.98	-15.56	-13.06	-24.38	-24.32	-24.14	-25.00	-25.06	-24.46
6500	-15.68	-13.76	-11.70	-24.72	-24.38	-23.54	-24.68	-24.48	-23.78
7000	-13.66	-12.44	-10.44	-23.84	-23.10	-22.16	-24.32	-23.80	-23.00
7500	-12.14	-10.80	-8.90	-23.00	-22.30	-21.22	-23.96	-23.68	-23.26
8000	-9.68	-8.44	-7.08	-22.28	-21.46	-20.06	-23.56	-23.08	-22.64



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## Typical Performance Data

Output Voltage Change Vs Input Power		
POWER IN (dBm)	Output Voltage Deviation @-40°C relative to +25°C	Output Voltage Deviation @+85°C relative to +25°C
-50	19.40	-45.30
-45	7.40	-28.20
-40	-30.50	-29.10
-35	-23.30	-8.50
-30	-6.10	5.30
-25	-3.80	5.10
-20	-3.00	4.70
-15	-1.70	4.00
-10	0.00	3.50
-5	0.90	2.60
0	2.70	1.90
5	0.70	2.50
10	5.00	2.60
15	22.20	-6.50
20	47.50	-19.80

VSWR Vs Freq			
FREQ (MHz)	-40dBm	+25dBm	+85dBm
10	1.01	1.01	1.00
20	1.02	1.01	1.01
50	1.02	1.01	1.01
100	1.03	1.01	1.01
250	1.03	1.01	1.01
500	1.02	1.01	1.02
1000	1.03	1.03	1.03
1500	1.04	1.04	1.03
2000	1.05	1.05	1.05
2500	1.07	1.06	1.06
3000	1.08	1.08	1.08
3500	1.11	1.11	1.11
4000	1.15	1.15	1.13
5000	1.23	1.21	1.21
5500	1.25	1.23	1.23
6000	1.25	1.25	1.26
6500	1.27	1.27	1.27
7000	1.29	1.30	1.28
7500	1.31	1.32	1.30
8000	1.38	1.37	1.34

Temperature Sensor Voltage Vs Ambient	
Temp (°C)	Voltage @ 8000MHz
-55	0.44
-45	0.46
-35	0.48
-25	0.51
-15	0.53
0	0.56
10	0.58
20	0.60
27	0.62
35	0.63
45	0.65
55	0.67
65	0.69
75	0.72
85	0.74
100	0.77



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