



**AMERICAN MICROWAVE
CORPORATION**

TEST DATA

ON

0.5 TO 18.0 GHz

LOW LOSS

HIGH ISOLATION

HIGH SPEED

RADIAL DESIGN

REFLECTIVE, SP7T PIN DIODE SWITCH

WITH

3-BIT BINARY DECODER

AMC MODEL No: SWN-1170-7DR-12M-DEC

Serial No: 7MS50617

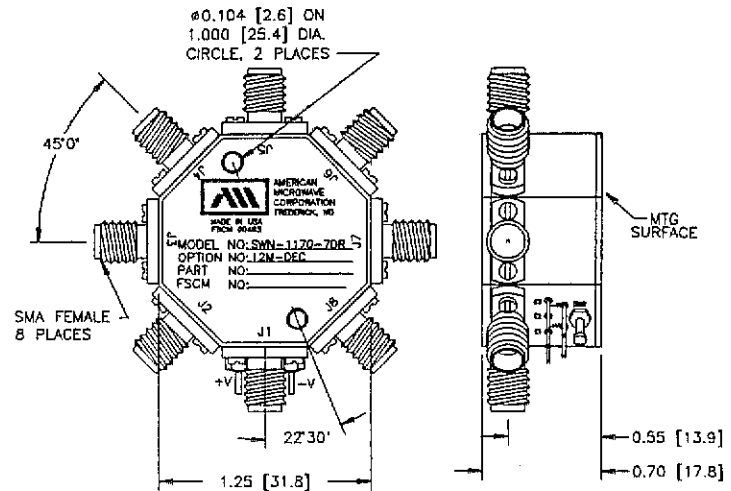
BY

**AMERICAN MICROWAVE
CORPORATION**

SEPTEMBER 27, 1995

7311G GROVE ROAD, FREDERICK, MARYLAND 21701 • Tel. (301) 662-4700 • Fax (301) 662-4938

3-BIT DECODER, HIGH SPEED REFLECTIVE, RADIAL SP7T PIN DIODE SWITCH



- 3-BIT BINARY DECODER
- HIGH ISOLATION
- HIGH SPEED

AMC MODEL No: SWN-1170-7DR-12M-DEC

SPECIFICATIONS:

- **FREQUENCY RANGE** : 0.50 GHz TO 18.0 GHz
- **INSERTION LOSS** : 3.00 dB MAX.
: 0.60 dB TYP. @ 0.5 GHz
: 0.70 dB TYP. @ 2.0 GHz
: 2.00 dB TYP. @ 12.0 GHz
: 2.90 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
: 65 dB TYP. @ 18.0 GHz
- **VSWR** : 2.0:1
- **SWITCHING SPEED** : RISE : 5nS MAX., 2nS TYP.
: FALL : 5nS MAX., 4nS TYP.
: ON : 50nS MAX., 44nS TYP.
: OFF : 50nS MAX., 33nS TYP.
- **CONTROL** : TTL COMPATIBLE
- **VIDEO TRANSIENTS** : 3.5 V Peak to Peak in a 300 MHz BW
: 1.4 V Peak to Peak in a 20 MHz BW
- **RF INPUT POWER** : + 20 dBm Operating, 1 Watt Survival
- **DC POWER SUPPLY** : + 5vdc @ 240 mA MAX., < 200 mA TYP.
: - 15vdc @ 60 mA MAX., < 25 mA TYP.
- **SIZE** : 1.25" dia. X 0.88"
- **WEIGHT** : < 3.0 oz.

