



TEST DATA

ON

40 MHz TO 4 GHz

AND

50 MHz TO 100 MHz

LOW INSERTION LOSS

HIGH ISOLATION

NON-REFLECTIVE/ABSORPTIVE

RECTANGULAR

SP3T

SOLID STATE SWITCH

AMC MODEL No:

MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

(Serial Number: 3MS809820)

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

DECEMBER 11, 2000

WEB PAGE: [HTTP://WWW.AMWAVE.COM](http://www.amwave.com)

E-MAIL ADDRESS: AMCPMI@AOL.COM

7311 G GROVE ROAD, FREDERICK, MARYLAND 21704 • Tel. (301) 662-4700 • Fax (301) 662-4938

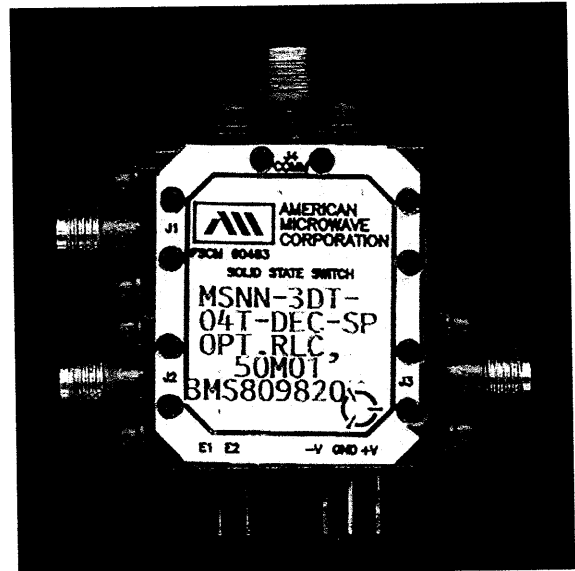


**AMERICAN MICROWAVE
CORPORATION**

**LOW INSERTION LOSS, HIGH
ISOLATION, RECTANGULAR SP3T
SOLID STATE SWITCH**

KEY FEATURES

- 50 MHz TO 100 MHz
- LOW INSERTION LOSS
- HIGH ISOLATION
- NON-REFLECTIVE/ABSORPTIVE
- TTL COMPATIBLE



AMC MODEL No: MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

SPECIFICATIONS: (NON-REFLECTIVE)

● FREQUENCY RANGE	:	50 MHz to 100 MHz (other frequencies available)
● INSERTION LOSS	:	1.2 dB MAX.
	:	0.85 dB TYP. @ 50 MHz
	:	0.85 dB TYP. @ 100 MHz
● ISOLATION	:	≥ 60 dB MIN.
	:	≥ 60 dB TYP. @ 50 MHz
	:	≥ 70 dB TYP. @ 100 MHz
● VSWR	:	1.75:1
● SWITCHING SPEED	:	"RISE" 20nS MAX., 10nS TYP.
	:	"FALL" 20nS MAX., 10nS TYP.
	:	"ON" 125nS MAX., 100nS TYP.
	:	"OFF" 125nS MAX., 100nS TYP.
● CONTROL	:	2 BIT DECODER
● VIDEO TRANSIENT	:	≤1.3V peak to peak @ 300 MHz
	:	≤830 mV peak to peak @ 20 MHz
● RF INPUT POWER	:	+20dBm (CW)(other power levels available)
● DC POWER SUPPLY	:	+5vdc @ 150mA MAX.
(Other supply voltages available)	:	-15vdc @ 100mA MAX.
● SIZE	:	1.0" (L) X 1.2" (W) X 0.4" (H)
● WEIGHT	:	≤1.5 oz. TYPICAL

DECEMBER 11, 2000

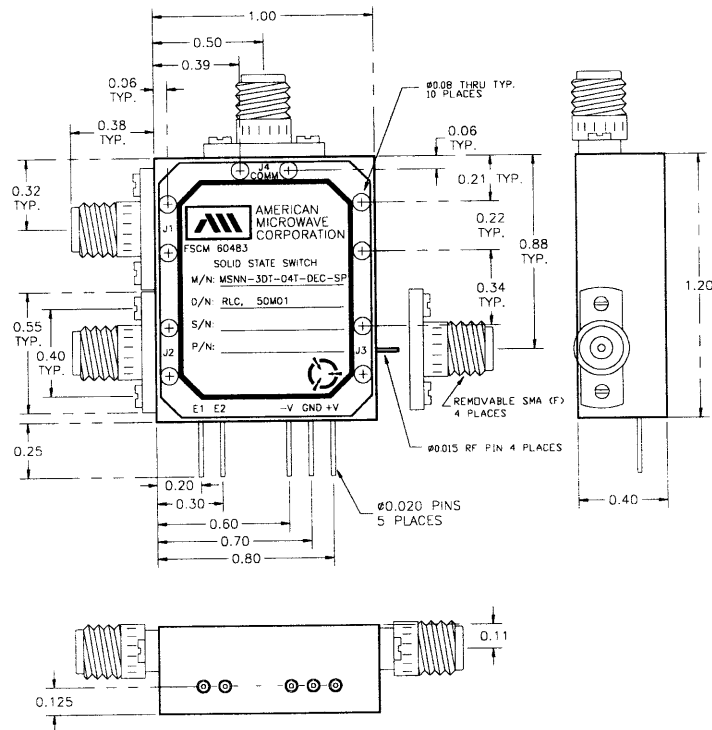
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SUMMARY TEST DATA

MODEL NUMBER
OPTION NUMBER
SERIAL NUMBER
ENGINEER
VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
: RLC, 50M01
: 3MS809820
: RENE AFABLE
: +5vdc @ 120.3mA; -15vdc @ 44.7mA



ALL DIMENSIONS ARE IN INCHES
TOLERANCES:

X.XX ±0.020
X.XXX ±0.010

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

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION.

DECEMBER 11, 2000

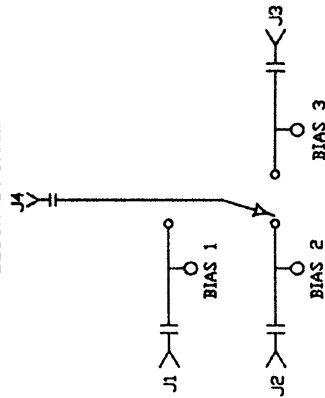
DESCRIPTION

AMC MODEL MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01 IS A SINGLE POLE THREE THROW NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH ISOLATION AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR 50 MHz TO 100 MHz OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 50 MHz TO 100 MHz
- INSERTION LOSS: 2.0dB MAXIMUM
- ISOLATION: 60dB MINIMUM
- VSWR: 1.5:1 MAXIMUM
- SWITCHING SPEED: 1μS MAXIMUM
- POWER HANDLING: +27 dBm MAXIMUM
- CONTROL: 2 LINE TTL
- POWER SUPPLY: +5V @ 150 mA MAXIMUM
-15V @ 100 mA MAXIMUM
- RF CONNECTORS: SMA FEMALE
- OPERATING TEMPERATURE: -20°C TO +70°C
- IMPEDANCE: 50 OHMS
- SIZE: 1.2" (L) x 1.0" (W) x 0.4" (H)
- WEIGHT: <1.5 OZ.

