



TEST DATA

FROM

300 MHz TO 18 GHz
(10 MHz TO 18 GHz OPTIONAL)

50 MHz TO 2 GHz

AND

FROM 700 MHz TO 3.2 GHz

HIGH POWER (1 WATT)

LOW INSERTION LOSS

HIGH ISOLATION

AMPLITUDE (± 0.5 dB) AND PHASE ($\pm 5^\circ$) MATCHED

REFLECTIVE SP2T

SOLID STATE SWITCH

AMC MODEL No:
SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909584)

REPORTED AND PREPARED
BY
RENE AFABLE

OCTOBER 15, 1999

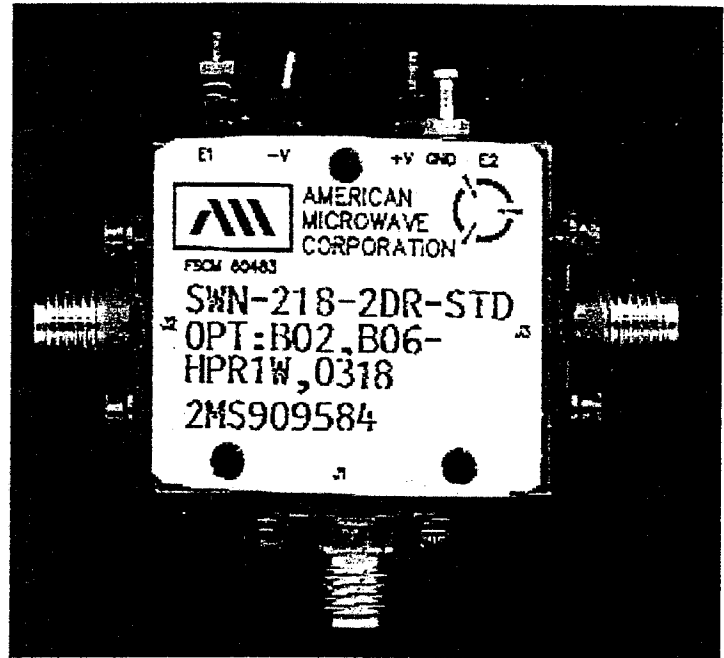
WEB PAGE: [HTTP://WWW.AMWAVE.COM](http://www.amwave.com)

E-MAIL ADDRESS: AMCPMI@AOL.COM

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

AMERICAN MICROWAVE CORPORATION

SP2T REFLECTIVE HIGH POWER SOLID STATE SWITCH



KEY FEATURES

- 300 MHz TO 18 GHz
(10MHz to 18GHz optional)
- HIGH POWER
- LOW INSERTION LOSS
- HIGH ISOLATION
- TTL LOGIC COMPATIBLE

**AMC MODEL No: SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318**

SPECIFICATIONS: (REFLECTIVE)

• FREQUENCY RANGE	:	300 MHz to 18 GHz (10MHz to 18GHz Optional)
• INSERTION LOSS	:	2.5 dB MAX.
	:	0.75 dB TYP. @ 300 MHz
	:	0.75 dB TYP. @ 2.0 GHz
	:	1.25 dB TYP. @ 10.0 GHz
	:	2.50 dB TYP. @ 18.0 GHz
• ISOLATION	:	≥ 75 dB MIN.
	:	≥ 90 dB TYP. @ 300 MHz
	:	≥ 95 dB TYP. @ 2.0 GHz
	:	≥ 85 dB TYP. @ 10.0 GHz
	:	≥ 75 dB TYP. @ 18.0 GHz
• VSWR	:	2.0:1
• SWITCHING SPEED	:	"RISE" 25nS MAX., 15nS TYP.
	:	"FALL" 10nS MAX., 5nS TYP.
	:	"ON" 100nS MAX., 75nS TYP.
	:	"OFF" 100nS MAX., 75nS TYP.
• CONTROL	:	Single control TTL Compatible (Independent control available)
• VIDEO TRANSIENTS	:	≤1.7 V Peak to Peak, 300 MHZ Bandwidth
	:	≤800 mV Peak to Peak, 20 MHZ Bandwidth
• RF INPUT POWER	:	+27dBm Operating (Other power Levels available)
• DC POWER SUPPLY	:	+5vdc @ +100mA MAX.
(Other supply voltages available)	:	- 15vdc @ - 75mA MAX.
• SIZE	:	1.2" (L) X 1.0" (W) X 0.50" (H)
• WEIGHT	:	≤ 1.5 oz.

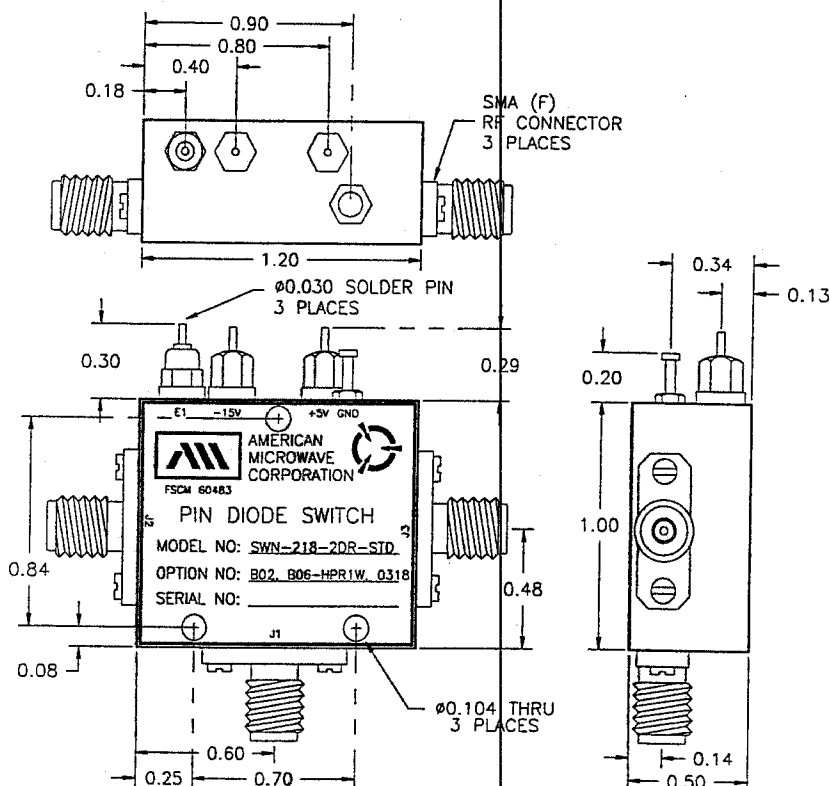
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SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @ +71.5mA; -15vdc: @ -45.9mA



ALL DIMENSIONS ARE IN INCHES

TOLERANCES:

X.XX ±0.020
 X.XXX ±0.010

ENVIRONMENTAL RATINGS:

- TEMPERATURE:..... -55°C TO +85°C (OPERATING)
 -65°C TO +125°C (STORAGE)
- HUMIDITY:..... MIL-STD-202F, METHOD 103B COND. B
- SHOCK:..... MIL-STD-202F, METHOD 213B COND. B
- VIBRATION:..... MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE:..... MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE:..... MIL-STD-202F, METHOD 107D COND. A

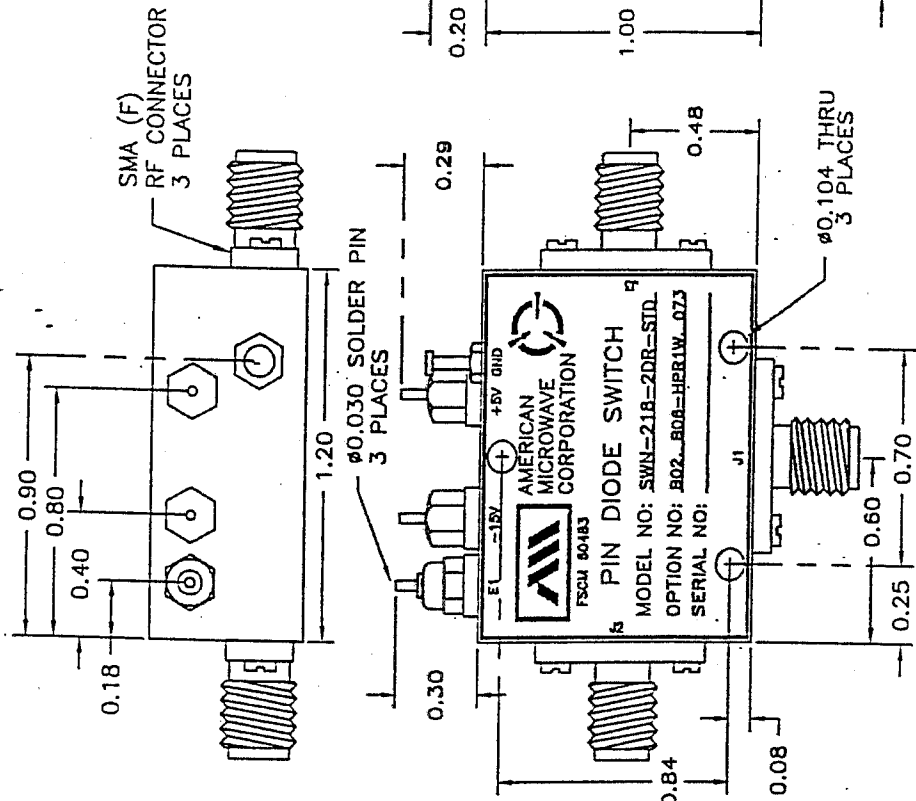
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION.

OCTOBER 15, 1999

DESCRIPTION

AMC MODEL SWN-218-2DR-STANDARD OPTIONS B02, B06-HPR1W, 073 IS A HIGH POWER (1 WATT) SINGLE POLE TWO THROW, REFLECTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR 700 MHz TO 3.2 GHz OPERATION.

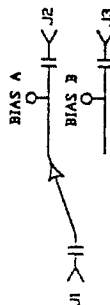
REVISIONS
DATE
10/12/99
APPROVED
ORIGINAL RELEASE



SPECIFICATIONS:

- FREQUENCY: 700 MHz TO 3.2 GHz
- INSERTION LOSS: 1.25 dB MAX. 1.0 dB TYPICAL
- ISOLATION: 60 dB MINIMUM
- VSWR (ALL PORTS): 2.0:1
- SPEED: RISE: 15ns TYPICAL, 25ns MAX. FALL: 10ns TYPICAL, 15ns MAX. DELAY ON: 75ns TYPICAL, 100ns MAX. DELAY OFF: 75ns TYPICAL, 100ns MAX.
- RF POWER: +30 dBm MAXIMUM
- CONTROL: TTL SINGLE CONTROL
- LOGIC "0": J1 TO J2
- LOGIC "1": J1 TO J3
- POWER SUPPLY: +5 VDC @ 100 mA MAXIMUM -15 VDC @ 75 mA MAXIMUM
- CONNECTORS (RF): SMA FEMALE, 3 PLACES
- CONNECTORS (POWER): SOLDER PINS
- CONNECTORS (CONTROL): SOLDER PINS
- SIZE: 1.20" (L) x 1.00" (W) x 0.50" (H)
- WEIGHT: 1.5 OUNCE TYPICAL

BLOCK DIAGRAM



ALL DIMENSIONS ARE IN INCHES
TOLERANCES:
X.XX ±0.020
X.XXX ±0.010

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -55°C TO +85°C (OPERATING) -65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND	
TITLE SWN-218-2DR-STANDARD OPTIONS B02, B06-HPR1W, 073		PRODUCT FEATURE	
DRAWN WSP, RRLd	DATE 10/12/99	SIZE A	DWG NO. 60483
CHECKED PA	DATE 10/14/99	SCALE N/S	SHEET 1 OF 3
ISSUED WUP	DATE 10/14/99	PART NO. 100-4427-9	REV. REV.

