



**AMERICAN MICROWAVE  
CORPORATION**

**TEST DATA**

**ON**

**10 MHz TO 18 GHz**

**LOW VIDEO TRANSIENT**

**LOW LOSS**

**SPDT**

**REFLECTIVE, PIN DIODE SWITCH**

**MODEL No: SWN-RRA-2DR-0118-LVT**

**(Serial Number: 2MS50520)**

**BY**

**AMERICAN MICROWAVE  
CORPORATION**

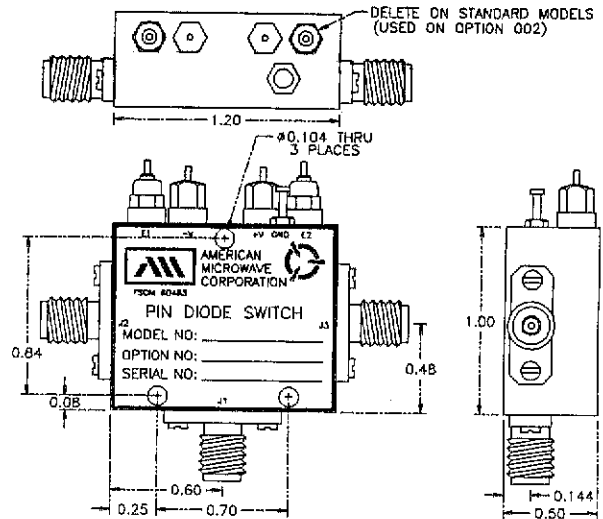
**JUNE 13, 1995**

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

**AMERICAN MICROWAVE CORPORATION**

# LOW VIDEO TRANSIENT 10 MHz TO 18 GHz REFLECTIVE, SPDT SWITCH

- 10 MHz TO 18 GHz
- LOW VIDEO TRANSIENTS
- VERY LOW LOSS
- HIGH ISOLATION



## AMC MODEL No: SWN-RRA-2DR-0118-LVT

### SPECIFICATIONS:

- |                    |   |
|--------------------|---|
| • FREQUENCY RANGE  | : 10 MHz to 18 GHz  |
| • INSERTION LOSS   | : 2.50 dB Max.  |
|                    | : 1.20 dB Typ. @ 10 MHz                                     |
|                    | : 1.00 dB Typ. @ 100 MHz                                    |
|                    | : 0.36 dB Typ. @ 2.0 GHz                                    |
|                    | : 1.10 dB Typ. @ 10.0 GHz                                   |
|                    | : 1.90 dB Typ. @ 18.0 GHz                                   |
| • ISOLATION        | : $\geq 70$ dB Min.   |
|                    | : $\geq 95$ dB Typ. @ 100 MHz                               |
|                    | : $\geq 95$ dB Typ. @ 2.0 GHz                               |
|                    | : $\geq 88$ dB Typ. @ 10.0 GHz                              |
|                    | : $\geq 76$ dB Typ. @ 18.0 GHz                              |
| • VSWR             | : 2.0:1   |
| • SWITCHING SPEED  | : RISE : 15nS Max., 10nS Typ.                               |
|                    | : FALL : 15nS Max., 10nS Typ.                               |
|                    | : ON : 100nS Max., 90nS Typ.                                |
|                    | : OFF : 100nS Max., 90nS Typ.                               |
| • CONTROL          | : TTL COMPATIBLE, (TOGGLE OR INDEPENDENT CONTROL AVAILABLE) |
| • VIDEO TRANSIENTS | : $\pm 0.75$ volt Peak to Peak, 20 MHz Bandwidth            |
| • RF INPUT POWER   | : +20dBm Operating, 1 Watt Survival                         |
| • DC POWER SUPPLY  | : $\pm 5$ vdc @ +60mA, -50mA Maximum                        |
| • SIZE             | : 1.2" X 1.0" X 0.5"  |