BLOCK DIAGRAM

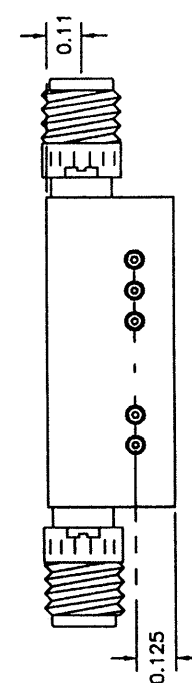
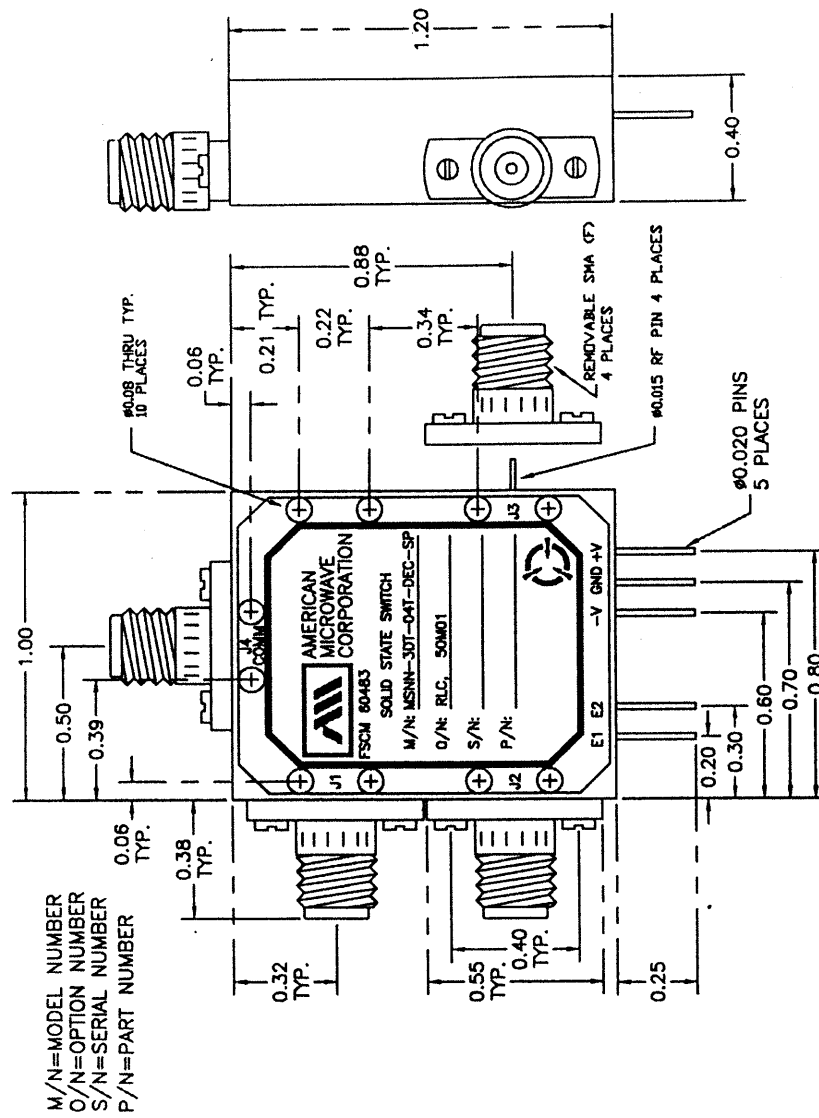


ENVIRONMENTAL RATINGS:

- TEMPERATURE: -20°C TO +70°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

ZONE	REV.	DESCRIPTION	DATE	APPROVED
		ORIGINAL JON# 80470-2E	12/14/00	



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

CONFIDENTIAL AND PROPRIETARY

PART NO.		DATE		TITLE	
APPROVALS		DATE		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND	
DRAWN	WJP & RRB	12/14/00	PRODUCT FEATURE		
CHECKED	JA	12/14/00	MSNN-3DT-04T-DEC-SP		
ISSUED	108	12/14/00	OPTIONS RLC, 50M01		
			SOLID STATE SWITCH		
			FORM NO.	DWG NO.	REV.
			A	60483	100-4391-3
					SHEET 1 of 3

DESCRIPTION

AMC MODEL MSNN-3DR/DT-03T-STANDARD IS A SINGLE POLE THREE THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 2.75db
ABSORPTIVE: 3.75db
- ISOLATION: 0.5 GHz TO 2 GHz: 60db
2 GHz TO 18 GHz: 70db
- VSWR: REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
REFLECTIVE OUT/OFF: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: RISE: 10ns TYPICAL, 15ns MAX.
FALL: 10ns TYPICAL, 15ns MAX.
DELAY ON: 75ns TYPICAL, 100ns MAX.
DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 μ SEC
- CONTROL: TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: +5V \bullet 150 mA MAX.
-5V \bullet 75mA MAX.(REFLECTIVE)
100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE: 1.2" (L) X 1.0" (W) X 0.3" (H)
- WEIGHT: 1.25 OZ. TYPICAL

OPTIONS:

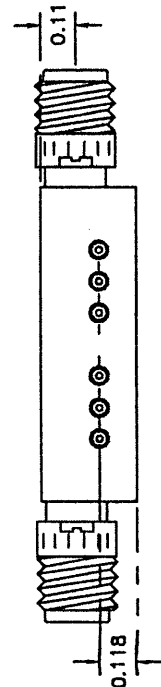
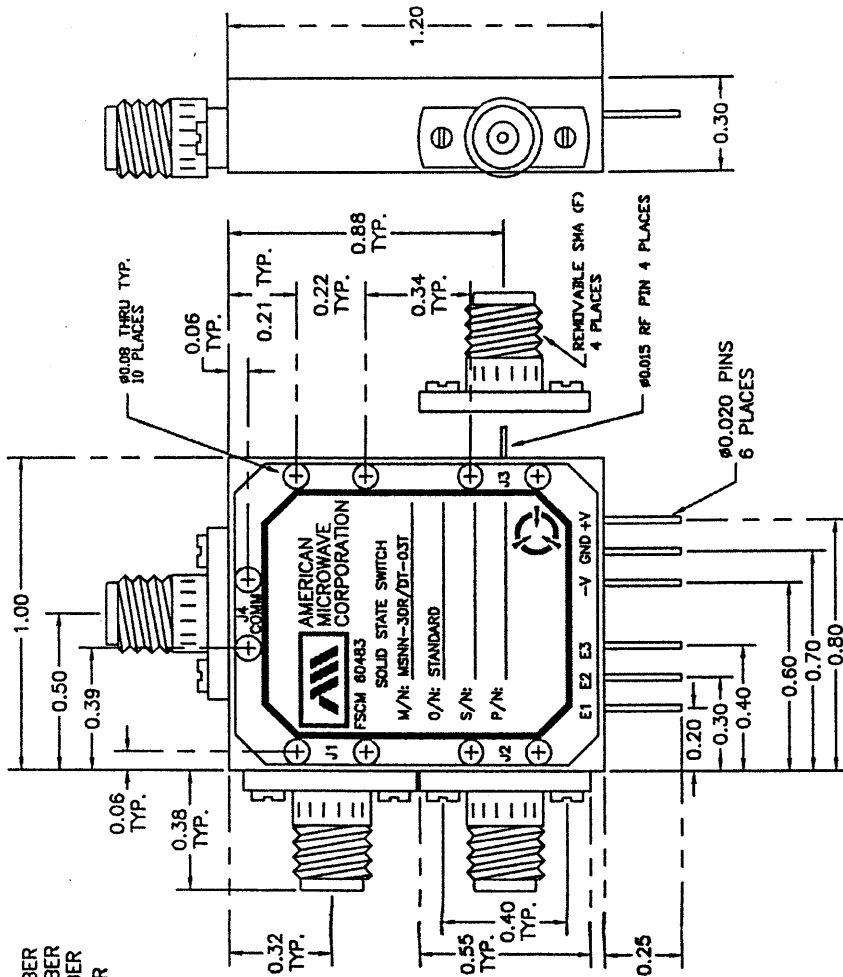
- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-SP 2 BIT DECODER WITH SOLDER PIN
- 10M18 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M18 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 118 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 218 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 418 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 618 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 1218 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 100M20 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 100 MHz AND 1.0db AT 20 GHz)
- 220 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- 1020 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- B01 -12V POWER SUPPLIES
- B02 -15V POWER SUPPLIES
- B03 REVERSE LOGIC "1"=ON "0"=OFF
- B04 DRIVERLESS, CURRENT CONTROLLED
- B05 HIGH SPEED, TURNOFF/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B06 HIGH POWER - SPECIFY CW POWER, PEAK POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B07 CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B08 LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B09 LOW INSERTION LOSS VERSION
- B10 HIGHER ISOLATION VERSION

