



TEST REPORT
ON
2 TO 18 GHz
SINGLE POLE TWO THROW
ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE

AMC MODEL No:
SWN-2181-2A
OPTION 002, 011

Serial Numbers: 2MS211811 THRU 2MS211820

DESIGNED
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TESTED
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REPORTED
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May 26, 2005

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ISO9001 : 2000 CERTIFIED

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SINGLE POLE TWO THROW ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE AMC MODEL No: SWN-218-2A OPTION 002, 011

FEATURES:

- **2 TO 18 GHz FREQUENCY RANGE**
- **LOW INSERTION LOSS**
- **HIGH ISOLATION**

SPECIFICATIONS:

- | | | |
|------------------|---|------------------------------------|
| ● FREQUENCY | : | 2 TO 18 GHz |
| ● INSERTION LOSS | : | 2.5 dB MAXIMUM |
| ● ISOLATION | : | 60 dB MINIMUM |
| ● VSWR | : | 2.0:1 |
| ● DELAY ON | : | 75 nSEC TYPICAL, 100 nSEC MAXIMUM |
| ● DELAY OFF | : | 75 nSEC TYPICAL, 100 nSEC MAXIMUM |
| ● POWER INPUT | : | (CW) +20 dBm (TYPICAL) |
| ● SURVIVAL POWER | : | 1 WATT CW, 10 WATTS PEAK 1 uSEC |
| ● CONTROL | : | SEE LOGIC TABLE ON PRODUCT FEATURE |
| ● POWER SUPPLY | : | +5V @ 65 mA MAXIMUM |
| | : | -12V @ 50 mA MAXIMUM |
| ● CONNECTORS | | |
| RF | : | SMA FEMALE |
| CONTROL | : | SOLDER PIN |
| ● SIZE | : | 0.80" (L) x 0.62" (W) x 0.40" (H) |
| ● WEIGHT | : | 1 OUNCE TYPICAL |

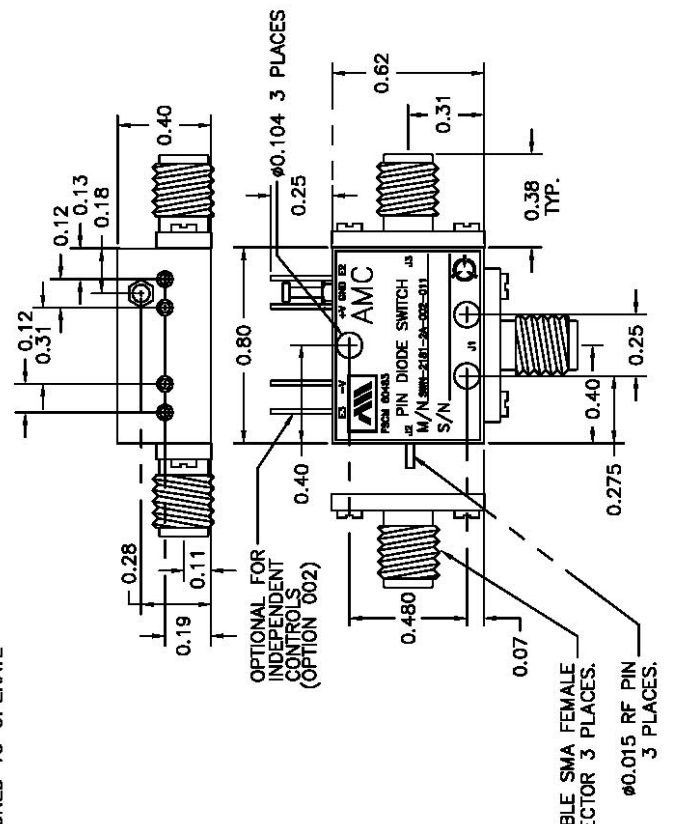
PRODUCT FEATURE

REVISED	DESCRIPTION	DATE	APPROVED
1	ORIGINAL RELEASE JOB# 411270X	12/10/04	

DESCRIPTION
 AMC MODEL SWN-2181-2A-002-011 IS AN ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH LOW INSERTION LOSS AND HIGH ISOLATION DESIGNED TO OPERATE OVER THE FULL 2 TO 18 GHz FREQUENCY RANGE.