DESCRIPTION

AMC MODEL SWN-2DR/DI-STANDARD IS A SINGLE POLE TWO THROW, REFLECTIVE OR ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 2.5db
ABSORPTIVE: 3.5db
- ISOLATION: 0.5 GHz TO 2 GHz: 60db
2 GHz TO 18 GHz: 70db
- VSWR: REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
REFLECTIVE OUT/OFF: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: RISE: 10ns TYPICAL, 15ns MAX.
FALL: 10ns TYPICAL, 15ns MAX.
DELAY ON: 75ns TYPICAL, 100ns MAX.
DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 μ sec
- CONTROL: TTL LOGIC "0" = J1-J2 ON "1" = J1-J3 ON
- POWER SUPPLY: +5V @ 100 mA MAX.
-5V @ 75mA MAX. (REFLECTIVE)
100mA MAX. (ABSORPTIVE/NON-REFLECTIVE)
- CONNECTORS: SMA FEMALE
CONTROL: SOLDER PIN
- SIZE: 1.20" (L) x 1.00" (W) x 0.50" (H)
- WEIGHT: 1.5 OUNCE TYPICAL

OPTIONS:

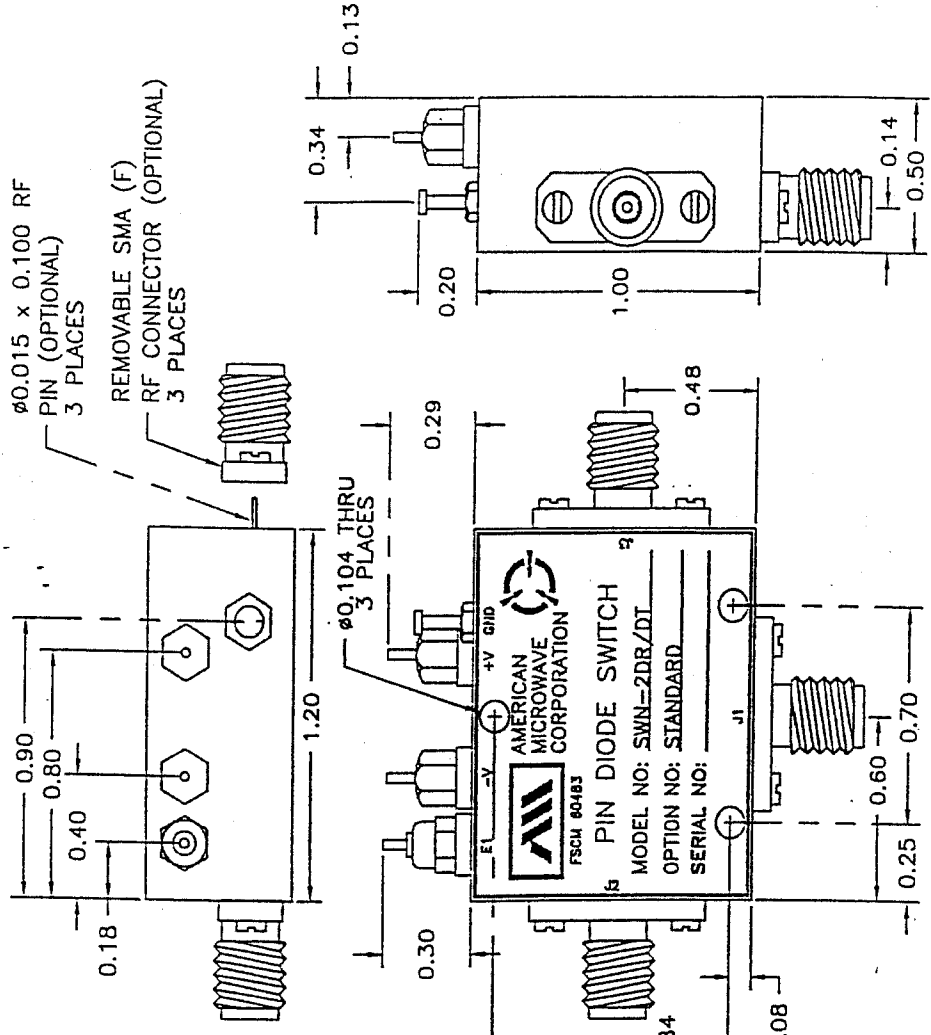
- SINGLE CONTROL WITH SOLDER PIN STANDARD
- IND-SP INDEPENDANT CONTROL WITH SOLDER PIN (LOGIC "0" = ON "1" = OFF)
- 10M1B 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M1B 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 11B 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 21B 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 41B 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 61B 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 121B 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 100M20 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
- 220 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- 1020 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- B01 -12V POWER SUPPLIES
- B02 -15V POWER SUPPLIES
- B03 REVERSE LOGIC "1" = ON "0" = OFF
- B04 DRIVERLESS, CURRENT CONTROLLED
- B05 HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B06 HIGH POWER - SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B07 CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B08 LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B09 LOW INSERTION LOSS VERSION
- B10 HIGHER ISOLATION VERSION

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -55°C TO +85°C (OPERATING)
- 65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202F, METHOD: 105C, COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD: 107D, COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE, DR. REVISION

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	1/9/89/89	



NOTE:
DR=WITH DRIVER, REFLECTIVE
DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

APPROVALS		DATE
DRAWN	1/9/89, R.R.D	1/29/89
CHECKED	W.P. 7/29/89	
DESIGNED	P.A. 7/29/89	
TITLE		
AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND		
OUTLINE DRAWING		
SWN-2DR/DI-STANDARD		
SOLID STATE SWITCH		
SIZE	FREQ. NO.	DWG. NO.
A	60483	100-4427-1
SCALE	N/S	SHEET
		1 of 2

DESCRIPTION

AMC MODEL SWN-2DR/DT-IND-SP IS A SINGLE POLE TWO THROW, REFLECTIVE OR ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 2.5db
ABSORPTIVE: 3.5db
- ISOLATION: 0.5 GHz TO 2 GHz: 60db
2 GHz TO 18 GHz: 70db
- VSWR: REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
- SPEED: RISE: 10ns TYPICAL, 15ns MAX.
FALL: 10ns TYPICAL, 15ns MAX.
DELAY ON: 75ns TYPICAL, 100ns MAX.
DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: TTL LOGIC "0" = J1-J2 ON "1" = J1-J3 ON
- POWER SUPPLY: +5V @ 100 mA MAX.
-5V @ 75mA MAX.(REFLECTIVE)
100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- CONNECTORS: SMA FEMALE
CONTROL SOLDER PIN
SIZE: 1.20" (L) x 1.00" (W) x 0.50" (H)
- WEIGHT: 1.5 OUNCE TYPICAL

OPTIONS:

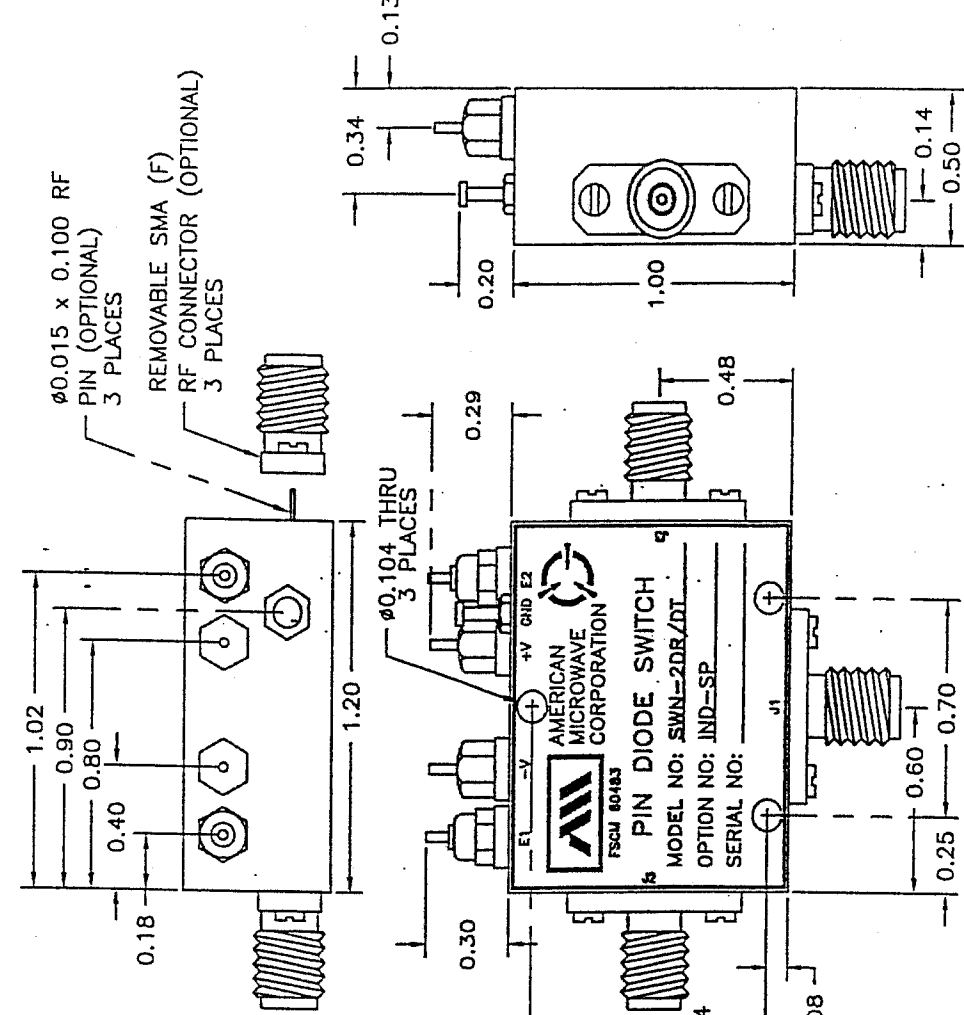
- SINGLE CONTROL WITH SOLDER PIN STANDARD
- IND-SP INDEPENDANT CONTROL WITH SOLDER PIN (LOGIC "0" = ON "1" = OFF)
- 10M18 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M18 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 118 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 218 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 412 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 618 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 1218 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 100M20 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
- 220 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
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- B01 -12V POWER SUPPLIES
- B02 -15V POWER SUPPLIES
- B03 REVERSE LOGIC "1" = ON "0" = OFF
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- B05 HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B06 HIGH POWER - SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B07 CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B08 LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B09 LOW INSERTION LOSS VERSION
- B10 HIGHER ISOLATION VERSION

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -55°C TO +85°C (OPERATING)
-65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	1/19/99	



NOTE:

- DR=WITH DRIVER, REFLECTIVE
- DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

APPROVALS		DATE
DRAWN	WSP, RPL	1/19/99
CHECKED	YIP	2/2/99
ISSUED	JA	7/29/99
TITLE		REV.
AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND		100-4427-2
OUTLINE DRAWING		1 of 2
SWN-2DR/DT-IND-SP		
SOLID STATE SWITCH		
SIZE	FSCU NO.	DWG NO.
A	60483	100-4427-2
SCALE	N/S	

ALL DIMENSIONS ARE IN INCHES

TOLERANCES:
X.XX ±0.020
X.XXX ±0.010



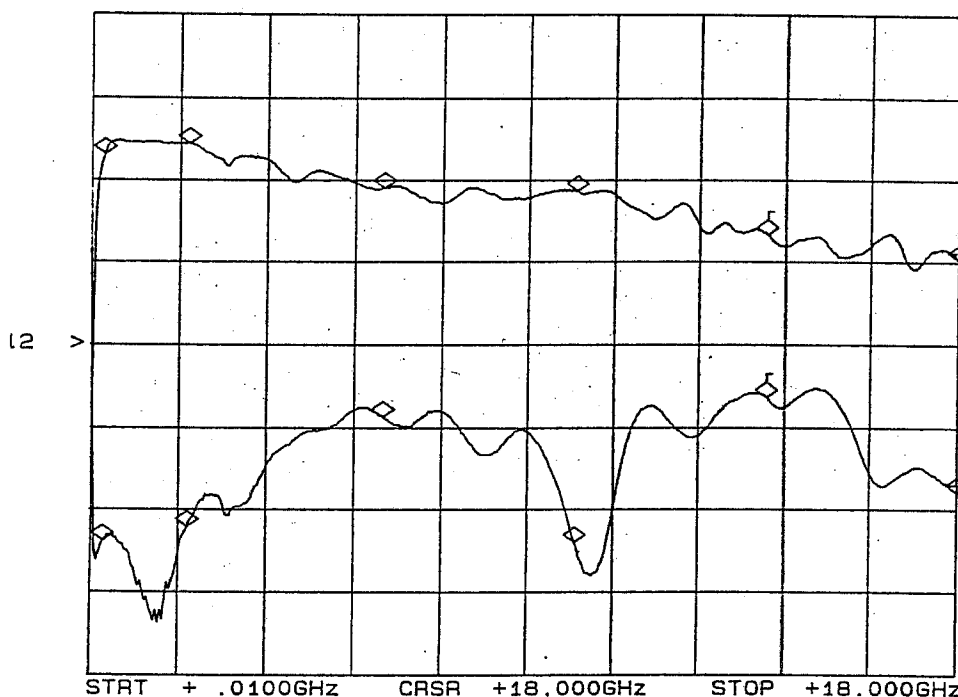
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J2