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

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

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



NOTE:

- DR=WITH DRIVER, REFLECTIVE
- DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

CONFIDENTIAL AND PROPRIETARY

PART NO.		APPROVALS		DATE	REV.
DRAWN WJG & PRA		CHECKED DA		10/05/00	10/05/00
ISSUED DA		SCALE		100-4390-1	REV.
TITLE		PRODUCT FEATURE		MSNN-3DR/DT-03T-STANDARD REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SOLID STATE SWITCH	
FSCM NO.		SIZE		DRAWING NO.	
A		60483		100-4390-1	
AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND		SCALE		SHEET 1 of 3	

DESCRIPTION

AMC MODEL MSNN-3DR/DT-024T-STANDARD IS A SINGLE POLE THREE THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 2.75db
ABSORPTIVE: 3.75db
- ISOLATION: 0.5 GHz TO 2 GHz: 60db
2 GHz TO 18 GHz: 70db
- VSWR: REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: RISE: 10ns TYPICAL, 15ns MAX.
FALL: 10ns TYPICAL, 15ns MAX.
DELAY ON: 75ns TYPICAL, 100ns MAX.
DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 usec
- CONTROL: TTL LOGIC "0"=ON "1"=OFF
- POWER SUPPLY: +5V @ 150 mA MAX.
-5V @ 75mA MAX.(REFLECTIVE)
100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE: 1.2" (L) X 1.0" (W) X 0.24" (H)
- WEIGHT: 1.5 OZ. TYPICAL

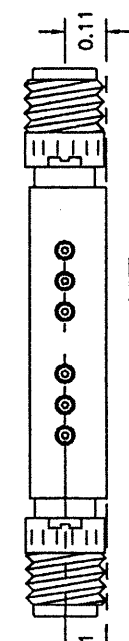
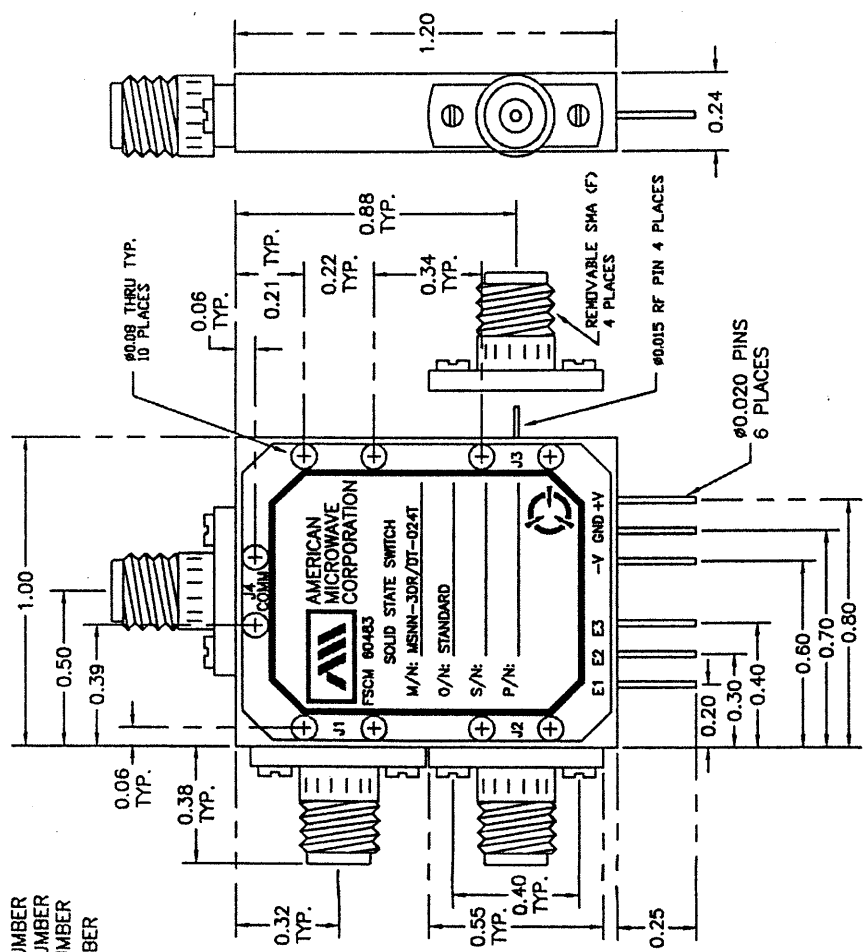
OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-SP 2 BIT DECODER WITH SOLDER PIN
- 10M18 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M18 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 118 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 218 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 412 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 618 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 1218 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 100M20 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
- 220 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- 1020 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- B01 -12V POWER SUPPLIES
- B02 -15V POWER SUPPLIES
- B03 REVERSE LOGIC "1"=ON "0"=OFF
- B04 DRIVERLESS, CURRENT CONTROLLED
- B05 HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B06 HIGH POWER - SPECIFY CW POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B07 CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B08 LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B09 LOW INSERTION LOSS VERSION
- B10 HIGHER ISOLATION VERSION

ENVIRONMENTAL RATINGS:

- TEMPERATURE: -55C TO +85C (OPERATING)
-65C TO +125C (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



NOTE:

- DR=WITH DRIVER, REFLECTIVE
- DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

CONFIDENTIAL AND PROPRIETARY

PART NO.		APPROVALS		DATE	
DRAWN		WSP & B.R.A.		10/09/00	
CHECKED		[Signature]		10/9/00	
ISSUED		[Signature]		10/12/00	
TITLE		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND			
PRODUCT FEATURE		MSNN-3DR/DT-024T-STANDARD REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SOLID STATE SWITCH			
SIZE	FSCM NO.	DWG NO.	REV.		
A	60483	100-4389-1	1 of 3		

DESCRIPTION

AMC MODEL MSNN-3DR/DT-024T-DEC-SP IS A SINGLE POLE THREE THROW, REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SWITCH MODULE WITH LOW INSERTION LOSS, HIGH SPEED AND WITH INTEGRAL TTL DRIVER, DESIGNED FOR BROAD BAND OPERATIONS.

