



**AMERICAN MICROWAVE
CORPORATION**

TEST DATA

ON

0.5 TO 18.0 GHz

LOW LOSS

HIGH SPEED

HIGH ISOLATION

LOW PROFILE, RADIAL

REFLECTIVE, SP4T PIN DIODE SWITCH

AMC MODEL No: SWN-1170-4DR-HPM

Serial No: 4MS50747

BY

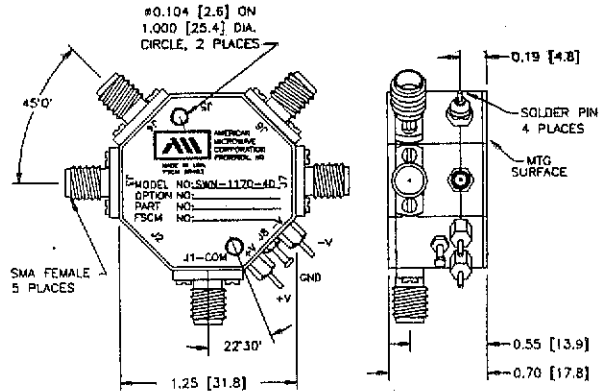
**AMERICAN MICROWAVE
CORPORATION**

JULY 17, 1995

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LOW LOSS, HIGH SPEED REFLECTIVE, RADIAL SP4T PIN DIODE SWITCH

- LOW INSERTION LOSS
- HIGH ISOLATION
- LOW PROFILE RADIAL



AMC MODEL No: SWN-1170-4DR-HPM

SPECIFICATIONS:

- | | |
|--------------------|---|
| ● FREQUENCY RANGE | : 0.50 GHz TO 18.0 GHz |
| ● INSERTION LOSS | : 2.50 dB MAX.
: 0.96 dB TYP. @ 0.5 GHz
: 0.73 dB TYP. @ 2.0 GHz
: 1.67 dB TYP. @ 12.0 GHz
: 2.04 dB TYP. @ 18.0 GHz |
| ● ISOLATION | : 60 dB MIN.
: 95 dB TYP. @ 0.5 GHz
: 94 dB TYP. @ 2.0 GHz
: 75 dB TYP. @ 12.0 GHz
: 66 dB TYP. @ 18.0 GHz |
| ● VSWR | : 2.0:1 |
| ● SWITCHING SPEED | : "RISE" : 10nS MAX., 4nS TYP.
: "FALL" : 10nS MAX., 4nS TYP.
: "ON" : 70nS MAX., 56nS TYP.
: "OFF" : 70nS MAX., 34nS TYP. |
| ● CONTROL | : TTL COMPATIBLE |
| ● VIDEO TRANSIENTS | : 3.5 V Peak to Peak in a 300 MHz BW
: 420mV Peak to Peak in a 20 MHz BW |
| ● RF INPUT POWER | : +20 dBm Operating, 1 Watt Survival |
| ● DC POWER SUPPLY | : ±5vdc @ 140 mA MAX., <100 mA TYP. |
| ● SIZE | : 1.25" dia. X 0.70" |
| ● WEIGHT | : 2.5 oz. |

SP3T THROUGH SP7T REFLECTIVE AND ABSORPTIVE VERSIONS AVAILABLE

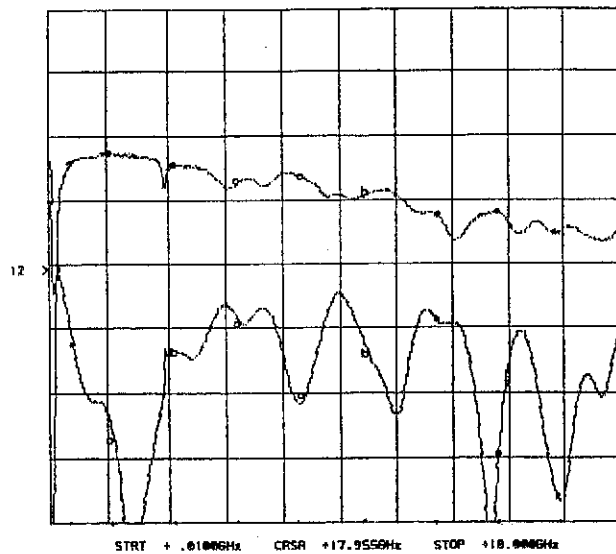


SUMMARY TEST DATA
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SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ <100mA