CH1: B -M - 1.98 dB CH2: R -M - 18.47 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
300 MHz	0.67 dB	21.4 dB
2 GHz	0.54 dB	19.9 dB
6 GHz	1.07 dB	13.9 dB
10 GHz	1.13 dB	21.8 dB
14 GHz	1.68 dB	12.7 dB
18 GHz	1.98 dB	18.4 dB

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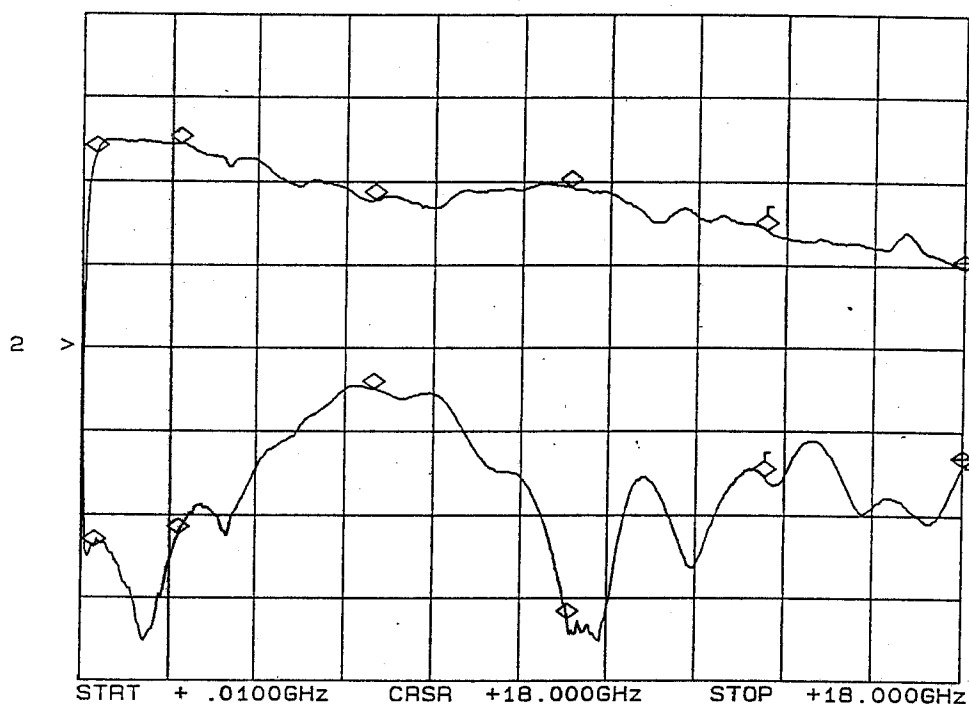
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J3

CH1: B -M - 2.03 dB CH2: R -M - 16.54 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
300 MHz	0.67 dB	21.3 dB
2 GHz	0.54 dB	20.3 dB
6 GHz	1.21 dB	12.0 dB
10 GHz	1.06 dB	26.7 dB
14 GHz	1.59 dB	17.4 dB
18 GHz	2.03 dB	16.5 dB

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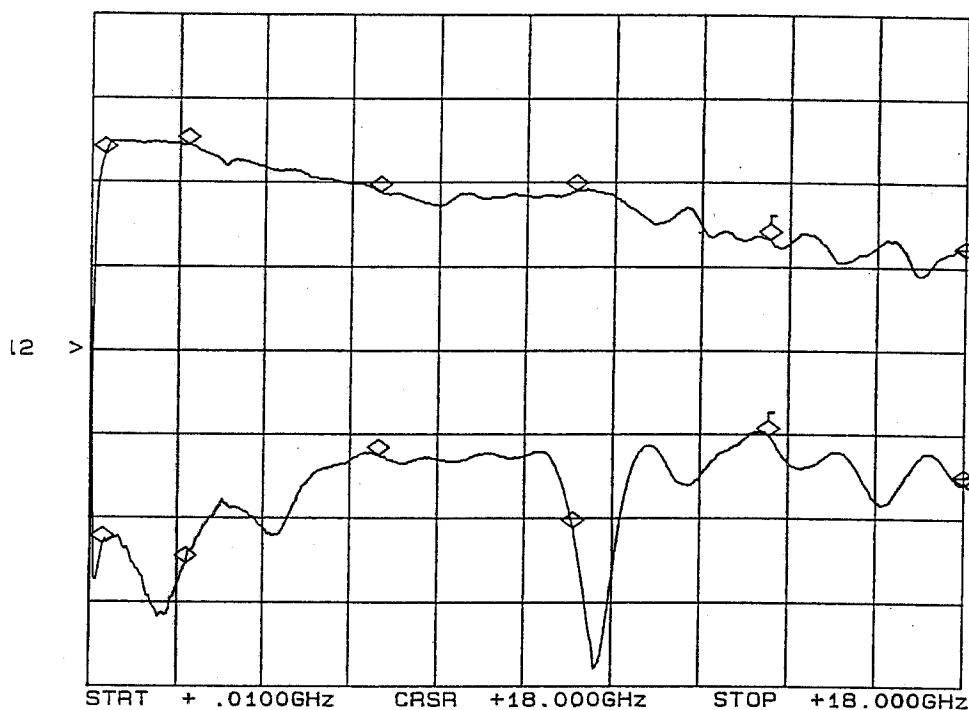
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J2-J1

CH1: B -M REF - 1.85 dB CH2: R -M REF - 17.46 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
300 MHz	0.67 dB	21.0 dB
2 GHz	0.56 dB	21.4 dB
6 GHz	1.12 dB	15.8 dB
10 GHz	1.09 dB	20.8 dB
14 GHz	1.70 dB	14.7 dB
18 GHz	1.85 dB	17.4 dB

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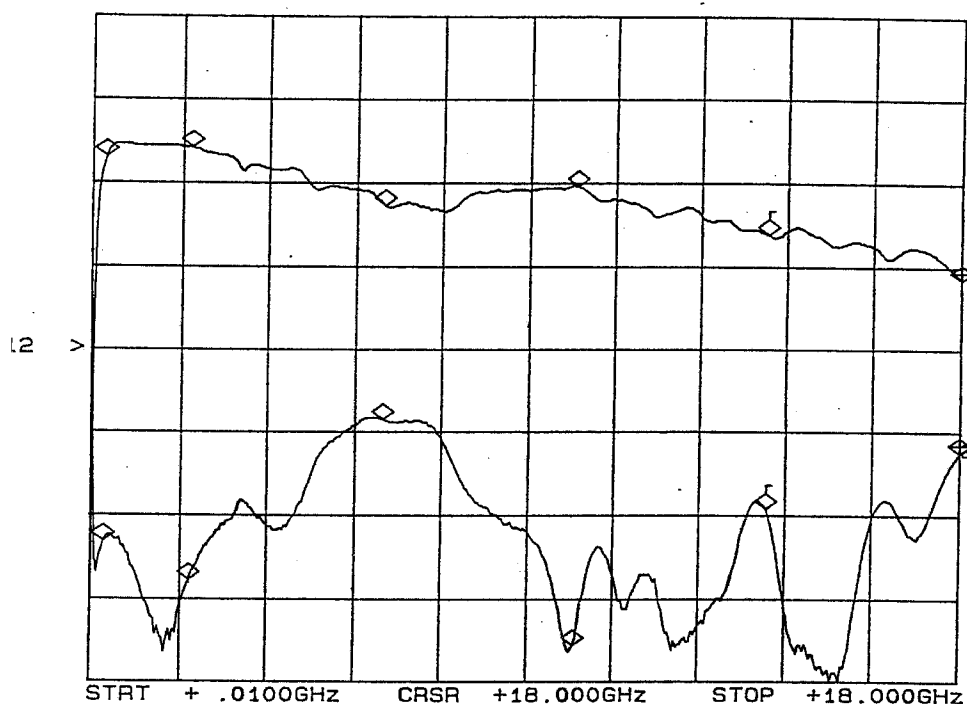
SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
	OPTIONS B02, B06-HPRIW, 0318
SERIAL NUMBER	: 2MS909584
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J3-J1

CH1: B -M - 2.14 dB CH2: R -M - 15.77 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
300 MHz	0.69 dB	21.0 dB
2 GHz	0.58 dB	22.8 dB
6 GHz	1.27 dB	13.8 dB
10 GHz	1.05 dB	26.8 dB
14 GHz	1.62 dB	19.5 dB
18 GHz	2.14 dB	15.7 dB

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SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
	OPTIONS B02, B06-HPR1W, 0318
SERIAL NUMBER	: 2MS909584
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SPECTRUM ANALYZER)

FREQUENCY	J2	J3
100 MHz	100 dB	100 dB
200 MHz	95 dB	95 dB
500 MHz	94 dB	93 dB
700 MHz	95 dB	95 dB
1 GHz	96 dB	95 dB
2 GHz	99 dB	98 dB
3.2 GHz	98 dB	98 dB
4 GHz	98 dB	98 dB
6 GHz	93 dB	97 dB
8 GHz	96 dB	96 dB
10 GHz	95 dB	90 dB
12 GHz	91 dB	91 dB
14 GHz	88 dB	84 dB
16 GHz	80 dB	78 dB
18 GHz	80 dB	80 dB

* J1: INPUT ARM

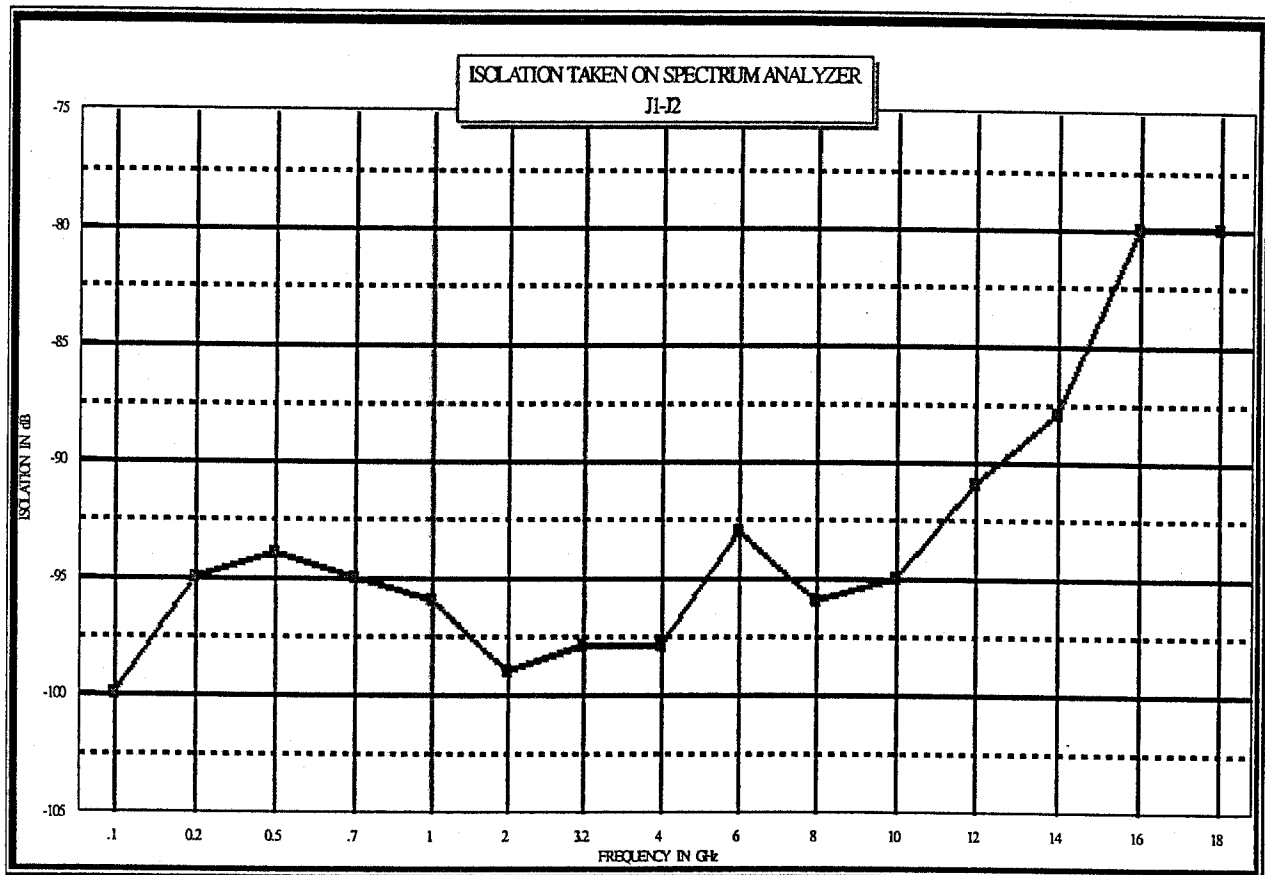
OCTOBER 15, 1999



SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909583
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+76.5mA; -15vdc: @ -21.1mA

