



**AMERICAN MICROWAVE
CORPORATION**

**SUMMARY
TEST DATA
ON
WIDEBAND
LOW VIDEO TRANSIENT
LOW LOSS
HIGH SPEED
HIGH ISOLATION
REFLECTIVE & ABSORPTIVE
SPST PIN DIODE SWITCH/MODULATORS**

**NEW DESIGNS
BY
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**REPORTS PREPARED
BY
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SEPTEMBER 10, 1995

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SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 2

COMPARISON CHARTS OF NEW REFLECTIVE & ABSORPTIVE SPST PIN DIODE SWITCH/MODULATORS

CONTENTS

• INSERTION LOSS vs FREQUENCY	PAGE 4
• ISOLATION vs FREQUENCY	PAGE 5
• RETURN LOSS vs FREQUENCY	PAGE 6
• SWITCHING SPEED	PAGE 7
• VIDEO TRANSIENTS	PAGE 8
• MECHANICAL OUTLINES	PAGE 9,10 & 11

NEW AMC MODEL NUMBERS:

- **SWS-0518-1DR-HM**
REFLECTIVE, 0.5 TO 18.0 GHz, SLIM-LINE MINIATURE, LOW LOSS, FAST, SPST PIN DIODE SWITCH
- **SWN-RRA-1DR-ECL-LVT**
REFLECTIVE, 1.0 TO 18.0 GHz, LOW LOSS, LOW VIDEO TRANSIENTS(L/C), 8ns-ULTRA HIGH SPEED, ECL LOGIC SPST PIN DIODE SWITCH
- **SWN-1TDR-ARG-LVT**
REFLECTIVE, 1.0 TO 18.0 GHz, VERY LOW VIDEO TRANSIENTS (L/C), 10ns-ULTRA HIGH SPEED, HIGH ISOLATION SPST PIN DIODE SWITCH
- **SWN-0118-1DT-250**
ABSORPTIVE, 10 MHz TO 18 GHz, LOW LOSS, SPST PIN DIODE SWITCH
- **SWN-WSP-1DR-118-HPM**
REFLECTIVE, 0.5 TO 18.0 GHz, MINIATURE, LOW LOSS SPST PIN DIODE SWITCH
- **SWN-WSP-1DR-118-HPM-LVT**
REFLECTIVE, 1.0 TO 18.0 GHz, LOW VIDEO TRANSIENT SPST PIN DIODE SWITCH
- **SWN-118-1DR-HPX-LVT**
REFLECTIVE, 2.0 TO 18.0 GHz, LOW VIDEO TRANSIENTS(R/C), VERY LOW LOSS, 50ns-HIGH SPEED, BALANCED "ON/OFF" SPST PIN DIODE SWITCH

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 3

CONTENTS
(CONTINUED)

- SWN-0518-1DR-12X-LVT
REFLECTIVE, 0.5 TO 18.0 GHz, LOW LOSS, LOW VIDEO TRANSIENTS(R/C) SPST PIN DIODE SWITCH
- SWN-0518-1DR-12X
REFLECTIVE, 0.5 TO 18.0 GHz, 8ns HIGH SPEED SPST PIN DIODE SWITCH
- SWN-AKG-1DR
REFLECTIVE, 0.5 TO 18.0 GHz, 100 dB ISOLATION SPST PIN DIODE SWITCH
- SWN-AKG-1DR-12X
REFLECTIVE, 0.5 TO 18.0 GHz, VERY HIGH SPEED, VERY HIGH ISOLATION SPST PIN DIODE SWITCH
- SWN-AKG-1DR-12X-LVT
REFLECTIVE, 0.5 TO 18.0 GHz, HIGH SPEED, VERY HIGH ISOLATION, LOW VIDEO TRANSIENTS(R/C) SPST PIN DIODE SWITCH
- SWN-AKG-1DT
ABSORPTIVE, 0.5 TO 18.0 GHz, 100 dB ISOLATION SPST PIN DIODE SWITCH
- SWN-AKG-1DT-12X
ABSORPTIVE, 0.5 TO 18.0 GHz, 10ns-ULTRA HIGH SPEED, HIGH ISOLATION SPST PIN DIODE SWITCH
- SWN-AKG-1DT-12X-LVT
ABSORPTIVE, 0.5 TO 18.0 GHz, HIGH SPEED, HIGH ISOLATION, LOW VIDEO TRANSIENTS(R/C) SPST PIN DIODE SWITCH

