



TEST REPORT
ON
50 MHz TO 22 GHz
SINGLE POLE, 12 THROW
ABSORPTIVE / NON-REFLECTIVE SWITCH

AMC MODEL No:
MSNC-12DT-05-DEC-MP
Option B08

Serial Number: 12MS00301

DESIGNED
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ISO9001 : 1994 CERTIFIED

MJD
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LC
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JK



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SINGLE POLE TWELVE THROW, ABSORPTIVE / NON-REFLECTIVE SWITCH MODULE AMC MODEL No: MSNC-12DT-05-DEC-MP OPTION B08

FEATURES:

- **HIGH ISOLATION**
- **LOW INSERTION LOSS**
- **4 BIT BINARY CONTROL**
- **LOW VIDEO TRANSIENT**
- **LOW HARMONIC DISTORTION**

SPECIFICATIONS:

- **FREQUENCY** : 50 MHz TO 22 GHz
- **INSERTION LOSS** : 6.0 TO 7.5 dB
- **ISOLATION** : 70 dB MINIMUM
- **VSWR** : 2.0:1
- **SWITCHING SPEED** : < 1000 nS
- **RISE / FALL TIME** : < 100 nS
- **MAXIMUM TOGGLE RATE** : > 20 MHz
- **RF CONNECTORS** : SMA FEMALE
- **DC POWER SUPPLY** : +5 V \pm 10% @ 700 mA MAXIMUM
: -5 V \pm 10% @ 200 mA MAXIMUM
- **CONTROL** : TTL LOGIC
- **CONTROL INTERFACE** : 9 PIN MICRO D MULTIPIN
- **HARMONIC DISTORTION** : \leq 70 dB @ +10 dBm I/P
- **FLATNESS ACROSS BAND (ON STATE)** : \pm 1.5 dB MAXIMUM, \pm 1.0 dB TYPICAL
100 mV PEAK TO PEAK, 20 MHz BANDWIDTH (-60 dBm TO -65 dBm LEAKAGE POWER OR ENERGY IN THE BAND OF INTEREST)
- **VIDEO LEAKAGE** :
 - 1 dB COMPRESSION POINT : +20 dBm
 - 2 TONE 3RD ORDER INTERCEPT POINT, P_{OUT} 0dBm : +35 dBm
 - 2 TONE 2ND ORDER INTERCEPT POINT, P_{OUT} 0dBm : +55 dBm
- **0.1 dB PASS BAND** : 50 MHz TO 22 GHz
- **WEIGHT** : 15 OUNCES TYPICAL
- **SIZE** : 3.10"(L) X 3.50"(W) X 1.0"(H)