SPECIFICATIONS:

- FREQUENCY: 0.5 GHz TO 18 GHz
- INSERTION LOSS: REFLECTIVE: 2.75db
ABSORPTIVE: 3.75db
- ISOLATION: 0.5 GHz TO 2 GHz: 60db
2 GHz TO 18 GHz: 70db
- VSWR: REFLECTIVE IN/OUT: 2.0:1
ABSORPTIVE IN/OUT: 2.0:1
REFLECTIVE OUT/OFF: 2.0:1
ABSORPTIVE OUT/OFF: 2.0:1
- SPEED: RISE: 10ns TYPICAL, 15ns MAX.
FALL: 10ns TYPICAL, 15ns MAX.
DELAY ON: 75ns TYPICAL, 100ns MAX.
DELAY OFF: 75ns TYPICAL, 100ns MAX.
- POWER INPUT: (CW)+20dBm (STANDARD), +10 dBm (HIGH SPEED)
- SURVIVAL POWER: 1 WATT CW, 10 WATTS PEAK 1 USEC
- CONTROL: 2 BIT LOGIC
- POWER SUPPLY: +5V @ 150 mA MAX.
-5V @ 75mA MAX.(REFLECTIVE)
100mA MAX.(ABSORPTIVE/NON-REFLECTIVE)
- SIZE: 1.2" (L) X 1.0" (W) X 0.24" (H)
- WEIGHT: 1.25 OZ. TYPICAL

OPTIONS:

- INDEPENDENT CONTROL WITH SOLDER PIN STANDARD
- DEC-SP: 2 BIT DECODER WITH SOLDER PIN
- 10M18: 10 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 10 MHz AND 0.5db AT 18 GHz)
- 100M18: 100 MHz TO 18 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 0.5db AT 18 GHz)
- 118: 1 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 218: 2 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 412: 4 GHz TO 12.4 GHz (NO CHANGE IN INSERTION LOSS)
- 618: 6 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 1218: 12 GHz TO 18 GHz (NO CHANGE IN INSERTION LOSS)
- 100M20: 100 MHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.5db AT 100 MHz AND 1.0db AT 20 GHz)
- 220: 2 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)
- 1020: 10 GHz TO 20 GHz (INSERTION LOSS INCREASES BY 1.0db AT 20 GHz)

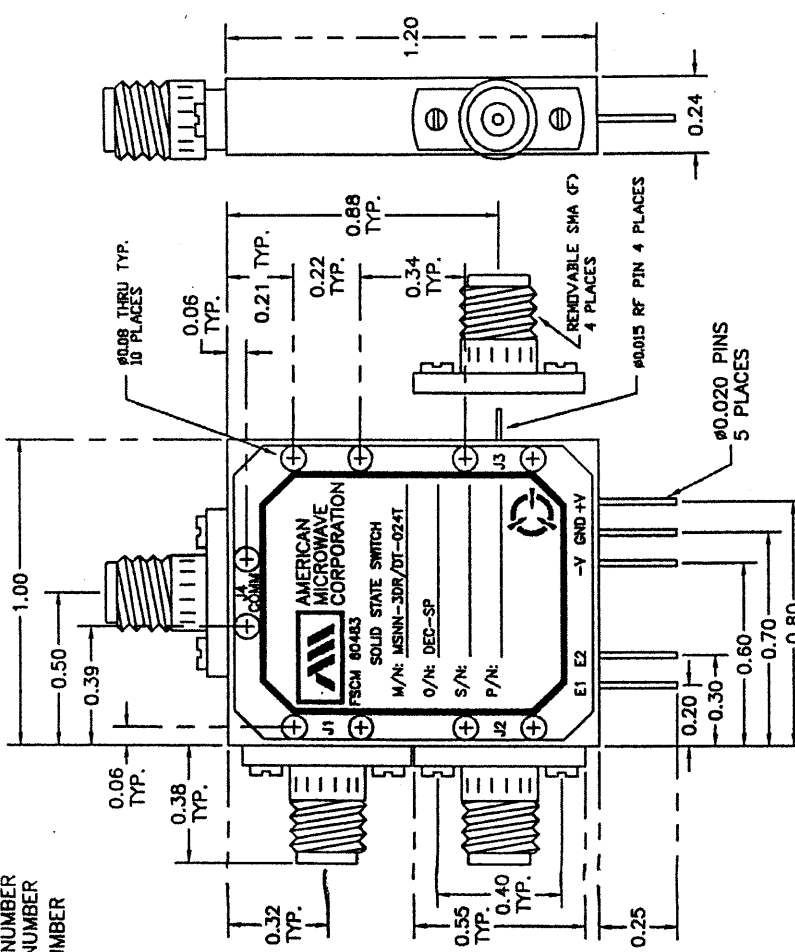
- B01: -12V POWER SUPPLIES
- B02: -15V POWER SUPPLIES
- B03: REVERSE LOGIC "1"-ON "0"-OFF
- B04: DRIVERLESS, CURRENT CONTROLLED
- B05: HIGH SPEED, TURNON/TURNOFF 20 nsec MAXIMUM WHEN APPLICABLE OR OPTION HS
- B06: HIGH POWER - SPECIFY CW POWER, PULSE WIDTH, DUTY CYCLE, RF FREQUENCY AND BANDWIDTH
- B07: CUSTOM DESIGNED PRODUCT - SPECIFY INITIALS OF CUSTOMER
- B08: LOW VIDEO TRANSIENTS - SPECIFY VIDEO BANDWIDTH
- B09: LOW INSERTION LOSS VERSION
- B10: HIGHER ISOLATION VERSION

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

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

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



NOTE:

- DR=WITH DRIVER, REFLECTIVE
- DT=WITH DRIVER, NON-REFLECTIVE/ABSORPTIVE

CONFIDENTIAL AND PROPRIETARY

PART NO.		APPROVALS		DATE		TITLE	
		J.P.P. & R.P.A.		10/03/00		AMERICAN MICROWAVE CORPORATION FREDERICK, MARYLAND	
DRAWN		CHECKED		ISSUED		PRODUCT FEATURE	
MSNN-3DR/DT-024T-DEC-SP		10/03/00		10/03/00		REFLECTIVE OR NON-REFLECTIVE/ABSORPTIVE SOLID STATE SWITCH	
SIZE		FSCM NO.		DWG. NO.		REV.	
A		60483		100-4389-2		1 of 3	



TEST DATA

FROM

40 MHz TO 4 GHz

LOW INSERTION LOSS

HIGH ISOLATION

NON-REFLECTIVE/ABSORPTIVE

RECTANGULAR

SP3T

SOLID STATE SWITCH

AMC MODEL No:

MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

(Serial Number: 3MS809820)

