



**AMERICAN MICROWAVE
CORPORATION**

TEST DATA

ON

0.5 TO 18.0 GHz

10nS-ULTRA HIGH SPEED

HIGH ISOLATION

LOW PROFILE, RADIAL

ABSORPTIVE, SP3T PIN DIODE SWITCH

AMC MODEL No: SWN-1170-3DT-12X

Serial No: 3MS50551

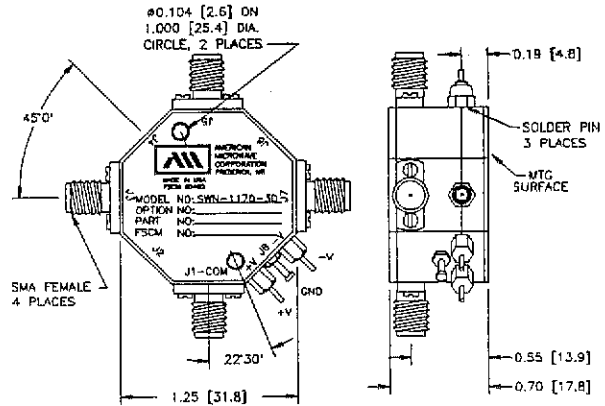
**BY
AMERICAN MICROWAVE
CORPORATION**

JULY 17, 1995

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ULTRA HIGH SPEED ABSORPTIVE, RADIAL SP3T PIN DIODE SWITCH

- 10nS-ULTRA HIGH SPEED
- HIGH ISOLATION
- LOW PROFILE RADIAL



AMC MODEL No: SWN-1170-3DT-12X

SPECIFICATIONS:

- FREQUENCY RANGE : 0.50 GHz TO 18.0 GHz
- INSERTION LOSS : 3.50 dB MAX.
: 0.87 dB TYP. @ 0.5 GHz
: 0.90 dB TYP. @ 2.0 GHz
: 1.95 dB TYP. @ 12.0 GHz
: 3.28 dB TYP. @ 18.0 GHz
- ISOLATION : 70 dB MIN.
: 90 dB TYP. @ 0.5 GHz
: 90 dB TYP. @ 2.0 GHz
: 88 dB TYP. @ 12.0 GHz
: 72 dB TYP. @ 18.0 GHz
- VSWR : 2.0:1
- SWITCHING SPEED : "RISE" : 5nS MAX., 2nS TYP.
: "FALL" : 5nS MAX., 3nS TYP.
: "ON" : 15nS MAX., 10nS TYP.
: "OFF" : 15nS MAX., 10nS TYP.
- CONTROL : TTL COMPATIBLE
- VIDEO TRANSIENTS : 4.0 V Peak to Peak in a 300 MHz BW
: 1.0 V Peak to Peak in a 20 MHz BW
- RF INPUT POWER : +20 dBm Operating, 1 Watt Survival
- DC POWER SUPPLY : ±5vdc @ 120 mA MAX., 80 mA TYP.
- SIZE : 1.25" dia. X 0.70"
- WEIGHT : 2.5 oz.

SP3T THROUGH SP7T REFLECTIVE AND ABSORPTIVE VERSIONS AVAILABLE

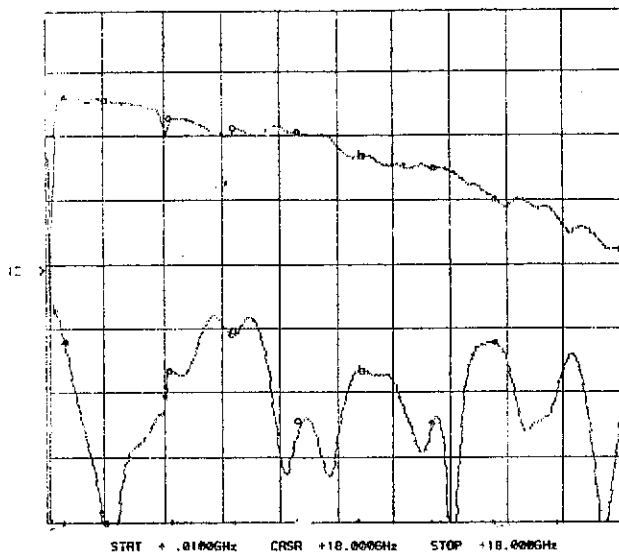


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SERIAL NUMBER : 3MS50551
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc @ } 80\text{mA}$

