

WJ-PS30

100 - 2000 MHz THIN FILM SPST POWER SWITCH

- LOW INSERTION LOSS: < 1.8 dB (TYP.)
- HIGH CW INPUT POWER CAPABILITY:
2 WATTS
- HIGH ISOLATION: > 40 dB (TYP.)
- HIGH $3 I_p$ SUPPRESSION: 45 dBc (TYP.)
@ +20 dBm
- FAST SWITCHING SPEED: < 1 μ sec



Specifications

Characteristic	Typ.	Guaranteed 1	
		0° - 50°C	-54° - +85°C
Insertion Loss (Max.)			
100-500 MHz	1.8 dB	2.7 dB	3.3 dB
500-1000 MHz	1.5 dB	1.8 dB	2.2 dB
1000-2000 MHz	1.8 dB	2.5 dB	2.9 dB
Insertion Flatness (Max.)			
100-500 MHz	±0.5 dB	±0.7 dB	±0.9 dB
500-1000 MHz	±0.2 dB	±0.3 dB	±0.4 dB
1000-2000 MHz	±0.4 dB	±0.6 dB	±0.7 dB
Isolation (Min.)			
100-500 MHz	>55 dB	50 dB	45 dB
500-1000 MHz	>45 dB	40 dB	35 dB
1000-1500 MHz	>30 dB	25 dB	20 dB
1500-2000 MHz	>25 dB	15 dB	15 dB
VSWR (Max.) Input/Output (ON State)			
100-1000 MHz	<1.5:1	1.7:1	1.9:1
1000-2000 MHz	<1.7:1	2.0:1	2.0:1
Switching Speed (10 to 90%)	<1 μ sec	2 μ sec	2 μ sec

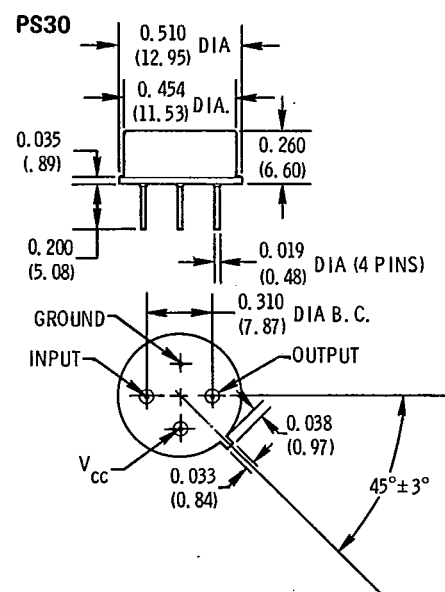
Notes:

1. Measured in a 50-ohm system at +20 Vdc nominal.
2. VSWR < 200 MHz > 1500 MHz is 2.2:1.

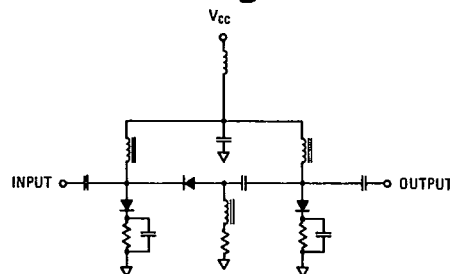
Absolute Maximum Ratings

Ambient Operating Temperature	-54°C to +100°C
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	+100°C
Maximum DC Voltage	+22 Volts
Maximum Continuous RF Input Power	2 Watts
Maximum Short Term RF Input Power	3 Watts (1 Minute Max.)
Maximum Peak Power (1 Minute Max.)	10 Watts (3 μ sec Max.)
"S" Series Burn-In Temperature	100°C

Outline Drawings



Schematic Diagram

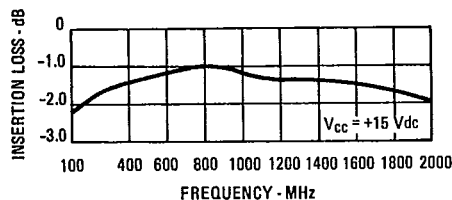
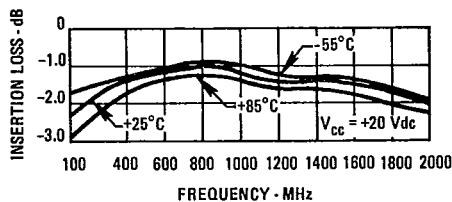