NOTES:

- Contact Factory for Available Options
- AMC Model Numbers are defined as follows:

<u>SW</u>	<u>N</u>	<u>- RRA</u>	<u>- 1</u>	<u>D</u>	<u>R</u>	<u>- FCL</u>	<u>- 12X</u>	<u>- LVT</u>
1	2	3	4	5	6	7	8	9

 1. Switch
 2. New
 3. Model Number or Frequency of Operation
 4. Number of Arms
 5. Integral Driver
 6. Reflective or Terminated(Absorptive)
 7. Control Logic (TTL is Standard)
 8. AMC internal design code
 9. Low Video Transient option

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 4

INSERTION LOSS vs FREQUENCY

A COMPARISON OF SPST SWITCHES
INSERTION LOSS vs FREQUENCY

FREQUENCY	0.1	0.2	0.3	0.5	0.8	1	2	4	6	8	10	12	14	16	18
SWS-0518-1DR-HM				1		1.2	1.5			2					2.8
SWN-RR-1DR-ECL-LVT					1.33	0.76	0.89	0.89	1.19	1.43	1.44	1.44	1.98	2.11	2.33
SWN-1TDR-ARG-LVT									1.4	1.2	1.6	1.77	2.2		1.97
SWN-0118-1DT-250				0.55		0.78	1.23			1.45	2.16				3.17
SWN-WSP-1DR-HPM					0.49	0.41				0.69	0.89				1.18
SWN-WSP-1DR-HPM-LVT					0.49	0.41				0.69	0.89				1.18
SWN-118-1DR-HPX-LVT					0.5	0.39	0.51	0.6	0.89	1.3	1	1.28	1.48		1.65
SWN-0518-1DR-12X				0.68		0.43	0.59	0.74	0.98	1.22	1.63	1.76	2.01		2.01
SWN-0518-1DR-12X				0.44		0.34	0.55		0.92		1.2				2.08
SWN-AGK-1DR				0.7	0.6	0.55	0.7	1.2	1.1	1.2	1.5	2	2.25	2.3	2.73
SWN-AGK-1DR-12X				0.6		0.76	1.03	1.13	1.21	1.5	1.87	1.94	2.21		2.48
SWN-AGK-1DR-12X-LVT				0.66		0.78	1.03	1.06	1.39	1.78	1.9	2.11	2.27		2.66
SWN-AGK-1DT				0.75	0.75	0.8	1.4	1.25	1.25	1.7	2.25	2.45	2.45		3.12
SWN-AGK-1DT-12X				0.64		0.76	0.91	1.09	1.38	2.17	1.98	2.24	2.98		2.76
SWN-AGK-1DT-12X-LVT				0.74		0.88	1.03	1.24	1.45	1.83	2.37	2.27	3.13		3.19

A REVIEW OF NEW DESIGNS BY A. K. GORWARA

A AND B INSERTION LOSS MEASUREMENT IN dB
C AND D FREQUENCY IN GHz

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 5

ISOLATION vs FREQUENCY

A COMPARISON OF SPST SWITCHES
ISOLATION vs FREQUENCY

FREQUENCY	0.1	0.2	0.3	0.5	0.8	1	2	4	6	8	10	12	14	16	18
SWS-0518-1DR-HM				60			70			85					80
SWN-RR-1DR-ECL-LVT						60	70	72	74	82	88	84	80	80	80
SWN-1TDR-ARG-LVT						53	64	96		98		89		82	68
SWN-0118-1DT-250	47			66			95	100	100	100		92			90
SWN-WSP-1DR-HPM				66		74				84		81			74
SWN-WSP-1DR-HPM-LVT				66		74				84		81			74
SWN-118-1DR-HPX	72	68	64	62	64	68	84	90	90	82	74	80	80	80	70
SWN-0518-1DR-12X-LVT	48	43	42	44	54	61	78	90	90	90	90	85	84	80	80
SWN-0518-1DR-12X	46			53			84			98		92			84
SWN-AGK-1DR	65			85			104	104		102			102		90
SWN-AGK-1DR-12X	90	90	88	100	100	100	95	90	90	90	88	88	84	80	80
SWN-AGK-1DR-12X-LVT	95	100	100	100	100	100	95	90	90	90	90	86	84	80	80
SWN-AGK-1DT	48			67			96	104		104	103		104		100
SWN-AGK-1DT-12X	14	61	64	70	80	83	95	90	90	90	90	88	84	80	80
SWN-AGK-1DT-12X-LVT	40	38	40	46	54	60	76	90	90	90	88	84	80	80	80