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

DECEMBER 11, 2000

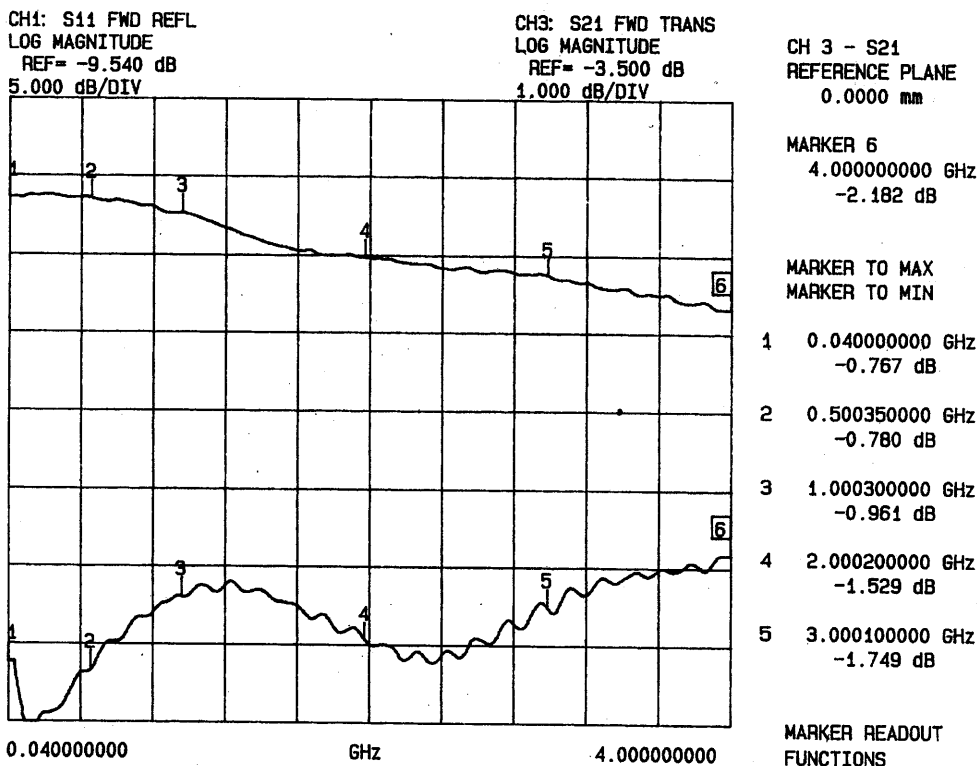


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J1



*J4: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	0.76 dB	25.66 dB
500 MHz	0.78 dB	26.13 dB
1.0 GHz	0.96 dB	21.45 dB
2.0 GHz	1.52 dB	24.24 dB
3.0 GHz	1.74 dB	22.05 dB
4.0 GHz	2.18 dB	18.64 dB

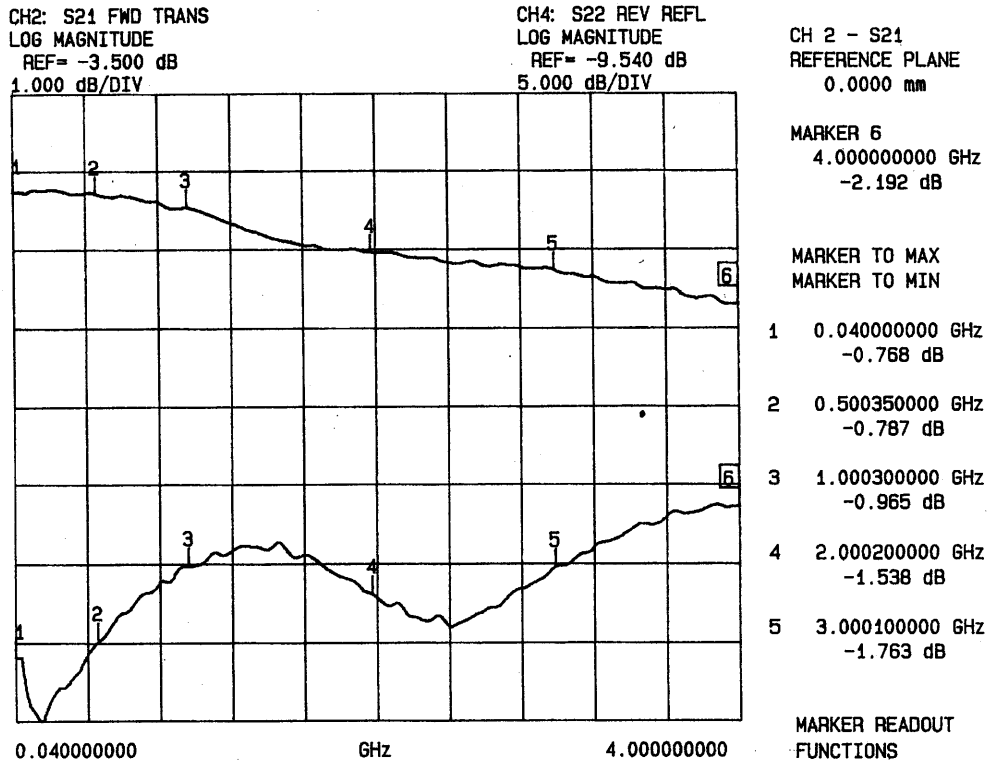


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J1-J4



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	0.76 dB	25.47 dB
500 MHz	0.78 dB	24.38 dB
1.0 GHz	0.96 dB	19.66 dB
2.0 GHz	1.53 dB	21.47 dB
3.0 GHz	1.76 dB	19.70 dB
4.0 GHz	2.19 dB	15.90 dB

