



TEST REPORT

ON

SP4T

ABSORPTIVE / NON-REFLECTIVE

300 MHz TO 26.5 GHz

SOLID STATE RADIAL SWITCH

AMC MODEL No:

SWN-1140-4DT-SP

Option 300M27

Serial Numbers: 4MS005046 THRU 4MS005049

**DESIGNED
BY
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**TESTED
BY
R. Afable**

**REPORTED
BY
E. Elder**

April 19, 2004

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ISO9001 : 1994 CERTIFIED

Handwritten notes:
pw
ESC.
WAS
M22
DRH
JK
JDT
PA
SEM
LC

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SP4T, ABSORPTIVE, MINIATURE PIN DIODE SWITCH AMC MODEL No: MSNN-4DT-04T-DEC-SP

FEATURES:

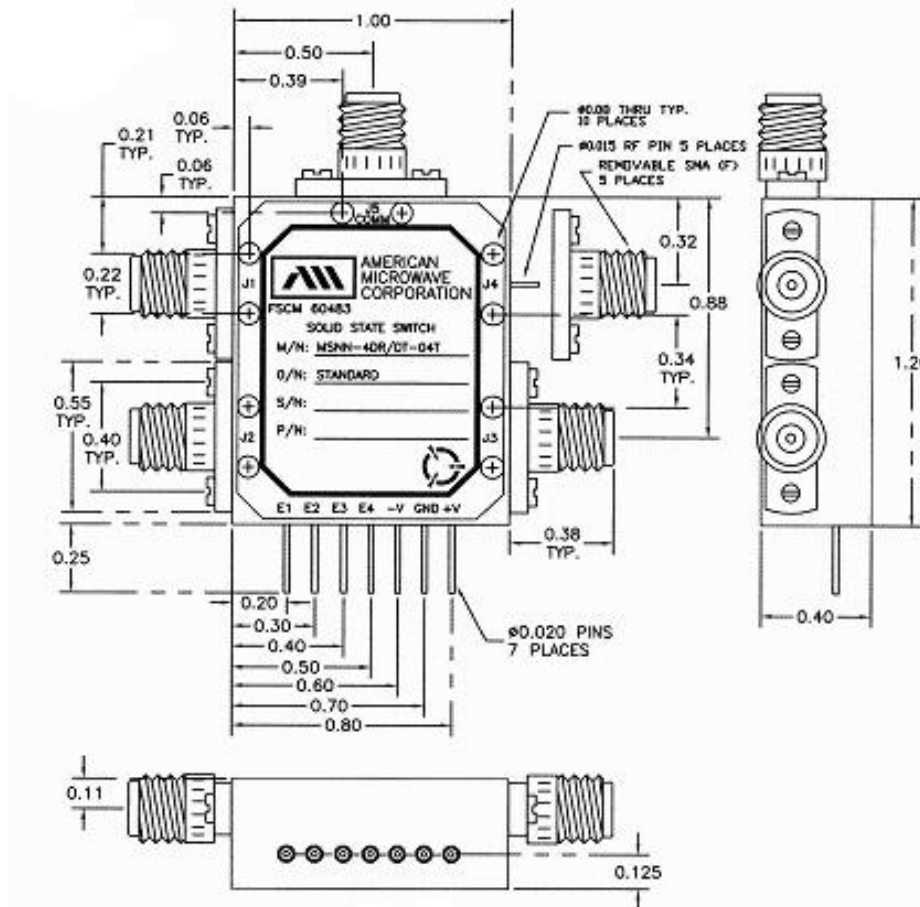
- **MINIATURE**
- **BROADBAND**
- **ABSORPTIVE**