ISOLATION*
 (AS MEASURED ON A SPECTRUM ANALYZER)
 J1-J2



*J1: INPUT ARM

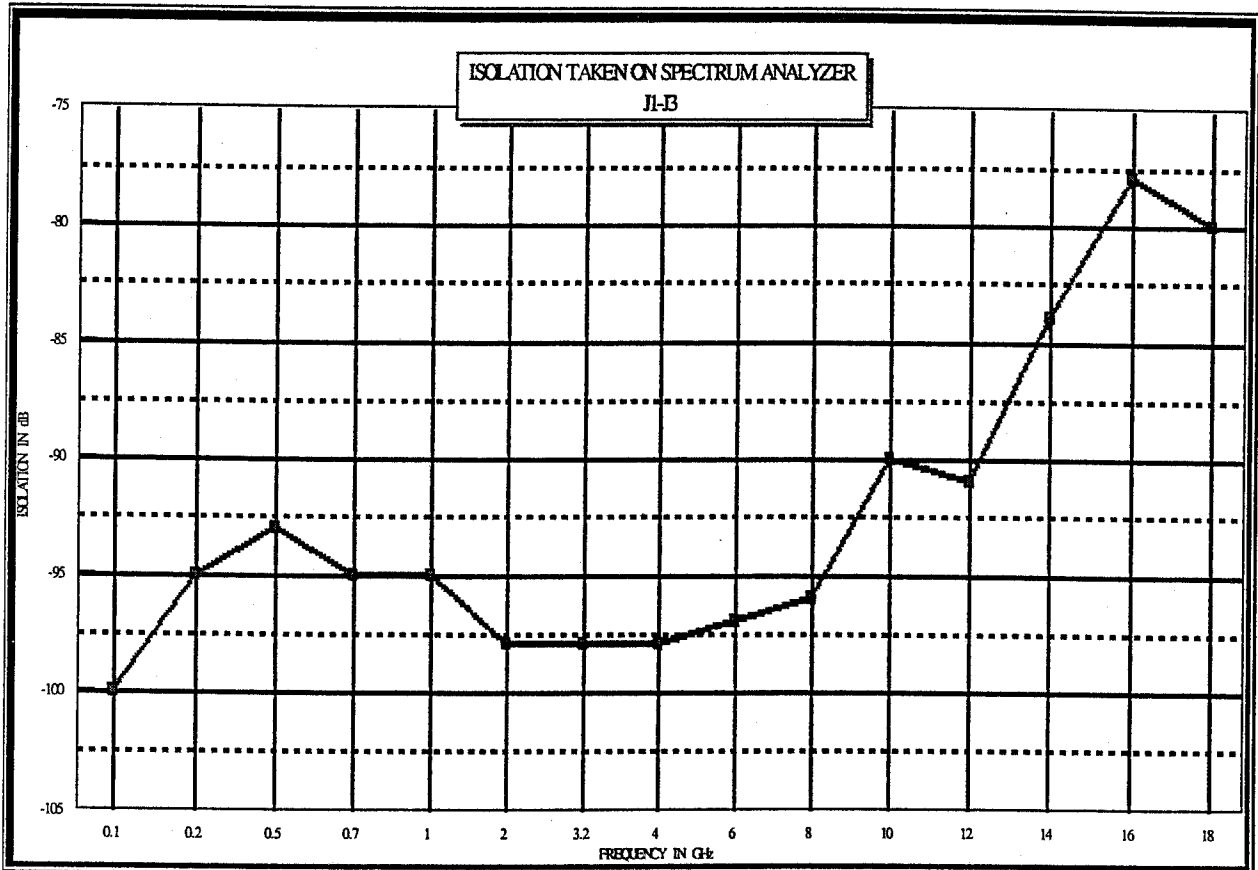
OCTOBER 15, 1999



SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
SERIAL NUMBER	: 2MS909583
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+76.5mA; -15vdc: @ -21.1mA

ISOLATION*
(AS MEASURED ON A SPECTRUM ANALYZER)
J1-J3



*J1: INPUT ARM

OCTOBER 15, 1999



**AMERICAN MICROWAVE
CORPORATION**

**AMPLITUDE
DATA
BETWEEN
PORT TO PORT
FROM**

300 MHz TO 18 GHz

ON A

SP2T

SOLID STATE SWITCH

**AMC MODEL No:
SWN-218-2DR-STANDARS
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909584)**

**REPORTED AND PREPARED
BY
RENE AFABLE**

OCTOBER 15, 1999

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

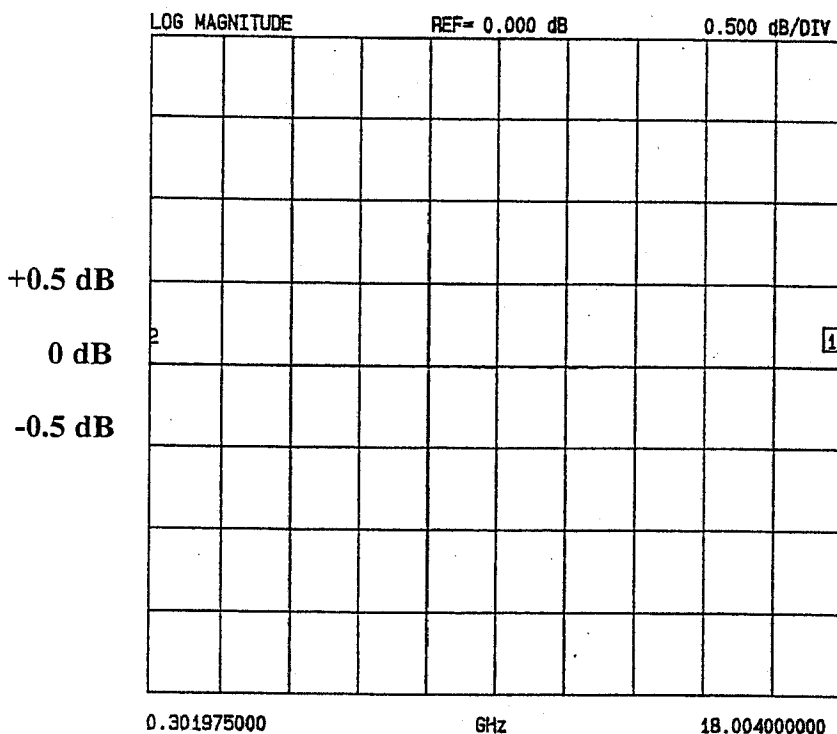


SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

AMPLITUDE*
J1-J2 (REFERENCE)

S21 FORWARD TRANSMISSION



CH 3 - S21
 REFERENCE PLANE
 0.0000 mm

MARKER 1
 18.004000000 GHz
 0.000 dB

MARKER TO MAX
 MARKER TO MIN

2 0.301975000 GHz
 0.000 dB

MARKER READOUT
 FUNCTIONS

*J1: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUM) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
18 GHZ	0.000 dB	
300 MHz	0.000 dB	

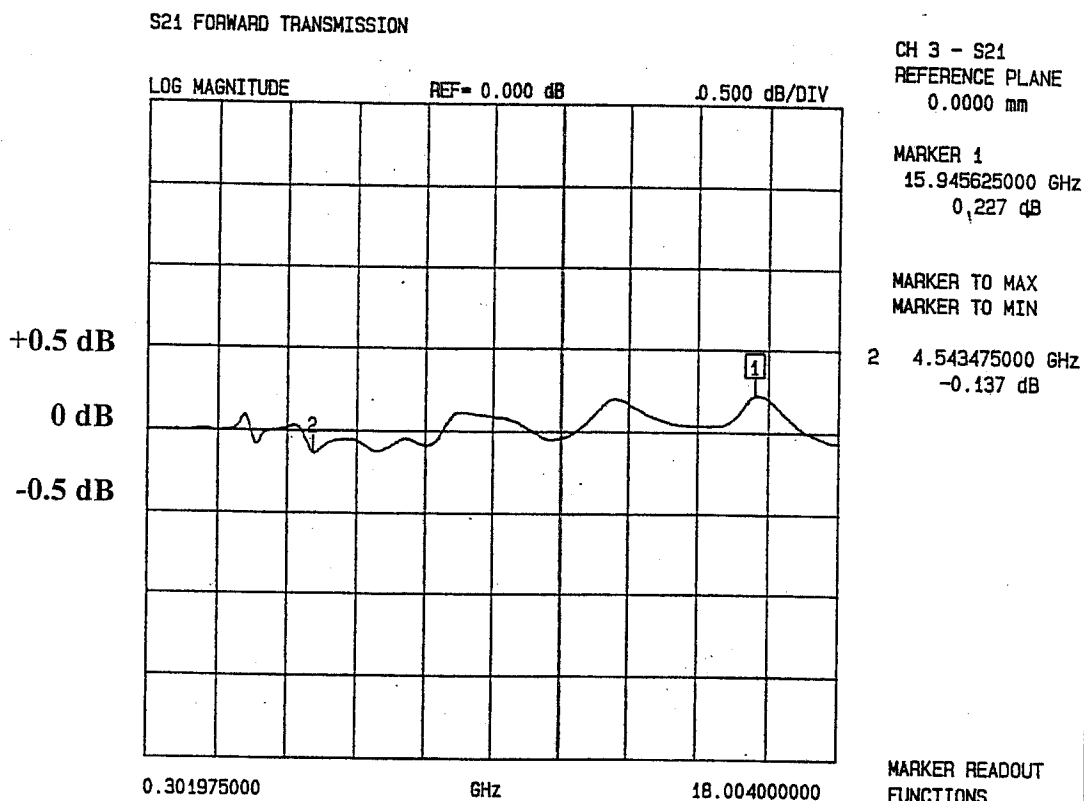
OCTOBER 15, 1999



SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

AMPLITUDE*
J1-J3



*J1: INPUT ARM

FREQUENCY	AMPLITUDE (MAXIMUN) (POSITIVE SIDE)	AMPLITUDE (MAXIMUM) (NEGATIVE SIDE)
15.94 GHZ	0.227 dB	
4.54 GHZ		-0.137 dB