SPECIFICATIONS

- FREQUENCY RANGE: 2 TO 18 GHz
- INSERTION LOSS: 2.5 dB MAXIMUM
- ISOLATION: 60 dB MINIMUM
- VSWR: 2.0:1
- DELAY ON: 75 nSec TYPICAL, 100 nSec MAXIMUM
- DELAY OFF: 75 nSec TYPICAL, 100 nSec MAXIMUM
- POWER INPUT: (CW)+20 dBm (TYPICAL)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 μ Sec
- CONTROL: SEE LOGIC TABLE BELOW
- POWER SUPPLY: +5V \oplus 65 mA MAXIMUM
 -12V \oplus 50 mA MAXIMUM
- CONNECTORS:
 RF: SMA FEMALE
 CONTROL: SOLDER PIN
- SIZE: 0.80" (L) x 0.62" (W) x 0.40" (H)
- WEIGHT: 1 OUNCE TYPICAL

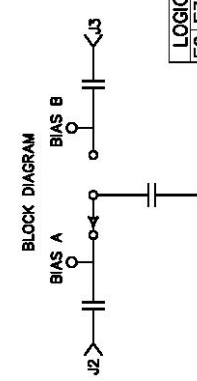


OPTIONAL FOR INDEPENDENT CONTROLS (OPTION 002)

REMOVABLE SMA FEMALE CONNECTOR 3 PLACES.

ϕ 0.015 RF PIN 3 PLACES.

BLOCK DIAGRAM



LOGIC TABLE

E2	E3	PATH ON
H	L	J1-J2
L	H	J1-J3


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 CYCLES: MIL-STD-202F, METHOD 107D COND. A

NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE RANGE.
 NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

AMERICAN MICROWAVE CORPORATION

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 ISO 9001:2000 CERTIFIED



PRODUCT FEATURE

DATE: 12/10/04

SWN-2181-2A-002-011

2 TO 18 GHz, SINGLE POLE TWO THROW SWITCH

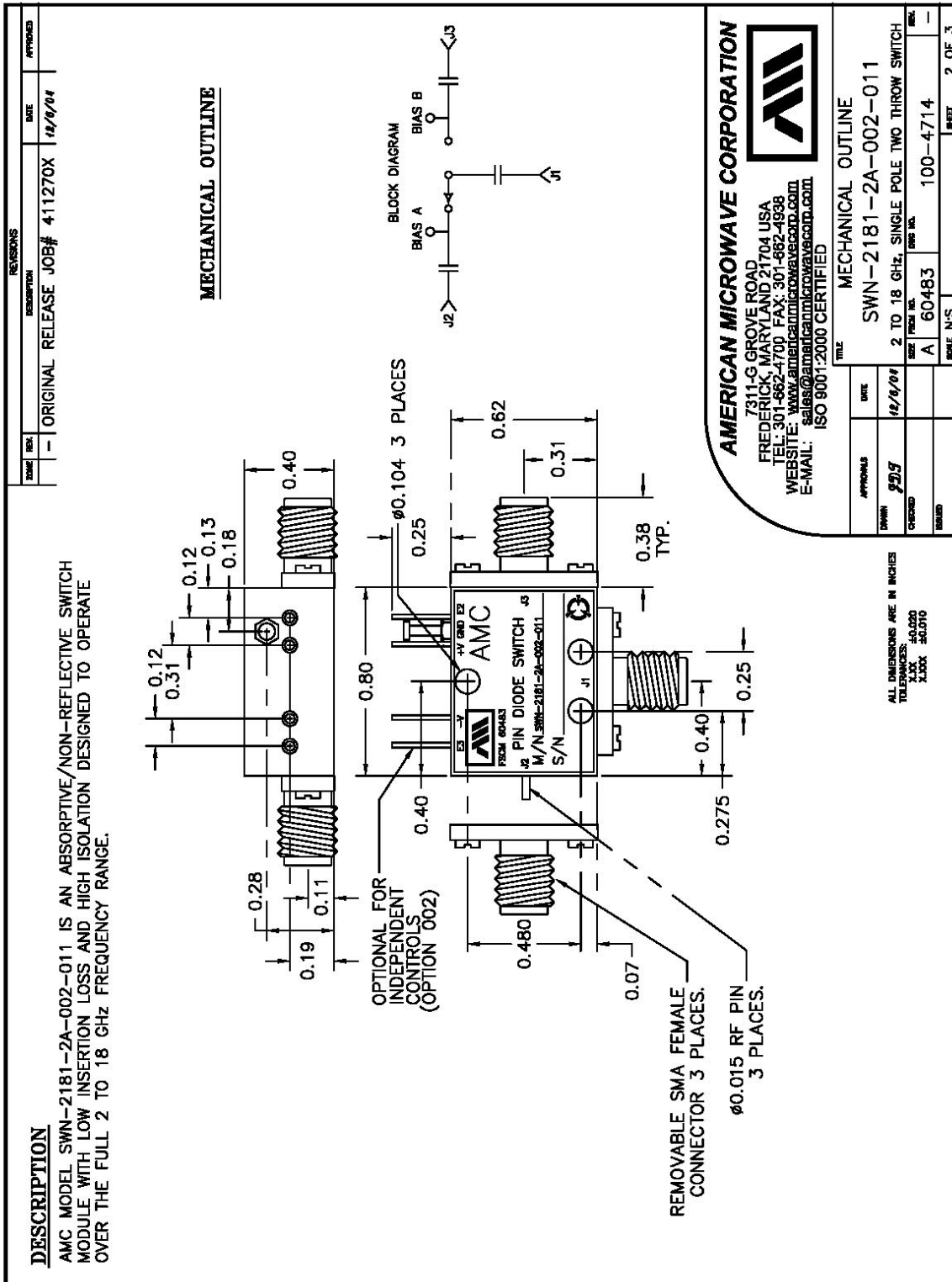
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100-4714

