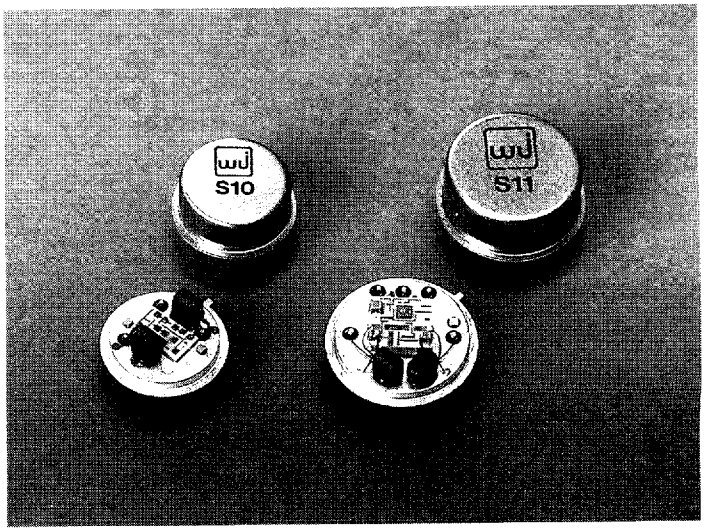
WJ-S10/S11

10 TO 500 MHz
THIN FILM SPST SWITCH

- ◆ LOW INSERTION Lbss: <2.5 dB (TYP.)
- ◆ HIGH ON/OFF RATIO: 60 dB (TYP.)
- ◆ LOW VSWR: 1.6: (TYP.)
- ◆ TTL COMPATIBLE S11
- ◆ HIGH SPEED SWITCHING: 2 nsec (TYP.) S10



Guaranteed Specifications

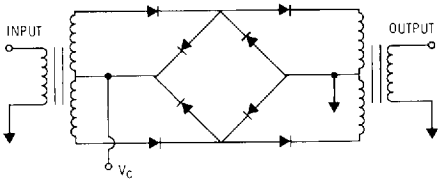
Characteristic	Typical	0° to 50°C	-54°C to +85°C
Insertion Loss (Max.)			
10-100 MHz	< 1.7 dB	2.3 dB	2.7 dB
100-300 MHz	< 2.0 dB	2.6 dB	3.0 dB
300-500 MHz	< 2.5 dB	4.0 dB	4.5 dB
Isolation			
10-100 MHz	>67 dB	54 dB	52 dB
100-300 MHz	>62 dB	50 dB	48 dB
300-500 M H z	>48 dB	39 dB	36 dB
VSWR (Max.) Input/Output (ON state)			
10-500 MHz	1.9:1	2.4:1	2.6:1
Switching Speed (10 to 90%)			
S10	2 nsec	5 nsec	5 nsec
S11	8 nsec	20 nsec	20 nsec

*Measured in a 50-ohm system, at +5 volts (S11.)

Absolute Maximum Ratings

Ambient Operating Temperature .....-54°C to +125°C
Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage .....+6 Volts
Maximum Continuous RF Input Power .....+10 dBm
Maximum Short Term RF Input Power .....100 Milliwatts
Maximum Peak Power (1 Minute Max.) .....1 Watt (3 µsec Max.)
"S" Series Burn-in Temperature .....125°C

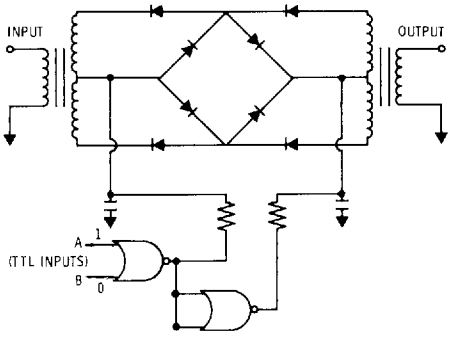
Schematic Diagram



SWITCHING CONDITIONS

ON	OFF
+20 mA	-20 mA
≈+1.0V	≈-1.0V

Schematic Diagram



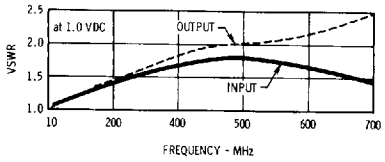
DC volts: 5 ± 1% nominal; DC current 45 mA
TTL logic inputs "0" = 0 volts
"1" = 5 volts nominal
2 volts minimum
6 volts maximum

SWITCHING CONDITIONS

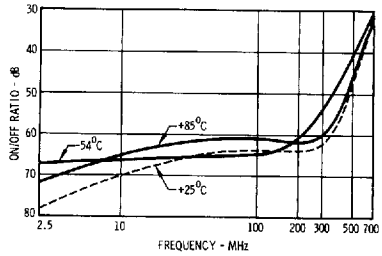
Input Pins	ON State	OFF State
A	0	1 1 0
B	0	1 0 1