A REVIEW OF NEW DESIGNS BY A. K. GORWARA

Y AXIS MEASUREMENTS OF ISOLATION IN dB
X AXIS FREQUENCY IN GHz

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 6

RETURN LOSS vs FREQUENCY

A COMPARISON OF SPST SWITCHES
RETURN LOSS vs FREQUENCY

FREQUENCY	0.1	0.2	0.3	0.5	0.8	1	2	4	6	8	10	12	14	16	18
SWS-0518-1DR-HM															9.54
SWN-RRR-1DR-ECL-LVT						8.87	13.86	15.79	30.24	16.9	15.4	22.76	15.86	27.62	16.71
SWN-1TDR-ARG-LVT															19.17
SWN-0118-1DT-250				26.4			16.92	15.65		20.82		20.25			21.06
SWN-WSP-1DR-HPM						22.9	19.7			19.5		17.75			31.95
SWN-WSP-1DR-HPM-LVT						22.9	19.7			19.5		17.75			31.95
SWN-118-1DR-HPX-LVT						41.89	23.23	21.28	24.34	14.37	10.42	16.7	19.86	18.5	23.32
SWN-0518-1DR-12X-LVT				14.53			23.77	25.21	24.75	20.44	24.93	12.77	15.94	17.4	19.16
SWN-0518-1DR-12X				14.1		22.6		27.28		14.93		17.74			12.02
SWN-AGK-1DR															18.82
SWN-AGK-1DR-12X				17.63			16.31	16.24	15.11	27.24	23.01	16.01	24.01	26.18	18.44
SWN-AGK-1DR-12X-LVT				17.66			17.98	20.45	21.2	16.59	17.4	14.54	15.26	23.01	25.66
SWN-AGK-1DT															17.29
SWN-AGK-1DT-12X				16.94			17.72	30.69	24.25	19.53	12.56	17.86	25.14	12.26	21.15
SWN-AGK-1DT-12X-LVT				14.63			17.91	26.07	31.53	28.33	22.44	16.48	23.48	12.5	19.85

A REVIEW OF NEW DESIGNS BY A. K. GORWARA

X AXIS MEASUREMENT OF RETURN LOSS IN dB
Y AXIS FREQUENCY IN GHz

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 7

SWITCHING SPEED

A COMPARISON OF SPST SWITCHES SWITCHING SPEED

SWITCHING SPEED	RISE	FALL	ON	OFF
SWS-0518-1DR-HM	10	10	50	50
SWN-RRR-1DR-ECL-LVT	2	2	7	9
SWN-1TDR-ARG-LVT	3	3	6	6
SWN-0118-1DT-250	20	12	60	40
SWN-WSP-1DR-HPM	6	3	40	20
SWN-WSP-1DR-HPM-LVT	8	8	60	55
SWN-118-1DR-HPX-LVT	10	8	40	35
SWN-0518-1DR-12X-LVT	10	12	25	45
SWN-O518-1DR-12X	2	2	10	10
SWN-AGK-1DR	3	3	20	10
SWN-AGK-1DR-12X	2	2	12	10
SWN-AGK-1DR-12X-LVT	3	5	25	35
SWN-AGK-1DT	8	3	20	10
SWN-AGK-1DT-12X	5	3	15	10
SWN-AGK-1DT-12X-LVT	20	5	35	25

X AXIS: MEASUREMENT OF SWITCHING SPEED IN NANoseconds
A REVIEW OF NEW DESIGNS BY A. K. GORWARA

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 8

VIDEO TRANSIENTS

A COMPARISON OF SPST SWITCHES
VIDEO TRANSIENTS

BANDWIDTH	20	100	300
SWS-0518-1DR-HM	50		
SWN-PPA-1DR-ECL-LVT	100		400
SWN-1TDR-ARG-LVT			3
SWN-0118-1DT-250			1,400
SWN-WSP-1DR-HPM			600
SWN-WSP-1DR-HPM-LVT			50
SWN-118-1DR-HPX-LVT	85	125	175
SWN-0518-1DR-12X-LVT			400
SWN-0518-1DR-12X			620
SWN-12X-1DR	*	*	*
SWN-12X-1DR-12X			1,800
SWN-12X-1DR-12X-LVT	85		315
SWN-12X-1DT			1,750
SWN-12X-1DT-12X			2,150
SWN-12X-1DT-12X-LVT	70		450

