AMERICAN MICROWAVE CORPORATION

DATA

ON

0.3 GHz TO 18.0 GHz

AND

9.5 GHz TO 10.5 GHz

LOW LOSS

HIGH POWER

20 WATTS PEAK

(7 Watt Average)

HIGH ISOLATION

REFLECTIVE

SPST

SOLID STATE SWITCH/MODULATOR

SWN-2184-1A (Option 45-068)

(Serial Number: 1MS712419)

DESIGNED
BY
ASH GORWARA, RENE AFABLE, & WAYNE PURDHAM

REPORT PREPARED
BY
RENE AFABLE

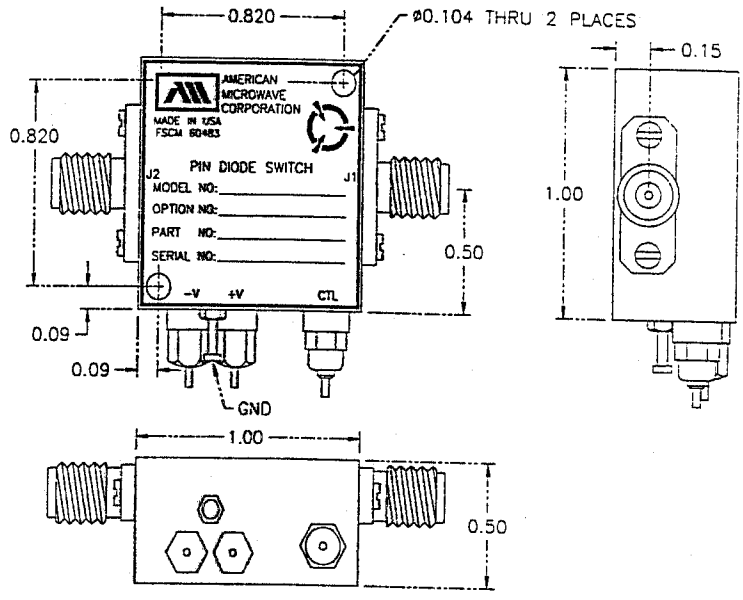
JANUARY 15, 1998

WEB PAGE: HTTP://WWW.AMWAVE.COM E-MAIL ADDRESS: AMCPMI@AOL.COM

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

AMERICAN MICROWAVE CORPORATION

SPST REFLECTIVE PIN-DIODE SWITCH/MODULATOR



KEY FEATURES

- 0.3 GHz TO 18 GHz
- LOW LOSS
- HIGH POWER
- HIGH ISOLATION
- MINIATURE
- TTL LOGIC COMPATIBLE

AMC MODEL No: SWN-2184-1A (Option 45-068)

SPECIFICATIONS:(REFLECTIVE)

• FREQUENCY RANGE	:	0.3 GHz to 18.0 GHz
• INSERTION LOSS	:	2.5 dB MAX.
	:	0.70 dB TYP. @ 0.3 GHz
	:	0.60 dB TYP. @ 0.5 GHz
	:	0.55 dB TYP. @ 2.0 GHz
	:	1.20 dB TYP. @ 8.0 GHz
	:	2.41 dB TYP. @ 18.0 GHz
• ISOLATION	:	≥ 60 dB MIN.
	:	≥ 55 dB TYP. @ 0.3 GHz
	:	≥ 60 dB TYP. @ 0.5 GHz
	:	≥ 85 dB TYP. @ 2.0 GHz
	:	≥ 80 dB TYP. @ 8.0 GHz
	:	≥ 70 dB TYP. @ 18.0 GHz
• VSWR	:	2.0:1
• SWITCHING SPEED	:	"RISE" 100nS MAX., 75nS TYP.
	:	"FALL" 100nS MAX., 75nS TYP.
	:	"ON" 250nS MAX., 220nS TYP.
	:	"OFF" 250nS MAX., 100nS TYP.
• CONTROL	:	TTL Compatible
• VIDEO-TRANSIENTS	:	≤2.0V Peak to Peak, 300 MHz Bandwidth
(Low video transients available)	:	≤2.0V Peak to Peak, 20 MHz Bandwidth
• RF INPUT POWER	:	20 Watts Peak, 7 Watts Average
• DC POWER SUPPLY	:	+5vdc @ +100mA MAX.
(Other supply voltages available)	:	- 15vdc @ -50mA MAX.
• SIZE	:	1.0" X 1.0" X 0.5"
• WEIGHT	:	≤ 1.0 oz.

