



**AMERICAN MICROWAVE  
CORPORATION**

**TEST DATA**

**ON**

**0.5 TO 18.0 GHz**

**LOW LOSS**

**HIGH SPEED**

**HIGH ISOLATION**

**LOW PROFILE, RADIAL**

**REFLECTIVE, SP7T PIN DIODE SWITCH**

**AMC MODEL No: SWN-1170-7DR-HPM**

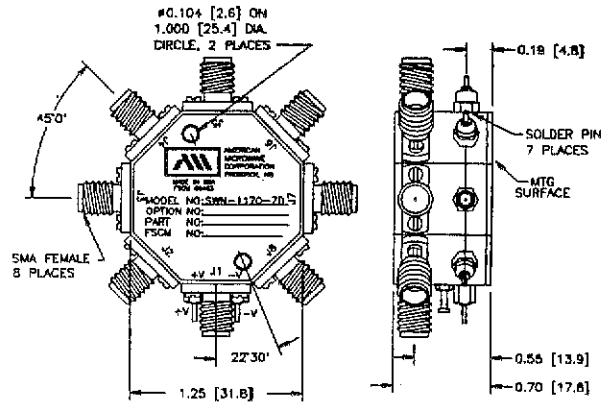
**Serial No: 7MS50617**

**BY  
AMERICAN MICROWAVE  
CORPORATION**

**JULY 19, 1995**

## LOW LOSS, HIGH SPEED REFLECTIVE, RADIAL SP7T PIN DIODE SWITCH

- LOW INSERTION LOSS
- HIGH ISOLATION
- LOW PROFILE RADIAL



### AMC MODEL No: SWN-1170-7DR-HPM

#### SPECIFICATIONS:

- **FREQUENCY RANGE** : 0.50 GHz TO 18.0 GHz
- **INSERTION LOSS** : 3.00 dB MAX.  
: 0.70 dB TYP. @ 0.5 GHz  
: 0.80 dB TYP. @ 2.0 GHz  
: 2.00 dB TYP. @ 12.0 GHz  
: 2.70 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  
: 62 dB TYP. @ 18.0 GHz
- **VSWR** : 2.0:1
- **SWITCHING SPEED** : "RISE" : 10nS MAX., 4nS TYP.  
: "FALL" : 10nS MAX., 4nS TYP.  
: "ON" : 70nS MAX., 60nS TYP.  
: "OFF" : 70nS MAX., 30nS TYP.
- **CONTROL** : TTL COMPATIBLE
- **VIDEO TRANSIENTS** : 3.0 V Peak to Peak in a 300 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., <30 mA TYP.
- **SIZE** : 1.25" dia. X 0.70"
- **WEIGHT** : <3.0 oz.

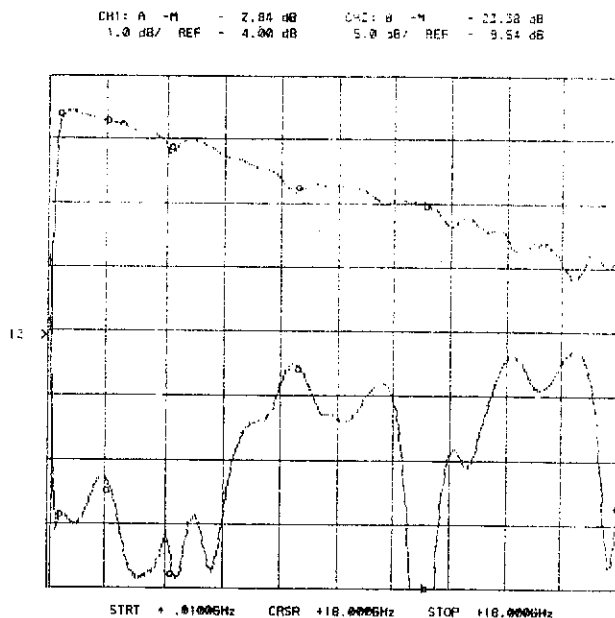
SP3T THROUGH SP7T REFLECTIVE AND ABSORPTIVE VERSIONS AVAILABLE



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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J2