INSERTION LOSS & RETURN LOSS
J1 TO J3

CH1: A -1 REF = 2.84 dB 1.8 dB/ REF = 2.56 dB
CH2: B -1 REF = 14.42 dB 5.8 dB/ REF = 9.52 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.96 dB	13.10 dB
2.0 GHz	0.73 dB	23.76 dB
4.0 GHz	0.93 dB	16.37 dB
6.0 GHz	1.16 dB	14.05 dB
8.0 GHz	1.15 dB	18.92 dB
10.0 GHz	1.34 dB	17.00 dB
12.0 GHz	1.67 dB	13.99 dB
14.0 GHz	1.74 dB	24.17 dB
16.0 GHz	2.04 dB	27.93 dB
18.0 GHz	2.04 dB	14.42 dB

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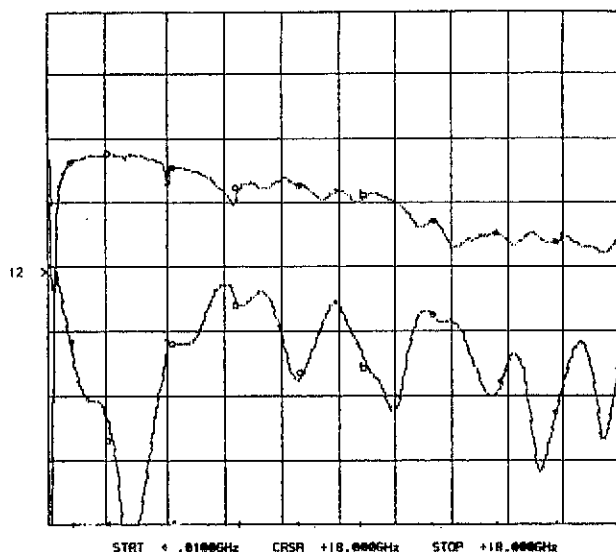
SUMMARY TEST DATA
SWN-1170-3DR-HPM
PAGE 4

SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ $< 100\text{mA}$

INSERTION LOSS & RETURN LOSS

J1 TO J4

CH1: dB/REF = 2:50 dB CH2: dB/REF = 13:53 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.90 dB	13.39 dB
2.0 GHz	0.71 dB	23.56 dB
4.0 GHz	0.90 dB	15.38 dB
6.0 GHz	1.19 dB	12.47 dB
8.0 GHz	1.18 dB	17.34 dB
10.0 GHz	1.33 dB	17.48 dB
12.0 GHz	1.77 dB	13.30 dB
14.0 GHz	1.94 dB	19.05 dB
16.0 GHz	2.04 dB	19.38 dB
18.0 GHz	2.11 dB	17.59 dB

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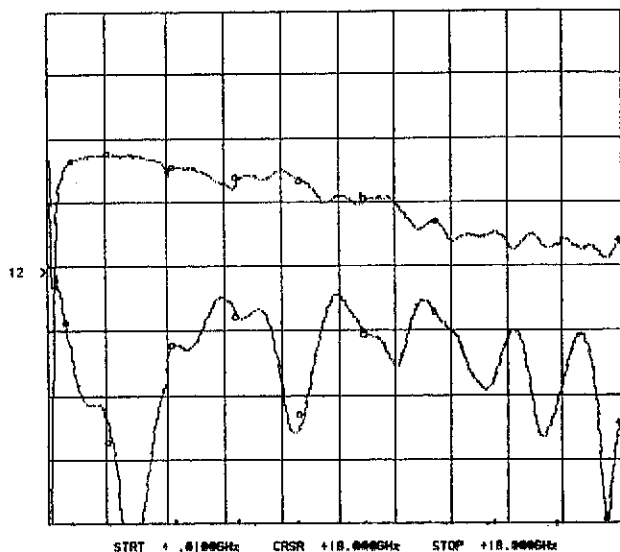
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SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ $< 100\text{mA}$

INSERTION LOSS & RETURN LOSS

J1 TO J6

CH1: 0 dB/° REF = 2.13 dB CH2: 0 dB/° REF = 21.77 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.89 dB	13.78 dB
2.0 GHz	0.71 dB	23.95 dB
4.0 GHz	0.90 dB	15.66 dB
6.0 GHz	1.06 dB	13.48 dB
8.0 GHz	1.12 dB	20.43 dB
10.0 GHz	1.42 dB	14.85 dB
12.0 GHz	1.76 dB	12.73 dB
14.0 GHz	1.95 dB	17.35 dB
16.0 GHz	2.07 dB	19.32 dB
18.0 GHz	2.13 dB	21.77 dB