Typical Performance at 25°C

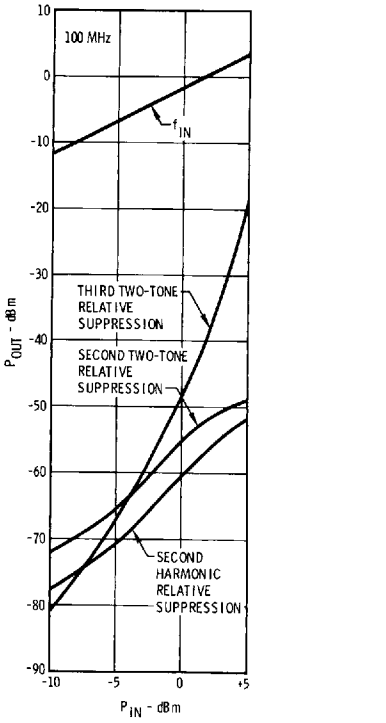
VSWR (ON STATE)



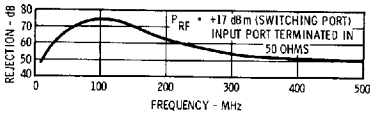
Isolation



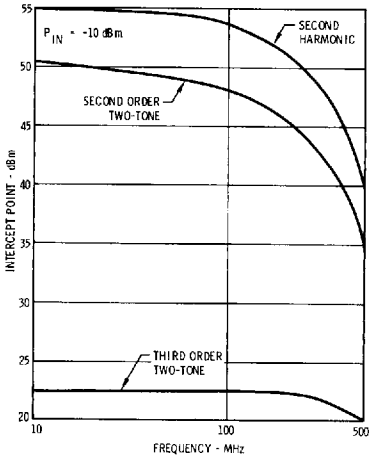
Distortion Products vs. Input Power



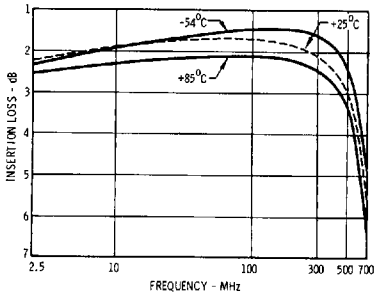
Switching Signal Rejection



Intercept Point



Insertion Loss



Typical Automatic Test Data

Off State: S10

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	.84	–25.7	.00	127.7	.00	–167.2	.84	–24.9
200	.83	–52.3	.00	104.7	.00	74.6	.83	–50.7
300	.81	–80.9	.00	–176.9	.00	–179.2	.81	–80.5
400	.80	–112.0	.00	–119.8	.00	–117.0	.78	–114.0
500	.78	–145.3	.00	–109.1	.00	–106.3	.75	–149.5
600	.76	176.4	.01	–115.0	.01	–116.1	.74	169.8
700	.74	134.5	.01	–147.3	.01	–146.6	.73	126.1

Off State: S11

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	.82	–22.2	.00	71.4	.00	–118.9	.83	–27.3
200	.81	–45.2	.00	137.4	.00	98.4	.83	–55.0
300	.80	–70.7	.00	–147.9	.00	–141.4	.82	–85.8
400	.78	–98.9	.00	–122.5	.00	–119.2	.80	–118.8
500	.76	–130.0	.00	–120.7	.00	–120.8	.78	–152.2
600	.75	–166.4	.01	–131.5	.01	–129.7	.79	170.7
700	.74	151.6	.02	–146.4	.02	–145.0	.79	129.8

On State: S10

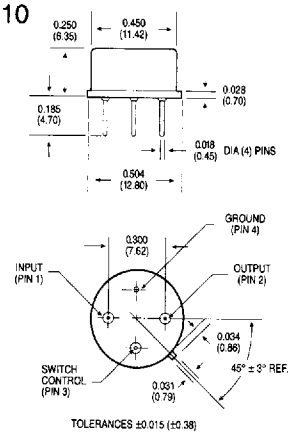
Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	.04	–86.6	.81	.7	.81	.9	.04	–86.6
200	.09	–122.7	.79	1.7	.79	1.7	.10	–122.2
300	.16	–154.2	.77	1.4	.77	1.1	.17	–152.1
400	.25	173.4	.74	–.2	.73	–.5	.26	177.2
500	.36	140.0	.70	–3.3	.70	–2.6	.37	145.8
600	.47	106.9	.62	–8.1	.62	–7.2	.48	113.9
700	.55	71.4	.48	–10.0	.48	–9.0	.55	78.1

On State: S11

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	.03	–90.6	.81	2.2	.81	2.3	.04	–86.7
200	.07	–124.5	.80	4.6	.80	4.4	.08	–120.0
300	.13	–153.1	.78	5.4	.78	5.1	.15	–147.9
400	.21	176.4	.76	5.1	.75	5.1	.24	–177.8
500	.32	145.2	.73	3.4	.72	3.9	.35	150.7
600	.44	114.4	.66	–.5	.66	.4	.47	118.3
700	.56	81.8	.50	–4.3	.54	–3.7	.58	81.6

Outline Drawings

WJ-S10



WJ-S11