SP3T THROUGH SP7T REFLECTIVE AND ABSORPTIVE VERSIONS AVAILABLE

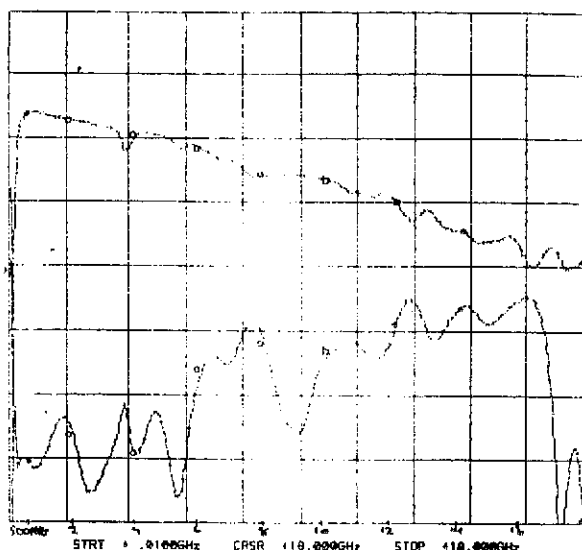


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SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J2

CH1: A -M - 2.93 dB CH2: B -M - 32.96 dB
1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.59 dB	24.75 dB
2.0 GHz	0.68 dB	23.14 dB
4.0 GHz	0.90 dB	24.82 dB
6.0 GHz	1.14 dB	17.12 dB
8.0 GHz	1.54 dB	15.75 dB
10.0 GHz	1.61 dB	15.91 dB
12.0 GHz	1.98 dB	13.67 dB
14.0 GHz	2.44 dB	12.64 dB
16.0 GHz	2.89 dB	11.86 dB
18.0 GHz	2.93 dB	32.96 dB

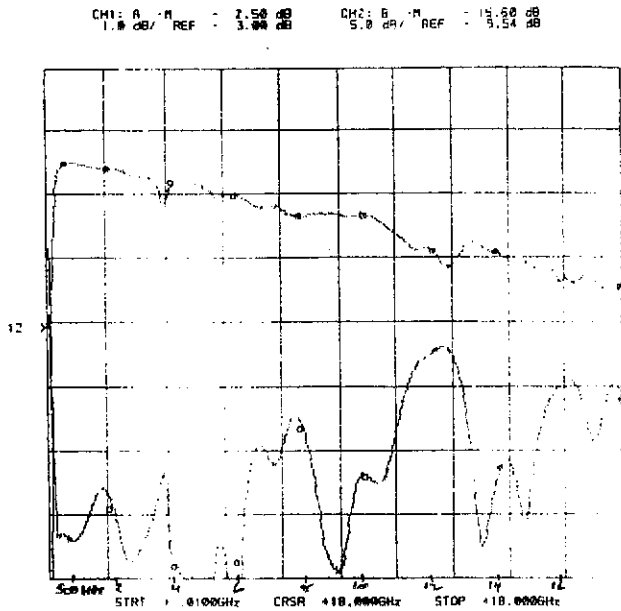
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 VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
 -15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J3



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.49 dB	26.24 dB
2.0 GHz	0.56 dB	24.62 dB
4.0 GHz	1.00 dB	28.99 dB
6.0 GHz	1.00 dB	26.40 dB
8.0 GHz	1.32 dB	14.14 dB
10.0 GHz	1.33 dB	21.74 dB
12.0 GHz	1.88 dB	11.70 dB
14.0 GHz	1.89 dB	21.00 dB
16.0 GHz	2.34 dB	14.22 dB
18.0 GHz	2.50 dB	15.60 dB

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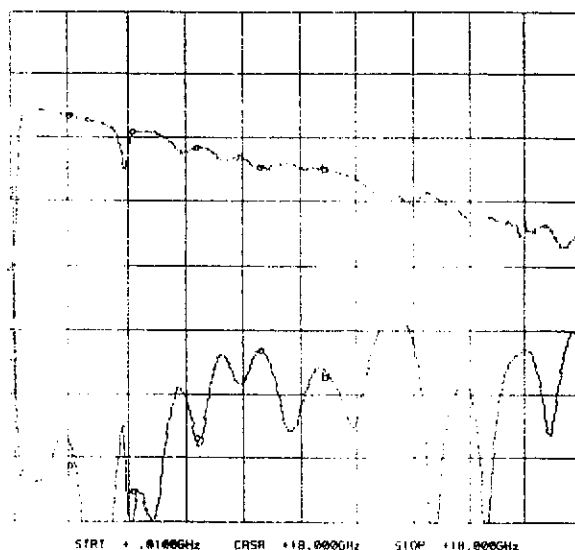