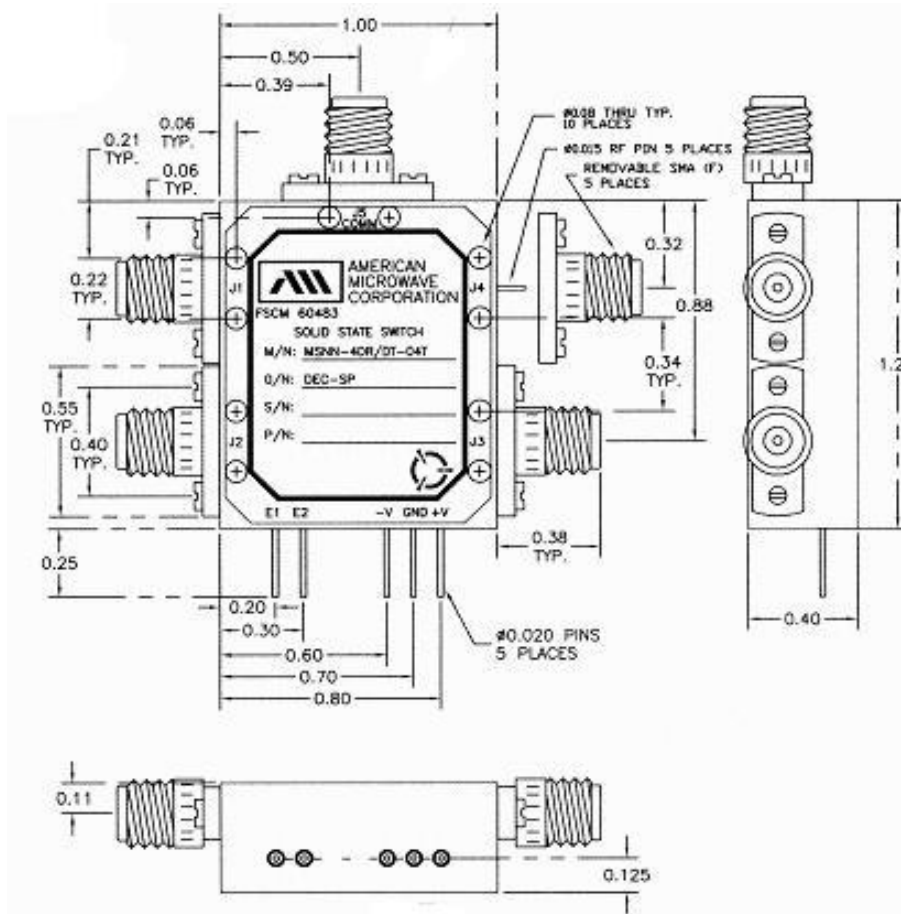
SPECIFICATIONS:

- **FREQUENCY** : 2 GHz to 18.0 GHz
- **INSERTION LOSS** : REFLECTIVE: 3.0 dB
ABSORPTIVE: 3.75 dB
- **ISOLATION** : 0.5 GHz to 2 GHz: 60 dB
2 GHz to 18 GHz: 70 dB
- **VSWR** : REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- **SPEED** : RISE: 10 nS TYPICAL, 15 nS MAXIMUM
FALL: 10 nS TYPICAL, 15 nS MAXIMUM
DELAY ON: 75 nS TYPICAL, 100 nS MAXIMUM
DELAY OFF: 75 nS TYPICAL, 100 nS MAXIMUM
- **POWER INPUT** : (CW) +20 dBm (STANDARD),
+10 dBm (HIGH SPEED)
- **SURVIVAL POWER** : 1 WATT CW, 10 WATTS PEAK 1 USEC
- **CONTROL** : TTL LOGIC "0"=ON, "1"=OFF
- **POWER SUPPLY** : +5V @ 200 mA MAXIMUM
-5V @ 75 mA MAXIMUM (REFLECTIVE)
100 mA MAXIMUM (ABSORPTIVE)
- **SIZE** : 1.2" (L) X 1.0" (W) X 0.4" (H)
- **WEIGHT** : 1.5 OZ. TYPICAL