INSERTION LOSS & RETURN LOSS
J1 TO J3

CH1: 0.0000 dB 1.0 dB/ REF = 3.28 dB
CH2: 0.0000 dB 5.0 dB/ REF = 22.27 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.87 dB	15.16 dB
2.0 GHz	0.90 dB	34.69 dB
4.0 GHz	1.16 dB	17.92 dB
6.0 GHz	1.34 dB	14.49 dB
8.0 GHz	1.43 dB	21.19 dB
10.0 GHz	1.76 dB	18.37 dB
12.0 GHz	1.95 dB	22.08 dB
14.0 GHz	2.45 dB	15.86 dB
16.0 GHz	2.76 dB	19.14 dB
18.0 GHz	3.28 dB	22.27 dB

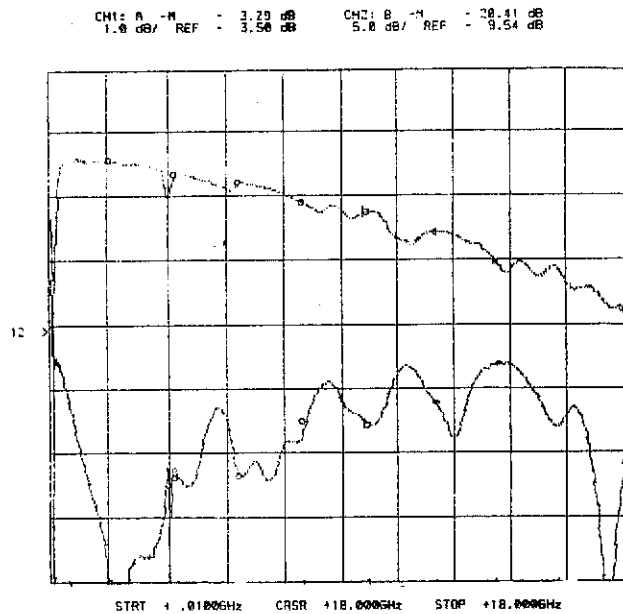
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SERIAL NUMBER : 3MS50551
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ 80mA

INSERTION LOSS & RETURN LOSS
J1 TO J5



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.91 dB	14.80 dB
2.0 GHz	0.93 dB	39.42 dB
4.0 GHz	1.12 dB	21.54 dB
6.0 GHz	1.26 dB	21.02 dB
8.0 GHz	1.60 dB	16.64 dB
10.0 GHz	1.73 dB	17.24 dB
12.0 GHz	2.05 dB	15.52 dB
14.0 GHz	2.58 dB	12.56 dB
16.0 GHz	2.74 dB	16.96 dB
18.0 GHz	3.29 dB	20.41 dB

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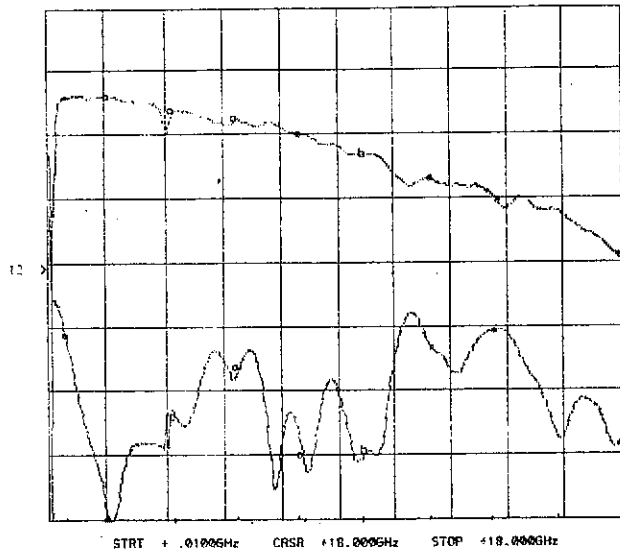


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SERIAL NUMBER : 3MS50551
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ 80mA

INSERTION LOSS & RETURN LOSS
J1 TO J7

CH1: 0.0 dB REF = 3.39 dB CH2: 0.0 dB REF = 23.75 dB
1.0 dB/ REF = 3.58 dB 5.0 dB/ REF = 9.54 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.87 dB	15.13 dB
2.0 GHz	0.88 dB	29.44 dB
4.0 GHz	1.06 dB	21.72 dB
6.0 GHz	1.22 dB	17.24 dB
8.0 GHz	1.44 dB	25.26 dB
10.0 GHz	1.76 dB	24.35 dB
12.0 GHz	2.13 dB	16.05 dB
14.0 GHz	2.44 dB	14.74 dB
16.0 GHz	2.62 dB	23.25 dB
18.0 GHz	3.39 dB	23.75 dB