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SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J4

CH1: A, -M : 2.54 dB / REF : 3.00 dB
CH2: B, -M : 16.57 dB / REF : 9.52 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.55 dB	22.93 dB
2.0 GHz	0.65 dB	21.80 dB
4.0 GHz	0.80 dB	32.39 dB
6.0 GHz	1.05 dB	27.20 dB
8.0 GHz	1.35 dB	26.30 dB
10.0 GHz	1.45 dB	12.74 dB
12.0 GHz	1.55 dB	14.58 dB
14.0 GHz	2.18 dB	15.55 dB
16.0 GHz	2.48 dB	16.16 dB
18.0 GHz	2.54 dB	16.57 dB

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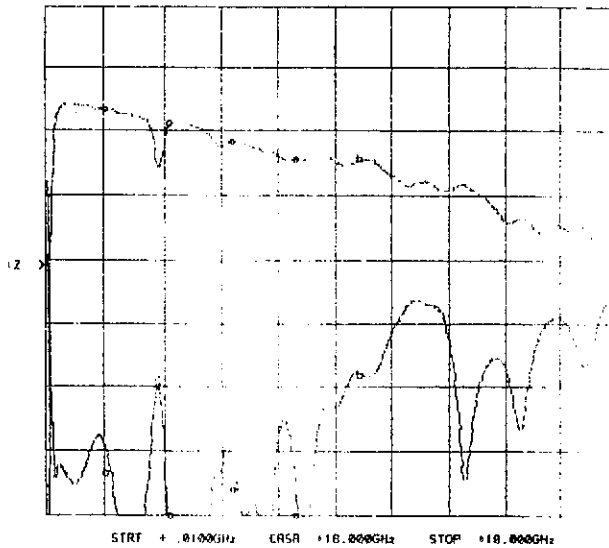


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TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J5

CH1: A -11 REF : 2.65 dB 1.0 dB/ REF : 3.88 dB
CH2: B -11 REF : 14.38 dB 5.0 dB/ REF : 5.24 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.68 dB	23.61 dB
2.0 GHz	0.77 dB	24.90 dB
4.0 GHz	1.00 dB	27.21 dB
6.0 GHz	1.19 dB	19.10 dB
8.0 GHz	1.35 dB	19.60 dB
10.0 GHz	1.50 dB	15.45 dB
12.0 GHz	1.55 dB	15.02 dB
14.0 GHz	1.89 dB	17.87 dB
16.0 GHz	2.15 dB	13.57 dB
18.0 GHz	2.38 dB	14.35 dB

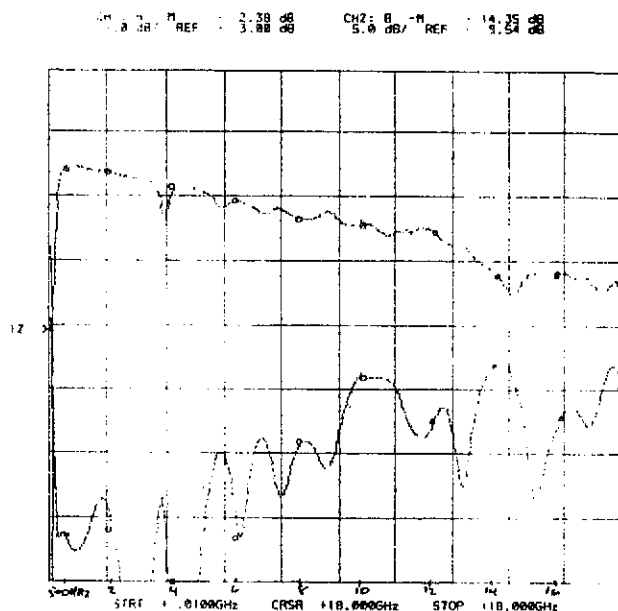
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SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J6