MECHANICAL OUTLINE
FOR MSNN-4DR/DT-04T-STANDARD



MECHANICAL OUTLINE
FOR MSNN-4DT/DT-04T-DEC-SP

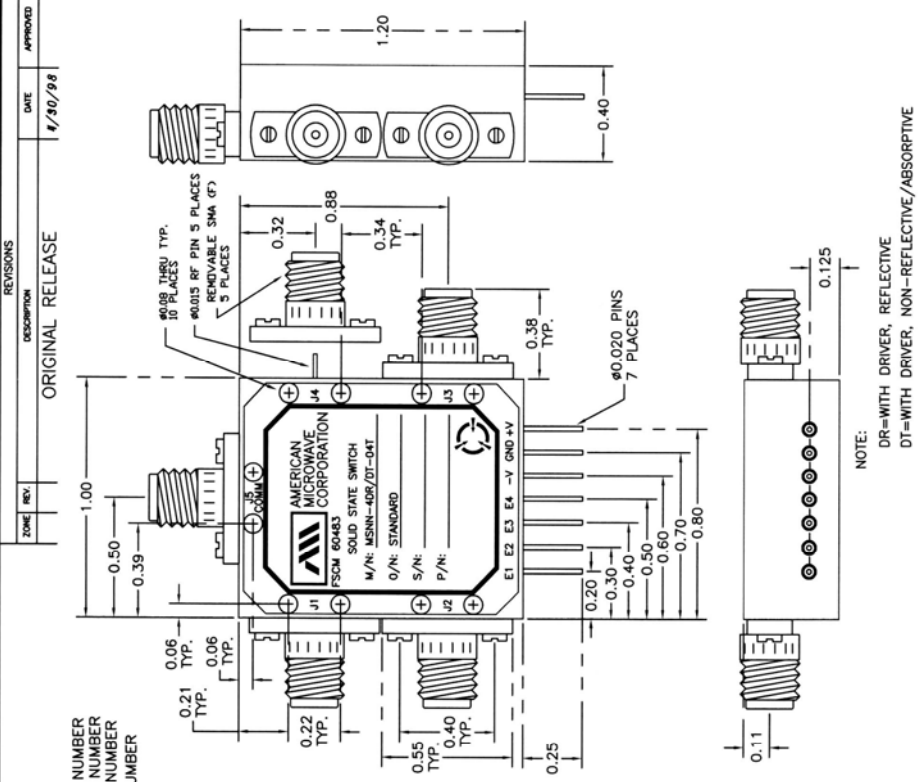


OUTLINE DRAWING
 AMC MODEL NO: MSNN-4DR/DT-STANDARD

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL RELEASE	4/10/98	

M/N=MODEL NUMBER
 O/N=OPTION NUMBER
 S/N=SERIAL NUMBER
 P/N=PART NUMBER

0.5 GHz TO 18 GHz
 REFLECTIVE: 3.0db
 ABSORPTIVE: 3.75db
 0.5 GHz TO 2 GHz: 60dB
 2 GHz TO 18 GHz: 70db
 REFLECTIVE IN/OUT: 2.0:1
 ABSORPTIVE IN/OUT: 2.0:1
 ABSORPTIVE OUT/OFF: 2.0:1
 RISE: 10ns TYPICAL, 15ns MAX.
 FALL: 10ns TYPICAL, 15ns MAX.
 DELAY ON: 75ns TYPICAL, 100ns MAX.
 DELAY OFF: 75ns TYPICAL, 100ns MAX.
 (CW)+20dbm (STANDARD), +10 dBm (HIGH SPEED)
 SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 usec
 CONTROL: TTL LOGIC "0"=ON "1"=OFF
 POWER SUPPLY: +5V @ 200 mA MAX.
 -5V @ 75mA MAX.(REFLECTIVE)
 100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)



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

SPECIFICATIONS:

- 10M18: INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- 100M18: 2 BIT DECODER WITH SOLDER PIN
 - 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
 - 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 218: 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 412: 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 618: 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 1218: 6 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: REVERSE LOGIC "1"=ON "0"=OFF
- B03: DRIVERLESS CURRENT CONTROLLED
- B04: HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B05: HIGH POWER - SPECIFY CW POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B06: CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B07: LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B08: LOW INSERTION LOSS VERSION
- B09: HIGHER ISOLATION VERSION
- B10: HIGHER ISOLATION VERSION