January 15, 1998

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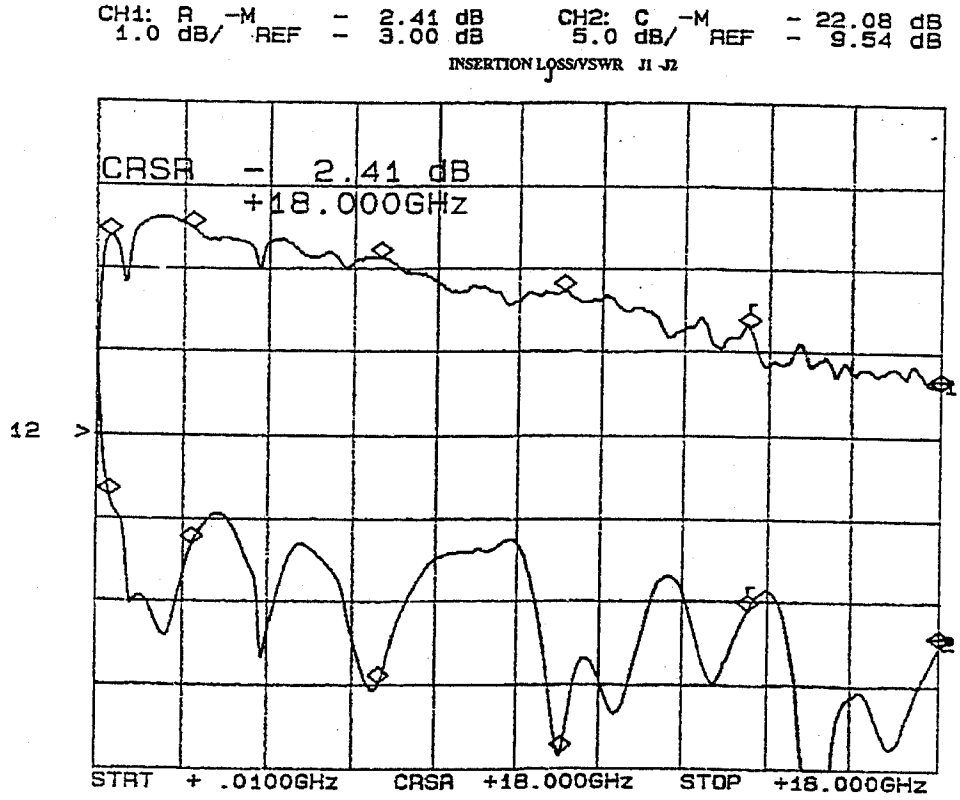
SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

INSERTION LOSS & RETURN LOSS*



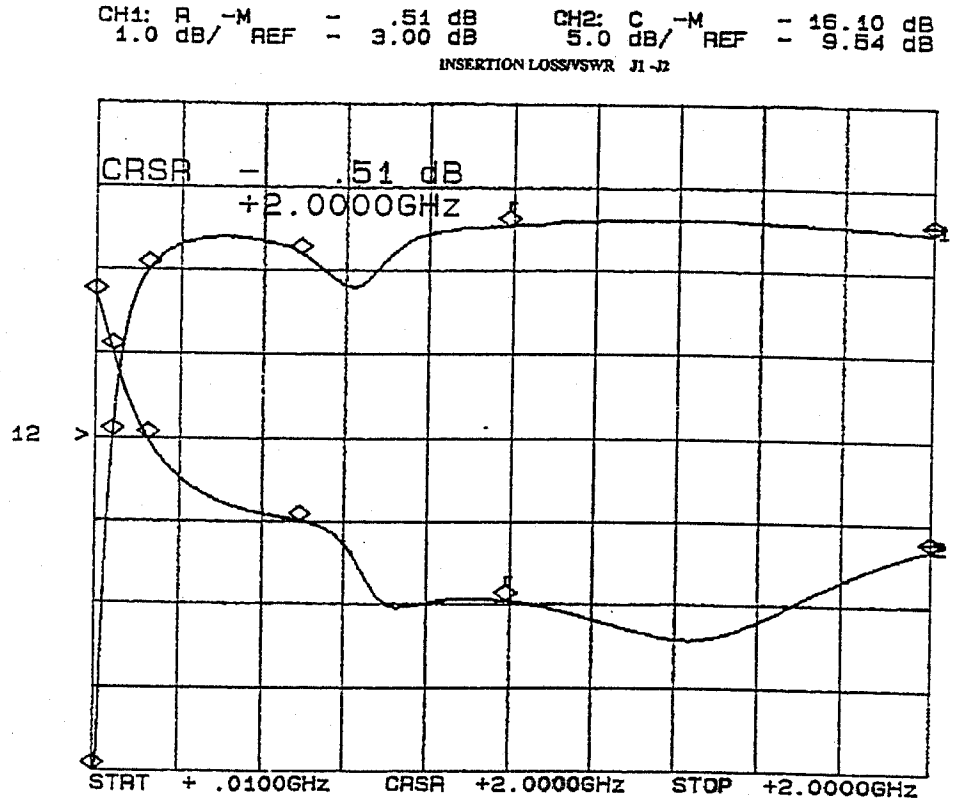
*J1: COMMON ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
0.3 GHz	-0.59 dB	-13.5 dB
2.0 GHz	-0.53 dB	-15.7 dB
6.0 GHz	-0.85 dB	-24.1 dB
10.0 GHz	-1.26 dB	-27.9 dB
14.0 GHz	-1.76 dB	-19.8 dB
18.0 GHz	-2.41 dB	-22.0 dB

JANUARY 15, 1998

MODEL NUMBER : SWN-2184-1A (Option 45-068, 10M2)
SERIAL NUMBER : 1MS712419
TECHNICIAN : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: +62mA
: -15vdc: -5mA

INSERTION LOSS & RETURN LOSS*



*J1: COMMON ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
135 MHz	-0.98 dB	-9.57 dB
500 MHz	-0.79 dB	-14.4 dB
1 GHz	-0.42 dB	-19.3 dB
2 GHz	-0.51 dB	-16.1 dB

JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SW-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION *

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J2
200 MHz	-56 dB
500 MHz	-60 dB
1 GHz	-72 dB
2 GHz	-88 dB
4 GHz	-100 dB
6 GHz	-104 dB
8 GHz	-102 dB
10 GHz	-95 dB
12 GHz	-95 dB
14 GHz	-95 dB
16 GHz	-90 dB
18 GHz	-88 dB

*J1: COMMON ARM

JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SW-2184-1A (Option 45-068, 10M2)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J2
10 MHz	-36 dB
50 MHz	-48 dB
135 MHz	-50 dB
500 MHz	-60 dB
1 GHz	-72 dB
2 GHz	-88 dB

