



TEST REPORT

ON

8 TO 18.2 GHz

SP5T, ABSORPTIVE

PIN DIODE SWITCH

**AMC MODEL No:
MSN-5DT-05-STANDARD
Options 818, 12X, LVT**

Serial Numbers: 5MS910063, 5MS911083-5MS911085

**DESIGNED
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**REPORTED
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May 25, 2004

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ISO 9001 : 2000 CERTIFIED

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8-18.2 GHz, SP5T PIN DIODE SWITCH AMC MODEL No: MSN-5DT-05-STANDARD OPTION 818, 12X, LVT

FEATURES:

- **LOW INSERTION LOSS**
- **HIGH ISOLATION**
- **LOW VIDEO TRANSIENTS**



SPECIFICATIONS:

- **FREQUENCY** : 8 to 18.2 GHz
- **INSERTION LOSS** : 4.0 dB MAXIMUM
- **ISOLATION** : 60 dB MINIMUM
- **VSWR** : 2.0:1
- **SWITCHING SPEED** : <30 nS
- **RISE/FALL TIME** : <10 nS
- **MAXIMUM TOGGLE RATE** : >20 MHz
- **RF CONNECTORS** : SMA FEMALE
- **DC POWER SUPPLY** : +5V ±10% @ 250 mA MAXIMUM
-5V ±10% @ 100 mA MAXIMUM
- **CONTROL** : TTL LOGIC "0"=ON, "1"=OFF
- **CONTROL INTERFACE** : DC SOLDER PINS
- **HARMONIC DISTORTION** : ≤70 dB @ +10 dBm I/P
- **FLATNESS ACROSS BAND** : (ON STATE) ±0.5 dB
100 MV PEAK TO PEAK, 500 MHz BANDWIDTH (-60 dBm TO -65 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
- **VIDEO LEAKAGE** : 100 MV PEAK TO PEAK, 500 MHz BANDWIDTH (-60 dBm TO -65 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
- **1 dB COMPRESSION POINT** : +20 dBm
- **2 TONE, 3RD ORDER INTERCEPT POINT, POUT 0 dBm** : +35 dBm
- **2 tone, 2ND ORDER INTERCEPT POINT, POUT 0 dBm** : +55 dBm
- **0.1 dB PASS BAND** : 8 GHz TO 18.2 GHz
- **WEIGHT** : 3.5 OUNCES TYPICAL
- **SIZE** : 2.50" (L) X 1.50" (W) X 0.40" (H)

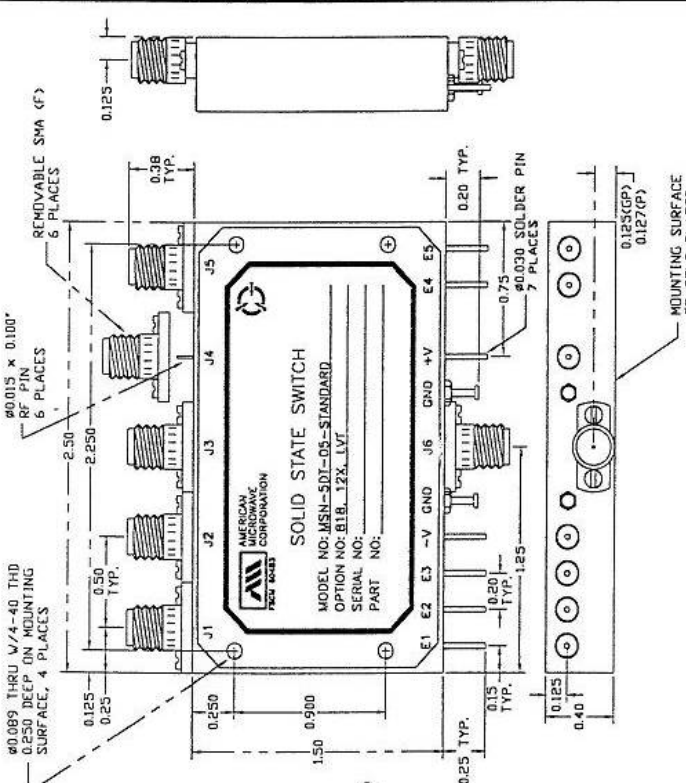
PRODUCT FEATURE

REV. NO.	DESCRIPTION	DATE	APPROVED	
—	ORIGINAL RELEASE	8/19/99	[Signature]	