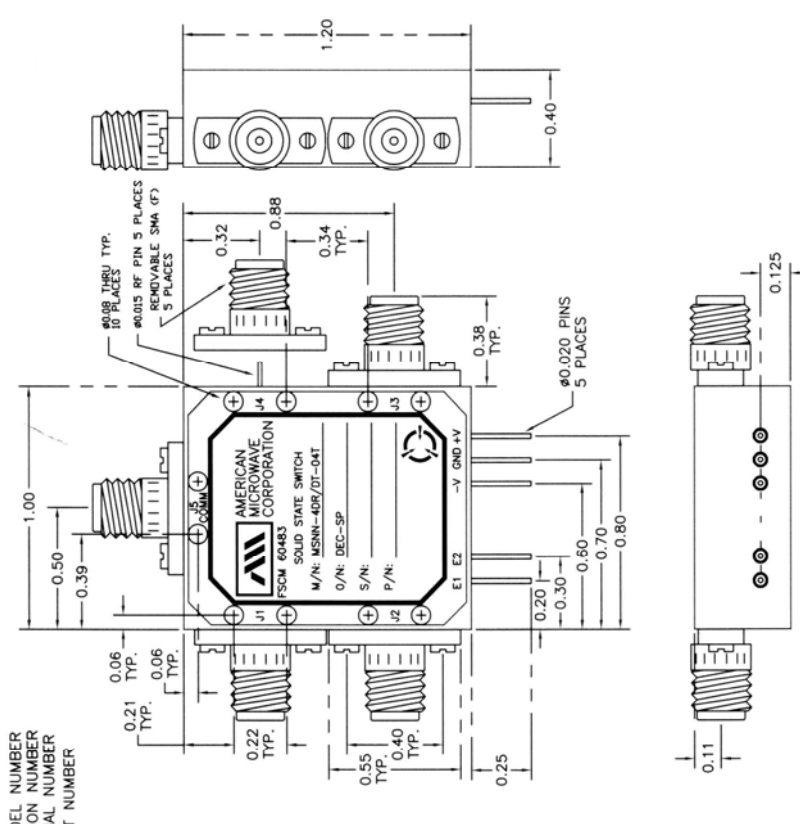
ENVIRONMENTAL RATINGS:

- 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 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

PART NO.		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND	
APPROVALS	DATE	TITLE	
DESIGN	4/10/98	OUTLINE DRAWING	
CHECKED		MSNN-4DR/DT-04T-STANDARD	
ISSUED		REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE	
		SIZE	FORM NO.
		A	100-4388-1
		SCALE	SHEET
			1 of 1

OUTLINE DRAWING
AMC MODEL NO: MSNN-4DR/DT-04T-DEC-SP

<p>REVISIONS</p> <p>ZONE REV</p> <p>DESCRIPTION</p> <p>DATE</p> <p>APPROVED</p> <p style="text-align: center;">ORIGINAL RELEASE</p> <p style="text-align: center;">4/30/98</p>		<p>AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND</p> <p>OUTLINE DRAWING MSNN-4DR/DT-04T-DEC-SP REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SOLID STATE SWITCH</p> <p>SIZE FROM NO. 60483 DWG. NO. 100-4388-2 SCALE 1 of 1</p>
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M/N=MODEL NUMBER
 O/N=OPTION NUMBER
 S/N=SERIAL NUMBER
 P/N=PART NUMBER

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

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

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 3.0db
- ISOLATION: 0.5 GHz TO 2 GHz: 60dB
- VSWR: 2 GHz TO 18 GHz: 70dB
- SPEED: REFLECTIVE IN/OUT: 2.0:1
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: +5V @ 200 mA MAX.
- OPTIONS: -5V @ 75mA MAX.(REFLECTIVE)
- 100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)

OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-SP 2 BIT DECODER WITH SOLDER PIN
- 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)
- 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)
- HUMIDITY: -65°C TO +125°C (STORAGE)
- SHOCK: MIL-STD-202F, METHOD 103B COND. B
- VIBRATION: MIL-STD-202F, METHOD 213B COND. B
- ALTITUDE: MIL-STD-202F, METHOD 204D COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, METHOD 105C COND. B
- MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

MSNN-4DT-04T-DEC-SP

Serial Numbers:

4MS008120 through 4MS008125

FINAL TEST DATA

AMC MODEL NO: MSNN-4DT-04T-DEC-SP, SERIAL NUMBER: 4MS008121

FORM: 087-SW-DTA 04/00



AMERICAN MICROWAVE CORPORATION
7311-G GROVE RD., FREDERICK MD. 21704
TEL: 301-662-4700 FAX: 301-662-4938

FINAL TEST DATA
ON
MICROWAVE SWITCH

DATE: 08/30/00

CUSTOMER: RAYTHEON
JOB NO: 004080E-3
MODEL NO: MSNN-4DR-04T-DEC-SP
SERIAL NO: 4MS008121
CURRENT DRAW: + 5 VDC @ 150 mA; - 5VDC @ 40mA