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.59 dB	23.72 dB
2.0 GHz	0.71 dB	21.87 dB
4.0 GHz	1.11 dB	28.49 dB
8.0 GHz	1.74 dB	12.50 dB
12.0 GHz	2.01 dB	32.68 dB
16.0 GHz	2.79 dB	12.22 dB
18.0 GHz	2.84 dB	23.38 dB

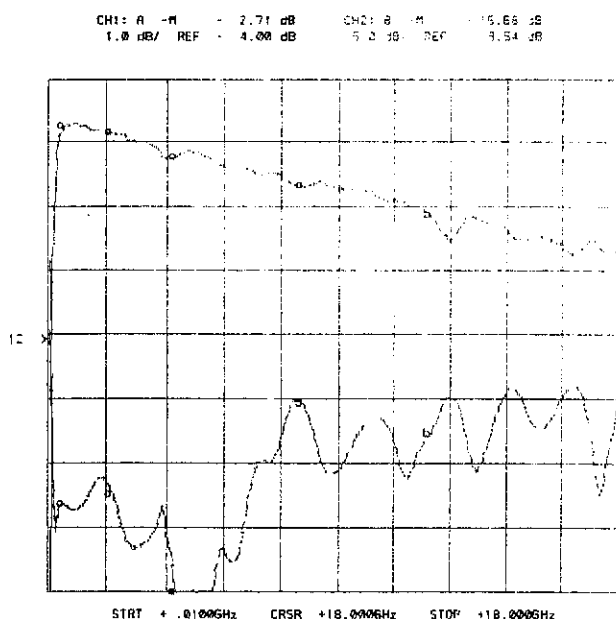
JULY 19, 1995



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-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J3



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.72 dB	22.93 dB
2.0 GHz	0.83 dB	21.80 dB
4.0 GHz	1.19 dB	29.68 dB
8.0 GHz	1.65 dB	14.76 dB
12.0 GHz	2.12 dB	17.10 dB
16.0 GHz	2.53 dB	14.68 dB
18.0 GHz	2.71 dB	15.68 dB

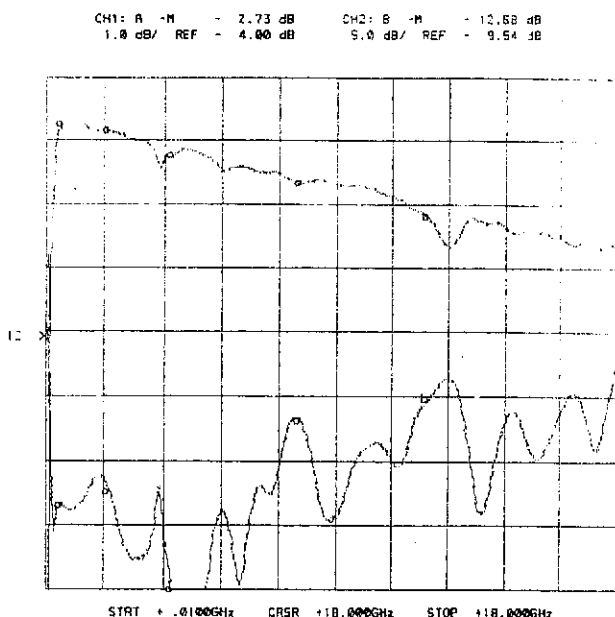
JULY 19, 1995



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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
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-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J4



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.72 dB	22.93 dB
2.0 GHz	0.82 dB	21.80 dB
4.0 GHz	1.17 dB	32.39 dB
8.0 GHz	1.62 dB	26.30 dB
12.0 GHz	2.21 dB	14.58 dB
16.0 GHz	2.45 dB	16.16 dB
18.0 GHz	2.73 dB	12.68 dB