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.55 dB	26.16 dB
2.0 GHz	0.62 dB	26.36 dB
4.0 GHz	0.83 dB	30.00 dB
6.0 GHz	1.06 dB	25.56 dB
8.0 GHz	1.31 dB	18.47 dB
10.0 GHz	1.40 dB	13.51 dB
12.0 GHz	1.52 dB	16.72 dB
14.0 GHz	2.19 dB	12.45 dB
16.0 GHz	2.15 dB	16.49 dB
18.0 GHz	2.38 dB	14.35 dB

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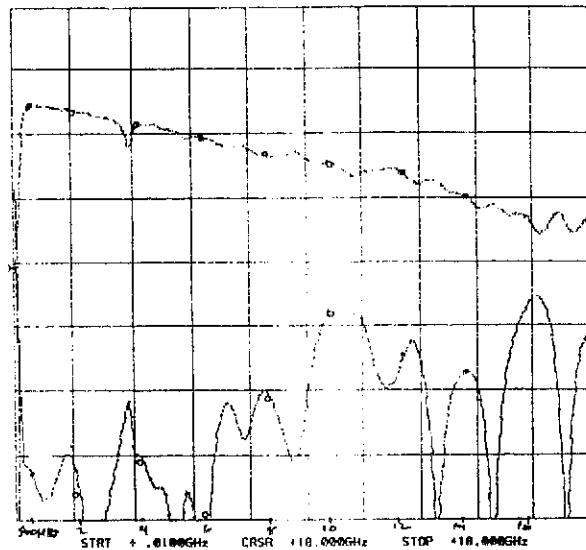


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SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J7

CH1: 0 -11 REF : 2.35 dB 1.0 dB/ REF : 3.00 dB CH2: 0 -11 REF : 15.70 dB 5.0 dB/ REF : 3.54 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.55 dB	26.36 dB
2.0 GHz	0.63 dB	28.70 dB
4.0 GHz	0.83 dB	25.27 dB
6.0 GHz	1.05 dB	27.27 dB
8.0 GHz	1.32 dB	20.42 dB
10.0 GHz	1.46 dB	13.56 dB
12.0 GHz	1.57 dB	16.76 dB
14.0 GHz	1.97 dB	18.10 dB
16.0 GHz	2.30 dB	12.52 dB
18.0 GHz	2.35 dB	15.70 dB

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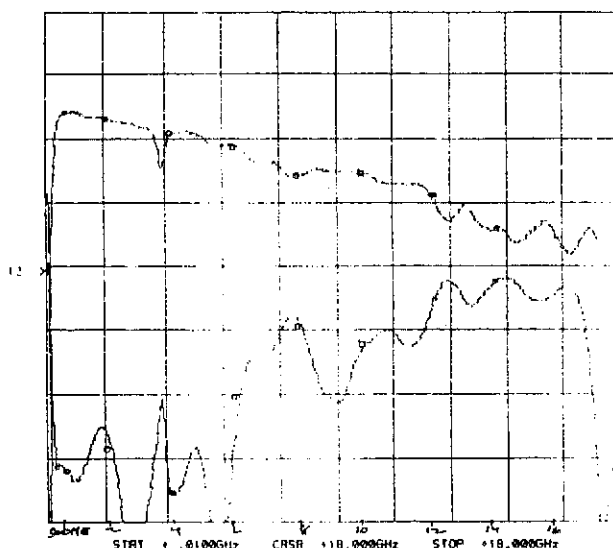
SUMMARY TEST DATA
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SERIAL NUMBER
TECHNICIAN
VOLTAGE & CURRENT DRAW