TECHNICIAN: THACH
OPTION NO: _____
SPECIFICATION: _____
FREQUENCY RANGE: 2 - 18 Ghz

INSERTION LOSS (WORSE CASE)	RETURN LOSS (WORSE CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 <u>3.61</u> dB	<u>10.4</u> dB	<u>1.85</u> : 1	<u>12.9</u> dB	<u>1.58</u> : 1	<u>14.3</u> dB	<u>1.47</u> : 1
J5-J2 <u>3.14</u> dB	<u>11.5</u> dB	<u>1.71</u> : 1	<u>12.1</u> dB	<u>1.65</u> : 1	<u>14.5</u> dB	<u>1.46</u> : 1
J5-J3 <u>3.5</u> dB	<u>11.0</u> dB	<u>1.77</u> : 1	<u>11.7</u> dB	<u>1.69</u> : 1	<u>12.7</u> dB	<u>1.60</u> : 1
J5-J4 <u>3.7</u> dB	<u>10.1</u> dB	<u>1.90</u> : 1	<u>13.3</u> dB	<u>1.54</u> : 1	<u>12.7</u> dB	<u>1.57</u> : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 <u>770</u> dB	<u>60</u> nS	<u>4</u> nS	<u>30</u> nS	<u>3</u> nS
J5-J2 <u>770</u> dB	<u>70</u> nS	<u>10</u> nS	<u>30</u> nS	<u>3</u> nS
J5-J3 <u>>70</u> dB	<u>55</u> nS	<u>4</u> nS	<u>35</u> nS	<u>5</u> nS
J5-J4 <u>>70</u> dB	<u>60</u> nS	<u>4</u> nS	<u>35</u> nS	<u>5</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: HP 8757A / 8550B

PROGRAM MANAGER/SUPERVISOR APPROVAL: Rory Prudley DATED: 9/1/00

QA/QC APPROVAL: [Signature] DATED: 9/1/00

FINAL TEST DATA

AMC MODEL NO: MSNN-4DT-04T-DEC-SP, SERIAL NUMBER: 4MS008122

FORM: 087-SW-DTA 01/04/00



AMERICAN MICROWAVE CORPORATION
7311-G GROVE RD., FREDERICK MD. 21704
TEL: 301-662-4700 FAX: 301-662-4938

FINAL TEST DATA
ON
MICROWAVE SWITCH

DATE: 08/30/00

CUSTOMER: RAYTHEON

TECHNICIAN: THREK

JOB NO: 004080E-3

MODEL NO: MSNN-4DR-04T-DEC-SP

OPTION NO: _____

SERIAL NO: 4MS008122

SPECIFICATION: _____

CURRENT DRAW: +5 VDC @ 160 mA; -5VDC @ 40 mA FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORSE CASE)	RETURN LOSS (WORSE CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 3.5 dB	11.0 dB	1.78 : 1	13.3 dB	1.54 : 1	14.7 dB	1.45 : 1
J5-J2 3.7 dB	10.5 dB	1.84 : 1	11.2 dB	1.76 : 1	15.7 dB	1.39 : 1
J5-J3 3.7 dB	10.2 dB	1.88 : 1	11.1 dB	1.76 : 1	11.5 dB	1.72 : 1
J5-J4 3.7 dB	13.0 dB	1.57 : 1	12.4 dB	1.63 : 1	14.7 dB	1.44 : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 > 70dB	70 nS	10 nS	40 nS	15 nS
J5-J2 > 70 dB	65 nS	8 nS	40 nS	6 nS
J5-J3 > 70 dB	65 nS	10 nS	40 nS	6 nS
J5-J4 > 70 dB	65 nS	6 nS	40 nS	6 nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: 8757A / 8350 B