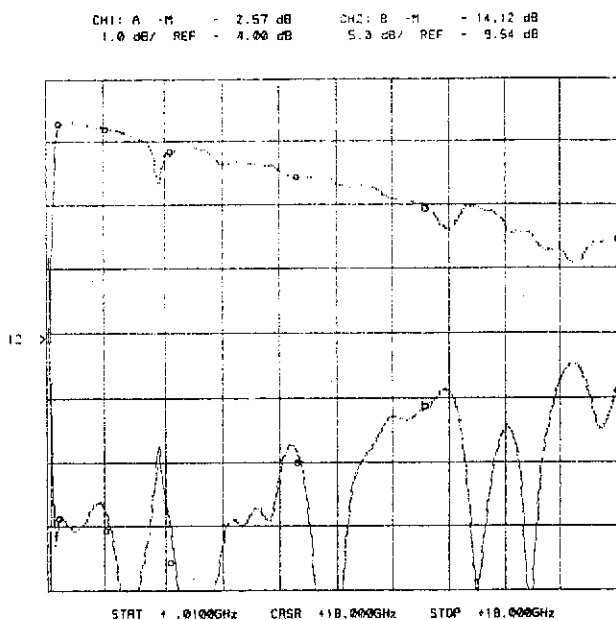
JULY 19, 1995



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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J5



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	1.14 dB	27.21 dB
8.0 GHz	1.53 dB	19.60 dB
12.0 GHz	2.02 dB	15.02 dB
16.0 GHz	2.65 dB	13.57 dB
18.0 GHz	2.57 dB	14.12 dB

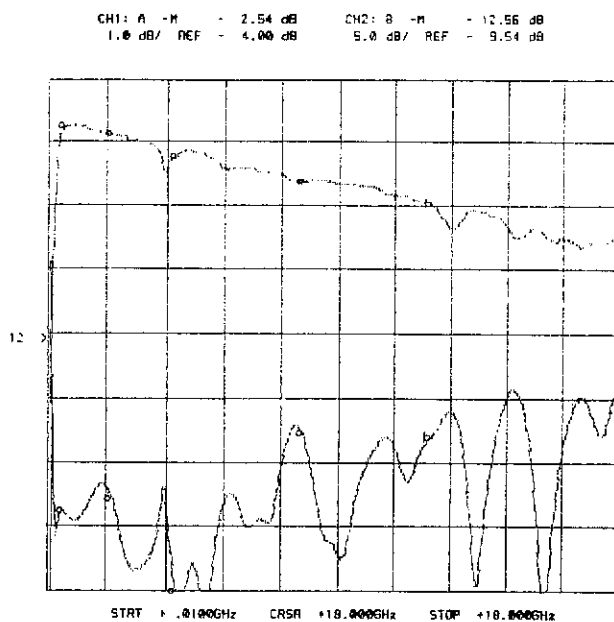
JULY 19, 1995



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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J6



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.73 dB	22.52 dB
2.0 GHz	0.83 dB	21.58 dB
4.0 GHz	1.20 dB	28.54 dB
8.0 GHz	1.59 dB	16.60 dB
12.0 GHz	1.95 dB	16.76 dB
16.0 GHz	2.50 dB	19.23 dB
18.0 GHz	2.54 dB	12.56 dB

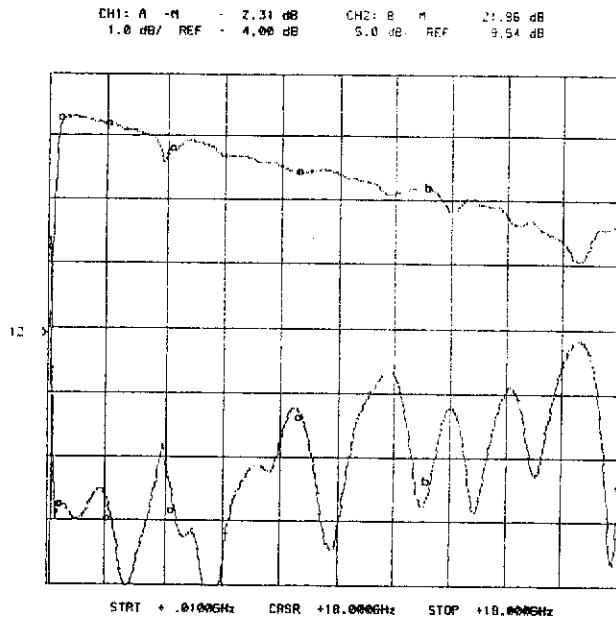
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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J7