ABSORPTIVE AND MULTITHROW VERSIONS AVAILABLE

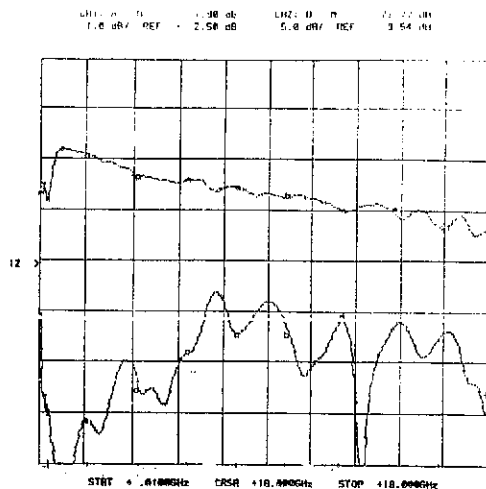
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SUMMARY TEST DATA  
SWN-RRA-2DR-0118-LVT  
PAGE 3

SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**INSERTION LOSS & RETURN LOSS**  
**J1 TO J2**



FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	1.12dB	14.30dB
80 MHz	1.01dB	22.38dB
235 MHz	1.22dB	24.12dB
820 MHz	0.21dB	33.39dB
2.0 GHz	0.36dB	25.43dB
4.0 GHz	0.73dB	22.45dB
6.0 GHz	0.78dB	18.28dB
8.0 GHz	0.93dB	16.27dB
10.0 GHz	1.10dB	17.01dB
12.0 GHz	1.38dB	14.71dB
14.0 GHz	1.34dB	15.77dB
16.0 GHz	1.71dB	16.45dB
18.0 GHz	1.90dB	22.77dB

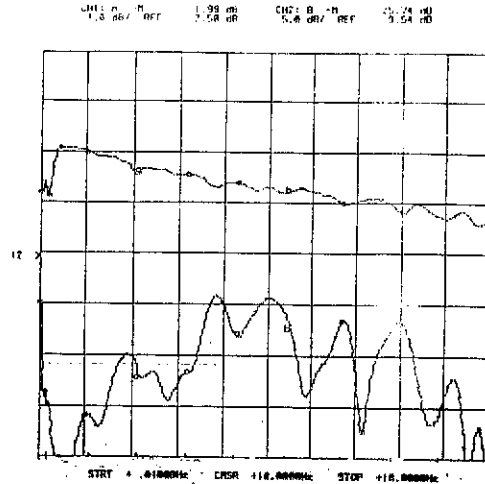
JUNE 13, 1995



SUMMARY TEST DATA  
SWN-RRA-2DR-0118-LVT  
PAGE 4

SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**INSERTION LOSS & RETURN LOSS**  
**J1 TO J3**



FREQUENCY	INSERTION LOSS	RETURN LOSS
10 MHz	1.21dB	15.07dB
80 MHz	1.04dB	22.27dB
235 MHz	1.30dB	23.11dB
820 MHz	0.33dB	36.04dB
2.0 GHz	0.45dB	25.39dB
4.0 GHz	0.77dB	21.65dB
6.0 GHz	0.89dB	20.89dB
8.0 GHz	1.06dB	17.24dB
10.0 GHz	1.21dB	17.13dB
12.0 GHz	1.42dB	16.03dB
14.0 GHz	1.48dB	16.24dB
16.0 GHz	1.71dB	24.09dB
18.0 GHz	1.99dB	25.74dB