: 7MS50617
: RENE AFABLE
: +5 vdc @ 200 mA
-15 vdc @ 25 mA

INSERTION LOSS & RETURN LOSS
J1 TO J8

CH1: 0.0 dB REF: 3.51 dB
1.0 dB/REF: 3.00 dB
CH2: 0.0 dB REF: 35.76 dB
5.0 dB/REF: 9.54 dB



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.58 dB	25.43 dB
2.0 GHz	0.68 dB	24.45 dB
4.0 GHz	0.86 dB	27.06 dB
6.0 GHz	1.11 dB	19.10 dB
8.0 GHz	1.52 dB	14.45 dB
10.0 GHz	1.51 dB	15.43 dB
12.0 GHz	1.85 dB	12.49 dB
14.0 GHz	2.41 dB	10.63 dB
16.0 GHz	2.54 dB	11.24 dB
18.0 GHz	2.61 dB	35.76 dB

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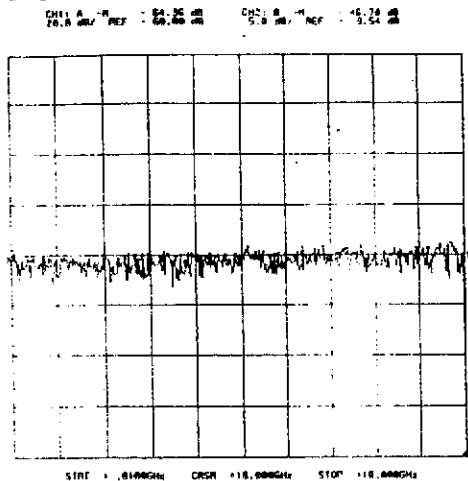


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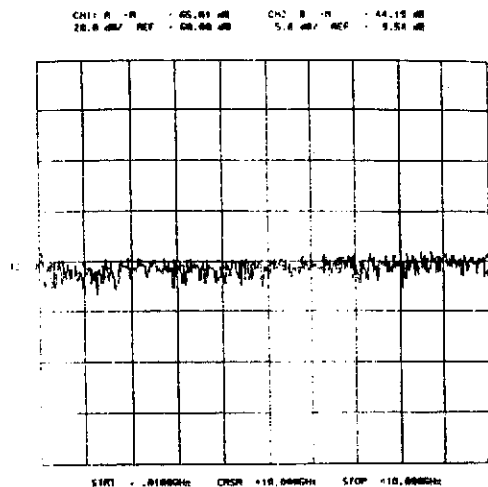
SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

