



TEST REPORT
ON
7 TO 10 GHz
SINGLE POLE SINGLE THROW
ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE

AMC MODEL No:
SWN-2183-1AT
OPTION V+19, V-19, 710, 103-5mV

Serial Numbers: 1MS908272 THRU 1MS908279

DESIGNED
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TESTED
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REPORTED
BY
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August 9, 2004

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ISO9001 : 1994 CERTIFIED

PA JKM WBS
JST MGB LC
EW

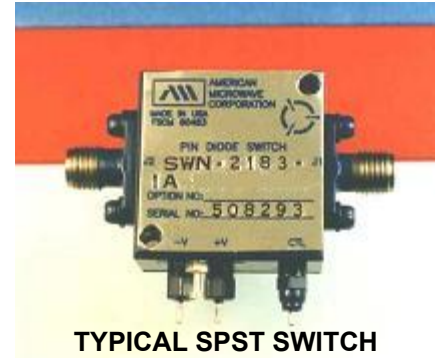
TABLE OF CONTENTS

● PRODUCT DESCRIPTION, ELECTRICAL SPECIFICATIONS, AND ENVIRONMENTAL RATINGS	PAGE 3
● PRODUCT FEATURE AND ENVIRONMENTAL SPECIFICATIONS	PAGE 4
● FUNCTIONAL SCHEMATIC	PAGE 5
● TEST DATA ON SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBERS 1MS908272 THRU 1MS908279	PAGE 6
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908272	PAGE 7
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908273	PAGE 8
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908274	PAGE 9
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908275	PAGE 10
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908276	PAGE 11
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908277	PAGE 12
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908278	PAGE 13
● TEST DATA FOR SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER 1MS908279	PAGE 14

**SINGLE POLE SINGLE THROW, ABSORPTIVE/
NON-REFLECTIVE SWITCH MODULE
AMC MODEL No:
SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV**

FEATURES:

- **2.0 TO 10.0 GHz FREQUENCY RANGE**
- **5.0 dB LOW INSERTION LOSS**
- **80 dB HIGH ISOLATION**
- **5 mV LOW VIDEO TRANSIENTS**
- **REFLECTIVE / NON-ABSORPTIVE**



SPECIFICATIONS:

- **FREQUENCY** : 7 GHz TO 10 GHz
- **INSERTION LOSS** : 3.5 dB MAXIMUM, 3.0 dB TYPICAL
- **ISOLATION** : 80 dB MINIMUM
- **VSWR** : IN/OUT, OUT/OFF: 2.0:1
- **SPEED** : DELAY ON: 50 nS MAXIMUM
: DELAY OFF: 50 nS MAXIMUM
- **POWER SUPPLY** : +19 V @ 100 mA MAXIMUM
: -19 V @ 50 mA MAXIMUM
- **CONTROL** : TTL LOGIC "0"=ON, "1"=OFF
- **VIDEO TRANSIENTS** : 5 mV PEAK TO PEAK @ 20 MHz BANDWIDTH

ENVIRONMENTAL RATINGS (STANDARD):

- **TEMPERATURE** : -65°C TO +110°C OPERATING
: -65°C TO +125°C NON-OPERATING
- **HUMIDITY** : MIL-STD-202F, METHOD 103B
- **SHOCK** : MIL-STD-202F, METHOD 213B
- **VIBRATION** : MIL-STD-202F, METHOD 204D
- **ALTITUDE** : MIL-STD-202F, METHOD 105C
- **TEMPERATURE CYCLE** : MIL-STD-202F, METHOD 107D

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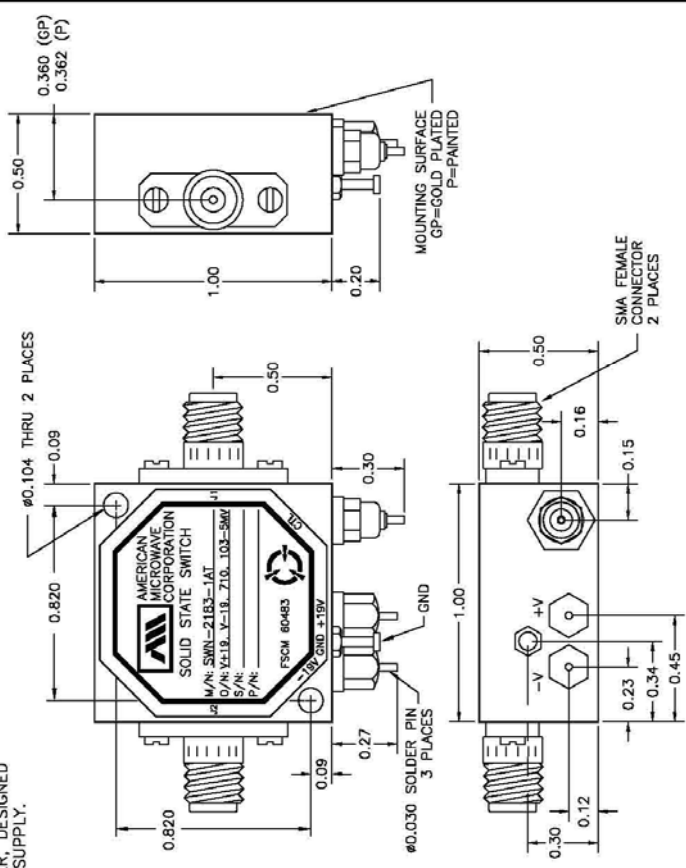
PRODUCT FEATURE