A REVIEW OF NEW DESIGNS BY A. K. GORWARA
X AXIS: MEASUREMENTS IN MILLIVOLTS(mV), PEAK TO PEAK
Y AXIS: BANDWIDTH IN MHz
NO DATA AVAILABLE ON AKG-10 OR 1DT

SEPTEMBER 10, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 9

MECHANICAL OUTLINES

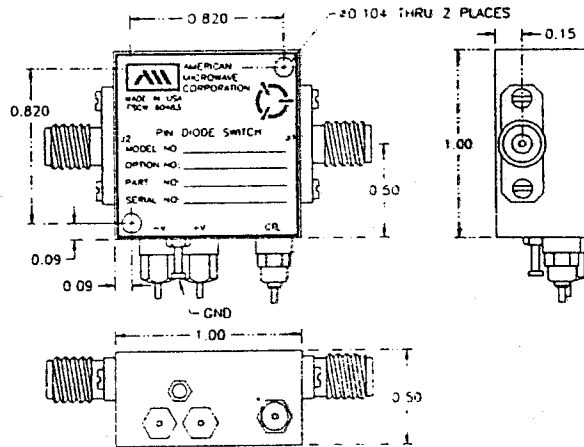


FIGURE 1. DC Power Supply : $\pm 5\text{vdc}$ @ $\pm 60\text{mA}$ Max.

- SWN-118-1DR-IIPX-LVT
- SWN-0518-1DR-12X-LVT
- SWN-0518-1DR-12X
- SWN-AKG-1DR
- SWN-AKG-1DR-12X
- SWN-AKG-1DR-12X-LVT
- SWN-AKG-1DT
- SWN-AKG-1DT-12X
- SWN-AKG-1DT-12X-LVT
- SWN-0118-1DT-250

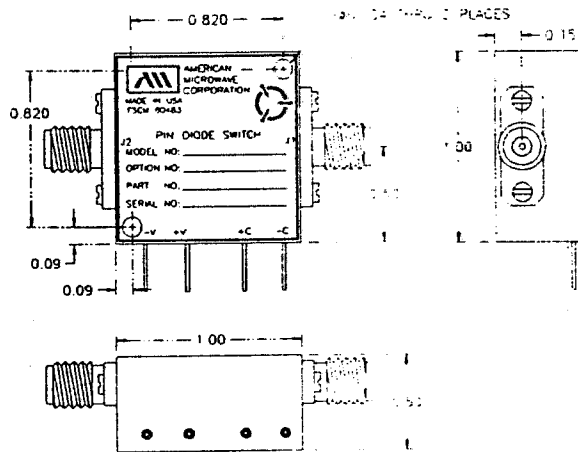


FIGURE 2. DC Power Supply : $\pm 5\text{vdc}$ @ $\pm 80\text{mA}$ Max.

- SWN-RRA-1DR-ECL-LVT

AUGUST 29, 1995



SUMMARY TEST DATA
COMPARISON CHARTS
PAGE : 11

MECHANICAL OUTLINES

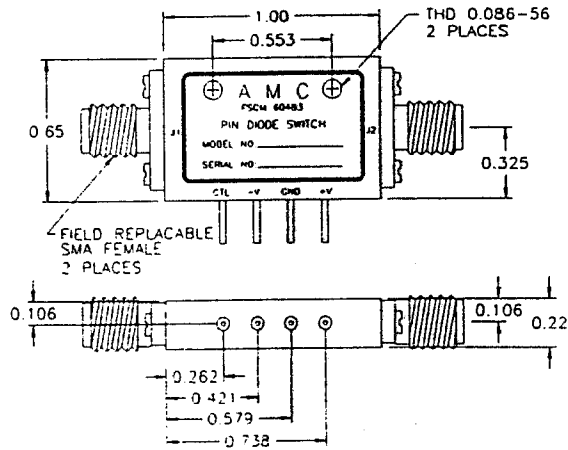


FIGURE 5. DC Power Supply : $\pm 5\text{vdc}$ @ $\pm 60\text{mA}$ Max.
● SWS-0518-1DR-IIM

AUGUST 29, 1995

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