ISOLATION
AS MEASURED ON A NETWORK ANALYSER

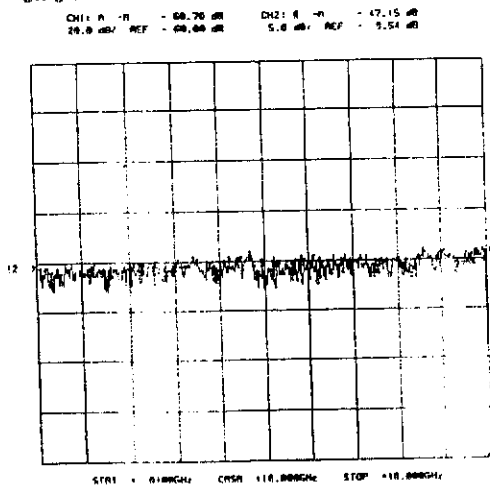
J1-J2



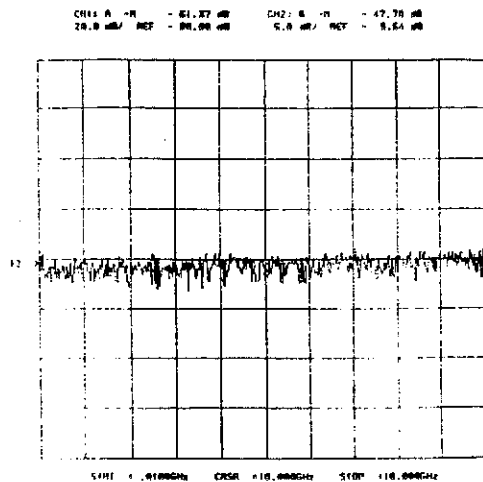
J1-J3



J1-J4



J1-J5



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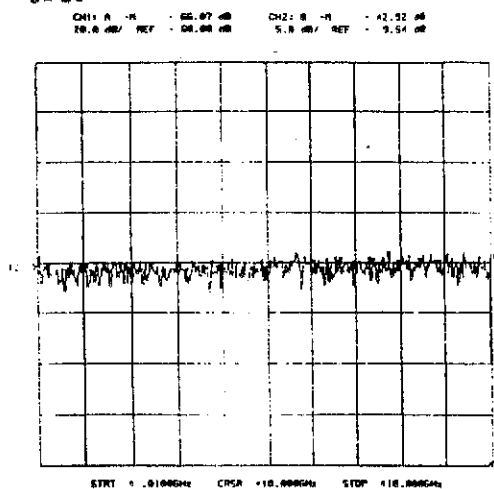


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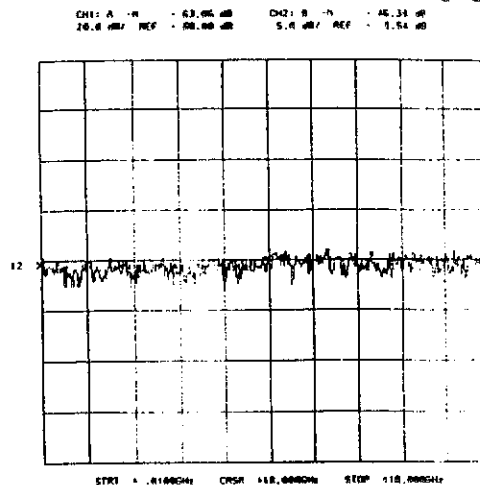
SERIAL NUMBER : 7MS50617
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
-15 vdc @ 25 mA

ISOLATION
AS MEASURED ON A NETWORK ANALYSER

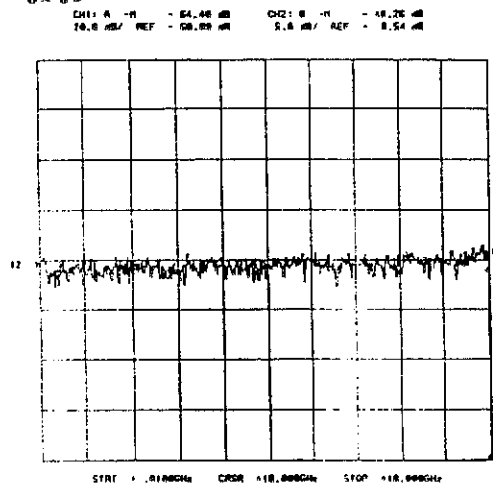
J1-J6



J1-J7



J1-J8



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VOLTAGE & CURRENT DRAW : +5 vdc @ 200 mA
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ISOLATION