Switching Conditions

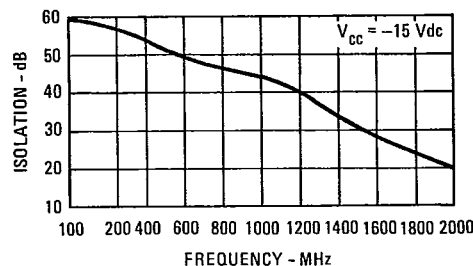
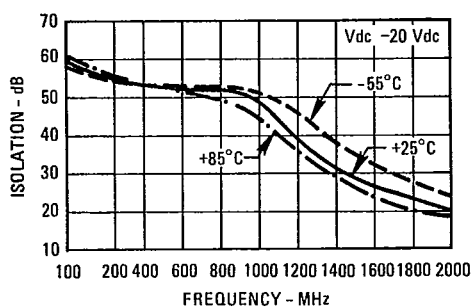
ON	OFF
+55 mA	-55 mA
≈+20 Vdc	≈-20 Vdc
+45 mA	-45 mA
≈+15 Vdc	≈-15 Vdc

Typical Performance at 25°C

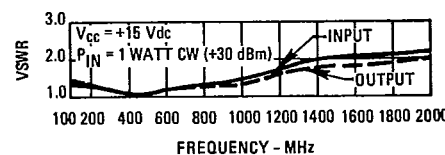
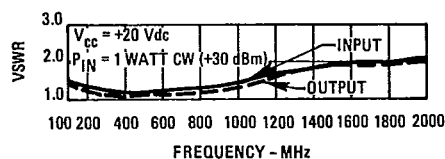
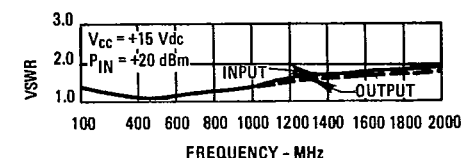
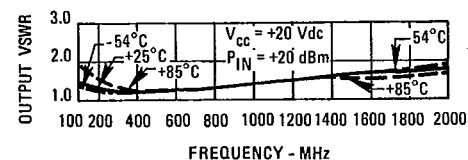
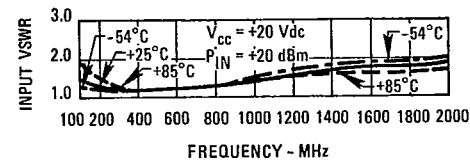
Insertion Loss



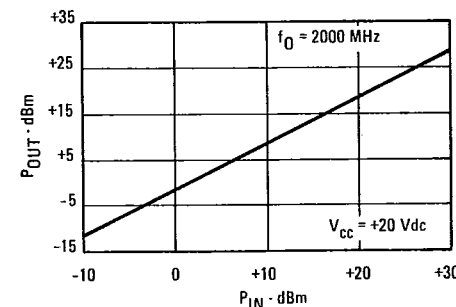
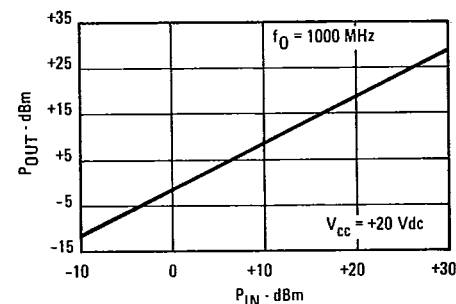
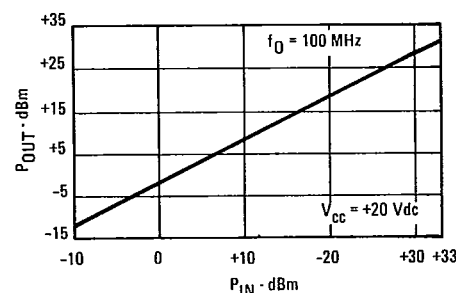
Isolation