SCALE: N/S

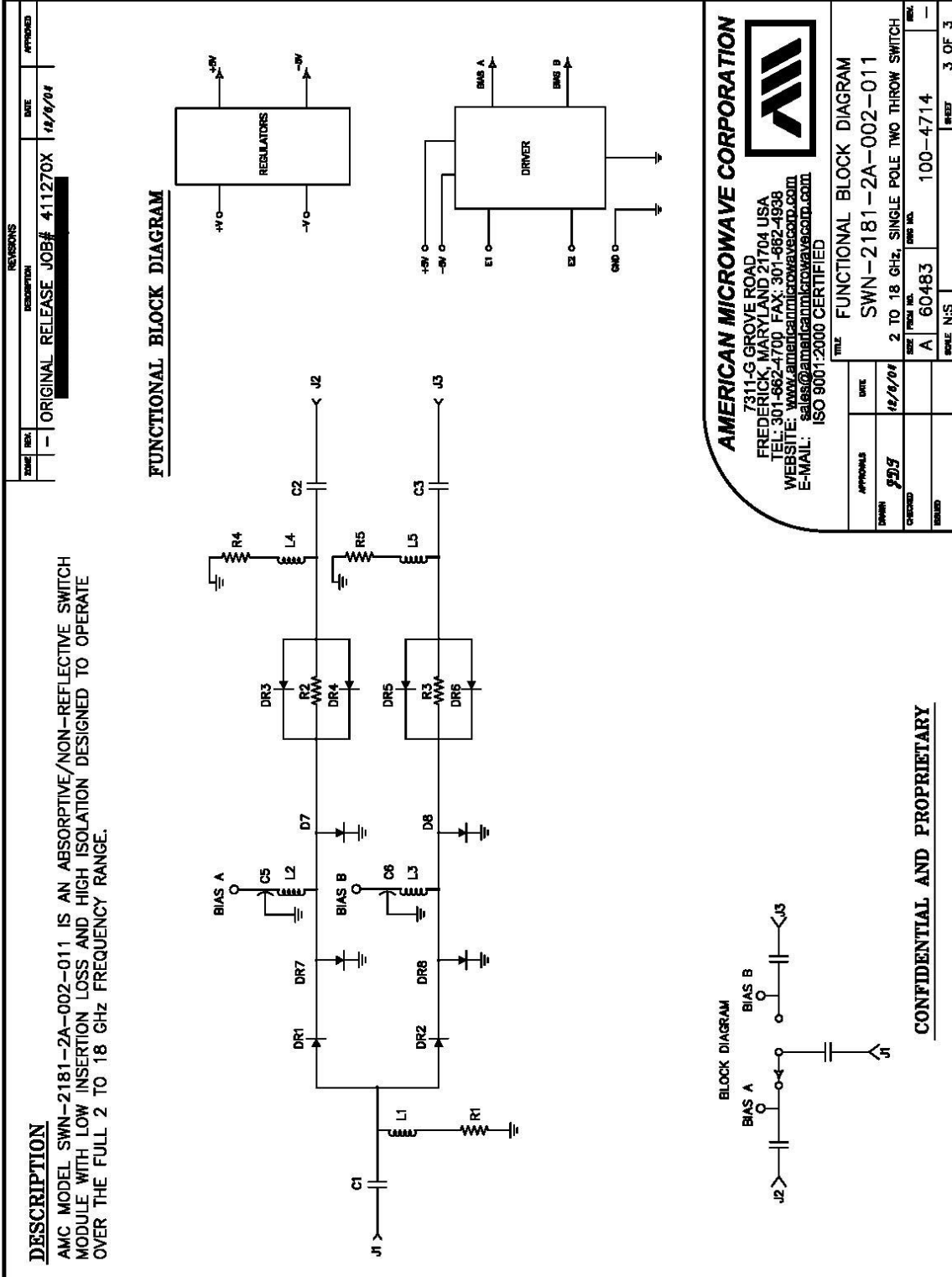
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OUTLINE DRAWING





