



**TEST REPORT**  
**ON**  
**600 MHz TO 1300 MHz**  
**LOW LOSS**  
**HIGH ISOLATION**  
**REFLECTIVE**  
**SINGLE POLE TWO THROW SWITCH**

**AMC MODEL No:**  
**SWN-RAYR-2DR OPT. HPR2W, HS30NS,**  
**LVT25MV**

Serial Numbers: 2MS304154 AND 2MS304155

**DESIGNED**  
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**February 13, 2004**

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**ISO9001 : 1994 CERTIFIED**

*Handwritten signatures and initials:*  
JDT  
DRH  
WAS #8  
JKM  
LC

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**SINGLE POLE TWO THROW  
REFLECTIVE SWITCH MODULE  
AMC MODEL No:  
SWN-RAYR-2DR OPT. HPR2W, HS30NS, LVT25MV**

**FEATURES:**

- **600 MHz TO 1300 MHz FREQUENCY RANGE**
- **DESIGNED FOR LOW VIDEO TRANSIENT**
- **HIGH POWER**
- **HIGH ISOLATION**
- **LOW LOSS**
- **SMALL SIZE**

**SPECIFICATIONS:**

- |                       |                               |
|-----------------------|-------------------------------|
| ● FREQUENCY           | : 600 MHz TO 1300 MHz         |
| ● INSERTION LOSS      | : ≤ 2.0 dB                    |
| ● ISOLATION           | : ≥ 60 dB                     |
| ● VSWR (ALL PORTS)    | : ≥ 1.5:1                     |
| ● SWITCHING SPEED     | : ≤ 30 nS (50% TTL TO 90% RF) |
| ● POWER HANDLING      | : 2 WATTS MINIMUM             |
| ● TEMPERATURE         | : 0°C TO +45°C                |
| ● STORAGE TEMPERATURE | : -65°C TO +125°C             |
| ● CONNECTORS          | : SMA FEMALE                  |
| ● VIDEO LEAKAGE       | : 25 mV MAXIMUM, 10 mV GOAL   |
| ● POWER SUPPLY        | : ± 15 V OR ± 12 V @ ± 150 mA |



**PRODUCT FEATURE**

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		— ORIGINAL RELEASE JOB# 302017XE	02/05/04	

**DESCRIPTION:**  
 AMC MODEL SWN-RAYR-2DR, OPTION: HPR2W, HS30NS, LVT25MV IS A SINGLE POLE TWO THROW, REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR ULTRA LOW VIDEO TRANSIENT, HIGH POWER AND OPERATING BETWEEN 600 MHz TO 1300 MHz.

**SPECIFICATIONS:**

- FREQUENCY: 600MHz TO 1300MHz
- INSERTION LOSS: 2dB MAXIMUM
- ISOLATION: GOAL 1dB
- ISOLATION: 60 dB MINIMUM
- VSWR: 1.5:1
- SPEED: 30ns
- POWER HANDLING: 2 WATTS MINIMUM
- GOAL 4 WATTS
- TEMPERATURE: 0° TO 45° C
- CONNECTORS: SMA FEMALE
- VIDEO LEAKAGE: 25mV MAXIMUM
- GOAL 10mV
- POWER SUPPLY: ± 15V OR ± 12V @ ±150mA

**ENVIRONMENTAL RATINGS:**

- TEMPERATURE: -55°C TO +65°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 CYCLE: MIL-STD-202F, METHOD 107D COND. A

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

**CONFIDENTIAL AND PROPRIETARY**

PART NO.	APPROVALS	DATE	TITLE	AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND
		3/05/04	PRODUCT FEATURE	
			SWN-RAYR-2DR	
			OPT. HPR2W, HS30NS, LVT25MV	
			SIZE FROM NO.	REV.
			A 60483	100-6557
			SCALE N.S.	SHEET 1 of 3

**DESCRIPTION:**  
 AMC MODEL SWN-RAYR-2DR, OPTION: HPR2W, HS30NS, LVT25MV IS A SINGLE POLE TWO THROW, REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR ULTRA LOW VIDEO TRANSIENT, HIGH POWER AND OPERATING BETWEEN 600 MHz TO 1300 MHz.