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	7/6/99	

DESCRIPTION:
 AMC MODEL SWN-2183-1AT OPTION V+19, V-19, 710, 103-5mV IS A SINGLE POLE SINGLE THROW, ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH ISOLATION, LOW VIDEO TRANSIENTS AND INTEGRAL TTL DRIVER, DESIGNED FOR 7.0 GHz TO 10.0 GHz FREQUENCY RANGE AND ±19 VOLT POWER SUPPLY.

SPECIFICATIONS:

- FREQUENCY: 7 GHz TO 10 GHz
- INSERTION LOSS: 3.5dB MAXIMUM 3.0 dB TYPICAL
- ISOLATION: 80 dB MINIMUM
- VSWR: IN/OUT, 1.0
- SPEED: DELAY ON: 50ns MAXIMUM
 DELAY OFF: 50ns MAXIMUM
- POWER SUPPLY: +19V @ 100 mA MAXIMUM
 -19V @ 50 mA MAXIMUM
- CONTROL: TTL LOGIC "0"=ON "1"=OFF
- VIDEO TRANSIENTS: 5 mV PEAK TO PEAK @ 20 MHz BANDWIDTH
- SIZE: 1.00" (L) x 1.00" (W) x 0.50" (H)
- WEIGHT: 1.5 OUNCE TYPICAL



MOUNTING SURFACE
 GP=GOLD PLATED
 P=PAINTED

SMA FEMALE CONNECTOR
 2 PLACES

GND ±19V

#0.030 SOLDER PIN
 3 PLACES

#0.104 THRU 2 PLACES

ENVIRONMENTAL RATINGS:

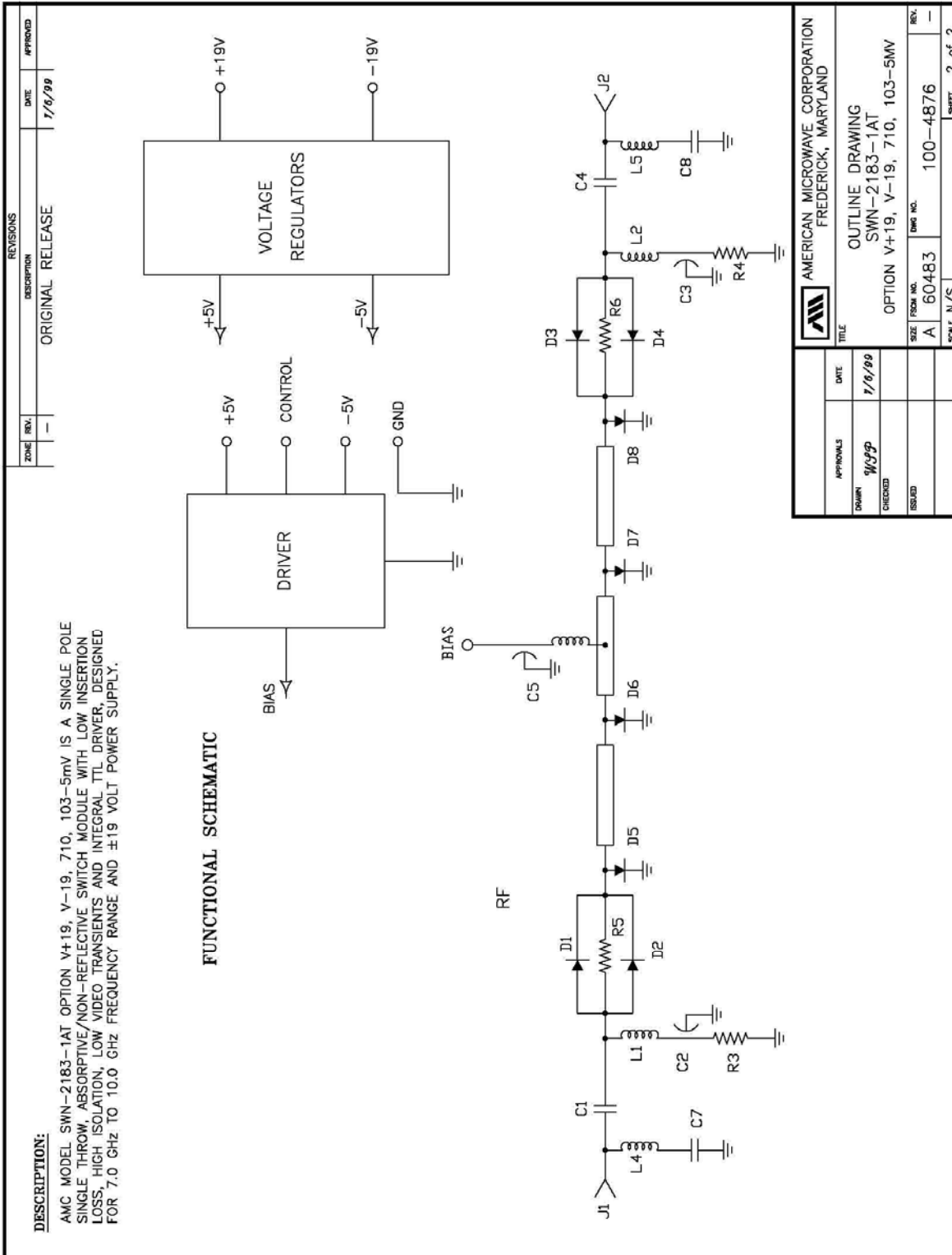
- TEMPERATURE: -55°C TO +85°C (OPERATING)
 -65°C TO +125°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 2040 COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