*J1: COMMON ARM

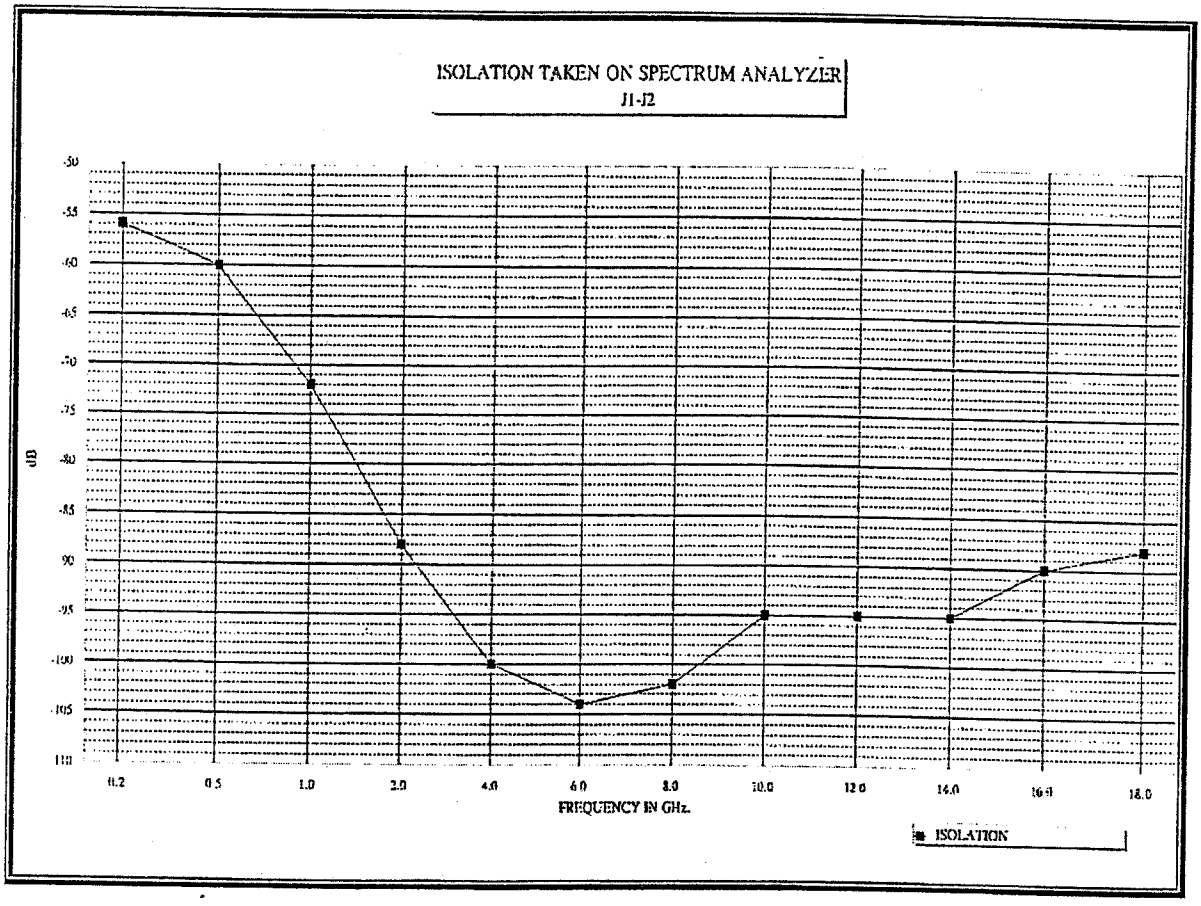
JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZE



*J1: COMMON ARM

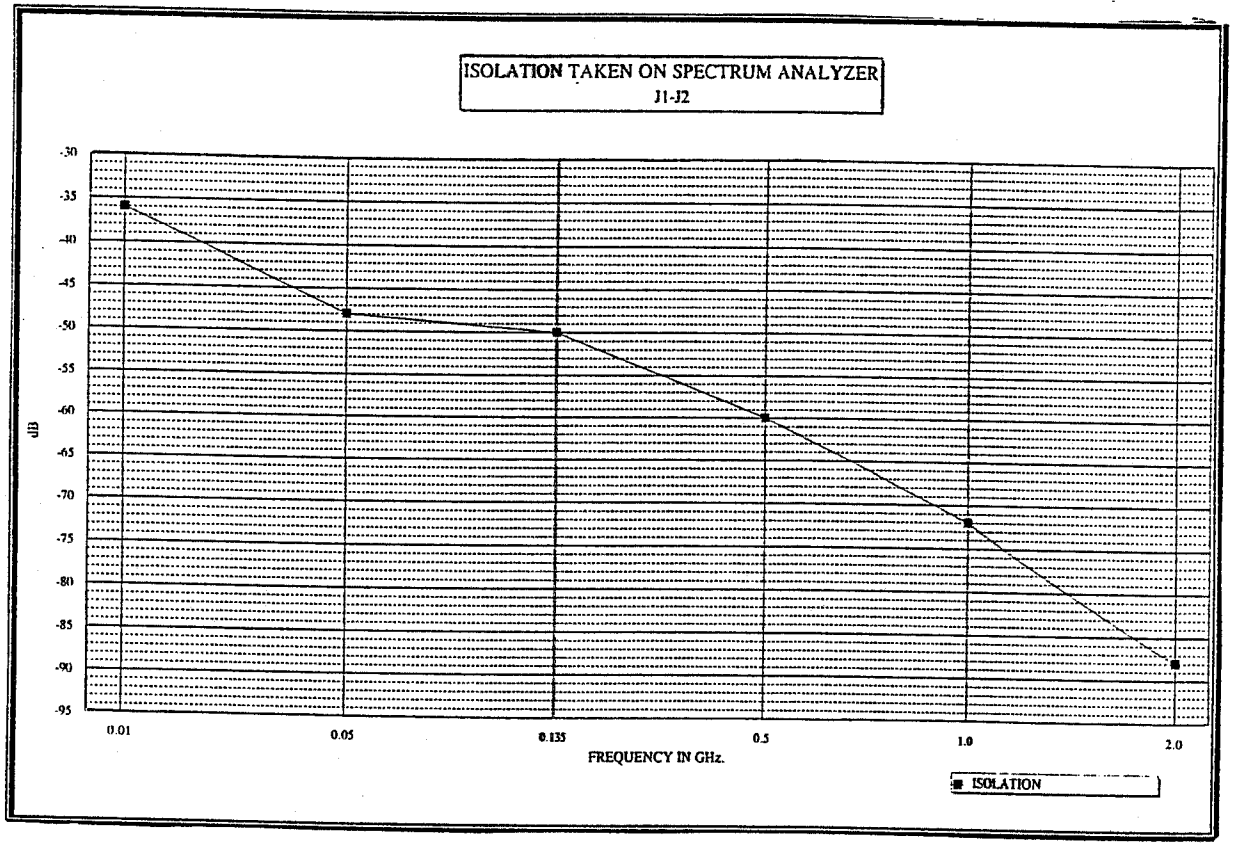
JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068, 10M2)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZE)