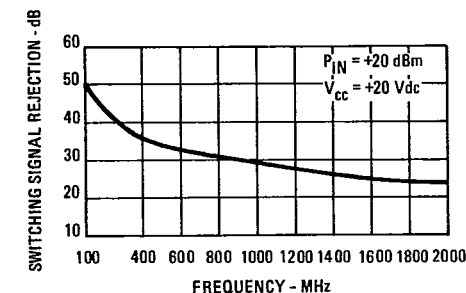
VSWR



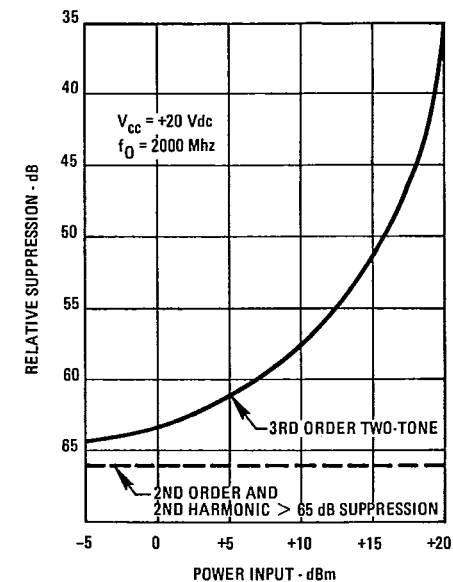
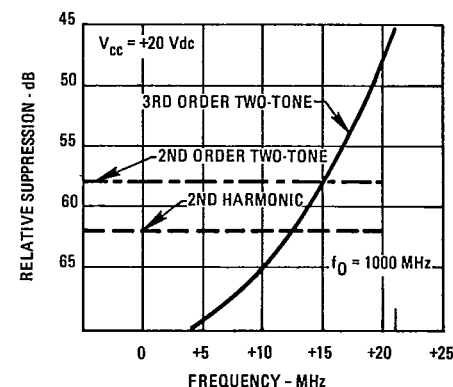
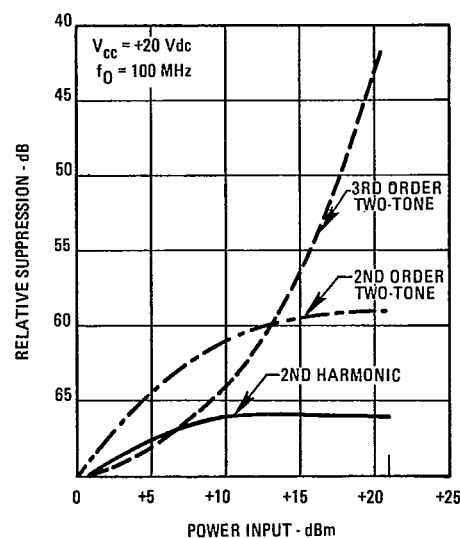
Power Output



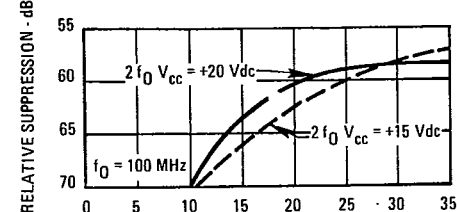
Switching Signal Rejection



Relative Suppression



Harmonic Suppression



Typical Automatic Test Data

 $V_{cc} = +20 \text{ Vdc @ Pin} = +20 \text{ dBm}$

FREQ MHZ	USNR IN	USNR OUT	GAIN DB
100.	1.5	1.5	-2.3
200.	1.3	1.3	-1.9
300.	1.2	1.2	-1.6
400.	1.2	1.2	-1.4
500.	1.1	1.1	-1.3
600.	1.2	1.2	-1.2
700.	1.2	1.2	-1.1
800.	1.3	1.2	-1.0
900.	1.3	1.3	-1.1
1000.	1.4	1.4	-1.2
1100.	1.5	1.4	-1.4
1200.	1.6	1.5	-1.4
1300.	1.6	1.5	-1.4
1400.	1.7	1.6	-1.4
1500.	1.7	1.6	-1.3
1600.	1.8	1.7	-1.3
1700.	1.8	1.7	-1.6
1800.	1.8	1.7	-1.7
1900.	1.9	1.8	-1.9
2000.	1.9	1.8	-2.0
2100.	1.9	1.8	-2.1
2200.	1.9	1.8	-2.2