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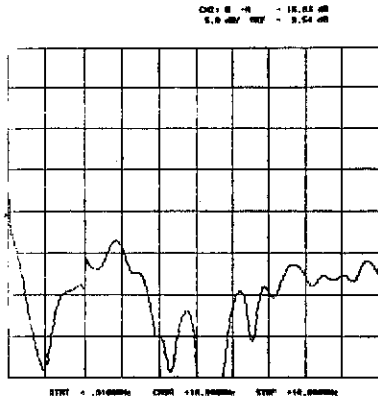
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SERIAL NUMBER : 3MS50551
 TECHNICIAN : RENE AFABLE
 VOLTAGE & CURRENT DRAW : ±5vdc @ 80mA

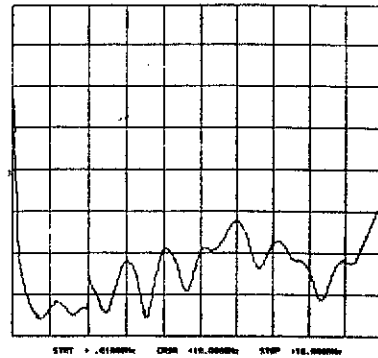
OFF ARM TERMINATION
(OUTPUT RETURN LOSS)

ALL ARMS MEASURED AGAINST A REFERENCE OF 9.54 (2.0:1)

J3-J1

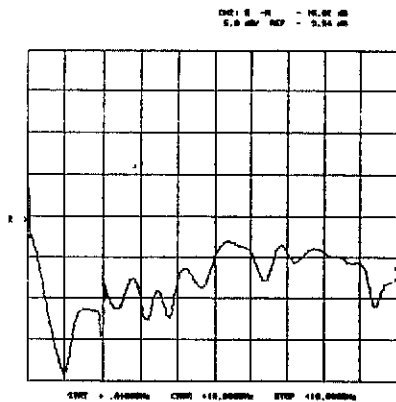


CH1: 5.00V -10.00ms
 5.00ms/div REF = 9.54dB

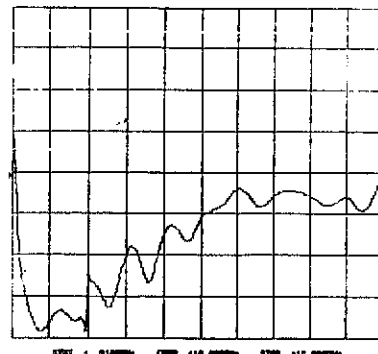


J3

J5-J1

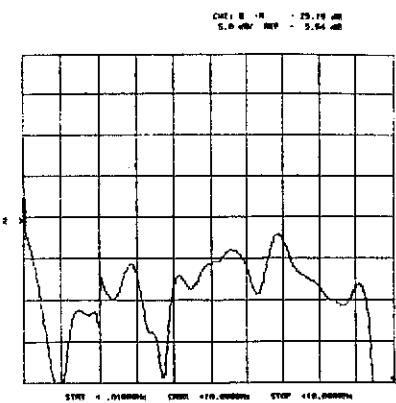


CH1: 5.00V -10.00ms
 5.00ms/div REF = 9.54dB

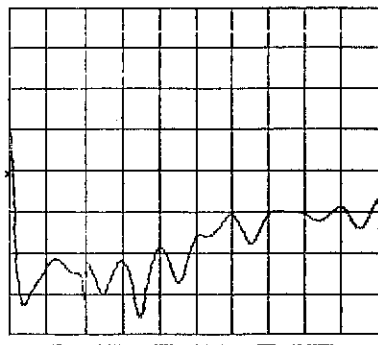


J5

J7-J1



CH1: 5.00V -10.00ms
 5.00ms/div REF = 9.54dB



J7

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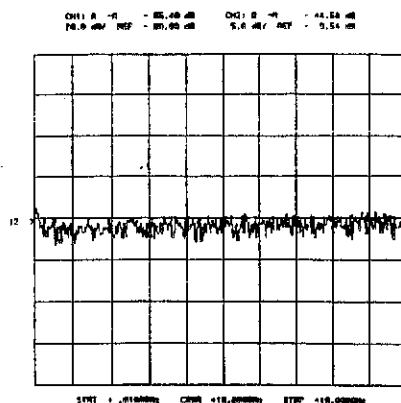
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SERIAL NUMBER
TECHNICIAN
VOLTAGE & CURRENT DRAW

