



TEST REPORT  
ON  
REFLECTIVE  
0.1 TO 20.0 GHz  
60 dB ISOLATION  
LOW LOSS  
SP2T SOLID STATE SWITCH  
AMC MODEL No:  
**MSNN-2DR-CS00109-07**  
Serial Numbers: 2MS305180 and 2MS305181

DESIGNED  
BY  
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**February 9, 2004.**

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**ISO9001 : 1994 CERTIFIED**

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**0.1 TO 20.0 GHz, LOW LOSS,  
 SP2T, REFLECTIVE, SOLID STATE SWITCH  
 AMC MODEL No: MSNN-2DR-CS00109-07**

**FEATURES:**

- 0.1 TO 20.0 GHz FREQUENCY RANGE
- 60 dB MINIMUM HIGH ISOLATION
- REFLECTIVE
- LOW INSERTION LOSS OF 3dB MAXIMUM
- SLIM LINE

**SPECIFICATIONS:**

- FREQUENCY : J3 – J1 0.1 TO 8.0 GHz  
 : J3 – J2 8.0 TO 20.0 GHz
- INSERTION LOSS : 3.0 dB MAXIMUM
- VSWR (ALL PORTS) : 2.2:1
- ISOLATION : 60 dB MINIMUM
- RF POWER : +27 dBm CW MAXIMUM
- SWITCHING TIME : 100 nS MAXIMUM
- POWER SUPPLY : +5V @ 50mA MAXIMUM  
 : -15V @ 30mA MAXIMUM
- CONTROL : TTL LOGIC (“0”=ON) (“1”=OFF)
- SIZE : 0.90” X 0.75” X 0.25”

ENVIRONMENTAL RATINGS		
•	OPERATING TEMPERATURE	- 65°C TO 110°C
•	NON - OPERATING TEMPERATURE	- 65°C TO 125°C
•	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

**PRODUCT FEATURE**

REVISIONS	DATE	APPROVED
ZONE	REV	DATE
-	-	4/9/02
DESCRIPTION		
- ORIGINAL RELEASE JOB# 303048E		

DESCRIPTION:  
 AMC MODEL MSNN-2DR-CS00109-07 IS A REFLECTIVE SP2T SWITCH WITH SLIM LINE DESIGN AND INTEGRAL TTL DRIVER THAT WORKS FROM 0.1 TO 20.0 GHZ.

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

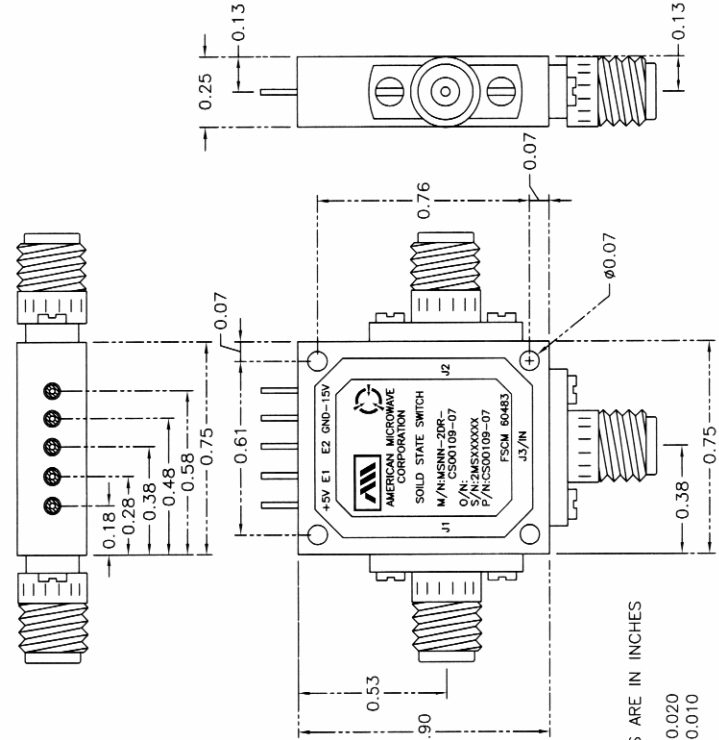
SPECIFICATIONS:

- FREQUENCY:
  - J3 - J1:.....0.1 TO 8.0 GHZ
  - J3 - J2:.....8.0 TO 20.0 GHZ
- INSERTION LOSS:.....3.0 dB MAXIMUM
- ISOLATION:.....60 dB MINIMUM
- VSWR:.....2.2:1
- RF POWER:.....+27 dBm CW MAXIMUM
- SWITCHING TIME:.....100 nS MAXIMUM
- POWER SUPPLY:.....+5V @ 50mA MAXIMUM
- CONTROL:.....TTL LOGIC "0"=ON "1"=OFF
- SIZE:.....0.90" (L) x 0.75" (W) x 0.25" (H)

ENVIRONMENTAL RATINGS

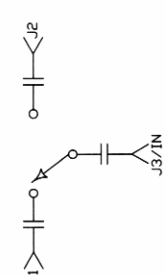
- OPERATING TEMPERATURE.....-65°C TO 110°C
- NON-OPERATING TEMPERATURE.....-65°C TO 125°C
- HUMIDITY.....MIL-STD-202F, METHOD 103B COND. B
- SHOCK.....MIL-STD-202F, METHOD 213B COND. B
- VIBRATION.....MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE.....MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE.....MIL-STD-202F,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

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE DR REVISION

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

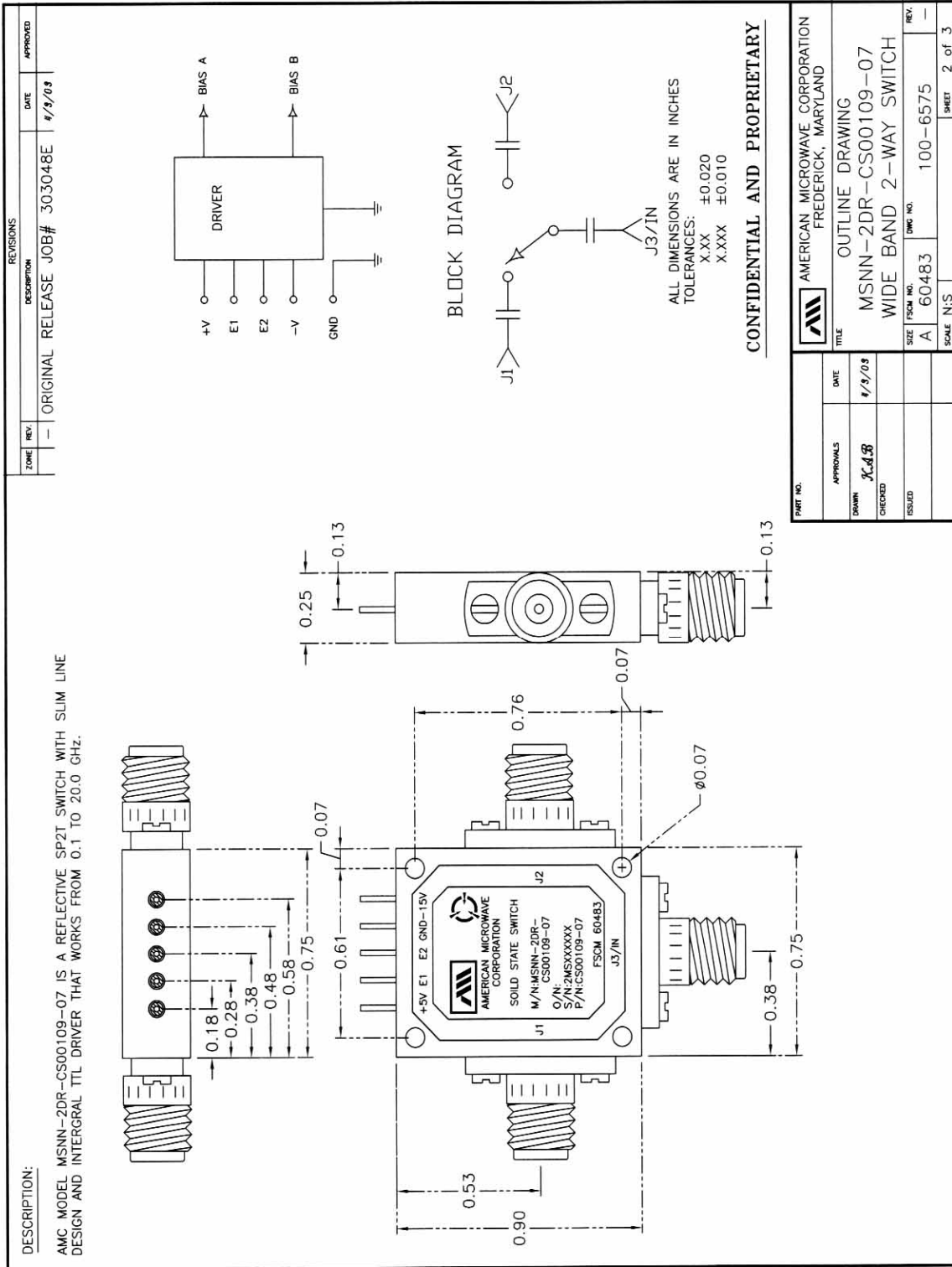
BLOCK DIAGRAM



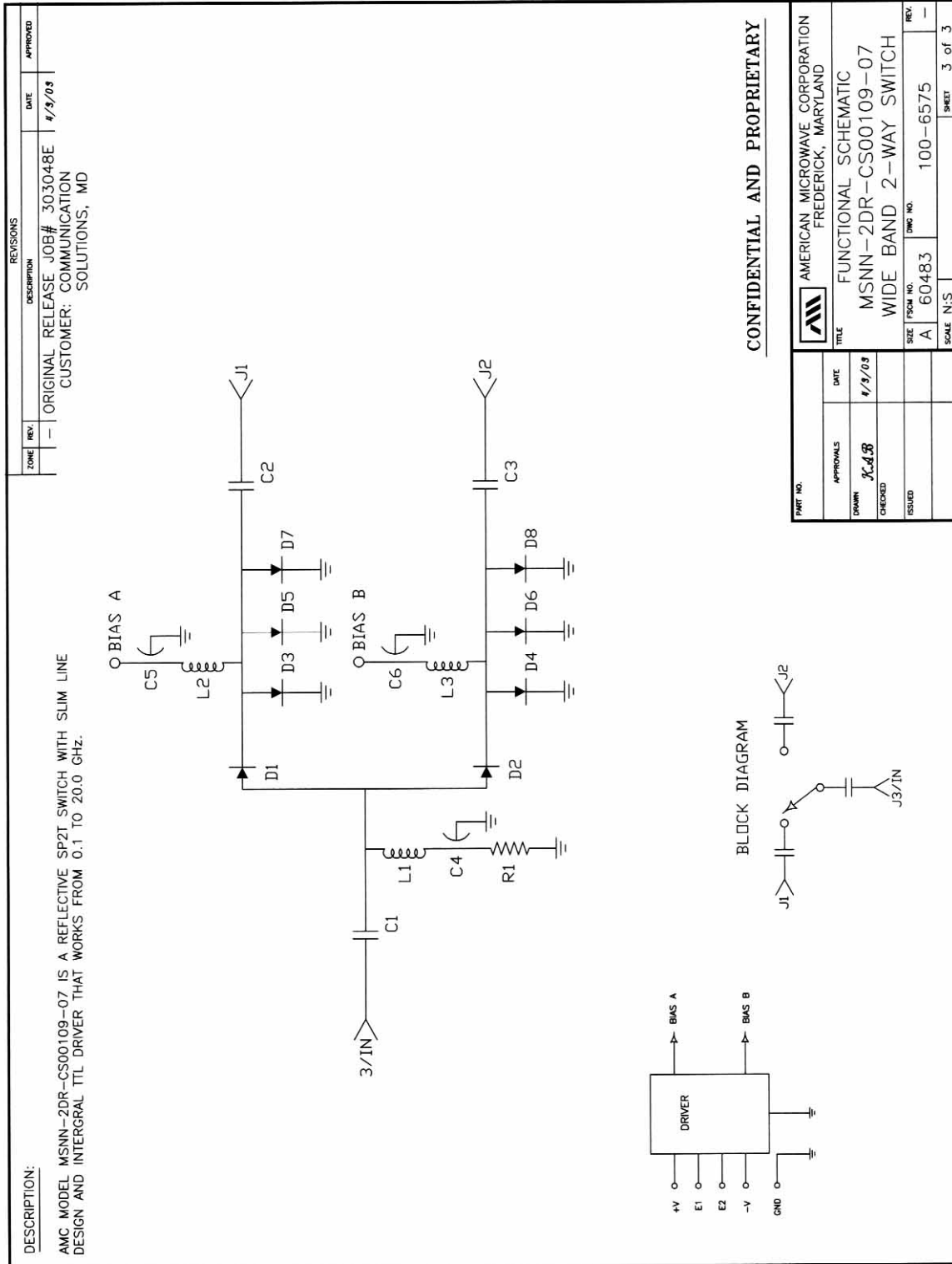
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PART NO.	DATE	APPROVALS	TITLE	AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND
	4/9/02	<i>J. J. B.</i>	PRODUCT FEATURE	
			MSNN-2DR-CS00109-07	
			WIDE BAND 2-WAY SWITCH	
SIZE	FSCM NO.	QWC NO.	REV.	
A	60483	100-6575	-	
SCALE	N/S	SHEET	1	of 3