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.69 dB	23.22 dB
2.0 GHz	0.79 dB	24.28 dB
4.0 GHz	1.16 dB	23.82 dB
8.0 GHz	1.54 dB	16.29 dB
12.0 GHz	1.80 dB	21.30 dB
16.0 GHz	2.55 dB	12.95 dB
18.0 GHz	2.31 dB	21.86 dB

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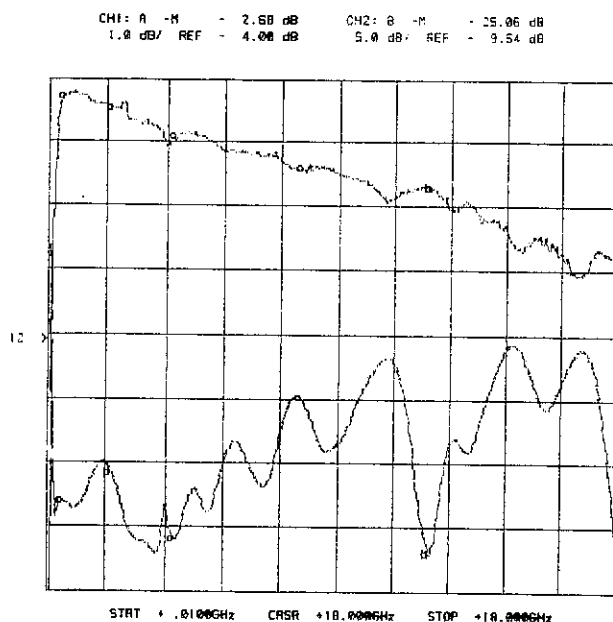




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TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

INSERTION LOSS & RETURN LOSS  
J1 TO J8



FREQUENCY	INSERTION LOSS	RETURN LOSS
0.5 GHz	0.69 dB	22.39 dB
2.0 GHz	0.73 dB	20.28 dB
4.0 GHz	0.89 dB	25.34 dB
8.0 GHz	1.39 dB	14.39 dB
12.0 GHz	1.68 dB	26.40 dB
16.0 GHz	2.73 dB	13.73 dB
18.0 GHz	2.68 dB	25.06 dB

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SERIAL NUMBER : 7MS50617  
TECHNICIAN : HOLLY HAHN  
VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
-15vdc @ <30mA

RETURN LOSS OUTPUT "ON"

FREQUENCY	J2-J1	J3-J1	J4-J1	J5-J1	J6-J1	J7-J1	J8-J1
500 MHz	24.07 dB	23.10 dB	23.17 dB	23.90 dB	23.55 dB	23.69 dB	23.08 dB
2.0 GHz	22.82 dB	24.50 dB	24.93 dB	24.71 dB	25.06 dB	25.04 dB	22.59 dB
4.0 GHz	25.62 dB	21.32 dB	21.03 dB	22.45 dB	23.33 dB	22.47 dB	22.59 dB
8.0 GHz	16.42 dB	23.15 dB	32.17 dB	25.31 dB	24.77 dB	26.85 dB	24.01 dB
12.0 GHz	20.74 dB	16.48 dB	14.68 dB	14.25 dB	16.70 dB	14.91 dB	23.64 dB
16.0 GHz	16.57 dB	18.66 dB	19.87 dB	11.61 dB	15.66 dB	12.03 dB	15.18 dB
18.0 GHz	25.85 dB	15.86 dB	12.90 dB	21.37 dB	15.34 dB	26.38 dB	18.30 dB