OCTOBER 15, 1999



**AMERICAN MICROWAVE
CORPORATION**

**PHASE
DATA
BETWEEN
PORT TO PORT
FROM**

300 MHz TO 18 GHz

ON A

SP2T

**RADIAL SOLID STATE SWITCH
(SURFACE MOUNTABLE)**

**AMC MODEL No:
SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909584)**

**REPORTED AND PREPARED
BY
RENE AFABLE**

OCTOBER 15, 1999

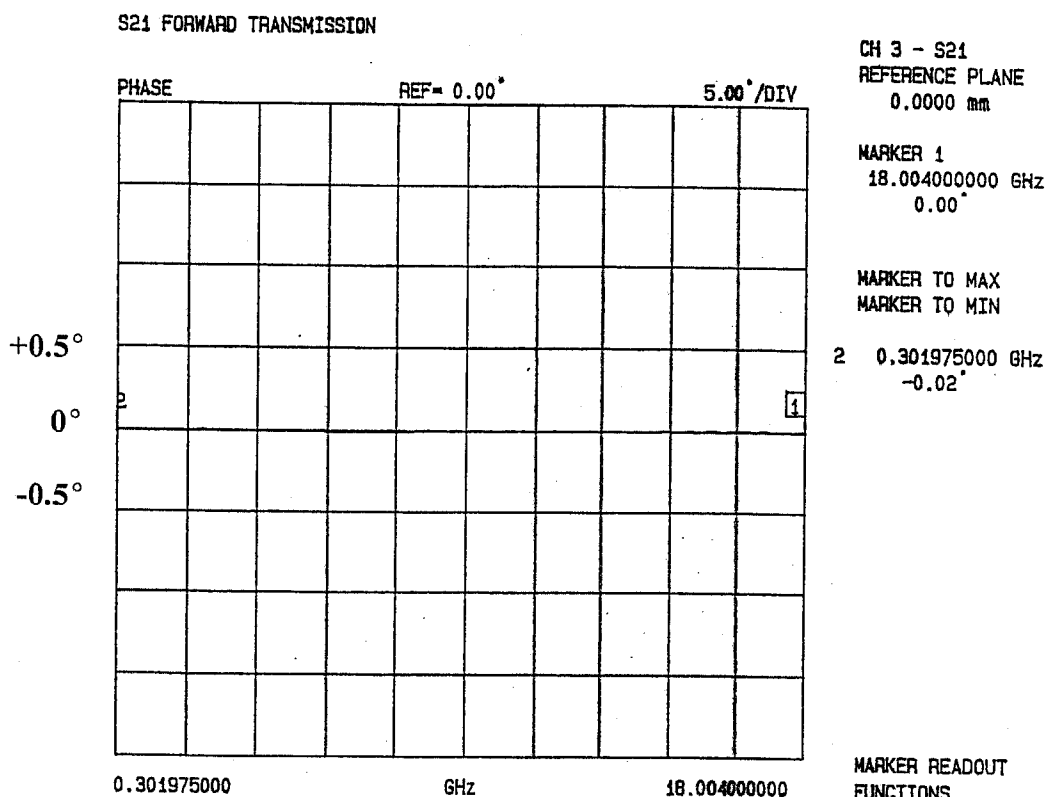
7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938



SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

PHASE*
J1-J2 (REFERENCE)



*J1: INPUT ARM

FREQUENCY	PHASE (MAXIMUM) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
18 GHz	0.00°	
300 MHz		-0.02°

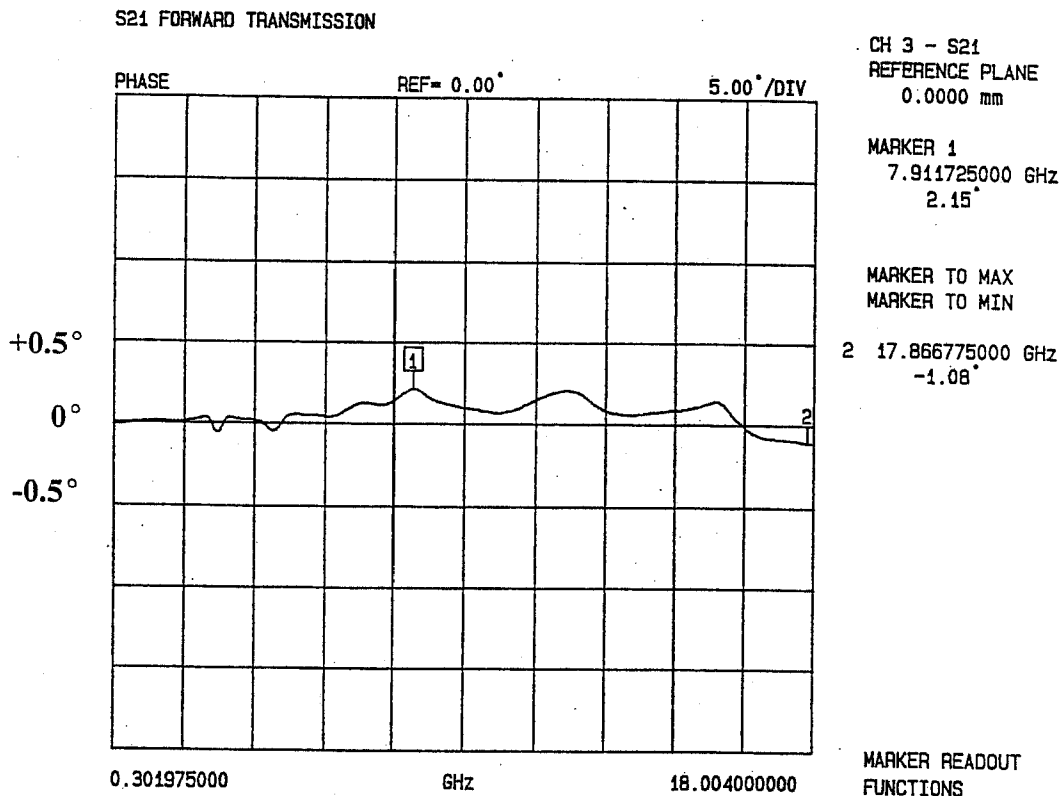
OCTOBER 15, 1999



SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

PHASE*
J1-J3



*J1: INPUT ARM

FREQUENCY	PHASE (MAXIMUN) (POSITIVE SIDE)	PHASE (MAXIMUM) (NEGATIVE SIDE)
7.91 GHZ	2.15°	
17.86 GHZ		-1.08°

OCTOBER 15, 1999



TEST DATA

FROM

50 MHz TO 2 GHz

HIGH POWER (1 WATTS)

LOW INSERTION LOSS

HIGH ISOLATION

AMPLITUDE (± 0.5 dB) AND PHASE ($\pm 5^\circ$) MATCHED

MINIATURE REFLECTIVE

SP2T

SOLID STATE SWITCH

AMC MODEL No:

SWN-218-2DR-STANDARD

OPTIONS B02, B06-HPR1W, 0318

(Serial Number: 2MS909584)

REPORTED AND PREPARED

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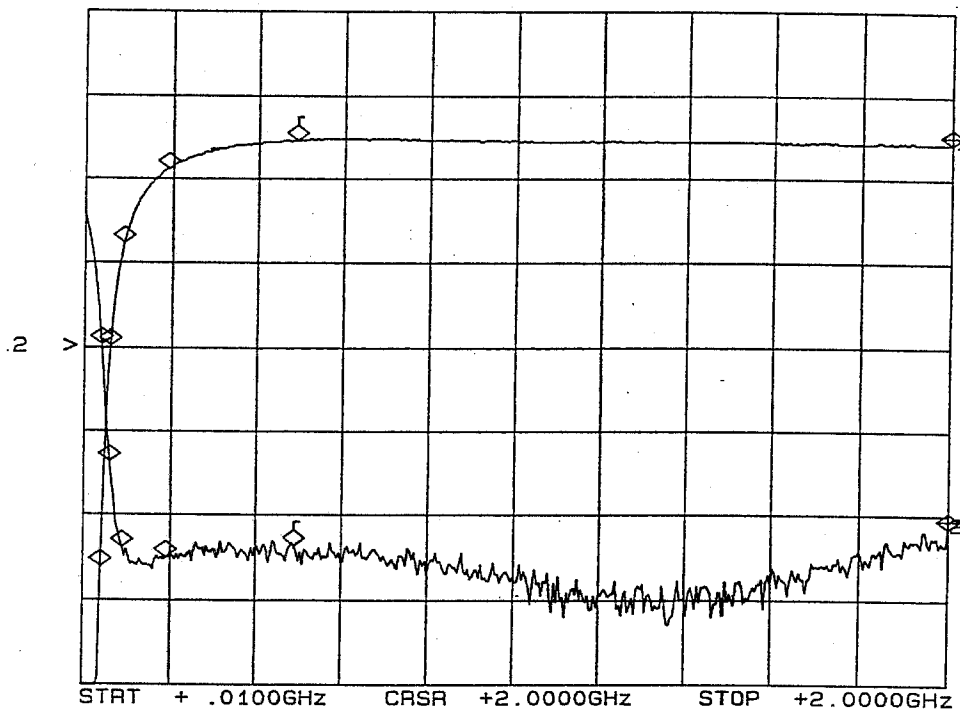
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J2

CH1: B -M - .57 dB CH2: R -M - 20.28 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	5.60 dB	9.27 dB
70 MHz	2.96 dB	16.3 dB
100 MHz	1.77 dB	21.4 dB
200 MHz	0.87 dB	21.9 dB
500 MHz	0.53 dB	21.5 dB
2.0 GHz	0.57 dB	20.2 dB

OCTOBER 15, 1999

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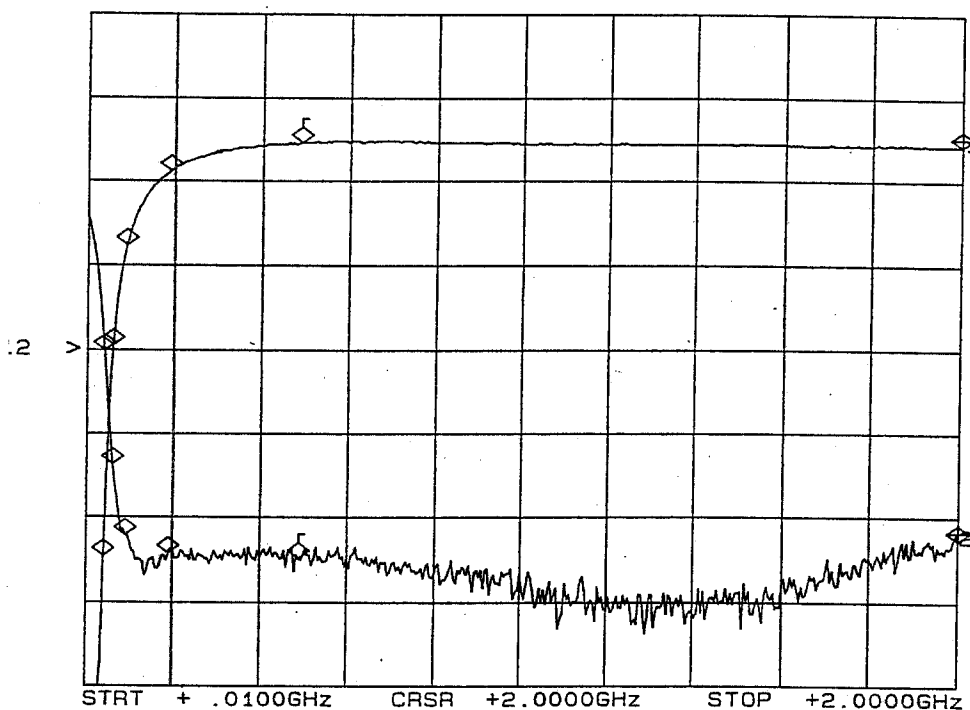
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J3

CH1: B -M - .57 dB CH2: R -M - 20.82 dB
 .1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	5.45 dB	9.51 dB
70 MHz	2.93 dB	16.2 dB
100 MHz	1.76 dB	20.5 dB
200 MHz	0.87 dB	21.6 dB
500 MHz	0.54 dB	22.0 dB
2.0 GHz	0.57 dB	20.8 dB

OCTOBER 15, 1999

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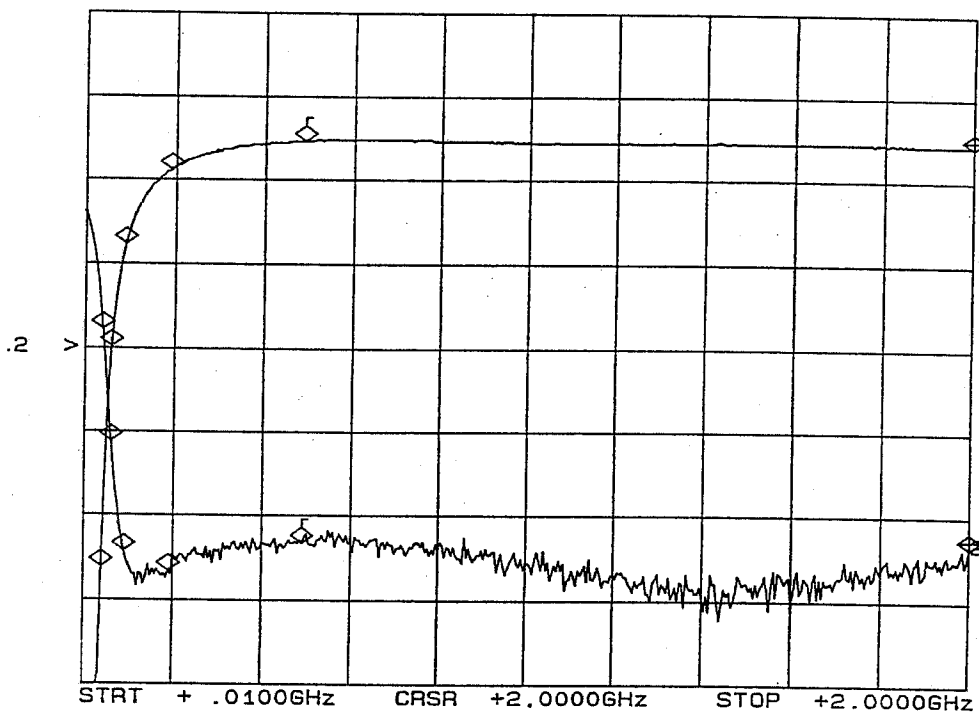
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J2-J1