AT = WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE
 M/N = MANUFACTURER PART NUMBER
 O/N = OPTION NUMBER
 S/N = SERIAL NUMBER
 P/N = PART NUMBER

APPROVALS	DATE	TITLE	DRAWN	CHECKED	ESDUD
	7/6/99	AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND			
OUTLINE DRAWING SWN-2183-1AT OPTION V+19, V-19, 710, 103-5MV					
SIZE	FORM NO.	DWG NO.	REV.		
A	60483	100-4876	-		
SCALE	N/S		SHEET	1 of 2	

FUNCTIONAL SCHEMATIC



FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

SWN-2183-1AT
Options V+19, V-19, 710, 103-5mV

Serial Numbers:

1MS908272 THRU 1MS908279

FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908272

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908272
 CURRENT DRAW: +17VDC @ 65 mA; -17VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103, 5m
 FREQUENCY RANGE: 7 GHz to 10 GHz
 SPECIFICATIONS: _____

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>J₁-J₂ 1.56 dB</u>	<u>13.02 dB</u>	<u>1.58 : 1</u>	<u>14.29 dB</u>	<u>1.48 : 1</u>	<u>13.92 dB</u>	<u>1.50 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>J₁-J₂ > 80 dB</u>	<u>42 ns</u>	<u>—</u>	<u>20 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8957A HP

TEST: 03 E #30
 QA/QC: 02
 AUG 18 1999

FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908273

ORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908273
 CURRENT DRAW: +17VDC @ 65 mA; -19VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103.5mV
 FREQUENCY RANGE: 7.6GHz to 10GHz
 SPECIFICATIONS:

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>J₁-J₂ 1.83 dB</u>	<u>13.34 dB</u>	<u>1.55 : 1</u>	<u>15.60 dB</u>	<u>1.40 : 1</u>	<u>14.17 dB</u>	<u>1.49 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>J₁-J₂ > 80 dB</u>	<u>42 ns</u>	<u>—</u>	<u>20 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8757A HP

TEST 03 E #30
 QA/QC: PM
REV 1 0 1000



FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908274

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908274
 CURRENT DRAW: +17VDC @ 65 mA; -19VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103, 5m
 FREQUENCY RANGE: 7.6GHz to 10GHz
 SPECIFICATIONS: _____

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>0₁-0₂ 1.64 dB</u>	<u>12.08 dB</u>	<u>1.66 : 1</u>	<u>12.67 dB</u>	<u>1.61 : 1</u>	<u>14.89 dB</u>	<u>1.44 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>0₁-0₂ > 80 dB</u>	<u>40 ns</u>	<u>—</u>	<u>20 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8957A HP

TEST: E #30
 QA/QC: 03 P1
 AIR 18 199



FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908275

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman TECHNICIAN: R. Butler
 JOB NO: 906110E OPTION: V+19, V-19, 710, 103, 5m
 MODEL NO: SWN-2183-1AT FREQUENCY RANGE: 7 GHz to 10 GHz
 SERIAL NO: 1MS908275 SPECIFICATIONS: _____
 CURRENT DRAW: +17VDC @ 65 mA; -17VDC @ 50 mA