*J1: COMMON ARM

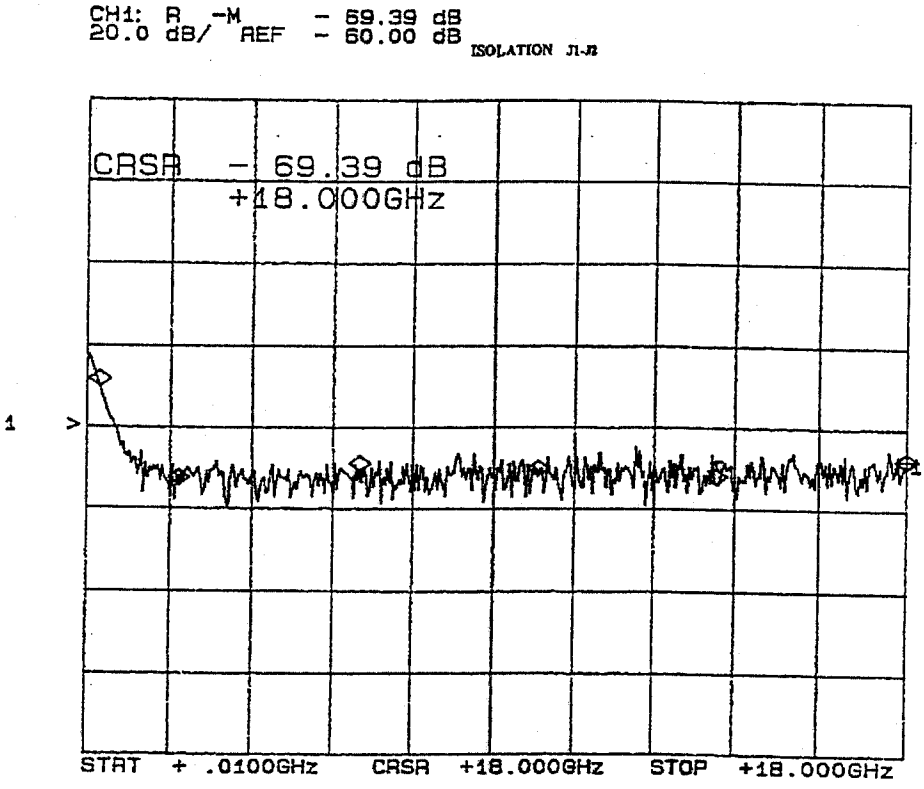
JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)



*J1: COMMON ARM

FREQUENCY	ISOLATION
0.3 GHz	-51.6 dB
2.0 GHz	-72.5 dB
6.0 GHz	-71.9 dB
10.0 GHz	-71.8 dB
14.0 GHz	-71.2 dB
18.0 GHz	-69.3 dB