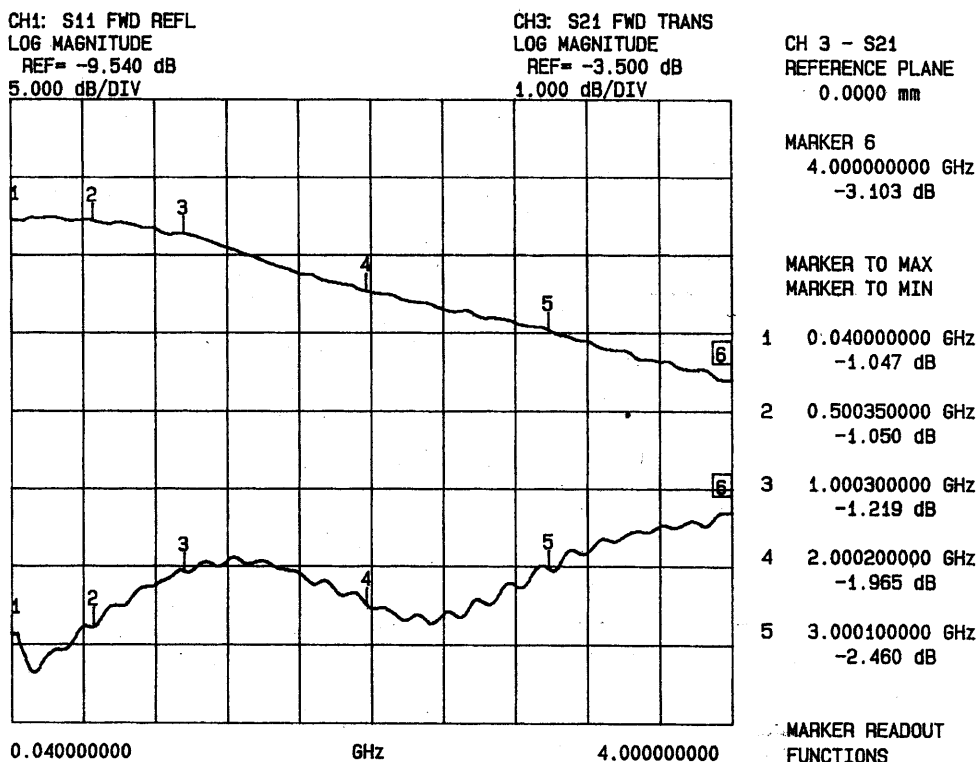


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J2



*J4: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	1.04 dB	23.85 dB
500 MHz	1.05 dB	23.35 dB
1.0 GHz	1.21 dB	19.86 dB
2.0 GHz	1.96 dB	22.04 dB
3.0 GHz	2.46 dB	19.66 dB
4.0 GHz	3.10 dB	16.06 dB

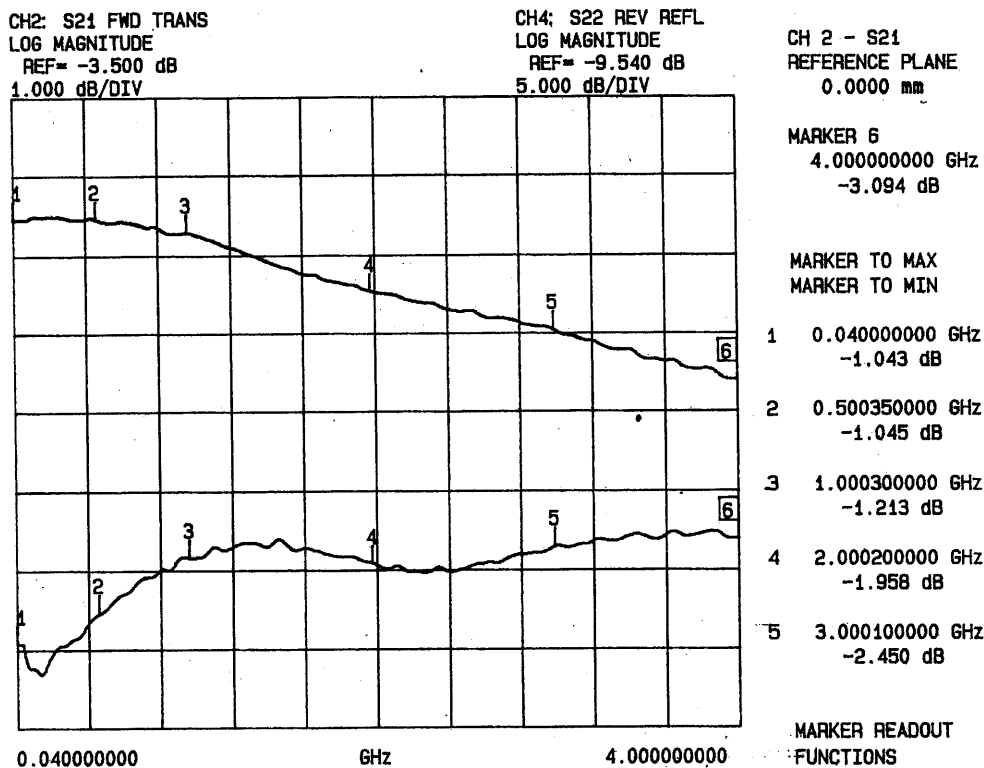


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J2-J4



*J2: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	1.04 dB	24.15 dB
500 MHz	1.05 dB	22.20 dB
1.0 GHz	1.21 dB	18.71 dB
2.0 GHz	1.95 dB	19.07 dB
3.0 GHz	2.45 dB	18.01 dB
4.0 GHz	3.09 dB	17.52 dB



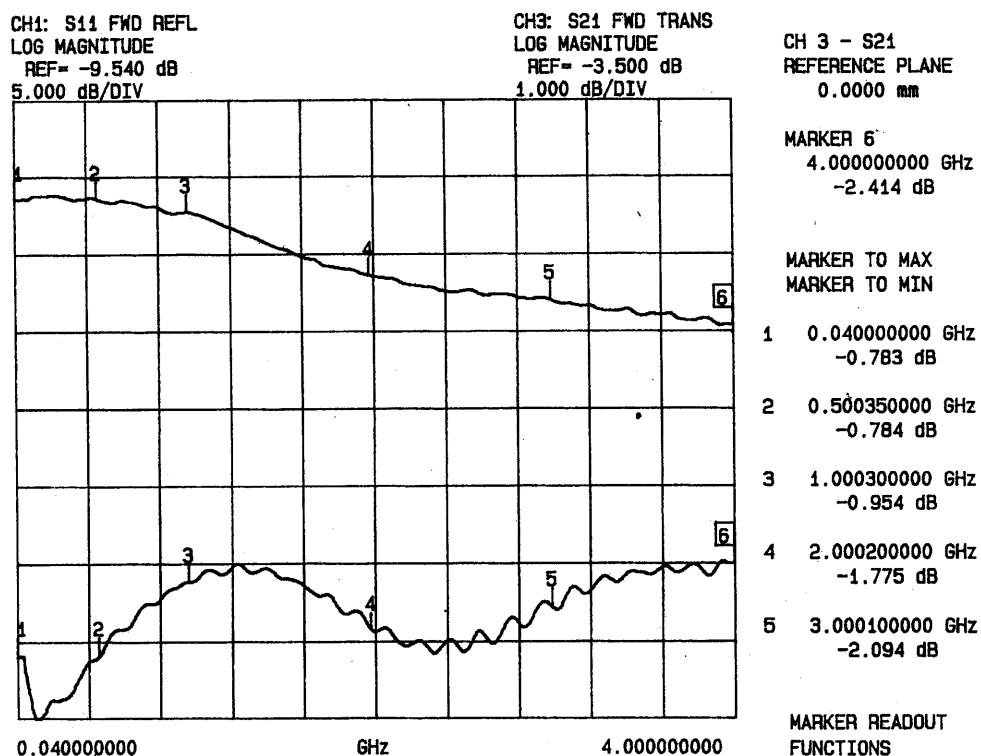
SUMMARY TEST DATA

MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
 : RLC, 50M01
 : 3MS809820
 : RENE AFABLE
 : +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J3



*J4: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	0.78 dB	25.45 dB
500 MHz	0.78 dB	25.40 dB
1.0 GHz	0.95 dB	20.64 dB
2.0 GHz	1.77 dB	23.79 dB
3.0 GHz	2.09 dB	22.29 dB
4.0 GHz	2.41 dB	19.49 dB