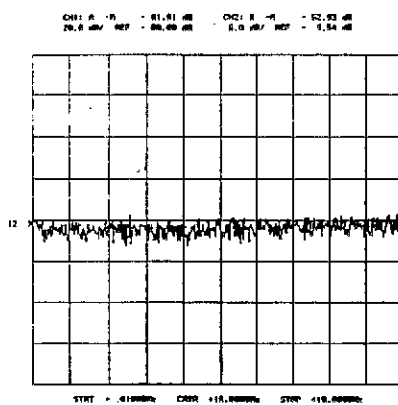
: 3MS50551
: RENE AFABLE
: $\pm 5\text{vdc}$ @ 80mA

ISOLATION
AS MEASURED ON A NETWORK ANALYSER

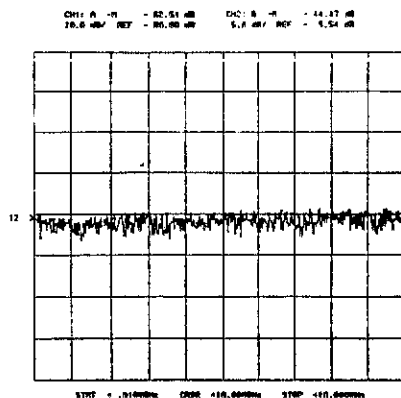
J1-J3



J1-J5



J1-J7



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SERIAL NUMBER : 3MS50551
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc @ } 80\text{mA}$

ISOLATION

AS MEASURED ON A SPECTRUM ANALYSER

FREQUENCY	J1-J3 ISOLATION	J1-J5 ISOLATION	J1-J7 ISOLATION
100 MHz	86 dB	90 dB	82 dB
200 MHz	90 dB	86 dB	82 dB
300 MHz	90 dB	88 dB	86 dB
500 MHz	92 dB	92 dB	86 dB
800 MHz	91 dB	92 dB	83 dB
1.0 GHz	92 dB	92 dB	84 dB
2.0 GHz	> 95 dB	> 95 dB	88 dB
4.0 GHz	90 dB	90 dB	88 dB
6.0 GHz	90 dB	90 dB	90 dB
8.0 GHz	90 dB	90 dB	90 dB
10.0 GHz	90 dB	90 dB	88 dB
12.0 GHz	88 dB	88 dB	88 dB
14.0 GHz	80 dB	80 dB	80 dB
16.0 GHz	76 dB	74 dB	76 dB
18.0 GHz	72 dB	70 dB	72 dB

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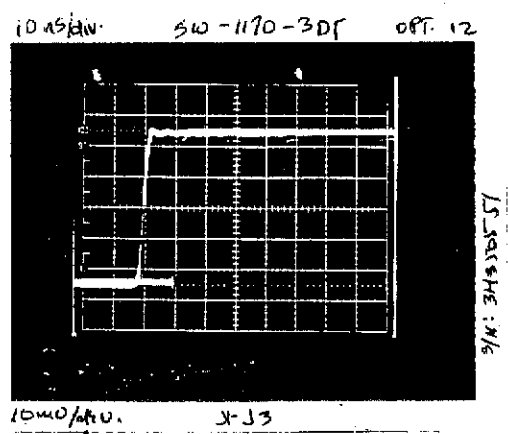
SERIAL NUMBER : 3MS50331
 TECHNICIAN : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc @ 80mA