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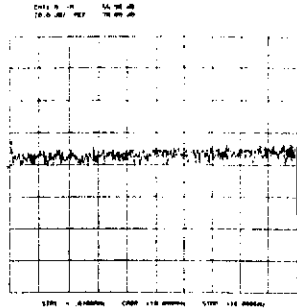
SERIAL NUMBER  
TECHNICIAN  
VOLTAGE & CURRENT DRAW

: 7MS50617  
: HOLLY HAHN  
: +5vdc @ <200mA  
: -15vdc @ <30mA

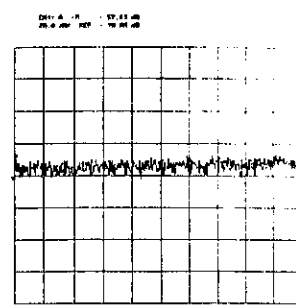
ISOLATION

AS MEASURED ON A NETWORK ANALYSER

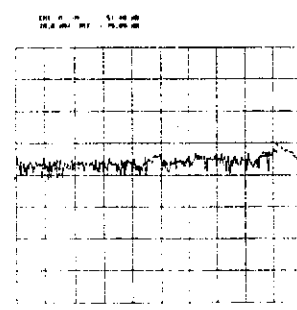
J1-J2



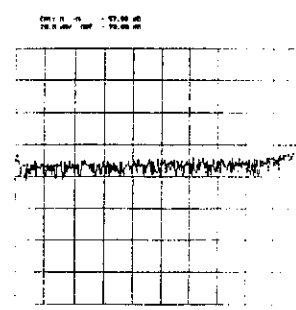
J1-J3



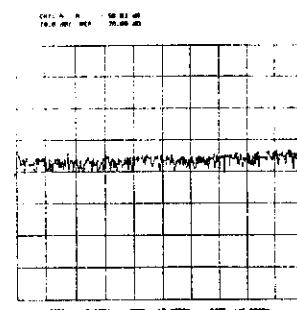
J1-J4



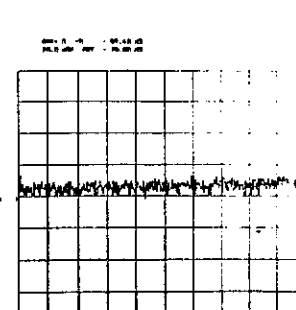
J1-J5



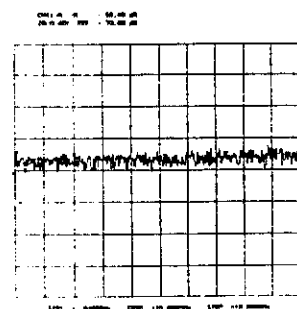
J1-J6



J1-J7



J1-J8



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VOLTAGE & CURRENT DRAW : +5vdc @ <200mA  
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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	72 dB	76 dB	76 dB	76 dB	88 dB	82 dB	92 dB
500 MHz	88 dB	92 dB	98 dB	96 dB	96 dB	96 dB	86 dB
2.0 GHz	83 dB	86 dB	94 dB	98 dB	98 dB	98 dB	96 dB
4.0 GHz	72 dB	78 dB	90 dB	94 dB	94 dB	94 dB	82 dB
8.0 GHz	70 dB	70 dB	68 dB	82 dB	88 dB	86 dB	82 dB
12.0 GHz	72 dB	70 dB	66 dB	74 dB	74 dB	76 dB	72 dB
16.0 GHz	68 dB	68 dB	69 dB	64 dB	70 dB	70 dB	74 dB
18.0 GHz	68 dB	72 dB	62 dB	62 dB	62 dB	72 dB	69 dB