SUMMARY TEST DATA  
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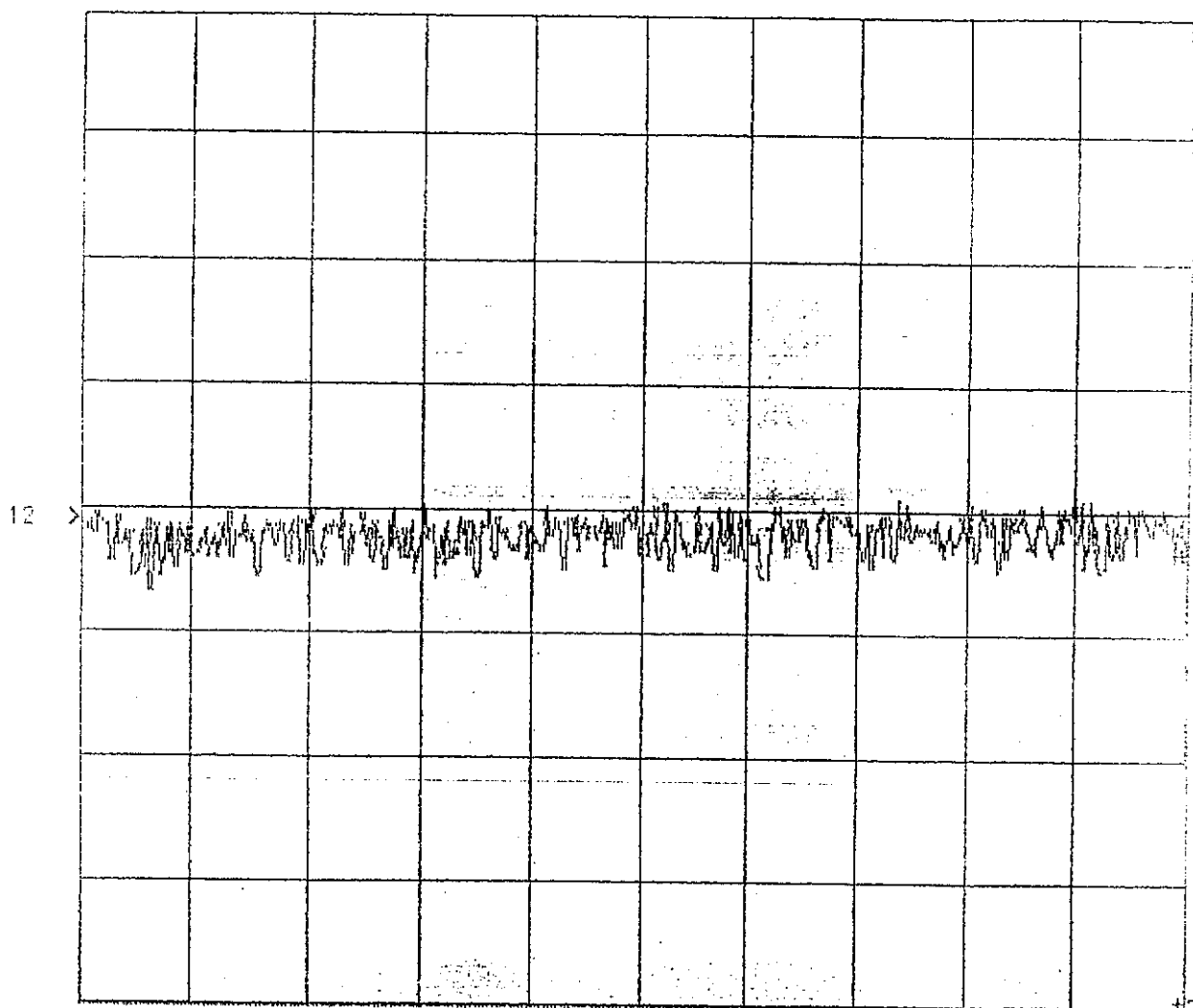
SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**ISOLATION**

(AS MEASURED ON A NETWORK ANALYZER)

**J1 TO J2**

CH1: A -M - 66.55 dB      CH2: B -M - 41.25 dB  
20.0 dB/ REF - 60.00 dB      5.0 dB/ REF - 9.54 dB