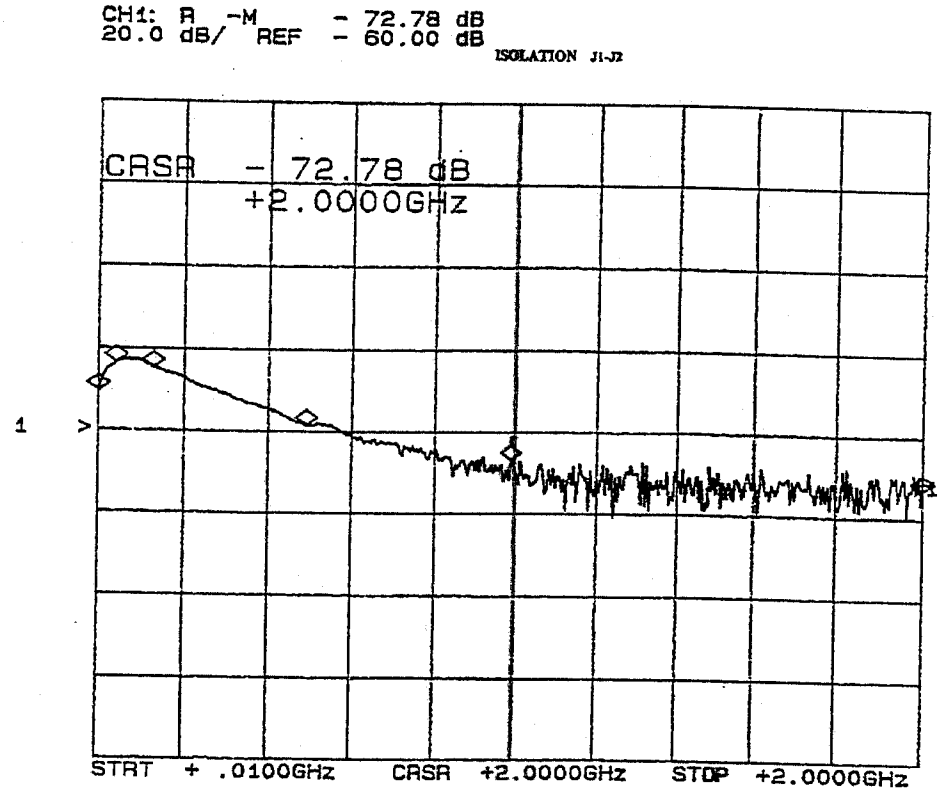
JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068, 10M2)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)



*J1: COMMON ARM

FREQUENCY	ISOLATION
10 MHz	-49.9 dB
50 MHz	-42.9 dB
135 MHz	-44.0 dB
500 MHz	-57.5 dB
1 GHz	-70.9 dB
2 GHz	-72.8 dB

JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS 712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

SWITCHING SPEED

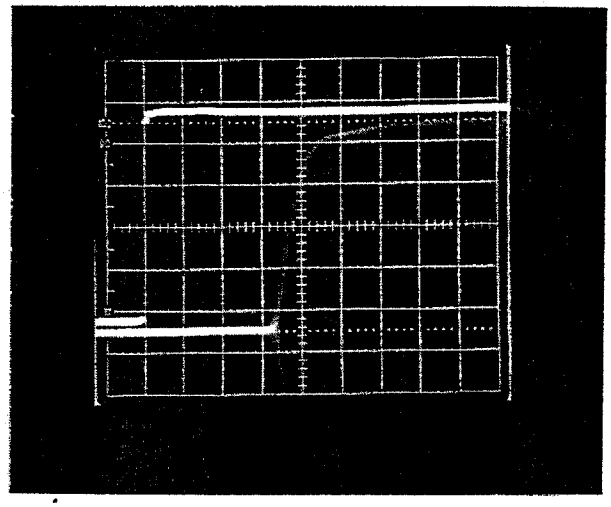
"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF
"On/Off" Time: 50% TTL to 90% RF or 10% RF

TYPICAL OF ALL ARMS

"DELAY ON": 220nS
"RISE TIME": 50nS

HORIZONTAL SCALE:
50nS PER DIVISION

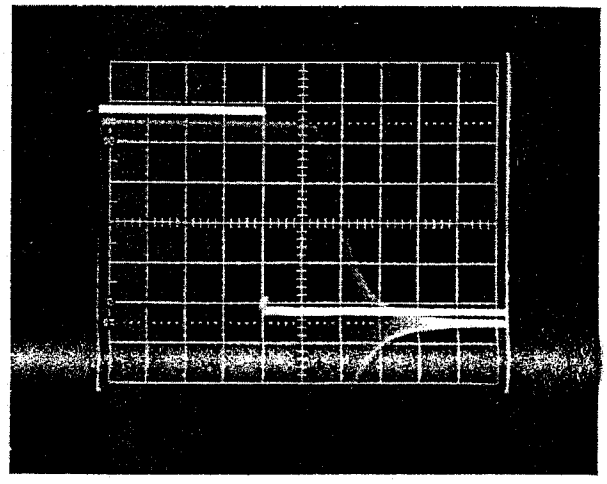
VERTICAL SCALE:
10mV PER DIVISION



"DELAY OFF": 150nS
"FALL TIME": 70nS

HORIZONTAL SCALE:
50nS PER DIVISION

VERTICAL SCALE:
10mV PER DIVISION



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SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

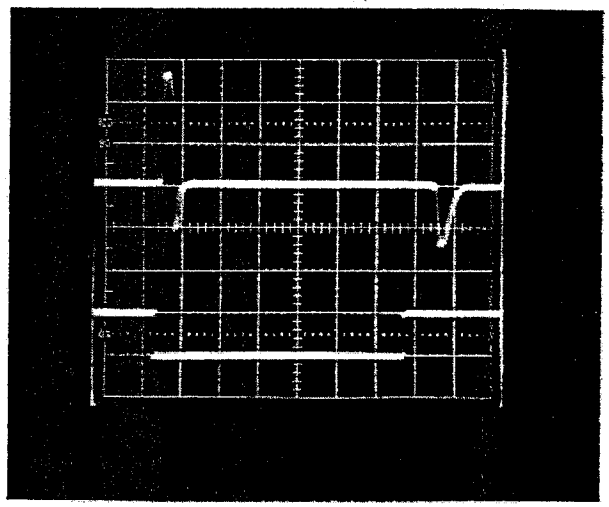
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤2.0 V P-P
MEASURED IN A
300 MHz BANDWIDTH