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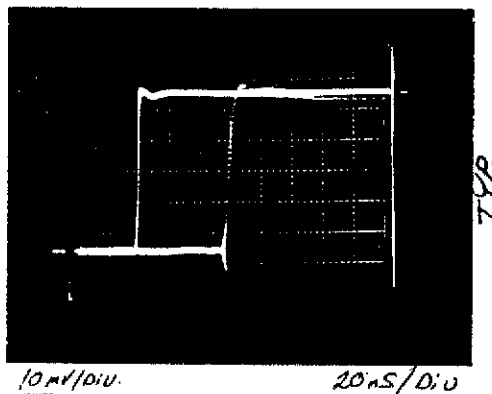
SWITCHING SPEED  
TYPICAL FOR ALL ARMS

"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" 60nS, "RISE" 4nS

HORIZONTAL SCALE:  
20nS/DIVISION

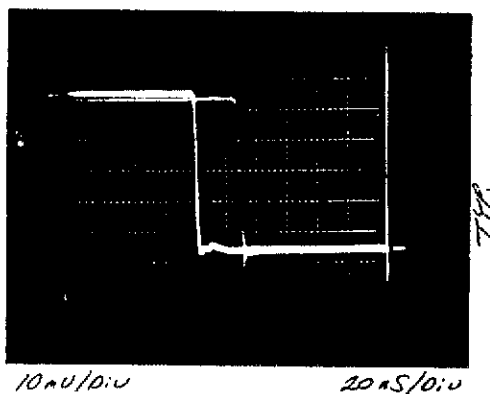
VERTICAL SCALE:  
10mV/DIVISION



"OFF" 30nS, "FALL" 4nS

HORIZONTAL SCALE:  
20nS/DIVISION

VERTICAL SCALE:  
10mV/DIVISION



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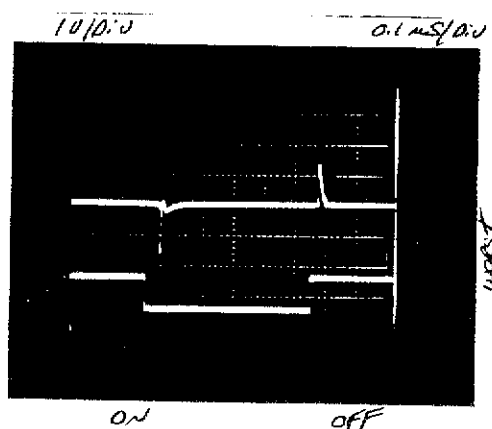
SERIAL NUMBER	: 7MS50617
TECHNICIAN	: HOLLY HAHN
VOLTAGE & CURRENT DRAW	: +5vdc @ <200mA
	: -15vdc @ <30mA

VIDEO TRANSIENTS  
TYPICAL FOR ALL ARMS

AS MEASURED IN A  
300MHz BANDWIDTH

HORIZONTAL SCALE:  
0.1 $\mu$ S/DIVISION

VERTICAL SCALE:  
1.0 V/DIVISION

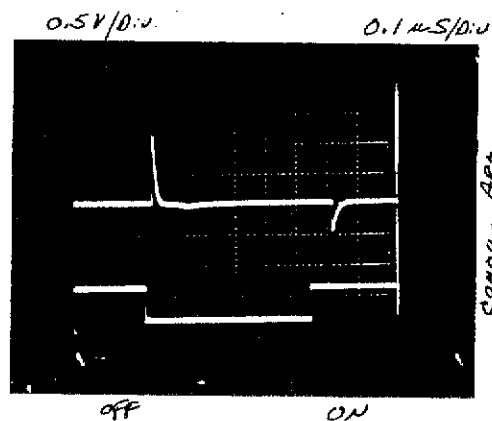


VIDEO TRANSIENTS  
COMMON ARM

AS MEASURED IN A  
300MHz BANDWIDTH

HORIZONTAL SCALE:  
0.1 $\mu$ S/DIVISION

VERTICAL SCALE:  
0.5 V/DIVISION



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