STRT + .0100GHz      CRSR +18.000GHz      STOP +18.000GHz

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SWN-RRA-2DR-0118-LVT  
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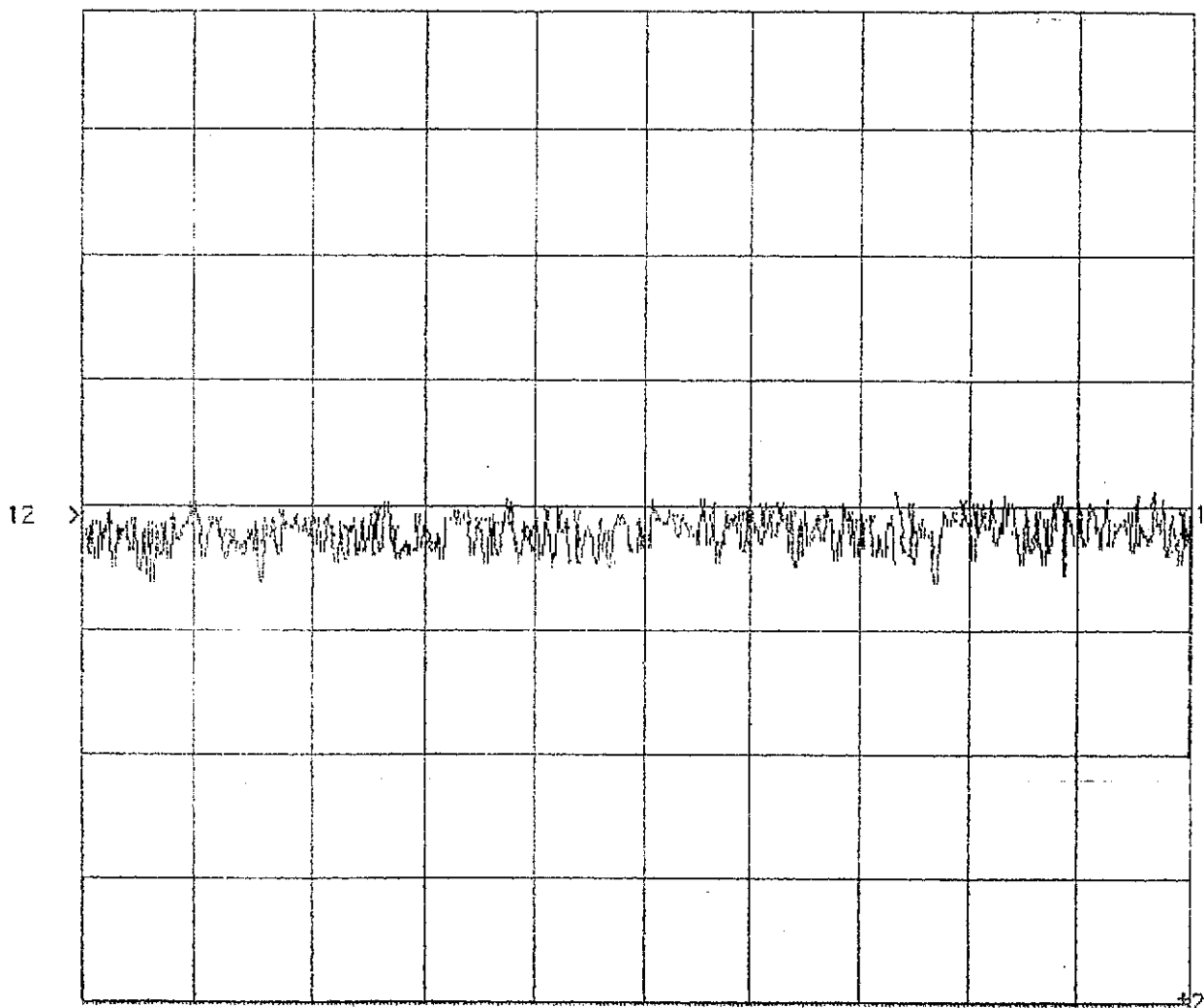
SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**ISOLATION**

(AS MEASURED ON A NETWORK ANALYZER)

**J1 TO J3**

CH1: A -M - 53.97 dB      CH2: B -M - 44.74 dB  
20.0 dB/ REF - 60.00 dB      5.0 dB/ REF - 9.54 dB



STRT + .0100GHz      CRSR +18.000GHz      STOP +18.000GHz

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SUMMARY TEST DATA  
SWN-RRA-2DR-0118-LVT  
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SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**ISOLATION**  
(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J1 TO J2	J1 TO J3
100 MHz	95dB	92dB
200 MHz	92dB	94dB
300 MHz	91dB	90dB
500 MHz	92dB	92dB
800 MHz	90dB	90dB
1 GHz	88dB	91dB
2 GHz	>95dB	>95dB
4 GHz	86dB	88dB
6 GHz	88dB	88dB
8 GHz	88dB	86dB
10 GHz	88dB	88dB
12 GHz	82dB	84dB
14 GHz	75db	76dB
16 GHz	70dB	70dB
18 GHz	76dB	74dB