 $V_{cc} = +15 \text{ Vdc @ Pin} = +20 \text{ dBm}$

FREQ MHZ	USNR IN	USNR OUT	GAIN DB
100.	1.4	1.4	-2.2
200.	1.3	1.3	-1.8
300.	1.2	1.2	-1.6
400.	1.1	1.1	-1.4
500.	1.1	1.1	-1.3
600.	1.2	1.2	-1.2
700.	1.2	1.2	-1.1
800.	1.3	1.3	-1.0
900.	1.4	1.3	-1.1
1000.	1.4	1.4	-1.2
1100.	1.5	1.4	-1.3
1200.	1.6	1.5	-1.4
1300.	1.6	1.5	-1.4
1400.	1.7	1.6	-1.4
1500.	1.7	1.6	-1.4
1600.	1.8	1.7	-1.5
1700.	1.8	1.7	-1.6
1800.	1.8	1.7	-1.7
1900.	1.9	1.8	-1.8
2000.	1.9	1.8	-2.0
2100.	1.9	1.8	-2.1
2200.	1.9	1.8	-2.2

Linear S-Parameters

FREQ MHZ	MAG	S11	ANG	MAG	S21	ANG	MAG	S12	ANG	MAG	S22	ANG
100.	.18	158.1	.77	.3	.77	.7	.19	157.1				
200.	.14	143.8	.81	-5.0	.81	-5.1	.14	145.4				
300.	.10	150.2	.83	-11.6	.83	-11.9	.10	141.7				
400.	.07	161.1	.85	-18.7	.85	-18.8	.07	151.5				
500.	.07	178.8	.86	-25.5	.86	-25.7	.06	171.4				
600.	.08	160.9	.87	-32.6	.87	-32.6	.07	173.5				
700.	.10	154.8	.88	-39.0	.88	-39.0	.09	164.1				
800.	.13	149.0	.89	-45.1	.89	-44.9	.11	161.2				
900.	.15	153.0	.89	-50.9	.88	-50.7	.14	163.3				
1000.	.18	154.7	.87	-56.6	.87	-56.7	.15	166.4				
1100.	.19	156.6	.85	-63.5	.86	-63.6	.18	169.8				
1200.	.22	161.3	.85	-70.4	.85	-70.5	.20	174.4				
1300.	.23	164.8	.85	-77.1	.85	-77.0	.21	179.1				
1400.	.25	170.7	.85	-83.2	.85	-83.0	.22	176.0				
1500.	.27	175.2	.85	-88.7	.85	-88.8	.24	170.6				
1600.	.28	179.5	.84	-94.5	.84	-94.5	.25	164.2				
1700.	.28	174.2	.83	-100.0	.84	-99.8	.26	158.1				
1800.	.29	168.0	.82	-105.4	.82	-105.4	.27	151.7				
1900.	.30	162.1	.81	-111.6	.81	-111.7	.28	145.4				
2000.	.31	157.5	.80	-118.2	.80	-118.4	.28	139.2				
2100.	.30	148.2	.78	-125.2	.79	-125.9	.29	133.1				
2200.	.30	142.2	.77	-132.5	.78	-133.2	.29	126.2				