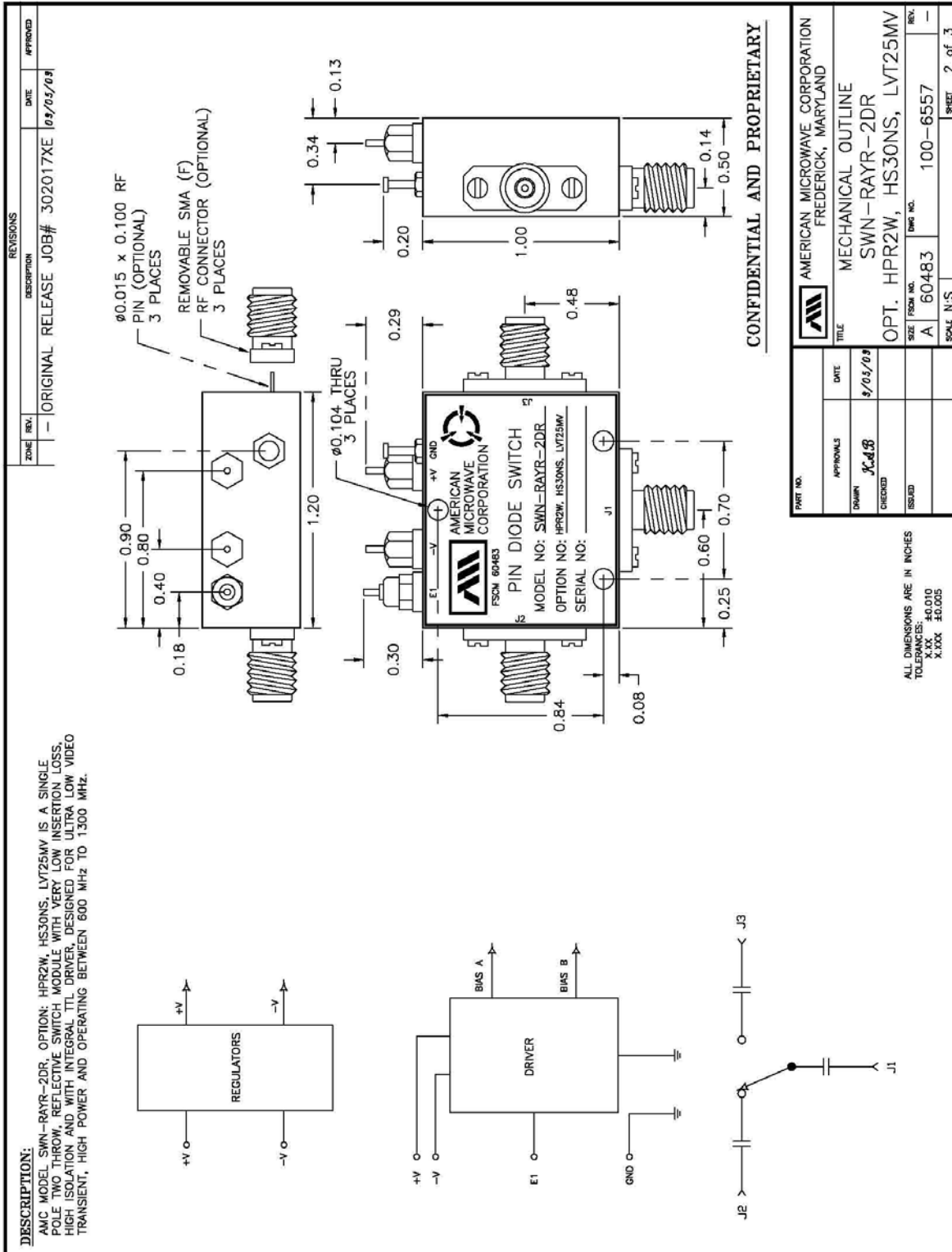
**SPECIFICATIONS:**

- FREQUENCY: 600MHz TO 1300MHz
- INSERTION LOSS: 2dB MAXIMUM
- ISOLATION: GOAL 1dB
- ISOLATION: 60 dB MINIMUM
- VSWR: 1.5:1
- SPEED: 30ns
- POWER HANDLING: 2 WATTS MINIMUM
- GOAL 4 WATTS
- TEMPERATURE: 0° TO 45° C
- CONNECTORS: SMA FEMALE
- VIDEO LEAKAGE: 25mV MAXIMUM
- GOAL 10mV
- POWER SUPPLY: ± 15V OR ± 12V @ ±150mA