VERTICAL SCALE:
0.5V PER DIVISION

HORIZONTAL SCALE:
200nS PER DIVISION



≤2.0 V P-P
MEASURED IN A
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VERTICAL SCALE:
0.5V PER DIVISION

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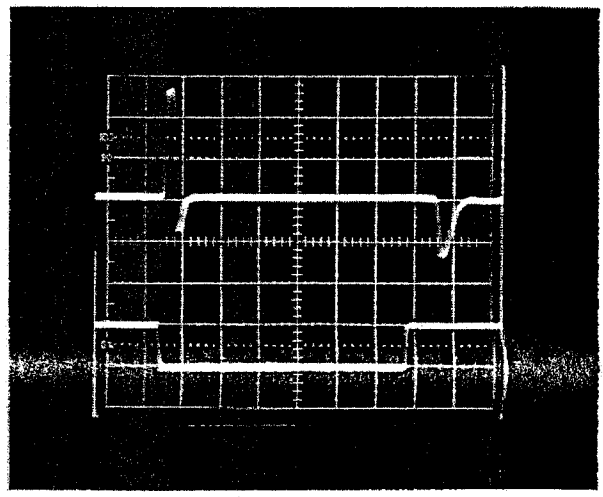
200nS PER DIVISION



JANUARY 15, 1998

AMERICAN MICROWAVE CORPORATION

DATA

ON

9.5 GHz TO 10.5 GHz

LOW LOSS

HIGH POWER

20 WATTS PEAK
(7 Watt Average)

HIGH ISOLATION

REFLECTIVE

SPST

SOLID STATE SWITCH/MODULATOR

FOR

MIT - LINCOLN LABORATORIES

SWN-2184-1A (Option 45-068, 911)
(Serial Number: 1MS712419)

JANUARY 15, 1998

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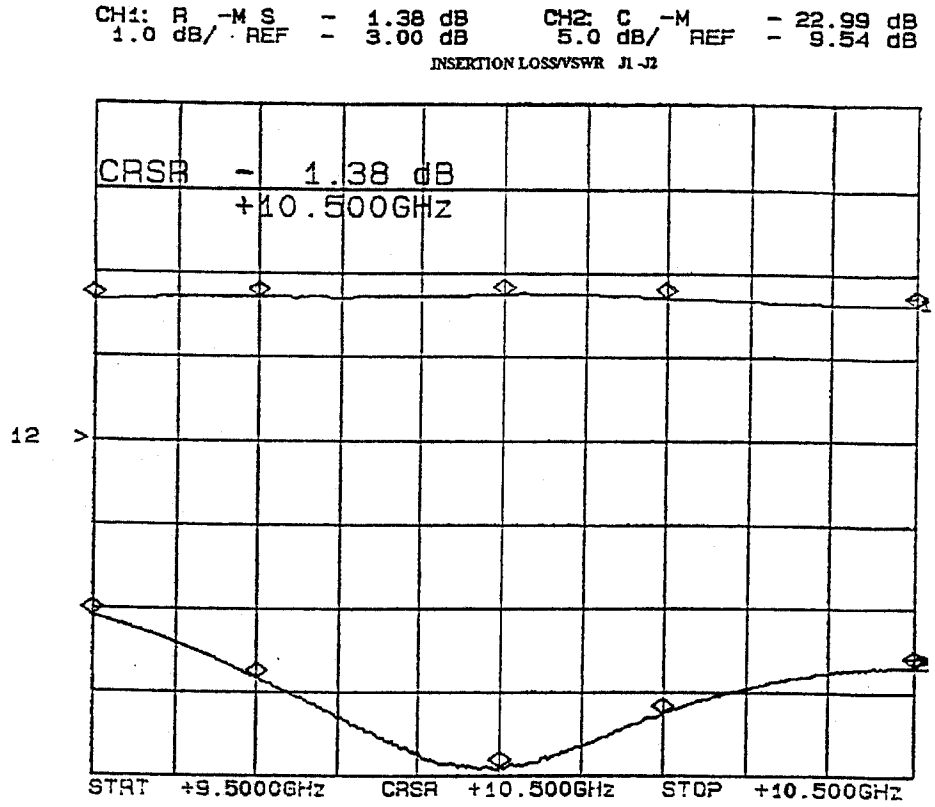
SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068, 911)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

INSERTION LOSS & RETURN LOSS*



*J1: COMMON ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
9.5 GHz	-1.31 dB	-19.9 dB
9.7 GHz	-1.27 dB	-23.6 dB
10 GHz	-1.26 dB	-28.8 dB
10.2 GHz	-1.30 dB	-25.8 dB
10.5 GHz	-1.38 dB	-22.9 dB

JANUARY 15, 1998

SUMMARY TEST DATA

MODEL NUMBER	: SW-2184-1A (Option 45-068, 911)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION *

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J2
9.5 GHz	-96 dB
9.7 GHz	-96 dB
10 GHz	-95 dB
10.2 GHz	-95 dB
10.5 GHz	-95 dB