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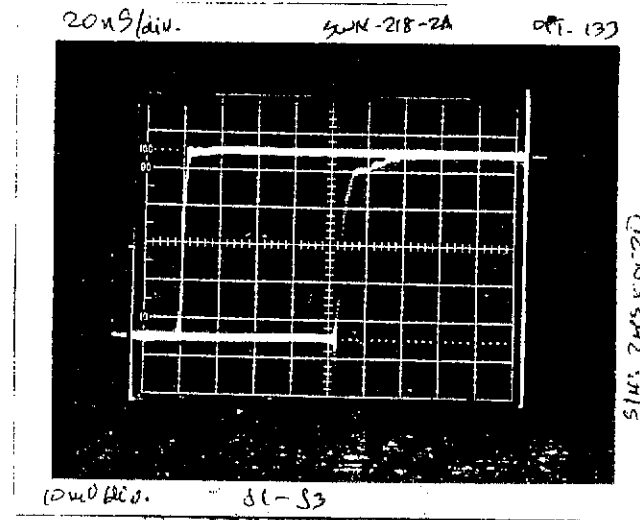
SUMMARY TEST DATA  
 SWN-RRA-2DR-0118-LVT  
 PAGE 8

SERIAL NUMBER : 2MS50520  
 TECHNICIAN : RENE AFABLE  
 VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

**SWITCHING SPEED**

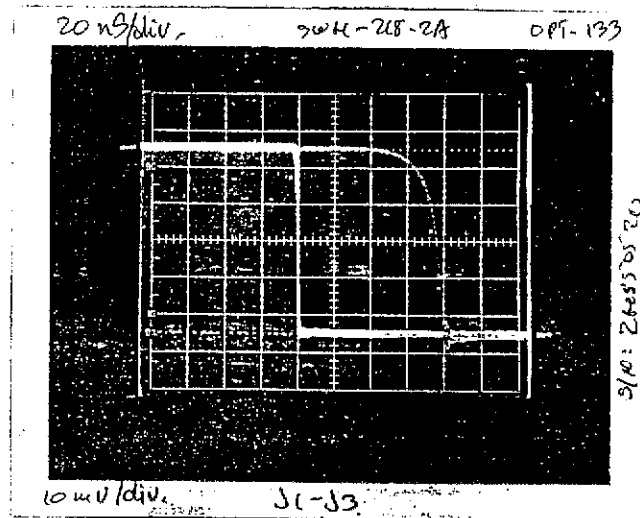
"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF  
 "On/Off" Time: 50% TTL to 90% RF or 10% RF

VERTICAL SCALE:  
 10mV/DIVISION



RISE TIME: 8ns  
 ON TIME: 100ns

HORIZONTAL SCALE:  
 20ns/DIVISION



FALL TIME: 17ns  
 OFF TIME: 80ns

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SUMMARY TEST DATA  
SWN-RRA-2DR-0118-LVT  
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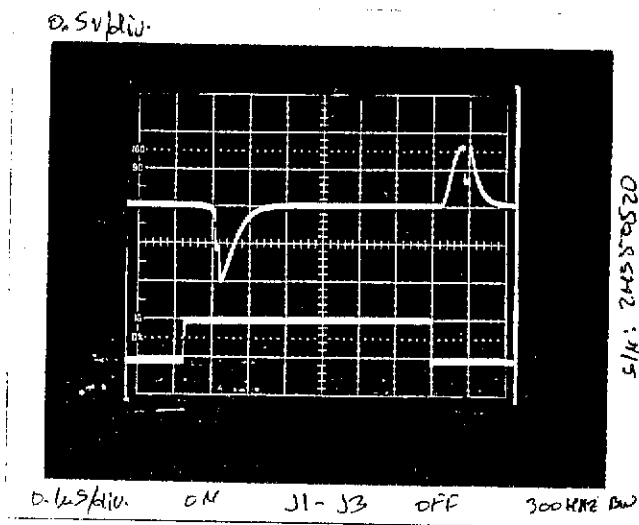
SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