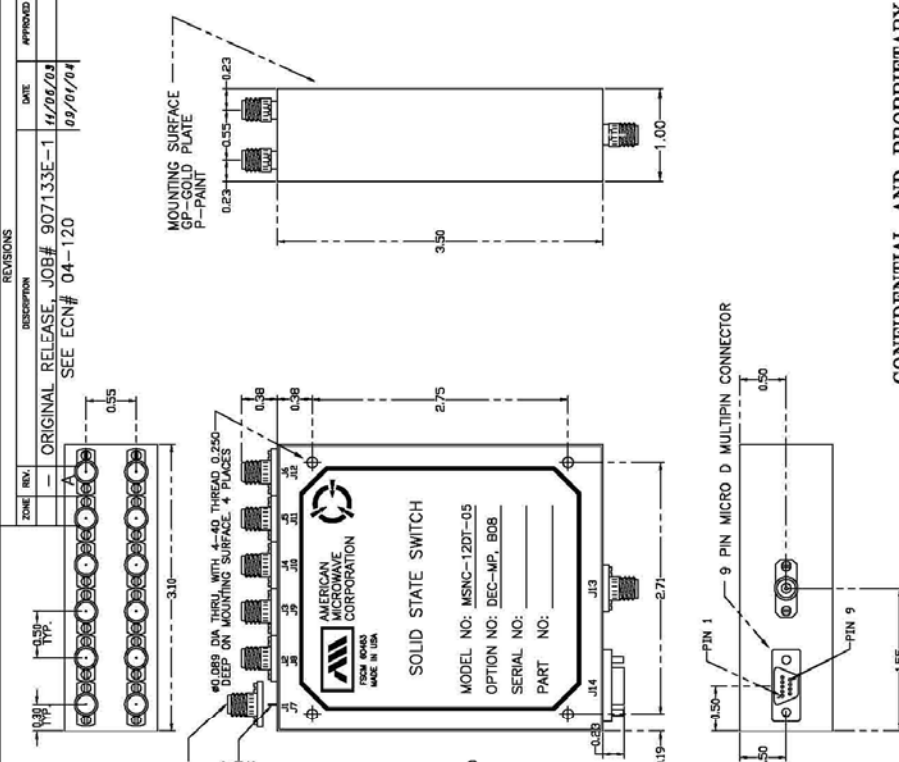


PRODUCT FEATURE

DESCRIPTION:
 AMC MODEL MSNC-12DT-05-DEC-MP OPTION B08 IS A SINGLE POLE TWELVE THROW, ABSORPTIVE/NON-REFLECTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH ISOLATION, WITH 4-BIT BINARY CONTROL AND INTEGRAL TTL DRIVER, DESIGNED FOR VIDEO TRANSIENTS AND LOW HARMONIC DISTORTION OVER 50 MHz TO 22 GHz BANDWIDTH.

SPECIFICATIONS:

- FREQUENCY: 50 MHz TO 22 GHz
- INSERTION LOSS: 6.0 TO 7.5 dB
- ISOLATION (ANY PORT): 70 dB MINIMUM
- VSWR (ANY PORT, ANY STATE): 2.0:1
- SWITCHING SPEED: <1000 ns
- RISE/FALL TIMES (50%/90% RF): <100 ns
- JITTER (10% TO 90% RF): (90% TO 10% RF)
- MAXIMUM TOGGLE RATE: >20 MHz
- DC POWER SUPPLY: SMA FEMALE
- DC POWER SUPPLY: +5V ±10% @ 700 mA MAXIMUM
- DC POWER SUPPLY: -5V ±10% @ 200 mA MAXIMUM
- CONTROL: TTL LOGIC "SEE LOGIC TABLE"
- CONTROL INTERFACE: 9 PIN MICRO D MULTIPIN
- HARMONIC DISTORTION: ≤ 70 dB @ +10 dBm I/P
- FLATNESS ACROSS BAND: ±1.5 dB MAXIMUM, ±1.0 dB TYPICAL (ON STATE)
- VIDEO LEAKAGE: 100 mV PEAK TO PEAK, 20 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 OdBm: +35 dBm
- 2 TONE 2RD ORDER INTERCEPT POINT, POUT OdBm: +55 dBm
- 0.1 dB PASS BAND: 50 MHz TO 22.0 GHz
- WEIGHT: 15 OUNCES TYPICAL
- SIZE: 3.10 (L) X 3.5 (W) X 1.0 (H)



MOUNTING SURFACE CP-COLD PLATE P-PAINT

REMOVABLE SMA (F) 13 PLACES
 #0.089 DIA THRU, WITH 4-40 THREAD 0.250 DEEP ON MOUNTING SURFACE, 4 PLACES

RF PIN 13 PLACES
 #0.015 x 5.100"

9 PIN MICRO D MULTIPIN CONNECTOR

PIN 1
 PIN 9

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -10°C TO +55°C (OPERATING)
- TEMPERATURE: -40°C TO +71°C (STORAGE)
- HUMIDITY: 95% 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