*J1: COMMON ARM

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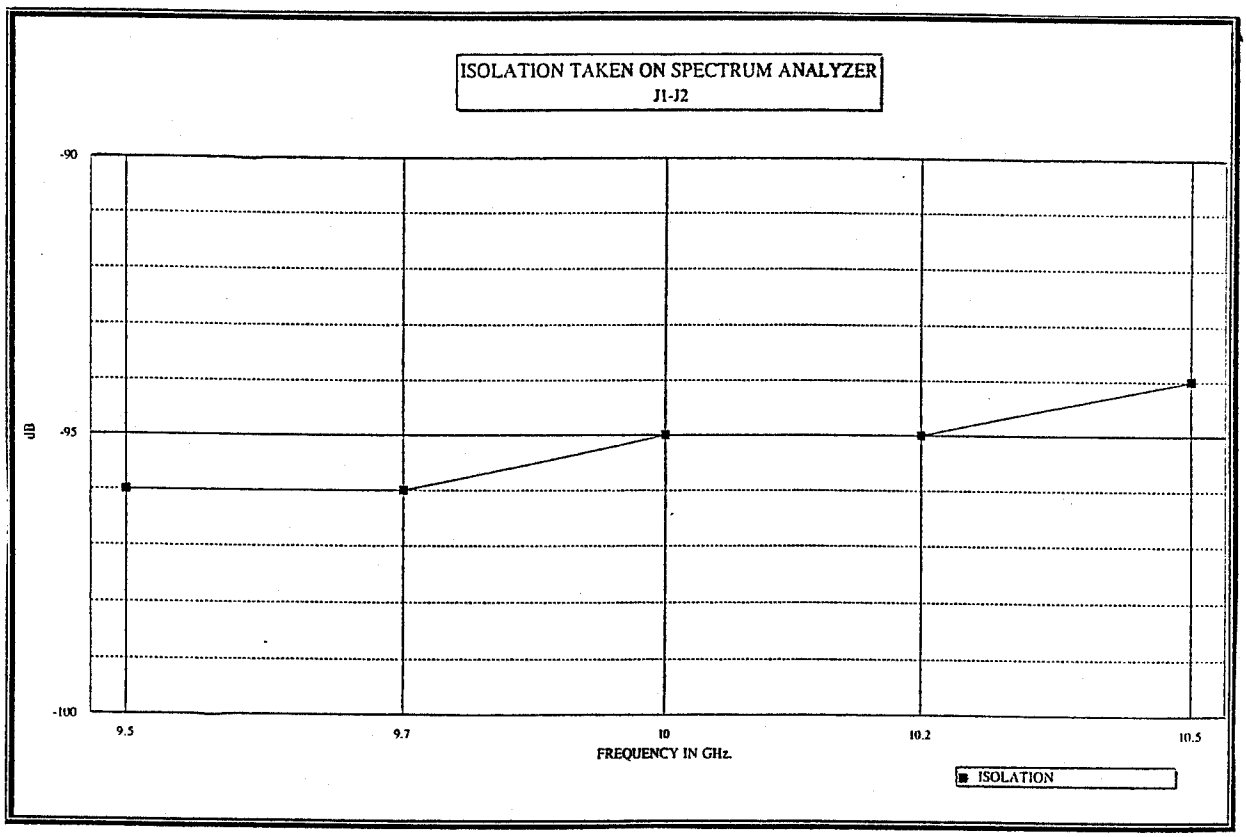
SUMMARY TEST DATA

MODEL NUMBER	: SWN-2184-1A (Option 45-068, 911)
SERIAL NUMBER	: 1MS712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZE



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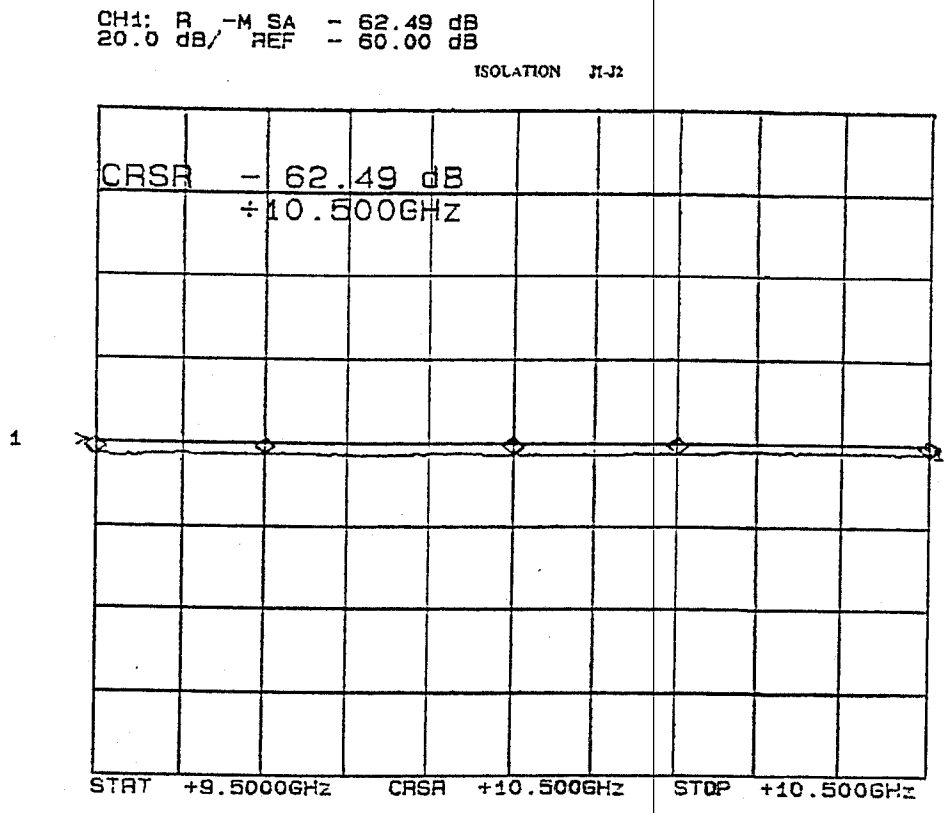
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: +62mA
	: -15vdc: -5mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)