DESCRIPTION:
 AMC MODEL MSN-5DT-05-STANDARD OPTION 818, 12X, LVT IS A SINGLE POLE FIVE THROW, ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR LOW VIDEO TRANSIENTS AND LOW HARMONIC DISTORTION OVER B TO 18.2 GHz BANDWIDTH.

SPECIFICATIONS:

- FREQUENCY: 8 GHz TO 18.2 GHz
- INSERTION LOSS: 4.0 dB MAXIMUM
- ISOLATION (ANY PORT): 60 dB MINIMUM
- VSWR (ANY PORT, ANY STATE): 2.0:1
- SWITCHING SPEED: <30 ns
- RISE/FALL TIME: <10 ns
- (10X TO 90X RF)
- (90X TO 10X RF)
- MAX. DC TOGGLE RATE: >20 MHz
- RF CONNECTORS: SMA FEMALE
- DC POWER SUPPLY: +5V ±10% @ 250 mA MAXIMUM
-5V ±10% @ 100 mA MAXIMUM
- CONTROL INTERFACE: TTL LOGIC "0"=ON "1"=OFF
- HARMONIC DISTORTION: DC SOLDER PINS
- FLATNESS ACROSS BAND: ≤ 70dB @ +10 dBm I/P (ON STATE) ±0.5dB
- VIDEO LEAKAGE: 100 mV PEAK TO PEAK, 500 MHz BANDWIDTH (-60 dBm TO -85 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
- 1 dB COMPRESSION POINT: +20 dBm
- 2 TONE 3RD ORDER INTERCEPT POINT, POUT 0dBm: +35 dBm
- 2 TONE 2RD ORDER INTERCEPT POINT, POUT 0dBm: +55 dBm
- D.1 dB PASS BAND: 8 GHz TO 18.2 GHz
- WEIGHT: 3.5 OUNCES TYPICAL
- SIZE: 2.50 (L) X 1.50 (W) X 0.40 (H)



SOLID STATE SWITCH
 MODEL NO: MSN-5DT-05-STANDARD
 OPTION NO: 818, 12X, LVT
 SERIAL NO:
 PART NO:

AMERICAN MICROWAVE CORPORATION
 FREDERICK, MARYLAND

REMOVABLE SMA (F) 6 PLACES
 60.015 x 0.100" RF PIN 6 PLACES
 0.089 THRU 1/4-40 THRD 0.650 DEEP ON MOUNTING SURFACE, 4 PLACES
 MOUNTING SURFACE GP=GOLD PLATED P=PAINTED

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -10°C TO +55°C (OPERATING)
-40°C TO +71°C (STORAGE)
- HUMIDITY: 85% OVER TEMPERATURE
- 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

NOTE: DI=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

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

PART NO.	DATE	APPROVALS	TITLE	AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND MSN-5DT-05-STANDARD OPTION 818, 12X, LVT SOLID STATE SWITCH
	8/19/99	[Signature]	[Signature]	
SIZE	FORM NO.	QWG NO.	REV.	
A	60483	100-4166-6	—	
SCALE: N/S			SHEET	1 of 1

FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

AMC MODEL No:
MSN-5DT-05-STANDARD
Options 818, 12X, LVT

Serial Numbers:

5MS910063, 5MS911083-5MS911085



T18-WHS-SW-0504

FINAL TEST DATA

AMC MODEL NO: MSN-5DT-05-STANDARD OPTIONS 818, 12X, LVT
SERIAL NUMBER: 5MS911084



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

DATE: 12/14/99

FINAL TEST DATA
ON
MICROWAVE SWITCH

CUSTOMER: TELEMUS TECHNICIAN: PA
 JOB NO: 907134E-5
 MODEL NO: MSN-5DT-05-STD OPTION NO: 818, 12X, LVT
 SERIAL NO: 5MS911084 SPECIFICATION:
 CURRENT DRAW: + 5VDC @ 62 mA; - 5 VDC @ 63 mA FREQUENCY RANGE: 8 GHz TO 18.2 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
J6-J1 4.10 dB	10.04 dB	1.92 : 1	15.88 dB	1.38 : 1	10.05 dB	1.72 : 1
J6-J2 3.75 dB	12.26 dB	1.64 : 1	12.85 dB	1.59 : 1	10.64 dB	1.83 : 1
J6-J3 3.92 dB	11.06 dB	1.78 : 1	11.12 dB	1.77 : 1	10.78 dB	1.81 : 1
J6-J4 4.04 dB	11.82 dB	1.69 : 1	11.21 dB	1.76 : 1	10.18 dB	1.90 : 1
J6-J5 3.78 dB	11.12 dB	1.77 : 1	12.23 dB	1.65 : 1	10.58 dB	1.84 : 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		
J6-J1 >60 dB	30 nS	10 nS	8 nS	2 nS		
J6-J2 >60 dB	25 nS	10 nS	10 nS	3 nS		
J6-J3 >60 dB	21 nS	5 nS	10 nS	3 nS		
J6-J4 >60 dB	25 nS	9 nS	9 nS	2 nS		
J6-J5 >60 dB	28 nS	10 nS	9 nS	2 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: WILTRON 37347A

PROGRAM MANAGER/SUPERVISOR APPROVAL: JMS DATED: DEC 14 1999
 QA/QC APPROVAL: QA PA DATED: DEC 14 1999
 VICE PRESIDENT/GENERAL MANAGER APPROVAL: APL DATED: DEC 14 1999



FINAL TEST DATA

AMC MODEL NO: MSN-5DT-05-STANDARD OPTIONS 818, 12X, LVT
 SERIAL NUMBER: 5MS911085



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: 12/14/99

CUSTOMER: TELEMUS TECHNICIAN: PA
 JOB NO: 907134E-5
 MODEL NO: MSN-5DT-05-STD OPTION NO: 818, 12X, LVT
 SERIAL NO: 5MS911085 SPECIFICATION:
 CURRENT DRAW: +5VDC @ 186 mA; -5 VDC @ 63 mA FREQUENCY RANGE: 8 GHz TO 18.2 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
J6-J1 4.12 dB	10.81 dB	1.81 : 1	14.91 dB	1.44 : 1	10.22 dB	1.89 : 1
J6-J2 3.93 dB	11.10 dB	1.77 : 1	11.82 dB	1.69 : 1	9.96 dB	1.93 : 1
J6-J3 4.15 dB	11.53 dB	1.72 : 1	10.84 dB	1.81 : 1	11.02 dB	1.78 : 1
J6-J4 4.02 dB	9.88 dB	1.94 : 1	12.20 dB	1.65 : 1	10.45 dB	1.86 : 1
J6-J5 4.30 dB	9.99 dB	1.93 : 1	11.19 dB	1.76 : 1	9.79 dB	1.96 : 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
J6-J1 >60 dB	23 nS	6 nS	9 nS	2 nS
J6-J2 >60 dB	26 nS	10 nS	10 nS	2 nS
J6-J3 >60 dB	21 nS	5 nS	9 nS	2 nS
J6-J4 >60 dB	25 nS	8 nS	10 nS	2 nS
J6-J5 >60 dB	27 nS	10 nS	10 nS	4 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: WILTRON 37347A

PROGRAM MANAGER/SUPERVISOR APPROVAL: zmj DATED: DEC 14 1999

QA/QC APPROVAL: (Q4) PA DATED: DEC 14 1999

VICE PRESIDENT/GENERAL MANAGER APPROVAL: [Signature] DATED: DEC 14 1999