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

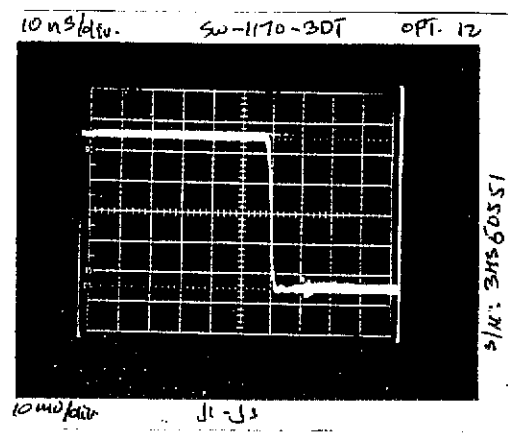
"ON" 10nS, "RISE" 2nS

HORIZONTAL SCALE:
 10nS/DIVISION
 VERTICAL SCALE:
 10mV/DIVISION



"OFF" 10nS, "FALL" 3nS

HORIZONTAL SCALE:
 10nS/DIVISION
 VERTICAL SCALE:
 10mV/DIVISION



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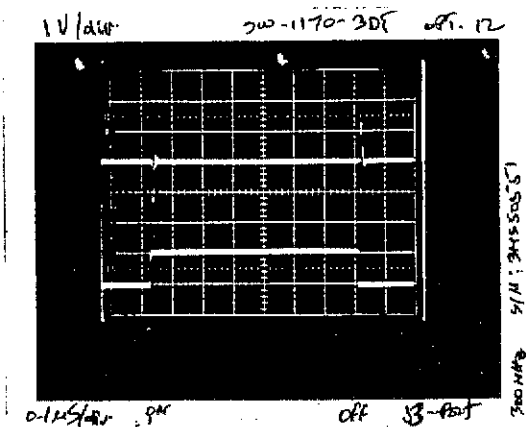
SERIAL NUMBER : 3MS50551
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : $\pm 5\text{vdc}$ @ 80mA

VIDEO TRANSIENTS
TYPICAL FOR ALL ARMS

AS MEASURED IN A
300MHz BANDWIDTH

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

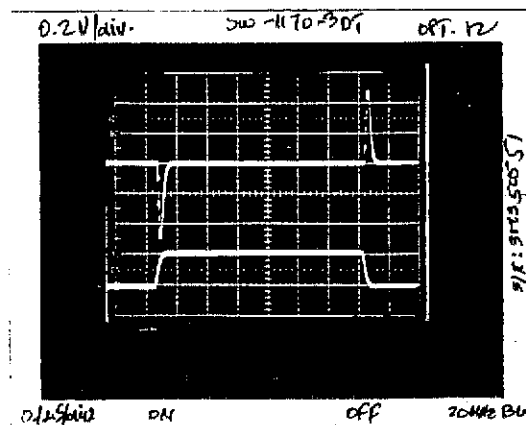
VERTICAL SCALE:
1.0 V/DIVISION



AS MEASURED IN A
20MHz BANDWIDTH

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

VERTICAL SCALE:
0.2 V/DIVISION



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SERIAL NUMBER
TECHNICIAN
VOLTAGE & CURRENT DRAW

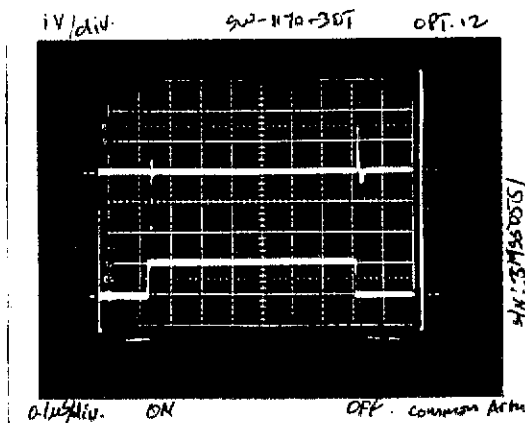
: 3MS50551
: RENE AFABLE
: $\pm 5\text{vdc}$ @ 80mA

VIDEO TRANSIENTS
COMMON ARM

AS MEASURED IN A
300MHz BANDWIDTH

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

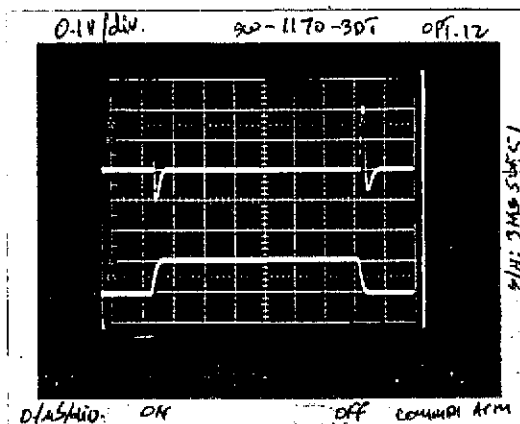
VERTICAL SCALE:
 $1.0\text{ V}/\text{DIVISION}$



AS MEASURED IN A
20MHz BANDWIDTH

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

VERTICAL SCALE:
 $0.2\text{ V}/\text{DIVISION}$



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