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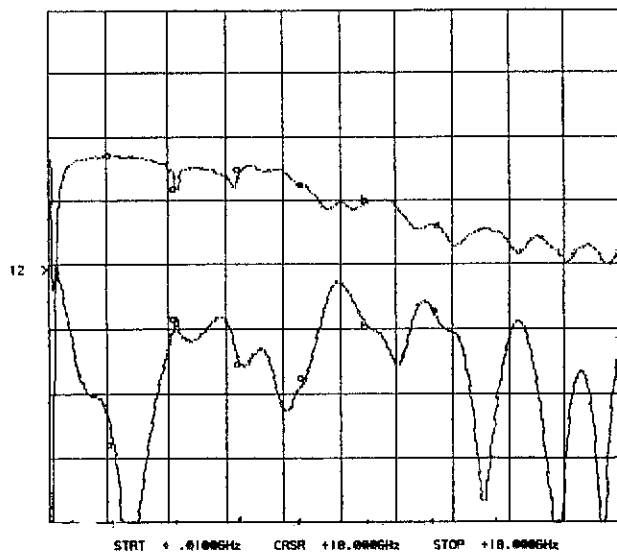


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SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : ±5vdc @ <100mA

INSERTION LOSS & RETURN LOSS
J1 TO J7

CH1: 0.00 dB/REF = 2.31 dB CH2: 0.00 dB/REF = 15.27 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.96 dB	13.17 dB
2.0 GHz	0.76 dB	24.17 dB
4.0 GHz	1.10 dB	14.57 dB
6.0 GHz	0.95 dB	17.21 dB
8.0 GHz	1.24 dB	17.97 dB
10.0 GHz	1.48 dB	14.42 dB
12.0 GHz	1.85 dB	13.18 dB
14.0 GHz	1.97 dB	19.05 dB
16.0 GHz	2.34 dB	29.95 dB
18.0 GHz	2.31 dB	15.27 dB

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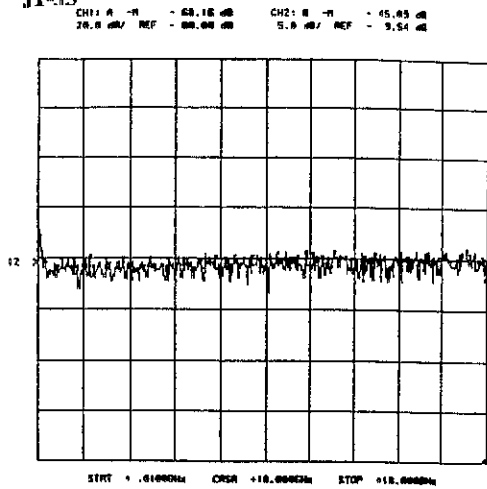
SERIAL NUMBER
TECHNICIAN
VOLTAGE & CURRENT DRAW