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>0.5-32 1.86 dB</u>	<u>14.74 dB</u>	<u>1.45 : 1</u>	<u>15.51 dB</u>	<u>1.40 : 1</u>	<u>18.19 dB</u>	<u>1.28 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>0.5-32 > 80 dB</u>	<u>45 ns</u>	<u>—</u>	<u>22 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8957A HP

TEST: 03 E #30
 QA/QC PA
 AUG 18 1999

FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908276

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908276
 CURRENT DRAW: +17VDC @ 65 mA; -17VDC @ 50 mA

TECHNICIAN: R Butler
 OPTION: V+19, V-19, 710, 103, 5m
 FREQUENCY RANGE: 76KHz to 10GHz
 SPECIFICATIONS: _____

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>0.5-5.2 1.96 dB</u>	<u>13.65 dB</u>	<u>1.52 : 1</u>	<u>16.19 dB</u>	<u>1.37 : 1</u>	<u>16.13 dB</u>	<u>1.37 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>0.5-5.2 > 80 dB</u>	<u>40 ns</u>	<u>—</u>	<u>20 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8757A HP

TEST E #30
 QA/QC 
 DATE: Aug 18 1999

FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908277

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908277
 CURRENT DRAW: +17VDC @ 65 mA; -17VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103, 5m
 FREQUENCY RANGE: 7.6GHz to 10GHz
 SPECIFICATIONS: _____

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>0₁-0₂ 1.89 dB</u>	<u>13.62 dB</u>	<u>1.53 : 1</u>	<u>14.86 dB</u>	<u>1.44 : 1</u>	<u>13.49 dB</u>	<u>1.54 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>0₁-0₂ > 80 dB</u>	<u>42 ns</u>	<u>—</u>	<u>20 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8957A HP

TEST: 03 E #30
 QA/QC: Pa
 DATE: Aug 18 1999

FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908278

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-17-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrup Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908278
 CURRENT DRAW: +17VDC @ 65 mA; -19VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103, 5m
 FREQUENCY RANGE: 7GHz to 10GHz
 SPECIFICATIONS: _____

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
<u>0₁-0₂ 1.57 dB</u>	<u>12.38 dB</u>	<u>1.63 : 1</u>	<u>14.12 dB</u>	<u>1.49 : 1</u>	<u>16.10 dB</u>	<u>1.37 : 1</u>
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1
dB	dB	: 1	dB	: 1	dB	: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
<u>0₁-0₂ > 80 dB</u>	<u>42 ns</u>	<u>—</u>	<u>22 ns</u>	<u>—</u>
dB				
dB				
dB				
dB				
dB				
dB				

NOTE: Any additional test data on back

TESTED ON: 8350 B / 8957A HP

TEST: 0301 E #30
 QA/QC: 0301
 DATE: AUG 18 1999



FINAL TEST DATA

AMC MODEL NO: SWN-2183-1AT OPTIONS V+19, V-19, 710, 103-5mV, SERIAL NUMBER:
1MS908279

FORM: SW-DATA 27/0199



AMERICAN MICROWAVE CORPORATION

DATE: 8-16-99

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: Northrop Grumman
 JOB NO: 906110E
 MODEL NO: SWN-2183-1AT
 SERIAL NO: 1MS908279
 CURRENT DRAW: +19VDC @ 70 mA; -19VDC @ 50 mA

TECHNICIAN: R. Butler
 OPTION: V+19, V-19, 710, 103-5mV
 FREQUENCY RANGE: 7.0 - 10.0 GHz
 SPECIFICATIONS: MIL-STD 454

MAXIMUM INSERTION LOSS	RETURN LOSS					
	MIN. INPUT dB	INPUT VSWR	MIN. OUTPUT ON dB	OUTPUT ON VSWR	MIN. OUTPUT OFF dB	OUTPUT OFF VSWR
J1-J2 1.23 dB	14.99 dB	1.43 : 1	16.47 dB	1.35 : 1	16.48 dB	1.35 : 1
	15.99 dB	1.37 : 1				
		: 1		: 1		: 1
		: 1		: 1		: 1
		: 1		: 1		: 1
		: 1		: 1		: 1
		: 1		: 1		: 1
		: 1		: 1		: 1
		: 1		: 1		: 1

MINIMUM ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J1-J2 > 80 dB	52 ns	—	23 ns	—

NOTE: Any additional test data on back

TESTED ON: 8757A/8350 B (HP)

TEST: AW E #29
 QA/QC: PA
 AIR 18 1999