PROGRAM MANAGER/SUPERVISOR APPROVAL: *Roy Prohley* DATED: 9/1/00

QA/QC APPROVAL: *[Signature]* DATED: 9/1/00

FINAL TEST DATA

AMC MODEL NO: MSNN-4DT-04T-DEC-SP, SERIAL NUMBER: 4MS008123

FORM: 087-SW-DTA 6/04/00



AMERICAN MICROWAVE CORPORATION
7311-G GROVE RD., FREDERICK MD. 21704
TEL: 301-662-4700 FAX: 301-662-4938

FINAL TEST DATA ON MICROWAVE SWITCH

DATE: 08/30/00

CUSTOMER: RAYTHEON

TECHNICIAN: THACU

JOB NO: 004080E-3

MODEL NO: MSNN-4DR-04T-DEC-SP

OPTION NO: _____

SERIAL NO: 4MS008123

SPECIFICATION: _____

CURRENT DRAW: + 5 VDC @ 160 mA; - 5VDC @ 40 mA FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORSE CASE)	RETURN LOSS (WORSE CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 <u>3.6</u> dB	<u>11.8</u> dB	<u>1.68 : 1</u>	<u>19.5</u> dB	<u>1.58 : 1</u>	<u>13.1</u> dB	<u>1.56 : 1</u>
J5-J2 <u>3.5</u> dB	<u>12.1</u> dB	<u>1.65 : 1</u>	<u>12.8</u> dB	<u>1.59 : 1</u>	<u>14.6</u> dB	<u>1.45 : 1</u>
J5-J3 <u>3.4</u> dB	<u>10.6</u> dB	<u>1.82 : 1</u>	<u>11.6</u> dB	<u>1.71 : 1</u>	<u>14.7</u> dB	<u>1.45 : 1</u>
J5-J4 <u>3.5</u> dB	<u>14.4</u> dB	<u>1.46 : 1</u>	<u>14.4</u> dB	<u>1.48 : 1</u>	<u>16.2</u> dB	<u>1.36 : 1</u>
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 <u>>70</u> dB	<u>55</u> nS	<u>5</u> nS	<u>30</u> nS	<u>5</u> nS
J5-J2 <u>>70</u> dB	<u>70</u> nS	<u>12</u> nS	<u>30</u> nS	<u>5</u> nS
J5-J3 <u>>70</u> dB	<u>60</u> nS	<u>10</u> nS	<u>35</u> nS	<u>5</u> nS
J5-J4 <u>>70</u> dB	<u>65</u> nS	<u>10</u> nS	<u>40</u> nS	<u>4</u> nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: HP 8757A / 8350 B

PROGRAM MANAGER/SUPERVISOR APPROVAL: Ray [Signature] DATED: 9/1/00

QA/QC APPROVAL: [Signature] DATED: 9/1/00

AMERICAN MICROWAVE CORPORATION, 7311-G Grove Road, Frederick, MD 21704
Tel: 301-662-4700 • Fax: 301-662-4938 • Email: sales@americanmicrowavecorp.com
Website: <http://www.americanmicrowavecorp.com>

TEST REPORT
 MSNN-4DT-04T-DEC-SP
 APRIL 6, 2004



FINAL TEST DATA

AMC MODEL NO: MSNN-4DT-04T-DEC-SP, SERIAL NUMBER: 4MS008124

FORM: 087-SW-DTA 6-04/00



AMERICAN MICROWAVE CORPORATION
 7311-G GROVE RD., FREDERICK MD. 21704
 TEL: 301-662-4700 FAX: 301-662-4938

FINAL TEST DATA ON MICROWAVE SWITCH

DATE: 08/30/00

CUSTOMER: RAYTHEON
 JOB NO: 004080E-3
 MODEL NO: MSNN-4DR-04T-DEC-SP
 SERIAL NO: 4MS008124
 CURRENT DRAW: + 5 VDC @ 160 mA; - 5VDC @ 40 mA

TECHNICIAN: THARLET
 OPTION NO: _____
 SPECIFICATION: _____
 FREQUENCY RANGE: 2 - 18 Ghz

INSERTION LOSS (WORSE CASE)	RETURN LOSS (WORSE CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 <u>3.6 dB</u>	<u>10.5 dB</u>	<u>1.84 : 1</u>	<u>12.7 dB</u>	<u>1.59 : 1</u>	<u>16.1 dB</u>	<u>1.37 : 1</u>
J5-J2 <u>3.7 dB</u>	<u>10.8 dB</u>	<u>1.80 : 1</u>	<u>12.2 dB</u>	<u>1.64 : 1</u>	<u>12.9 dB</u>	<u>1.58 : 1</u>
J5-J3 <u>3.8 dB</u>	<u>10.8 dB</u>	<u>1.80 : 1</u>	<u>11.4 dB</u>	<u>1.72 : 1</u>	<u>14.2 dB</u>	<u>1.43 : 1</u>
J5-J4 <u>3.4 dB</u>	<u>11.3 dB</u>	<u>1.74 : 1</u>	<u>12.6 dB</u>	<u>1.60 : 1</u>	<u>14.9 dB</u>	<u>1.43 : 1</u>
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1
	dB	1. : 1	dB	1. : 1	dB	1. : 1

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 <u>> 70 dB</u>	<u>70 nS</u>	<u>17 nS</u>	<u>40 nS</u>	<u>16 nS</u>
J5-J2 <u>> 70 dB</u>	<u>80 nS</u>	<u>18 nS</u>	<u>40 nS</u>	<u>12 nS</u>
J5-J3 <u>> 70 dB</u>	<u>80 nS</u>	<u>17 nS</u>	<u>40 nS</u>	<u>12 nS</u>
J5-J4 <u>> 70 dB</u>	<u>80 nS</u>	<u>18 nS</u>	<u>40 nS</u>	<u>12 nS</u>
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS
	nS	nS	nS	nS

NOTE: Any additional test data on back

TESTED ON: HP 8757A / 8350 B.