: 4MS50747
: RENE AFABLE
: $\pm 5\text{vdc}$ @ $< 100\text{mA}$

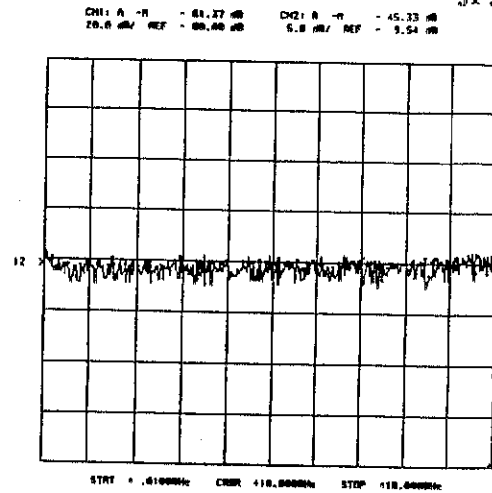
ISOLATION

AS MEASURED ON A NETWORK ANALYSER

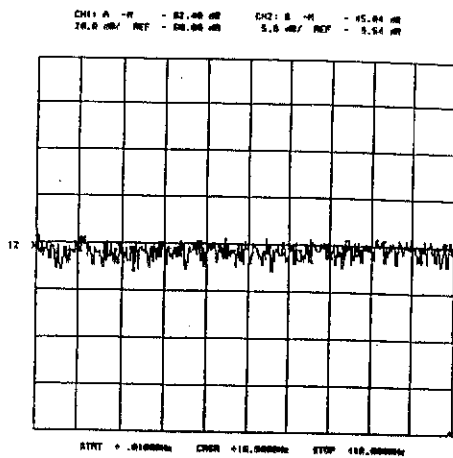
J1-J3



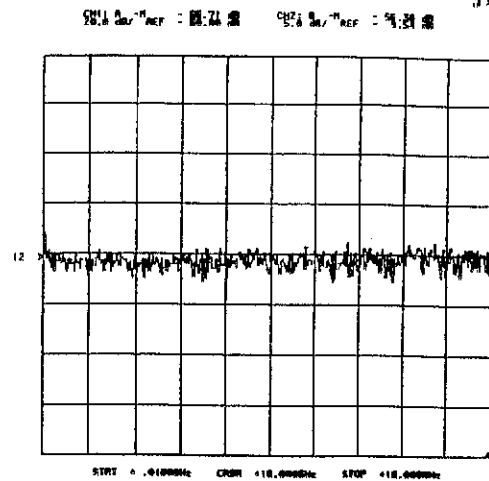
J1-J4



J1-J6



J1-J7



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SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ $<100\text{mA}$

ISOLATION

AS MEASURED ON A SPECTRUM ANALYSER

FREQUENCY	J1-J3 ISOLATION	J1-J4 ISOLATION	J1-J6 ISOLATION	J1-J7 ISOLATION
100 MHz	94 dB	96 dB	96 dB	94 dB
200 MHz	94 dB	94 dB	96 dB	92 dB
300 MHz	96 dB	96 dB	96 dB	86 dB
500 MHz	96 dB	94 dB	96 dB	94 dB
800 MHz	96 dB	94 dB	96 dB	96 dB
1.0 GHz	94 dB	94 dB	94 dB	96 dB
2.0 GHz	94 dB	94 dB	94 dB	94 dB
4.0 GHz	88 dB	90 dB	82 dB	84 dB
6.0 GHz	88 dB	88 dB	88 dB	86 dB
8.0 GHz	74 dB	76 dB	80 dB	88 dB
10.0 GHz	78 dB	68 dB	74 dB	72 dB
12.0 GHz	78 dB	74 dB	78 dB	76 dB
14.0 GHz	74 dB	76 dB	76 dB	76 dB
16.0 GHz	68 dB	62 dB	70 dB	72 dB
18.0 GHz	68 dB	60 dB	66 dB	66 dB

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SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc @ <100mA