CH1: B -M - .59 dB CH2: R -M - 21.31 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	5.60 dB	8.38 dB
70 MHz	2.96 dB	15.1 dB
100 MHz	1.77 dB	21.6 dB
200 MHz	0.85 dB	22.9 dB
500 MHz	0.53 dB	20.7 dB
2.0 GHz	0.59 dB	21.3 dB

OCTOBER 15, 1999

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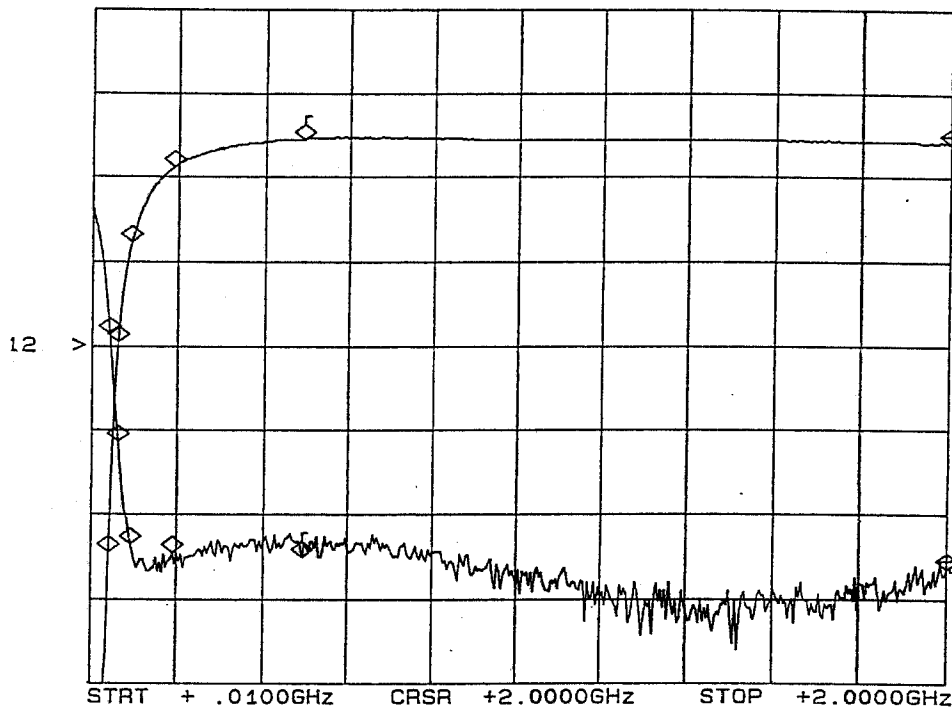


SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*
 J3-J1

CH1: B -M - .59 dB CH2: R -M - 22.68 dB
 1.0 dB/ REF - 3.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	5.44 dB	8.69 dB
70 MHz	2.93 dB	15.1 dB
100 MHz	1.76 dB	21.1 dB
200 MHz	0.86 dB	22.3 dB
500 MHz	0.54 dB	21.1 dB
2.0 GHz	0.59 dB	22.6 dB



**AMERICAN MICROWAVE
CORPORATION**

TEST DATA

FROM

700 MHz TO 3.2 GHz

HIGH POWER (1 WATTS)

LOW INSERTION LOSS

HIGH ISOLATION

AMPLITUDE (± 0.5 dB) AND PHASE ($\pm 5^\circ$) MATCHED

MINIATURE REFLECTIVE

SP2T

SOLID STATE SWITCH

AMC MODEL No:

SWN-218-2DR-STANDARD

OPTIONS B02, B06-HPR1W, 0318

(Serial Number: 2MS909584)

REPORTED AND PREPARED

BY

RENE AFABLE

OCTOBER 15, 1999



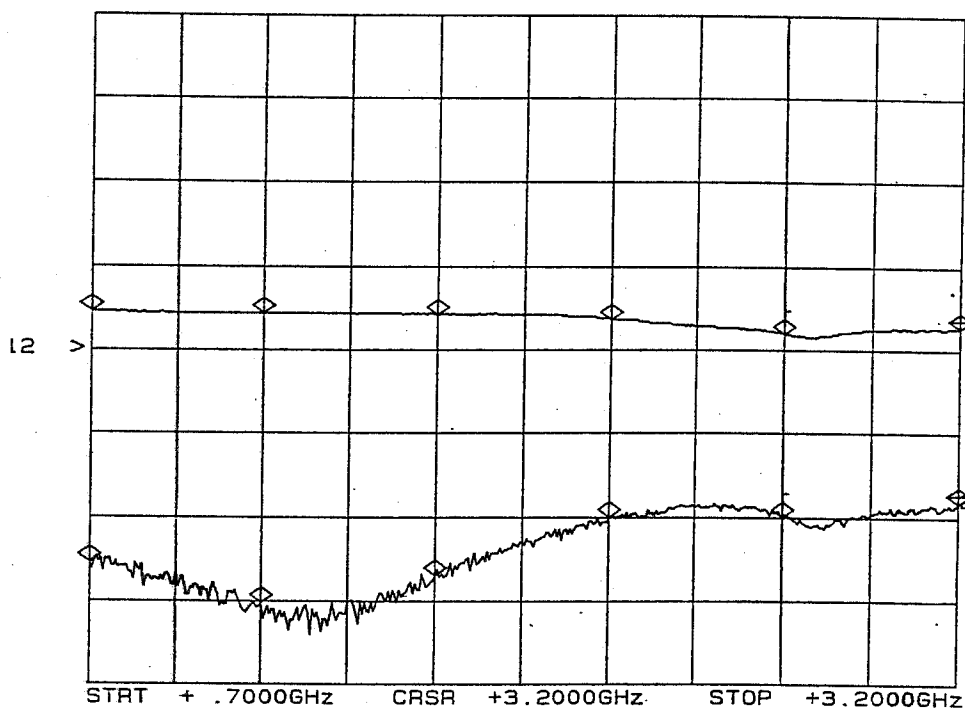
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J2

CH1: B -M - .73 dB CH2: R -M - 18.63 dB
 1.0 dB/ REF - 1.00 dB 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
700 MHz	0.53 dB	22.2 dB
1.2 GHz	0.54 dB	24.6 dB
1.7 GHz	0.56 dB	22.9 dB
2.2 GHz	0.62 dB	19.4 dB
2.7 GHz	0.79 dB	19.4 dB
3.2 GHz	0.73 dB	18.6 dB



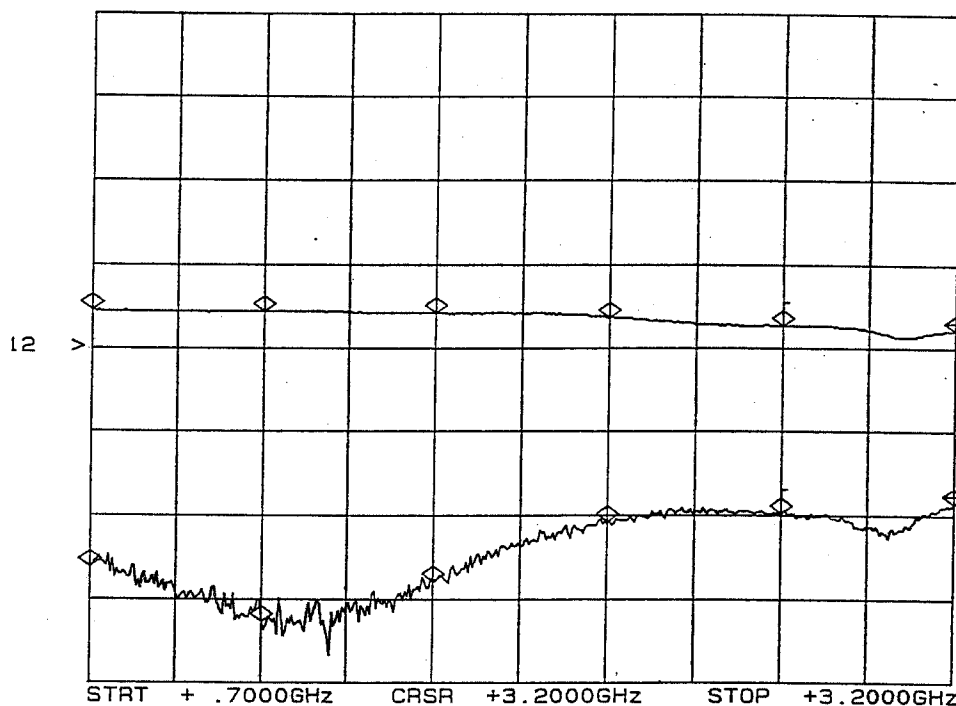
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
 SERIAL NUMBER : 2MS909584
 ENGINEER : RENE AFABLE
 VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J1-J3

CH1: B -M - .77 dB
 1.0 dB/ REF - 1.00 dB
 CH2: R -M - 18.82 dB
 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
700 MHz	0.54 dB	22.5 dB
1.2 GHz	0.55 dB	25.8 dB
1.7 GHz	0.57 dB	23.4 dB
2.2 GHz	0.62 dB	19.8 dB
2.7 GHz	0.72 dB	19.3 dB
3.2 GHz	0.77 dB	18.8 dB



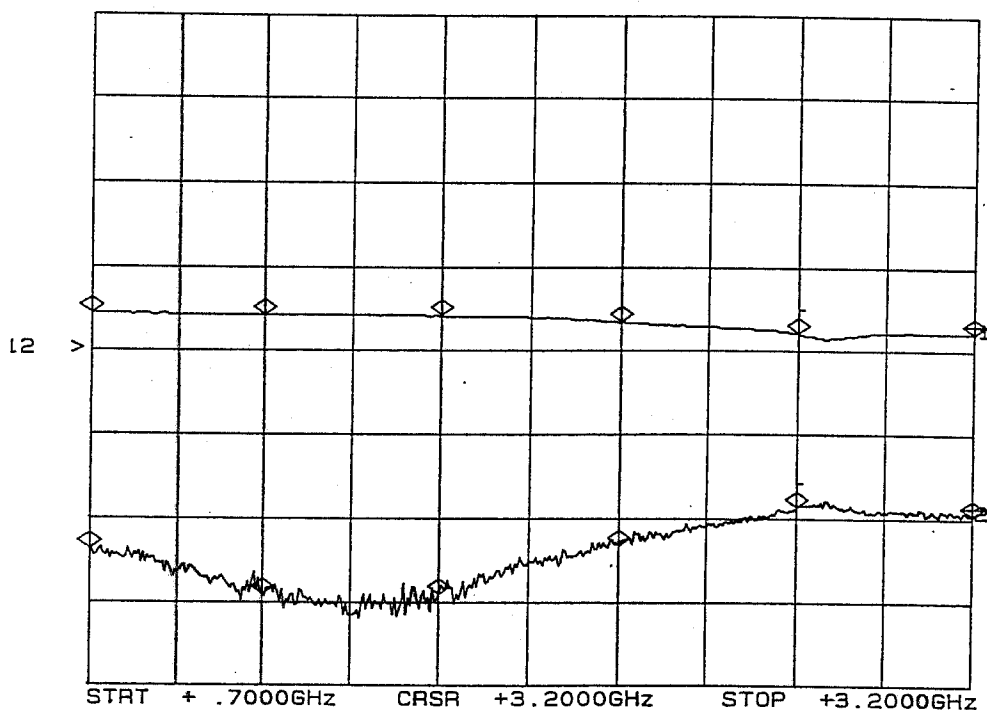
SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
	OPTIONS B02, B06-HPR1W, 0318
SERIAL NUMBER	: 2MS909584
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J2-J1

CH1: B -M - .78 dB	CH2: R -M - 19.31 dB
1.0 dB/ REF - 1.00 dB	5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
700 MHz	0.55 dB	21.2 dB
1.2 GHz	0.57 dB	24.0 dB
1.7 GHz	0.57 dB	24.0 dB
2.2 GHz	0.65 dB	21.1 dB
2.7 GHz	0.79 dB	18.8 dB
3.2 GHz	0.78 dB	19.3 dB