Linear S-Parameters

FREQ MHZ	MAG	S11	ANG	MAG	S21	ANG	MAG	S12	ANG	MAG	S22	ANG
100.	.16	163.6	.78	-.7	.79	-.9	.16	162.4				
200.	.12	153.8	.81	-6.2	.82	-6.2	.12	150.5				
300.	.09	155.6	.84	-12.3	.84	-12.6	.09	147.5				
400.	.07	167.5	.85	-19.2	.85	-19.3	.07	158.4				
500.	.07	170.3	.86	-26.1	.86	-25.9	.06	180.0				
600.	.08	154.0	.87	-32.8	.87	-32.9	.07	167.2				
700.	.10	150.1	.88	-39.3	.89	-39.3	.09	159.5				
800.	.13	145.3	.89	-45.4	.89	-45.2	.11	157.5				
900.	.15	150.1	.88	-51.1	.88	-51.0	.14	160.5				
1000.	.18	152.3	.87	-56.8	.87	-56.9	.16	164.0				
1100.	.20	154.7	.86	-63.7	.86	-63.9	.18	168.1				
1200.	.22	159.6	.85	-70.7	.85	-70.8	.20	172.9				
1300.	.24	163.2	.85	-77.4	.86	-77.4	.22	177.6				
1400.	.25	168.9	.85	-83.5	.85	-83.3	.23	177.3				
1500.	.27	173.6	.85	-89.1	.85	-89.0	.24	171.6				
1600.	.28	178.9	.84	-94.7	.85	-94.5	.25	165.4				
1700.	.29	175.6	.83	-100.3	.84	-100.1	.26	158.9				
1800.	.30	169.5	.83	-105.8	.83	-105.8	.27	152.4				
1900.	.31	163.3	.81	-112.0	.81	-112.0	.28	145.9				
2000.	.31	158.7	.80	-118.6	.80	-118.3	.29	139.6				
2100.	.31	149.3	.78	-125.7	.79	-125.3	.29	133.4				
2200.	.31	143.2	.77	-133.1	.78	-133.7	.29	126.2				

Deviation from Linear Phase, Gain and Group Delay

FREQ MHZ	DEV LIN DEG	REL DB	GAIN DEV DB	ABS GAIN DB	GROUP DELAY N-SEC
100.	1.19	-.00	-.64	-2.32	.16
200.	1.32	-5.93	-.19	-1.87	.17
300.	1.16	-12.56	.09	-1.59	.19
400.	.43	-19.57	.25	-1.42	.19
500.	-.18	-26.44	.38	-1.30	.19
600.	-.93	-33.47	.47	-1.21	.19
700.	-1.12	-39.92	.53	-1.09	.17
800.	-.94	-46.01	.64	-1.03	.16
900.	-.43	-51.77	.57	-1.11	.16
1000.	.11	-57.50	.47	-1.21	.18
1100.	-.51	-64.39	.32	-1.36	.19
1200.	-1.16	-71.30	.24	-1.44	.19
1300.	-1.59	-78.00	.23	-1.45	.18
1400.	-1.43	-84.11	.23	-1.44	.16
1500.	-.67	-89.62	.23	-1.45	.16
1600.	-.19	-95.41	.15	-1.53	.16
1700.	.62	-100.87	.09	-1.59	.15
1800.	1.44	-106.32	-.01	-1.69	.16
1900.	1.49	-112.54	-.13	-1.86	.18
2000.	1.18	-119.11	-.29	-1.97	.18

Deviation from Linear Phase, Gain and Group Delay

FREQ MHZ	DEV LIN DEG	REL DB	GAIN DEV DB	ABS GAIN DB	GROUP DELAY N-SEC
100.	.36	.00	-.58	-2.15	.15
200.	1.10	-5.50	-.23	-1.81	.16
300.	1.18	-11.65	.02	-1.56	.18
400.	.58	-18.49	.18	-1.40	.19
500.	-.13	-25.43	.29	-1.28	.19
600.	-.61	-32.15	.40	-1.18	.18
700.	-.82	-38.60	.51	-1.06	.17
800.	-.66	-44.67	.58	-1.00	.16
900.	-.14	-50.39	.50	-1.08	.16
1000.	.36	-56.13	.39	-1.19	.18
1100.	-.30	-62.02	.25	-1.33	.19
1200.	-1.04	-69.99	.17	-1.40	.19
1300.	-1.51	-76.70	.16	-1.42	.18
1400.	-1.39	-82.82	.16	-1.41	.16
1500.	-.78	-88.44	.14	-1.43	.16
1600.	-.14	-94.04	.09	-1.48	.16
1700.	.48	-99.66	-.00	-1.58	.15
1800.	1.27	-105.10	-.10	-1.67	.16
1900.	1.27	-111.33	-.27	-1.84	.18
2000.	.91	-117.93	-.38	-1.96	.18