**MECHANICAL OUTLINE**



**FUNCTIONAL SCHEMATIC**



**FINAL TEST DATA**

**FINAL TEST DATA SHEETS**

**FOR**

**AMC MODEL NUMBER**

**MSNN-2DR-CS00109-07**

**Serial Numbers:**

**2MS305180 – 2MS305181**







**FINAL TEST DATA**

AMC MODEL NO: MSNN-2DR-CS00109-07, SERIAL NUMBER: 2MS305181

FORM: 414-SW-DTA  
 DATE: 5.22.03



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FINAL TEST DATA  
 ON  
 MICROWAVE SWITCH

CUSTOMER: Communication Solutions      TECHNICIAN: E. SCHAUB  
 JOB NO: 30304BE  
 MODEL NO: MSNN-2DR-CS00109-07      OPTION NO: \_\_\_\_\_  
 SERIAL NO: 2MS305181      SPECIFICATION: \_\_\_\_\_  
 CURRENT DRAW: +5 VDC @ 50 mA; -15 VDC @ 6 mA      FREQUENCY RANGE: 0.1 - 20.0 GHz

INSERTION LOSS (WORST CASE)		RETURN LOSS (WORST CASE)					
		INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db	OUTPUT OFF VSWR
B-J1	1.66 dB @ 0.1-8.0 GHz	8.76 dB	2.15 : 1	9.34 dB	2.04 : 1	— dB	— : 1
B-J2	1.94 dB @ 8.0-20.0 GHz	10.12 dB	1.91 : 1	13.10 dB	1.57 : 1	— dB	— : 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
	dB @ GHz	dB	: 1	dB	: 1	dB	: 1
ISOLATION		SWITCHING SPEED					
		DELAY ON	RISE TIME	DELAY OFF	FALLTIME		
B-J1	68 dB @ 0.1-8.0 GHz	SS nS	— nS	50 nS	— nS		
B-J2	62 dB @ 8.0-20.0 GHz	SS nS	— nS	SS nS	— nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		
	dB @ GHz	nS	nS	nS	nS		

NOTE: Any additional test data on back

TESTED ON: HP8720D  
 QA/QC APPROVAL: Dwight V. Smith **Q2**      DATED: 5/22/03