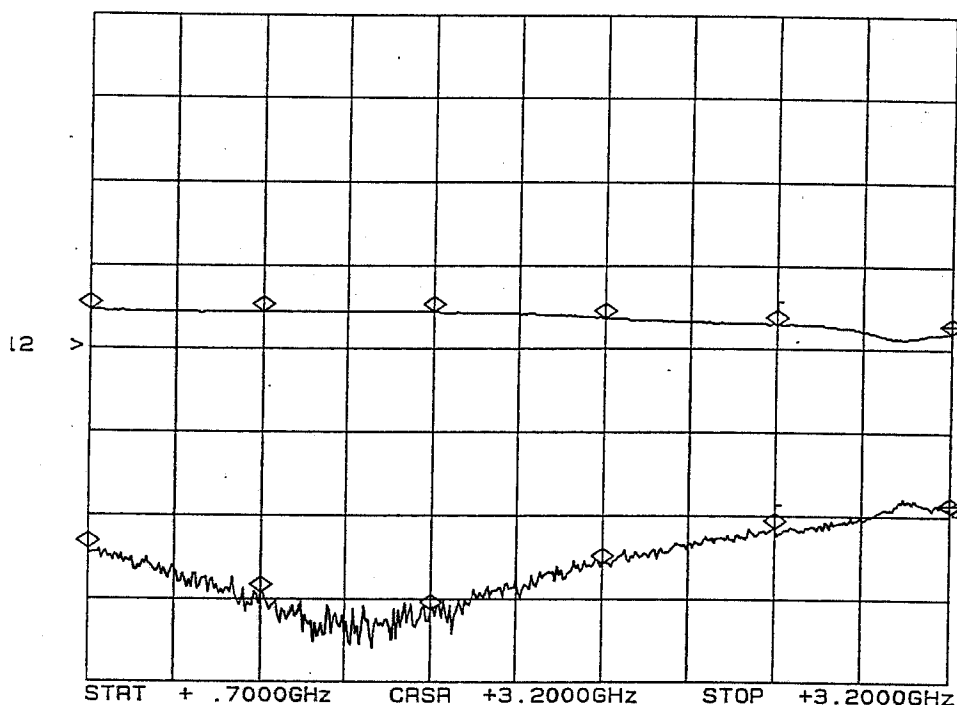
SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

INSERTION LOSS & RETURN LOSS*

J3-J1

CH1: B -M - .80 dB
 1.0 dB/ REF - 1.00 dB
 CH2: R -M - 19.26 dB
 5.0 dB/ REF - 9.54 dB



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
700 MHz	0.54 dB	21.4 dB
1.2 GHz	0.55 dB	24.1 dB
1.7 GHz	0.55 dB	25.1 dB
2.2 GHz	0.62 dB	22.4 dB
2.7 GHz	0.70 dB	20.2 dB
3.2 GHz	0.80 dB	19.2 dB

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SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
SERIAL NUMBER	: 2MS909584
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

SWITCHING SPEED

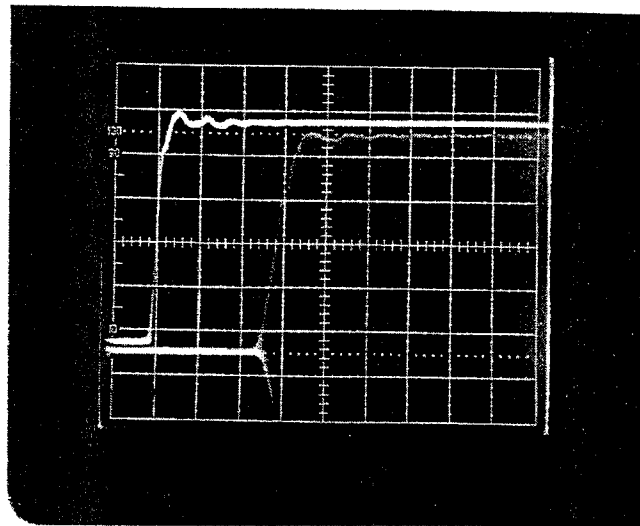
"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF
 "On/Off" Time: 50% TTL to 90% RF or 10% RF

TYPICAL OF ALL ARMS

"DELAY ON": 66 nS
 "RISE TIME": 16 nS

HORIZONTAL SCALE:
 20 nS PER DIVISION

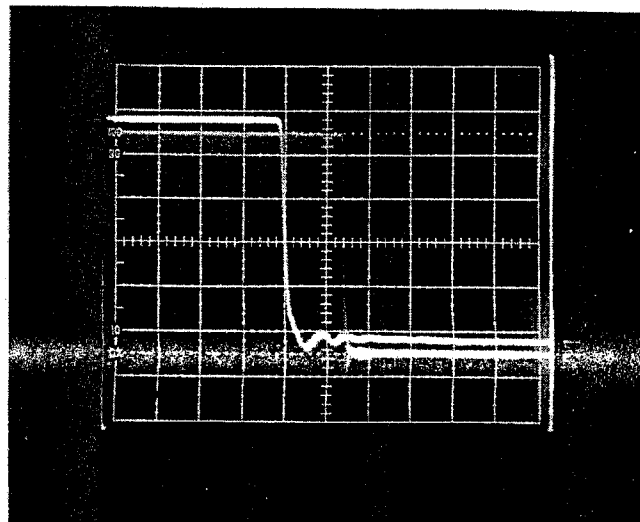
VERTICAL SCALE:
 10 mV PER DIVISION



"DELAY OFF": 30 nS
 "FALL TIME": 2 nS

HORIZONTAL SCALE:
 20 nS PER DIVISION

VERTICAL SCALE:
 10 mV PER DIVISION



OCTOBER 15, 1999



SUMMARY TEST DATA

MODEL NUMBER	: SWN-218-2DR-STANDARD
SERIAL NUMBER	: 2MS909584
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

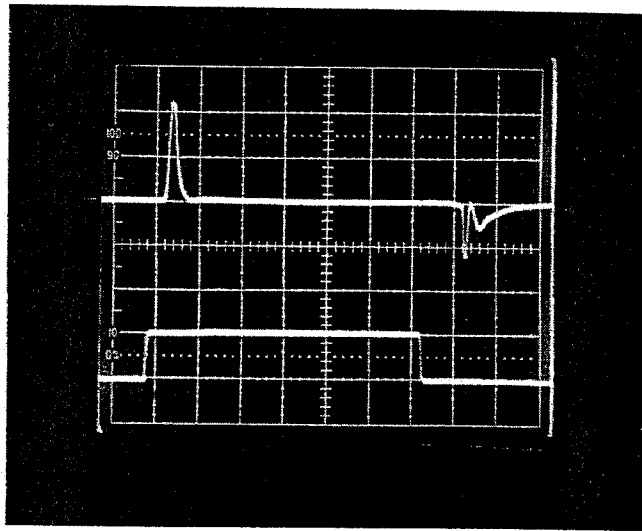
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤1.7 V P-P
MEASURED IN A
300 MHZ BANDWIDTH

VERTICAL SCALE:
0.5 V PER DIVISION

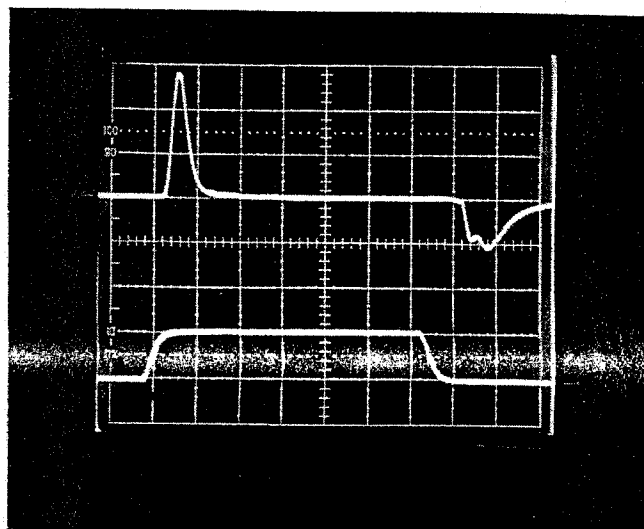
HORIZONTAL SCALE:
50 μS PER DIVISION



≤800 mV P-P
MEASURED IN A
20 MHZ BANDWIDTH

VERTICAL SCALE:
200 mV PER DIVISION

HORIZONTAL SCALE:
50 μS PER DIVISION



OCTOBER 15, 1999



**AMERICAN MICROWAVE
CORPORATION**

APPENDIX A
MISCELLANEOUS
TEST DATA AND PLOTS
ON ISOLATION
AS MEASURED
ON A SCALAR NETWORK

ANALYZER
(NOISE FLOOR OF SCALAR NETWORK ANALYZER IS -70 dB)

ON A SP2T

SOLID STATE SWITCH

AMC MODEL No:
SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909583)

FROM 300 MHz TO 18 GHz

50 MHz TO 2 GHz

AND

FROM 700 MHz TO 3.2 Ghz

REPORTED AND PREPARED
BY
RENE AFABLE

OCTOBER 15, 1999



SUMMARY TEST DATA

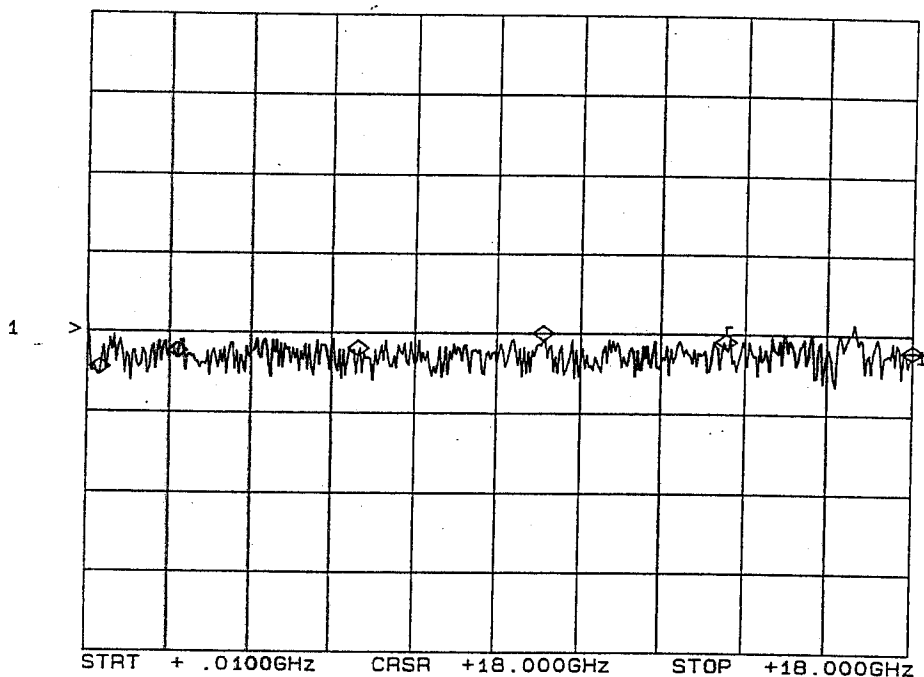
MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J1-J2

CH1: B -M - 66.01 dB
 20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
300 MHz	67.2 dB
2 GHz	66.8 dB
6 GHz	66.9 dB
10 GHz	64.7 dB
14 GHz	63.0 dB
18 GHz	66.0 dB