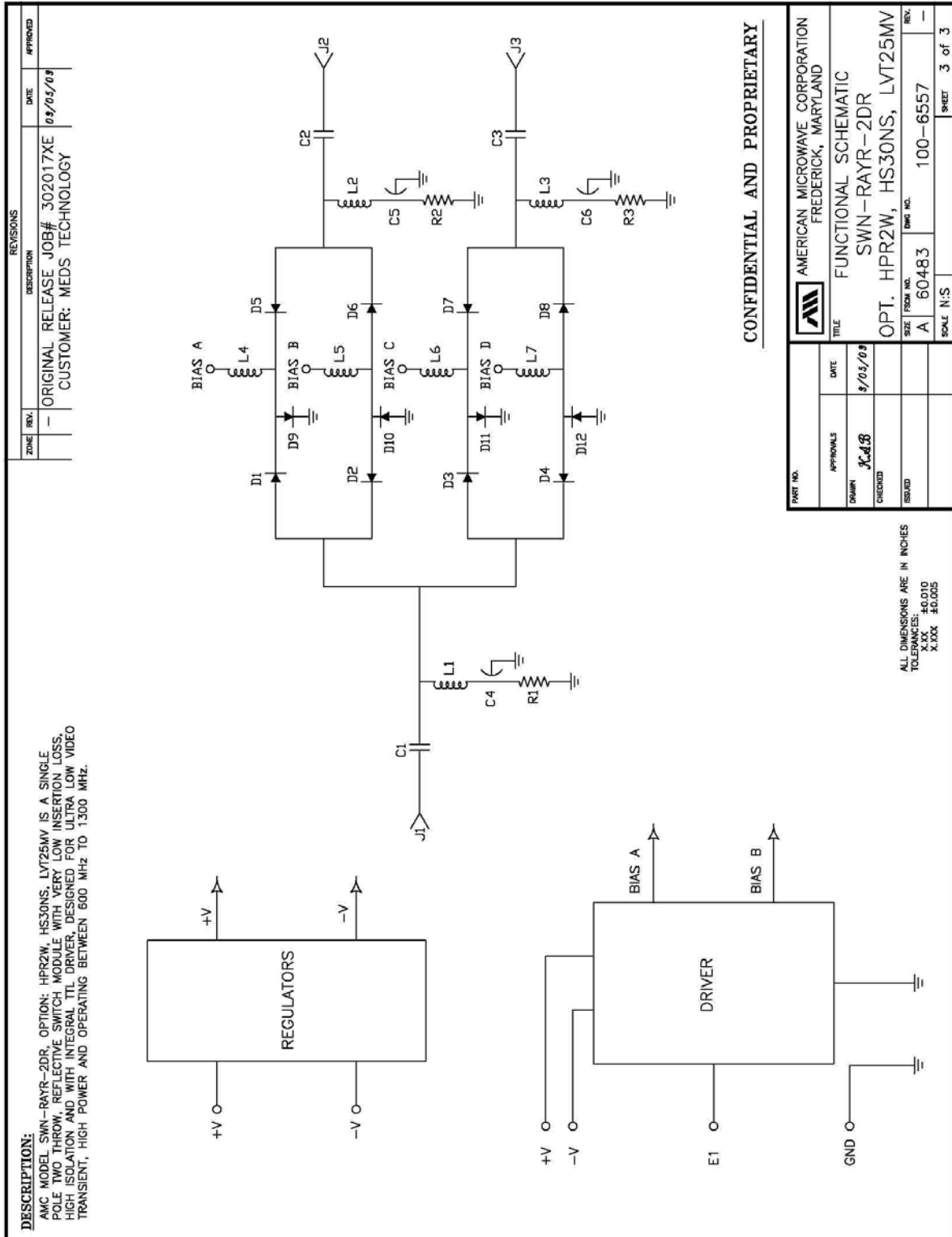
**BLOCK DIAGRAM:**



**MECHANICAL OUTLINE**



**FUNCTIONAL SCHEMATIC**



REVISIONS		DATE	APPROVED
ZONE	REV.	DESCRIPTION	
-	-	ORIGINAL RELEASE JOB# 302017XE CUSTOMER: MEDS TECHNOLOGY	08/05/08

**DESCRIPTION:**  
 AMC MODEL SWN-RAYR-2DR, OPTION: HPR2W, HS30NS, LVT25MV IS A SINGLE POLE TWO THROW, REFLECTIVE SWITCH MODULE WITH VERY LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR ULTRA LOW VIDEO TRANSIENT, HIGH POWER AND OPERATING BETWEEN 600 MHz TO 1300 MHz.

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PART NO.		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND	
APPROVALS	DATE	TITLE	
DRUMIN	8/05/08	FUNCTIONAL SCHEMATIC	
CHECKED		SWN-RAYR-2DR	
ISSUED		OPT. HPR2W, HS30NS, LVT25MV	
		SIZE FROM NO.	REV.
		A 60483	100-6557
		SCALE: N/S	SHEET 3 of 3

## FINAL TEST DATA

FINAL TEST DATA SHEETS

FOR

AMC MODEL NUMBER

**SWN-RAYR-2DR**  
Option HPR2W, HS30NS, LVT25MV

Serial Numbers:

**2MS304154 AND 2MS304155**







**FINAL TEST DATA**  
**AMC MODEL NO: SWN-RAYR-2DR OPT. HPR2W, HS30NS, LVT25MV**  
**SERIAL NO: 2MS304155**

FORM: 412-SW-DTA  