DECEMBER 11, 2000

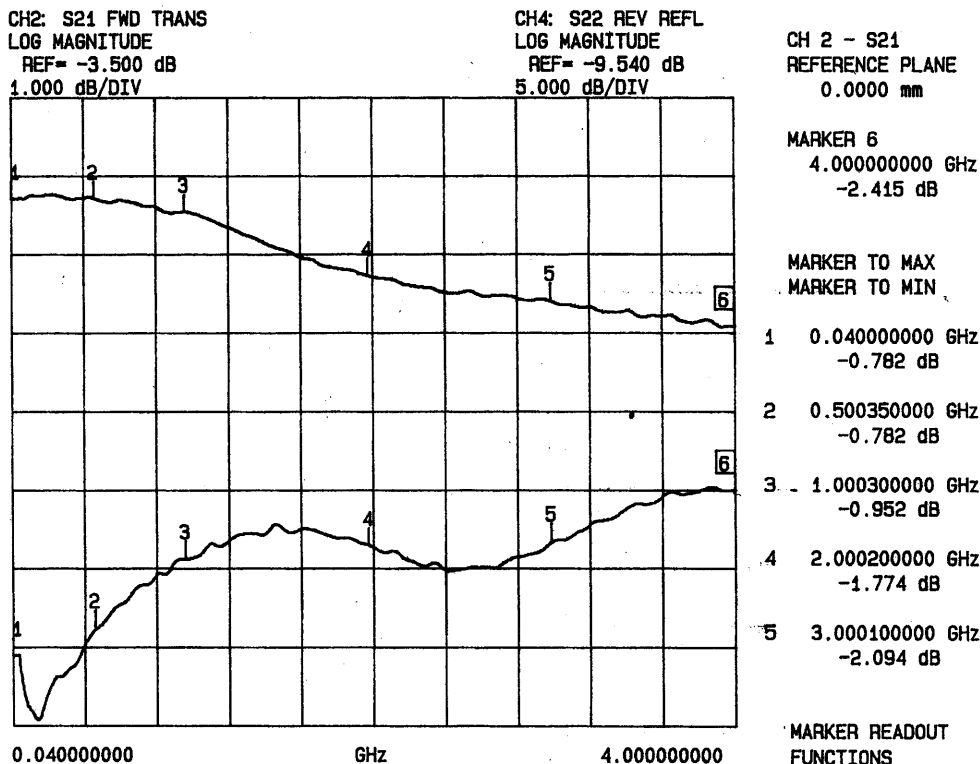
PAGE 16



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS* J3-J4



*J3: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
40 MHz	0.78 dB	25.08 dB
500 MHz	0.78 dB	23.34 dB
1.0 GHz	0.95 dB	18.93 dB
2.0 GHz	1.77 dB	18.03 dB
3.0 GHz	2.09 dB	17.81 dB
4.0 GHz	2.41 dB	14.49 dB



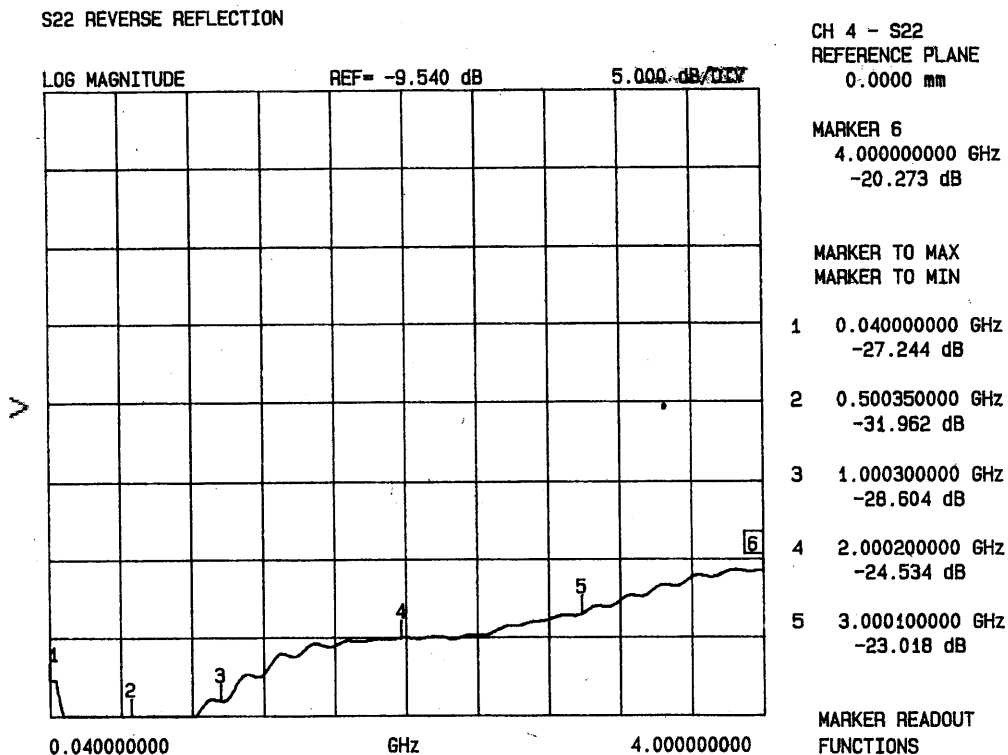
SUMMARY TEST DATA

MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
 : RLC, 50M01
 : 3MS809820
 : RENE AFABLE
 : +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J1



*J1: INPUT ARM

FREQUENCY	RETURN LOSS
40 MHz	27.2 dB
500 MHz	31.9 dB
1.0 GHz	28.6 dB
2.0 GHz	24.5 dB
3.0 GHz	23.0 dB
4.0 GHz	20.2 dB

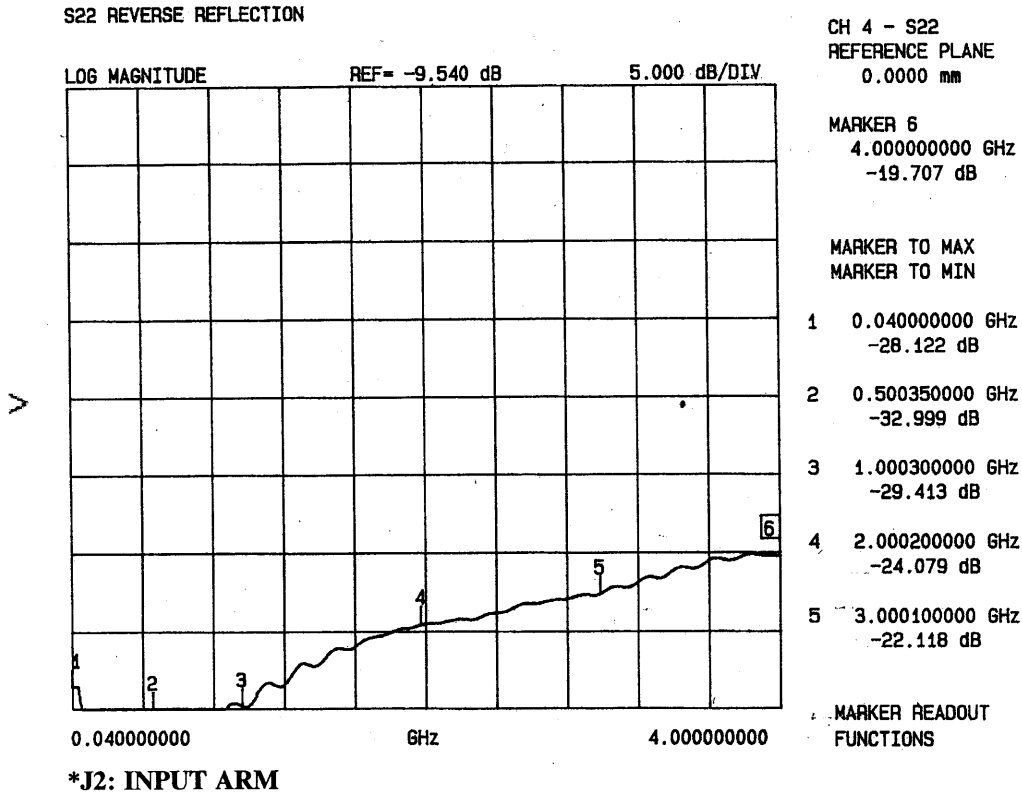


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J2



FREQUENCY	RETURN LOSS
40 MHz	28.1 dB
50 MHz	32.9 dB
1.0 GHz	29.4 dB
2.0 GHz	24.0 dB
3.0 GHz	22.1 dB
4.0 GHz	19.7 dB