OCTOBER 15, 1999



SUMMARY TEST DATA

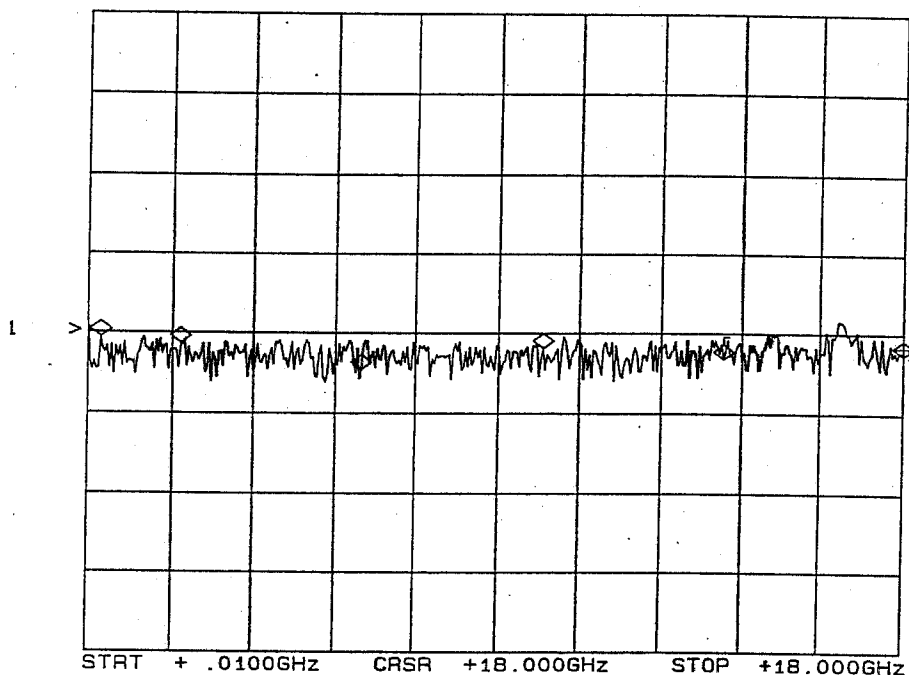
MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J1-J3

CH1: B -M - 65.18 dB
 20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
300 MHz	61.0 dB
2 GHz	62.4 dB
6 GHz	68.9 dB
10 GHz	63.6 dB
14 GHz	63.7 dB
18 GHz	65.1 dB

OCTOBER 15, 1999



APPENDIX A
MISCELLANEOUS
TEST DATA AND PLOTS
ON
ISOLATION
AS
MEASURED
ON A SCALAR NETWORK
ANALYZER
(NOISE FLOOR OF SCALAR NETWORK ANALYZER IS -70 dB)
ON A
SP2T
SOLID STATE SWITCH
AMC MODEL No:
SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909584)
FROM 50 MHz TO 2 GHz
REPORTED AND PREPARED
BY
RENE AFABLE
OCTOBER 15, 1999

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SUMMARY TEST DATA

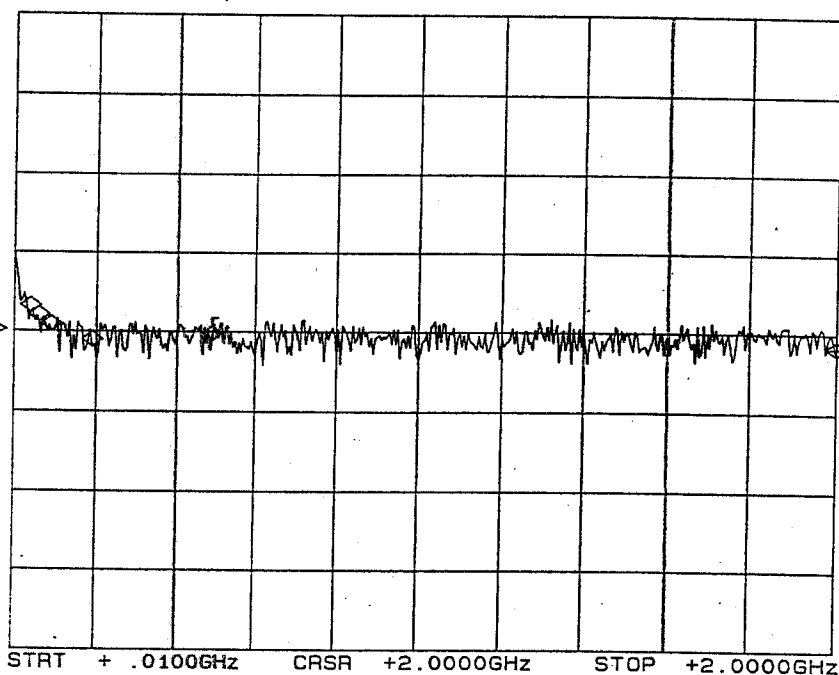
MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J1-J2

CH1: B -M - 65.36 dB
 20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
50 Mhz	55.1 dB
70 MHz	57.4 dB
100 MHz	59.7 dB
200 MHz	63.3 dB
500 MHz	62.1 dB
2.0 GHz	65.3 dB

OCTOBER 15, 1999



SUMMARY TEST DATA

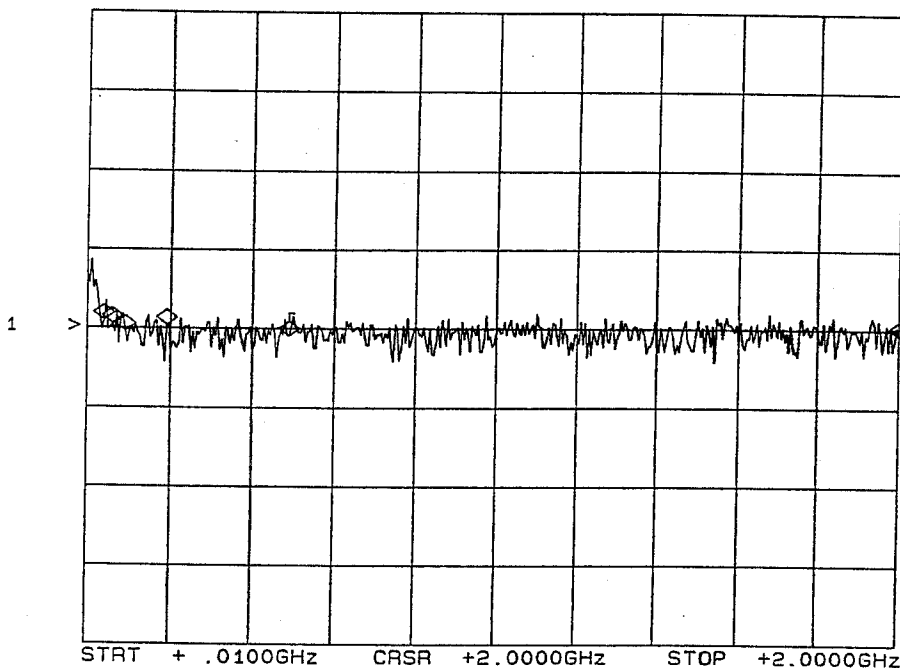
MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : OPTIONS B02, B06-HPR1W, 0318
ENGINEER : 2MS909584
VOLTAGE & CURRENT DRAW : RENE AFABLE
: +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J1-J3

CH1: B -M - 61.23 dB
20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
50 Mhz	57.7 dB
70 MHz	58.7 dB
100 MHz	60.5 dB
200 MHz	59.1 dB
500 MHz	59.5 dB
2.0 GHz	61.3 dB

OCTOBER 15, 1999



**AMERICAN MICROWAVE
CORPORATION**

APPENDIX A
MISCELLANEOUS
TEST DATA AND PLOTS
ON
ISOLATION
AS
MEASURED
ON A SCALAR NETWORK
ANALYZER
(NOISE FLOOR OF SCALAR NETWORK ANALYZER IS -70 dB)
ON A
SP2T
SOLID STATE SWITCH
AMC MODEL No:
SWN-218-2DR-STANDARD
OPTIONS B02, B06-HPR1W, 0318
(Serial Number: 2MS909584)
FROM 700 MHz TO 3.2 GHz
REPORTED AND PREPARED
BY
RENE AFABLE
OCTOBER 15, 1999

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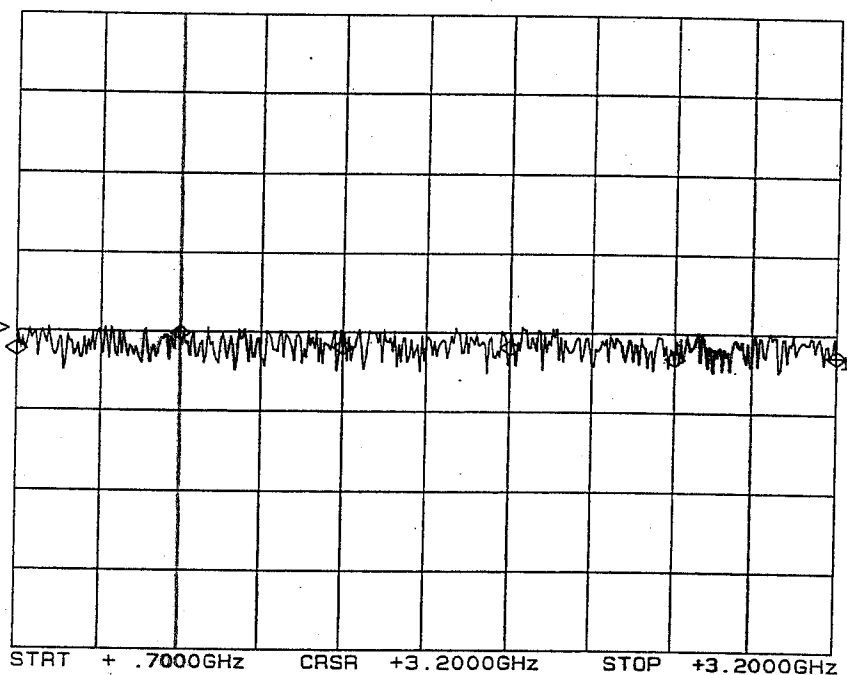


SUMMARY TEST DATA

MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*
 (AS MEASURED ON A SCALAR NETWORK ANALYZER)
 J1-J2

CH1: B -M - 67.46 dB
 20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
700 MHz	66.2 dB
1.2 GHz	62.2 dB
1.7 GHz	65.5 dB
2.2 GHz	65.7 dB
2.7 GHz	68.3 dB
3.2 GHz	67.4 dB

OCTOBER 15, 1999



SUMMARY TEST DATA

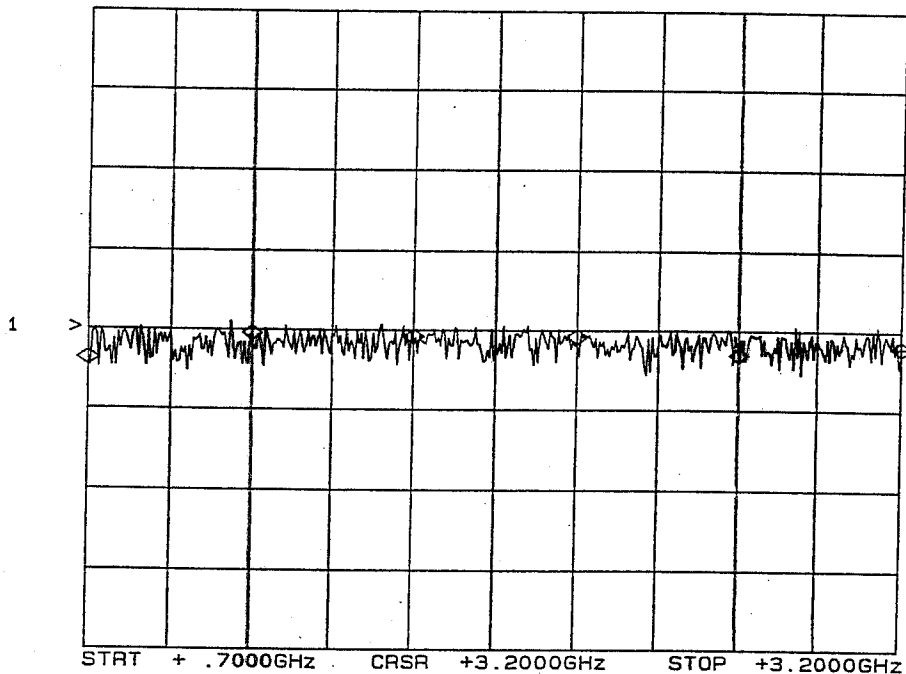
MODEL NUMBER : SWN-218-2DR-STANDARD
SERIAL NUMBER : 2MS909584
ENGINEER : RENE AFABLE
VOLTAGE & CURRENT DRAW : +5vdc: @+71.5mA; -15vdc: @ -45.9mA

ISOLATION*

(AS MEASURED ON A SCALAR NETWORK ANALYZER)

J1-J3

CH1: B -M - 66.14 dB
 20.0 dB/ REF - 60.00 dB



*J1: INPUT ARM

FREQUENCY	ISOLATION
700 MHz	69.0 dB
1.2 GHz	62.3 dB
1.7 GHz	63.3 dB
2.2 GHz	63.4 dB
2.7 GHz	68.0 dB
3.2 GHz	66.1 dB

OCTOBER 15, 1999