 DATE: 5-06-03



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**FINAL TEST DATA**  
**ON**  
**MICROWAVE SWITCH**

CUSTOMER: MEDS TECHNOLOGY      TECHNICIAN: T. PHONG  
 JOB NO: 302017XE  
 MODEL NO: SWN-RAYR-2DR      OPTION NO: HPR2W, HS30NS, LVT25MV  
 SERIAL NO: 2MS304155      SPECIFICATION:  
 CURRENT DRAW: +15 VDC @ 47mA; -15 VDC @ 46mA      FREQUENCY RANGE: 0.6 - 1.3 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>0.79</u> dB @ 0.6-1.3 GHz	<u>14.83</u> dB	<u>1.44</u> : 1	<u>14.94</u> dB	<u>1.44</u> : 1	-	-
J1-J3 <u>0.81</u> dB @ 0.6-1.3 GHz	<u>14.96</u> dB	<u>1.44</u> : 1	<u>15.41</u> dB	<u>1.41</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

ISOLATION	SWITCHING SPEED			
	DELAY ON	RISE TIME	DELAY OFF	FALLTIME
J1-J2 <u>75</u> dB @ 0.6-1.3 GHz	<u>29</u> nS	-	<u>28</u> nS	-
J1-J3 <u>74</u> dB @ 0.6-1.3 GHz	<u>29</u> nS	-	<u>28</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: HP 8722ES

QA/QC APPROVAL: Dwight V. Smith      Q2      DATED: 5/06/03