AS MEASURED ON A SPECTRUM ANALYSER

FREQUENCY	J1-J2	J1-J3	J1-J4	J1-J5	J1-J6	J1-J7	J1-J8
100 MHz	73 dB	73 dB	74 dB	75 dB	88 dB	88 dB	87 dB
500 MHz	92 dB	94 dB	98 dB	88 dB	96 dB	95 dB	90 dB
800 MHz	95 dB	90 dB	98 dB	98 dB	96 dB	95 dB	88 dB
2.0 GHz	98 dB	92 dB	100 dB	100 dB	99 dB	98 dB	88 dB
4.0 GHz	78 dB	88 dB	86 dB	80 dB	90 dB	86 dB	82 dB
6.0 GHz	81 dB	82 dB	75 dB	84 dB	90 dB	90 dB	80 dB
8.0 GHz	73 dB	70 dB	70 dB	76 dB	86 dB	90 dB	74 dB
10.0 GHz	66 dB	74 dB	66 dB	84 dB	88 dB	88 dB	75 dB
12.0 GHz	79 dB	74 dB	70 dB	76 dB	76 dB	76 dB	76 dB
14.0 GHz	76 dB	78 dB	74 dB	76 dB	75 dB	72 dB	73 dB
16.0 GHz	73 dB	71 dB	73 dB	72 dB	72 dB	75 dB	79 dB
18.0 GHz	64 dB	65 dB	61 dB	68 dB	66 dB	68 dB	68 dB

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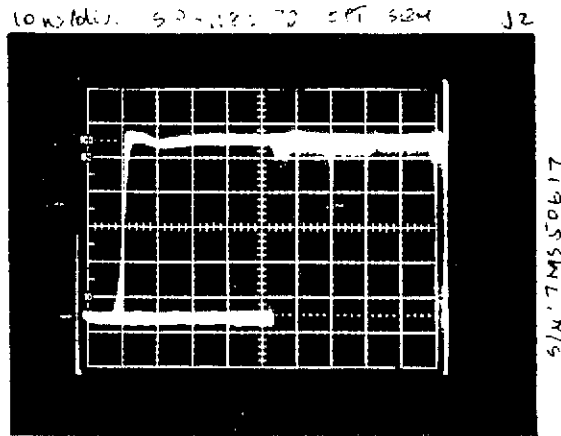
SWITCHING SPEED
TYPICAL FOR ALL ARMS

"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" 44nS, "RISE" 2nS

HORIZONTAL SCALE:
 10nS/DIVISION

VERTICAL SCALE:
 10mV/DIVISION

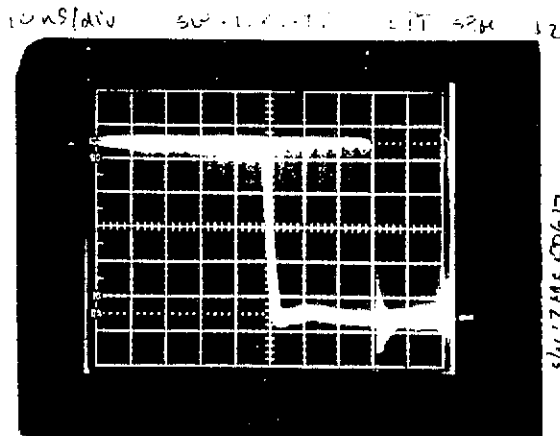


10 mV/div.

"OFF" 33nS, "FALL" 4nS

HORIZONTAL SCALE:
 10nS/DIVISION

VERTICAL SCALE:
 10mV/DIVISION



10 mV/div.

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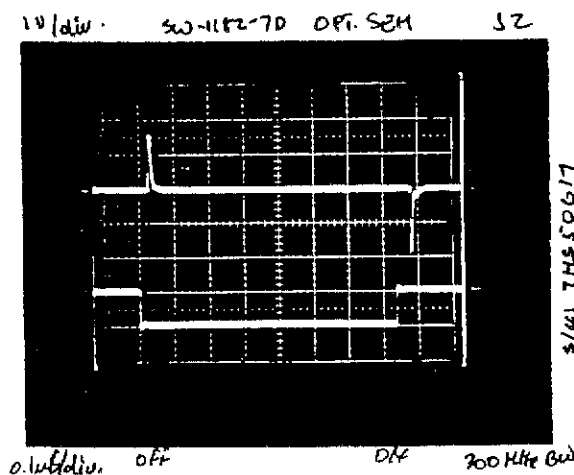