VIDEO TRANSIENTS

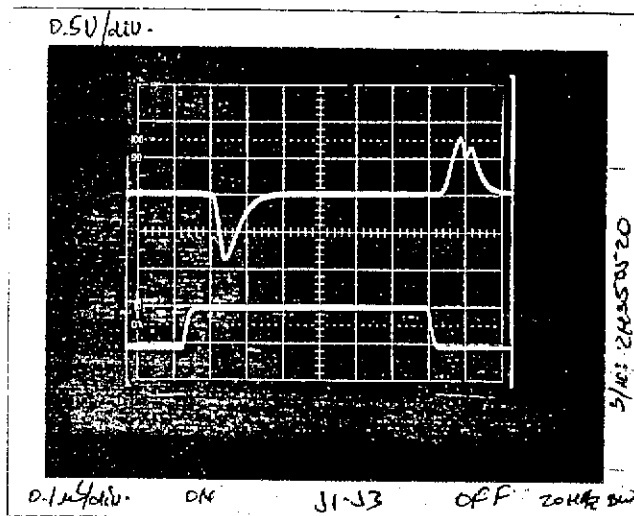
J1 TO J3

(J1 TO J2 IS IDENTICAL TO J1 TO J3)  
HORIZONTAL SCALE:  $0.1\mu\text{S}/\text{DIVISION}$   
VERTICAL SCALE: 0.5 VOLTS/DIVISION

MEASURED IN A  
300 MHz BANDWIDTH



MEASURED IN A  
20 MHz BANDWIDTH



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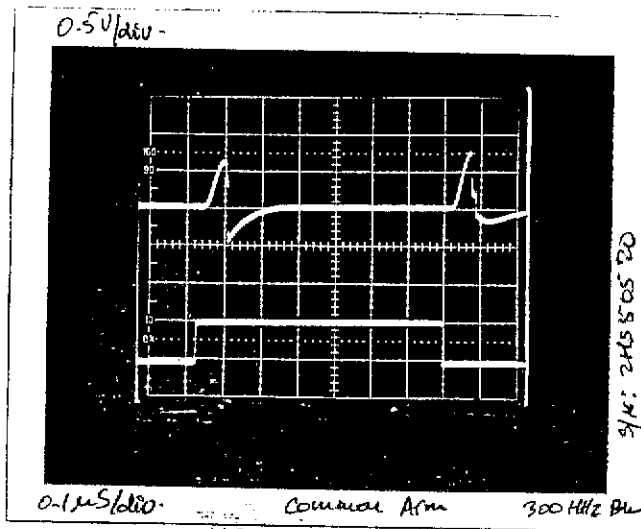
SUMMARY TEST DATA  
SWN-RRA-2DR-0118-LVT  
PAGE 10

SERIAL NUMBER : 2MS50520  
TECHNICIAN : RENE AFABLE  
VOLTAGE & CURRENT DRAW :  $\pm 5\text{vdc}$  @ +36mA, -25mA

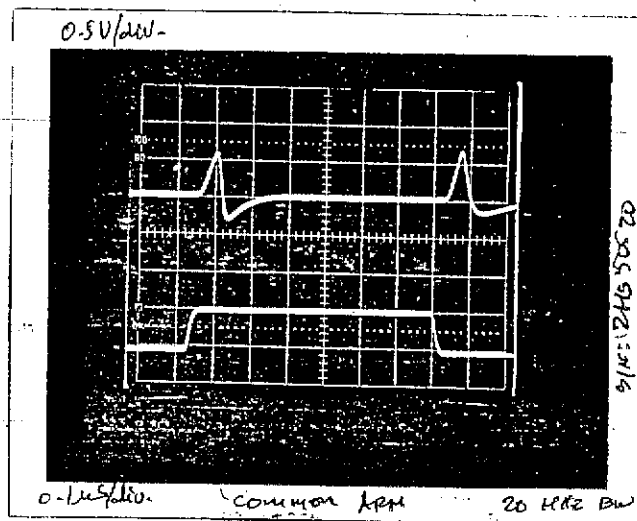
VIDEO TRANSIENTS  
COMMON ARM

HORIZONTAL SCALE:  $0.1\mu\text{S}/\text{DIVISION}$   
VERTICAL SCALE: 0.5 VOLTS/DIVISION

MEASURED IN A  
300 MHz BANDWIDTH



MEASURED IN A  
20 MHz BANDWIDTH



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