FUNCTIONAL SCHEMATIC



CONFIDENTIAL AND PROPRIETARY

FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

SWN-218-2A
OPTION 002, 011

Serial Numbers:

2MS211811 THRU 2MS211820

FINAL TEST DATA

AMC MODEL NO: SWN-218-2A OPTIONS 002, 011, SERIAL NUMBER: 2MS211811

FORMS: 338-SW-DTA



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

DATE: 1/3/03

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: ████████	TECHNICIAN: <u>H. Hahn</u>
JOB NO: <u>208116X</u>	PART NO: <u>G4004A1326109</u>
MODEL NO: <u>SWN-218-2A</u>	OPTION NO: <u>002, 011</u>
SERIAL NO: <u>2MS211811</u>	SPECIFICATION: _____
CURRENT DRAW: <u>+ 5 VDC @ 30 mA; - 12 VDC @ 50 mA</u>	FREQUENCY RANGE: <u>2.0 - 18.0 GHz</u>

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J1 - J2 <u>2.41</u> dB @ 2.0 - 18.0 GHz	<u>10.33</u> dB	<u>1.88</u> : 1	<u>10.69</u> dB	<u>1.83</u> : 1	<u>11.07</u> dB	<u>1.78</u> : 1
J1 - J3 <u>2.5</u> dB @ 2.0 - 18.0 GHz	<u>9.95</u> dB	<u>1.93</u> : 1	<u>10.71</u> dB	<u>1.82</u> : 1	<u>10.41</u> dB	<u>1.86</u> : 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	FALL TIME		
J1 - J2 <u>62</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> nS	/		
J1 - J3 <u>61</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> nS	/		
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			
dB @ GHz	nS		nS			

NOTE: Any additional test data on back

TESTED ON: Wiltron 37347A

QA/QC APPROVAL: _____

02

DATED: 1/17/03



FINAL TEST DATA

AMC MODEL NO: SWN-218-2A OPTIONS 002, 011, SERIAL NUMBER: 2MS211817

FORMS: 338-SW-DTA



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

DATE: 12/19/02

FINAL TEST DATA ON MICROWAVE SWITCH

CUSTOMER: XXXXXXXXXX	TECHNICIAN: <u>H. Nahn</u>
JOB NO: <u>2CS116X</u>	PART NO: <u>G4004A1326109</u>
MODEL NO: <u>SWN-218-2A</u>	OPTION NO: <u>002, 011</u>
SERIAL NO: <u>2MS211817</u>	SPECIFICATION:
CURRENT DRAW: <u>+ 5 VDC @ 30 mA; - 12 VDC @ 50mA</u>	FREQUENCY RANGE: <u>2.0 - 18.0 GHz</u>