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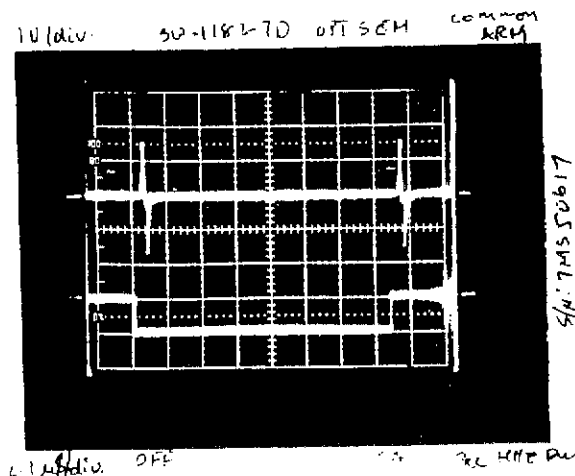
VIDEO TRANSIENTS
TYPICAL FOR ALL ARMS
AS MEASURED IN A 300 MHz BANDWIDTH

HORIZONTAL SCALE:
0.1 μ S/DIVISION
VERTICAL SCALE:
1.0 V/DIVISION



VIDEO TRANSIENTS
COMMON ARM
AS MEASURED IN A 300 MHz BANDWIDTH

HORIZONTAL SCALE:
0.1 μ S/DIVISION
VERTICAL SCALE:
1.0 V/DIVISION



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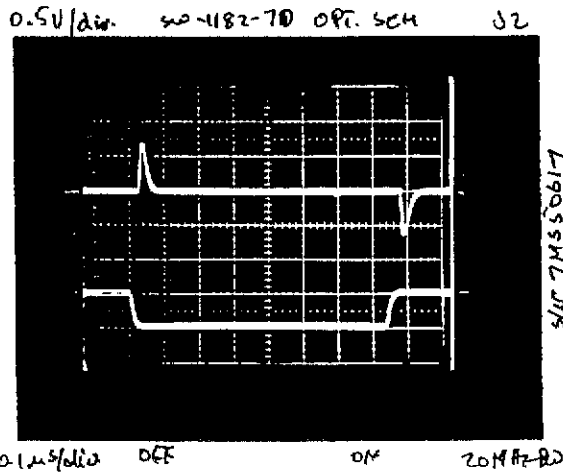


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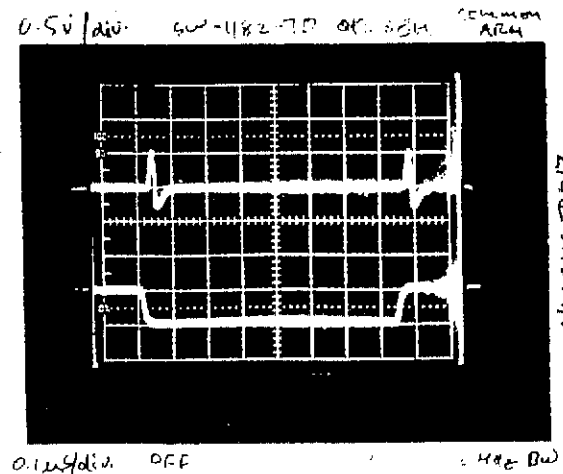
VIDEO TRANSIENTS
TYPICAL FOR ALL ARMS
AS MEASURED IN A 20MHz BANDWIDTH

HORIZONTAL SCALE:
0.1 μ S/DIVISION
VERTICAL SCALE:
0.5 V/DIVISION



VIDEO TRANSIENTS
COMMON ARM
AS MEASURED IN A 20 MHz BANDWIDTH

HORIZONTAL SCALE:
0.1 μ S/DIVISION
VERTICAL SCALE:
0.5 V/DIVISION



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