PROGRAM MANAGER/SUPERVISOR APPROVAL: [Signature] DATED: 9/1/00

QA/QC APPROVAL: [Signature] DATED: 9/1/00

AMERICAN MICROWAVE CORPORATION, 7311-G Grove Road, Frederick, MD 21704
 Tel: 301-662-4700 • Fax: 301-662-4938 • Email: sales@americanmicrowavecorp.com
 Website: <http://www.americanmicrowavecorp.com>

FINAL TEST DATA

AMC MODEL NO: MSNN-4DT-04T-DEC-SP, SERIAL NUMBER: 4MS008125

FORM: 087-SW-DTA 04/00



AMERICAN MICROWAVE CORPORATION
7311-G GROVE RD., FREDERICK MD, 21704
TEL: 301-662-4700 FAX: 301-662-4938

DATE: 08/30/00

FINAL TEST DATA
ON
MICROWAVE SWITCH

CUSTOMER: RAYTHEON TECHNICIAN: THACH
JOB NO: 004080E-3
MODEL NO: MSNN-4DR-04T-DEC-SP OPTION NO:
SERIAL NO: 4MS008125 SPECIFICATION:
CURRENT DRAW: + 5 VDC @ 160 mA; - 5VDC @ 40mA FREQUENCY RANGE: 2 - 18 Ghz

INSERTION LOSS (WORSE CASE)	RETURN LOSS (WORSE CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J5-J1 <u>3.6</u> dB	<u>11.3</u> dB	<u>1.74</u> : 1	<u>13.4</u> dB	<u>1.53</u> : 1	<u>15.2</u> dB	<u>1.41</u> : 1
J5-J2 <u>3.3</u> dB	<u>10.1</u> dB	<u>1.89</u> : 1	<u>13.8</u> dB	<u>1.51</u> : 1	<u>13.8</u> dB	<u>1.51</u> : 1
J5-J3 <u>3.5</u> dB	<u>10.4</u> dB	<u>1.86</u> : 1	<u>12.1</u> dB	<u>1.65</u> : 1	<u>13.7</u> dB	<u>1.51</u> : 1
J5-J4 <u>3.6</u> dB	<u>11.2</u> dB	<u>1.75</u> : 1	<u>12.2</u> dB	<u>1.64</u> : 1	<u>14.6</u> dB	<u>1.45</u> : 1
	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>
	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>
	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>
	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>
	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>	<u>dB</u>	<u>1. : 1</u>

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J5-J1 <u>770</u> dB	<u>80</u> nS	<u>18</u> nS	<u>40</u> nS	<u>11</u> nS
J5-J2 <u>770</u> dB	<u>80</u> nS	<u>18</u> nS	<u>60</u> nS	<u>12</u> nS
J5-J3 <u>>70</u> dB	<u>80</u> nS	<u>18</u> nS	<u>60</u> nS	<u>12</u> nS
J5-J4 <u>>70</u> dB	<u>70</u> nS	<u>15</u> nS	<u>60</u> nS	<u>16</u> nS
	<u>nS</u>	<u>nS</u>	<u>nS</u>	<u>nS</u>
	<u>nS</u>	<u>nS</u>	<u>nS</u>	<u>nS</u>
	<u>nS</u>	<u>nS</u>	<u>nS</u>	<u>nS</u>
	<u>nS</u>	<u>nS</u>	<u>nS</u>	<u>nS</u>
	<u>nS</u>	<u>nS</u>	<u>nS</u>	<u>nS</u>

NOTE: Any additional test data on back

TESTED ON: HP 8757A / 8350B
PROGRAM MANAGER/SUPERVISOR APPROVAL: Ray Smalley DATED: 9/1/00
QA/QC APPROVAL: [Signature] DATED: 9/1/00

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