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J1 - J2 <u>2.48</u> dB @ 2.0 - 18.0 GHz	<u>10.87</u> dB	<u>1.80</u> : 1	<u>11.85</u> dB	<u>1.69</u> : 1	<u>14.85</u> dB	<u>1.44</u> : 1
J1 - J3 <u>2.3</u> dB @ 2.0 - 18.0 GHz	<u>10.39</u> dB	<u>1.87</u> : 1	<u>11.24</u> dB	<u>1.76</u> : 1	<u>13.86</u> dB	<u>1.51</u> : 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
J1 - J2 <u>60</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> nS	/
J1 - J3 <u>60</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> 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: Wiltron 37347A

QA/QC APPROVAL: _____

DATED: 12/23/02

FINAL TEST DATA

AMC MODEL NO: SWN-218-2A OPTIONS 002, 011, SERIAL NUMBER: 2MS211819

FORMS: 338-SW-DTA



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

DATE: 12/19/02

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: ██████████ TECHNICIAN: H. Wahn
 JOB NO: 2c-silly PART NO: G4004A1326109
 MODEL NO: SWN-218-2A OPTION NO: 002, 011
 SERIAL NO: 2MS211819 SPECIFICATION:
 CURRENT DRAW: + 5 VDC @ 30 mA; - 12 VDC @ 50 mA FREQUENCY RANGE: 2.0 - 18.0 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
J1 - J2 <u>2.24</u> dB @ 2.0 - 18.0 GHz	<u>12.96</u> dB	<u>58</u> : 1	<u>13.3</u> dB	<u>55</u> : 1	<u>13.57</u> dB	<u>53</u> : 1
J1 - J3 <u>2.36</u> dB @ 2.0 - 18.0 GHz	<u>12.78</u> dB	<u>60</u> : 1	<u>13.63</u> dB	<u>53</u> : 1	<u>14.46</u> dB	<u>47</u> : 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
dB @ GHz	dB : 1	: 1	dB : 1	: 1	dB : 1	: 1
ISOLATION	SWITCHING SPEED					
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME		
J1 - J2 <u>60</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> nS	/		
J1 - J3 <u>60</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS	/	<u>< 50</u> 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: Wiltron 37347A

QA/QC APPROVAL: 02 DATED: 12/23/02



FINAL TEST DATA

AMC MODEL NO: SWN-218-2A OPTIONS 002, 011, SERIAL NUMBER: 2MS211820

FORMS: 338-SW-DTA



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

DATE: 12/19/02

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: [REDACTED] TECHNICIAN: H. Vahn
 JOB NO: 208116X PART NO: G4004A1326109
 MODEL NO: SWN-218-2A OPTION NO: 002, 011
 SERIAL NO: 2MS211820 SPECIFICATION:
 CURRENT DRAW: +5 VDC @ 60 mA; -12 VDC @ 50 mA FREQUENCY RANGE: 2.0 - 18.0 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
J1 - J2 <u>2.5</u> dB @ 2.0 - 18.0 GHz	<u>13.6</u> dB	<u>1.53</u> : 1	<u>13.67</u> dB	<u>1.52</u> : 1	<u>11.88</u> dB	<u>1.68</u> : 1
J1 - J3 <u>2.5</u> dB @ 2.0 - 18.0 GHz	<u>15.23</u> dB	<u>1.42</u> : 1	<u>10.88</u> dB	<u>1.80</u> : 1	<u>9.54</u> dB	<u>2.00</u> : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
dB @ GHz	dB	1 : 1	dB	1 : 1	dB	1 : 1
ISOLATION	SWITCHING SPEED					
	DELAY ON		RISE TIME		DELAY OFF	FALLTIME
J1 - J2 <u>62</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS		_____ nS		<u>< 50</u> nS	_____ nS
J1 - J3 <u>60</u> dB @ 2.0 - 18.0 GHz	<u>< 50</u> nS		_____ nS		<u>< 50</u> nS	_____ nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS
dB @ GHz		nS		nS		nS

NOTE: Any additional test data on back

TESTED ON: Wiltron 37347A

QA/QC APPROVAL: _____ DATED: 12/23/02