CONFIDENTIAL AND PROPRIETARY

AMERICAN MICROWAVE CORPORATION
 FREDERICK, MARYLAND

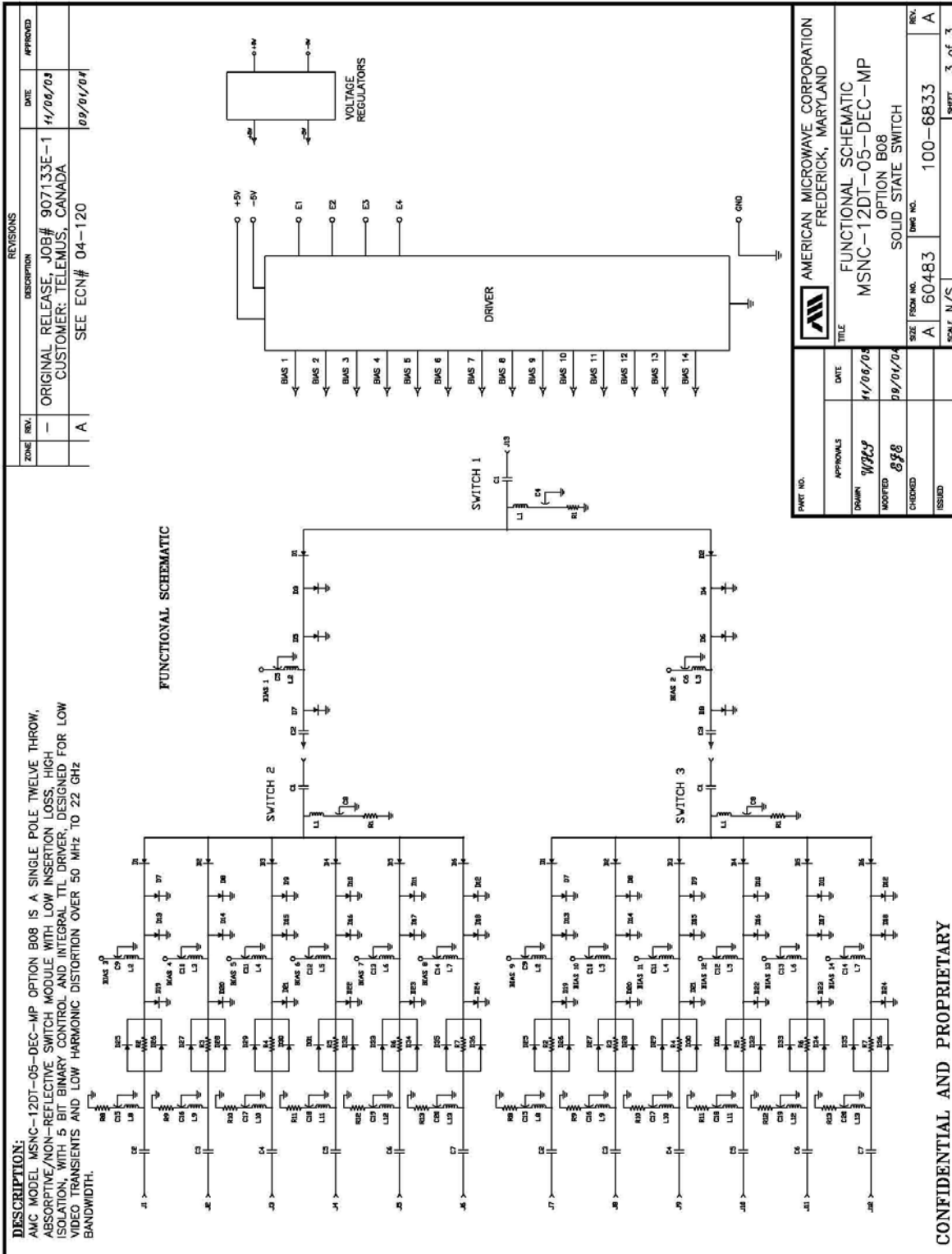
PRODUCT FEATURE
 MSNC-12DT-05-DEC-MP
 OPTION B08
 SOLID STATE SWITCH

DATE: 11/06/03
 DRAWN: WJL
 MODIFIED: JFS
 CHECKED: JFS
 ISSUED:

SIZE FROM NO. 100-6833
 A 60483
 SCALE: N/S
 SHEET 1 of 3



FUNCTIONAL SCHEMATIC



FINAL TEST DATA

AMC MODEL NO: MSNC-12DT-05-DEC-MP OPTIONS B08, SERIAL NUMBER: 12MS00301
 (PAGE 1)

FORM: 100-5139 19/10/00



AMERICAN MICROWAVE CORPORATION

DATE: 3/31/00

FINAL TEST DATA
 ON
 MICROWAVE SWITCH

CUSTOMER: TELEMUS
 JOB NO: 907133E-1
 MODEL NO: MSNC-12DT-05-DEC-MP
 SERIAL NO: 12MS00301

TECHNICIAN: PA
 OPTION NO: B08

CURRENT DRAW: +5 VDC @ 662 mA; -5 VDC @ 41 mA

FREQUENCY RANGE: 50 MHz - 22.0 GHz

INSERTION LOSS	RETURN LOSS					
	INPUT dB	INPUT VSWR	OUTPUT ON dB	OUTPUT ON VSWR	OUTPUT OFF dB	OUTPUT OFF VSWR
J13-J1 7.80 dB	8.00 dB	2.32 :1	8.72 dB	2.16 :1	9.59 dB	1.99 :1
J13-J2 7.69 dB	7.78 dB	2.38 :1	9.08 dB	2.08 :1	8.85 dB	2.13 :1
J13-J3 7.72 dB	8.26 dB	2.26 :1	8.33 dB	2.24 :1	12.38 dB	1.63 :1
J13-J4 7.90 dB	7.72 dB	2.40 :1	8.21 dB	2.27 :1	9.09 dB	2.08 :1
J13-J5 6.50 dB	7.84 dB	2.36 :1	7.59 dB	2.43 :1	9.34 dB	2.04 :1
J13-J6 7.12 dB	7.68 dB	2.41 :1	8.22 dB	2.27 :1	9.36 dB	2.03 :1
J13-J7 7.60 dB	8.34 dB	2.24 :1	8.73 dB	2.15 :1	9.47 dB	2.03 :1
J13-J8 6.58 dB	8.91 dB	2.12 :1	9.49 dB	2.01 :1	10.78 dB	1.81 :1
J13-J9 7.06 dB	7.91 dB	2.35 :1	6.50 dB	2.80 :1	9.45 dB	2.02 :1
J13-J10 5.95 dB	10.09 dB	1.91 :1	10.88 dB	1.80 :1	10.26 dB	1.89 :1
J13-J11 7.06 dB	8.74 dB	2.15 :1	8.37 dB	2.23 :1	10.01 dB	1.92 :1
J13-J12 6.52 dB	9.20 dB	2.06 :1	9.34 dB	2.04 :1	9.37 dB	2.03 :1



FINAL TEST DATA

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALL TIME
J13-J1 dB	240 nS	75 nS	90 nS	40 nS
J13-J2 dB	210 nS	100 nS	110 nS	30 nS
J13-J3 dB	220 nS	100 nS	120 nS	30 nS
J13-J4 dB	235 nS	80 nS	100 nS	35 nS
J13-J5 dB	210 nS	100 nS	210 nS	40 nS
J13-J6 dB	150 nS	50 nS	85 nS	30 nS
J13-J7 dB	200 nS	50 nS	100 nS	20 nS
J13-J8 dB	210 nS	90 nS	120 nS	45 nS
J13-J9 dB	205 nS	75 nS	115 nS	35 nS
J13-J10 dB	200 nS	90 nS	115 nS	40 nS
J13-J11 dB	215 nS	90 nS	115 nS	40 nS
J13-J12 dB	215 nS	90 nS	120 nS	35 nS

NOTE: Any additional test data on back

TESTED ON: HP 8722 D

PROGRAM MANAGER/SUPERVISOR APPROVAL: [Signature] DATED: 3/31/00

QA/QC APPROVAL: PA DATED: 3/31/00

VICE PRESIDENT/GENERAL MANAGER APPROVAL: [Signature] DATED: 3/31/00