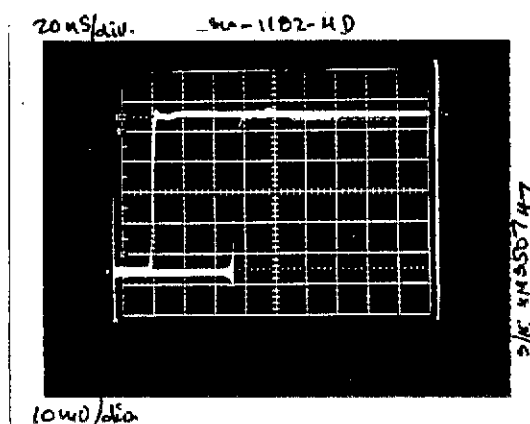
SWITCHING SPEED
TYPICAL FOR ALL ARMS

"RISE/FALL" TIME: 10%RF TO 90%RF & 90%RF TO 10%RF
"ON/OFF" TIME: 50%TTL TO 90%RF OR 10%RF

"ON" 56nS, "RISE" 4nS

HORIZONTAL SCALE:
20nS/DIVISION

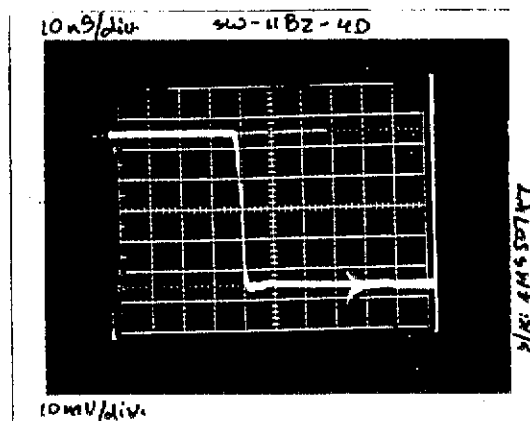
VERTICAL SCALE:
10mV/DIVISION



"OFF" 34nS, "FALL" 4nS

HORIZONTAL SCALE:
20nS/DIVISION

VERTICAL SCALE:
10mV/DIVISION



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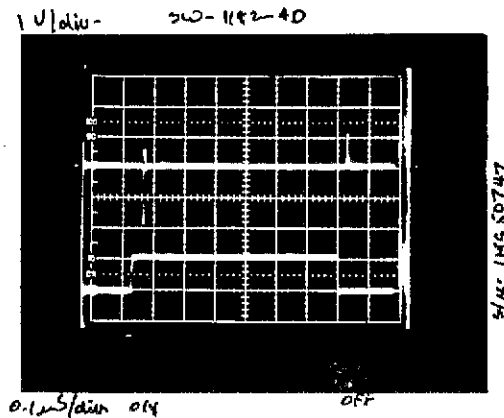
SERIAL NUMBER : 4MS50747
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ $< 100\text{mA}$

VIDEO TRANSIENTS
TYPICAL FOR ALL ARMS

AS MEASURED IN A
300MHz BANDWIDTH

HORIZONTAL SCALE:
 $0.1\mu\text{S}/\text{DIVISION}$

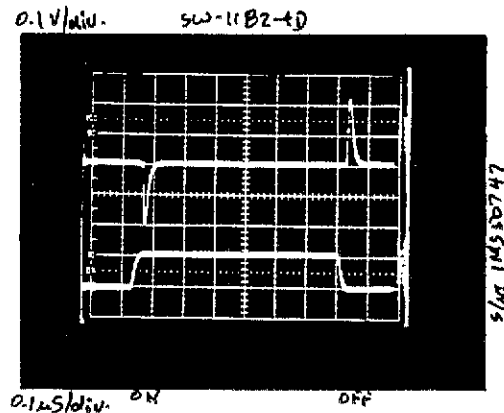
VERTICAL SCALE:
1.0 V/DIVISION



AS MEASURED IN A
20MHz BANDWIDTH

HORIZONTAL SCALE:
 $0.1\mu\text{S}/\text{DIVISION}$

VERTICAL SCALE:
0.1 V/DIVISION



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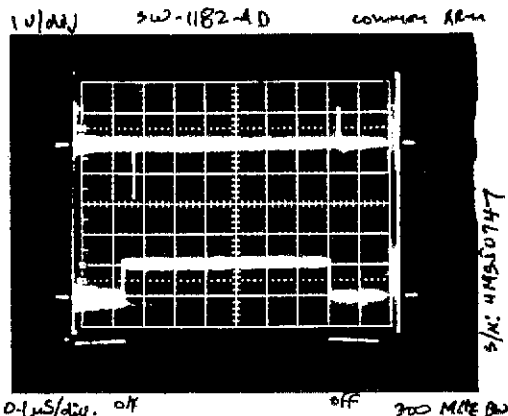
SERIAL NUMBER : 4MS50747
 TECHNICIAN : RENE AFABLE
 VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ $< 100\text{mA}$

VIDEO TRANSIENTS
COMMON ARM

AS MEASURED IN A
 300MHz BANDWIDTH

HORIZONTAL SCALE:
 0.1 μs /DIVISION

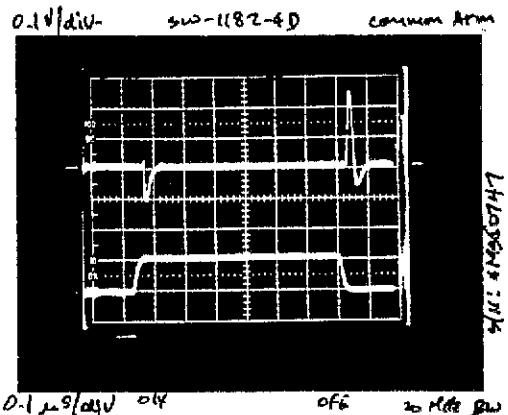
VERTICAL SCALE:
 1.0 V/DIVISION



AS MEASURED IN A
 20MHz BANDWIDTH

HORIZONTAL SCALE:
 0.1 μs /DIVISION

VERTICAL SCALE:
 0.1 V/DIVISION



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