*J1: COMMON ARM

FREQUENCY	ISOLATION
9.5 GHz	-63.1 dB
9.7 GHz	-62.7 dB
10 GHz	-63.0 dB
10.2 GHz	-62.6 dB
10.5 GHz	-62.4 dB

JANUARY 15, 1998

SUMMARY TEST DATA

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SERIAL NUMBER	: 1MS 712419
TECHNICIAN	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc +62mA
	: -15vdc -5mA

SWITCHING SPEED

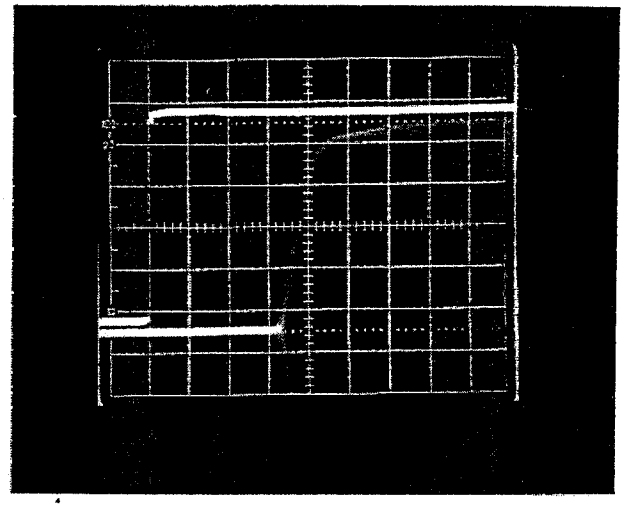
"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF
"On/Off" Time: 50% TTL to 90% RF or 10% RF

TYPICAL OF ALL ARMS

"DELAY ON": 220nS
"RISE TIME": 50nS

HORIZONTAL SCALE:
50nS PER DIVISION

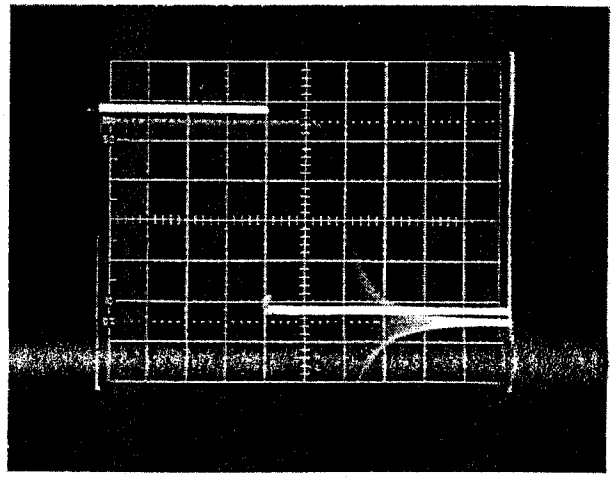
VERTICAL SCALE:
10mV PER DIVISION



"DELAY OFF": 150nS
"FALL TIME": 70nS

HORIZONTAL SCALE:
50nS PER DIVISION

VERTICAL SCALE:
10mV PER DIVISION



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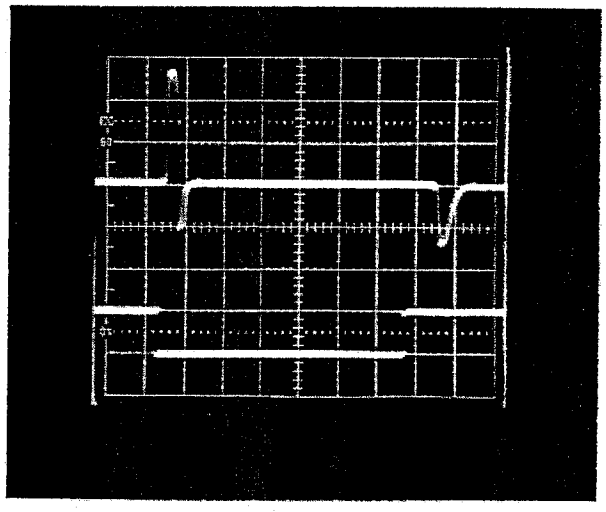
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤2.0 V P-P
MEASURED IN A
300 MHz BANDWIDTH

VERTICAL SCALE:
0.5V PER DIVISION

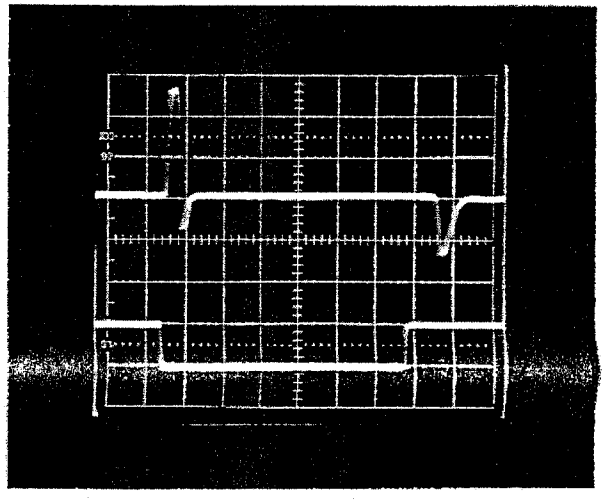
HORIZONTAL SCALE:
200nS PER DIVISION



≤2.0 V P-P
MEASURED IN A
20 MHz BANDWIDTH

VERTICAL SCALE:
0.5V PER DIVISION

HORIZONTAL SCALE:
200nS PER DIVISION



JANUARY 15, 1998