SUMMARY TEST DATA

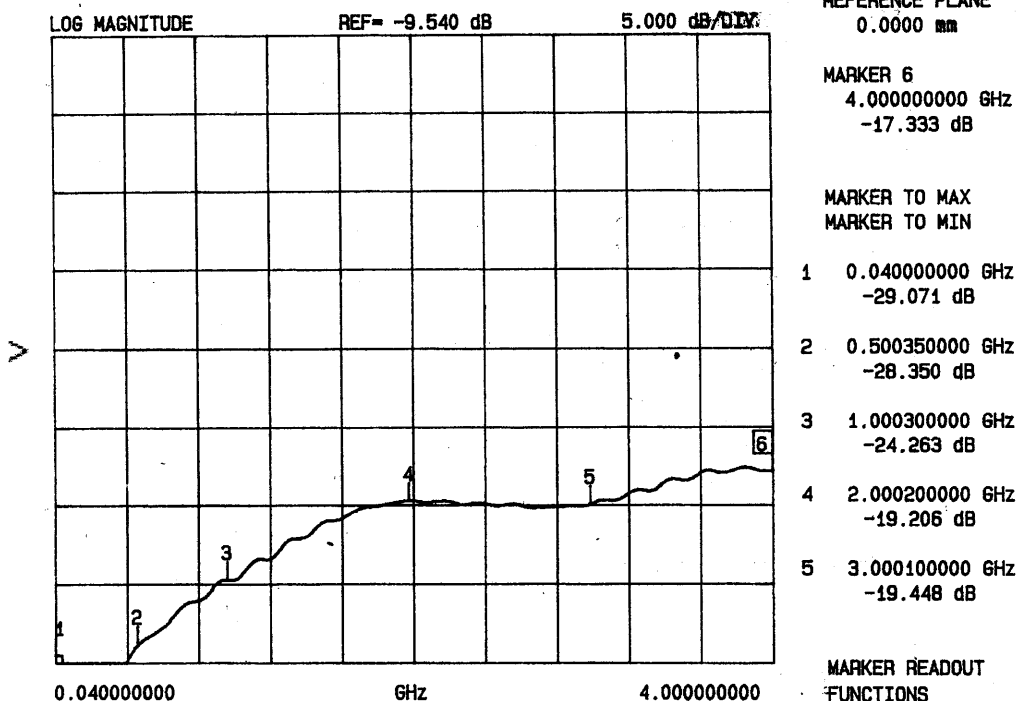
MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
 : RLC, 50M01
 : 3MS809820
 : RENE AFABLE
 : +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J3

S22 REVERSE REFLECTION



*J3: INPUT ARM

FREQUENCY	RETURN LOSS
40 MHz	29.0 dB
50 MHz	28.3 dB
1.0 GHz	24.2 dB
2.0 GHz	19.2 dB
3.0 GHz	19.4 dB
4.0 GHz	17.3 dB



TEST DATA

FROM

50 MHz TO 100 MHz

LOW INSERTION LOSS

HIGH ISOLATION

NON-REFLECTIVE/ABSORPTIVE

RECTANGULAR

SP3T

SOLID STATE SWITCH

AMC MODEL No:

MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

(Serial Number: 3MS809820)

PREPARED

BY

KATIE BAISEY

TESTED

BY

RENE AFABLE

DECEMBER 11, 2000



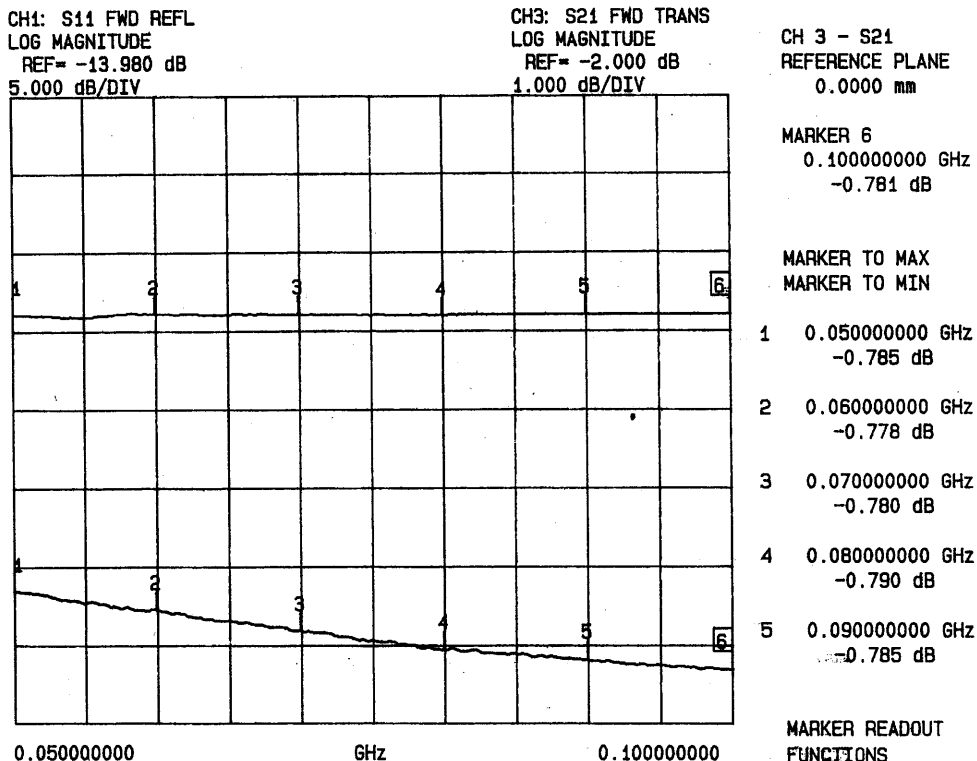
SUMMARY TEST DATA

MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
 : RLC, 50M01
 : 3MS809820
 : RENE AFABLE
 : +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J1



*J4: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	0.78 dB	25.51 dB
60 MHz	0.77 dB	26.71 dB
70 MHz	0.78 dB	28.05 dB
80 MHz	0.79 dB	29.23 dB
90 MHz	0.78 dB	29.88 dB
100 MHz	0.78 dB	30.48 dB

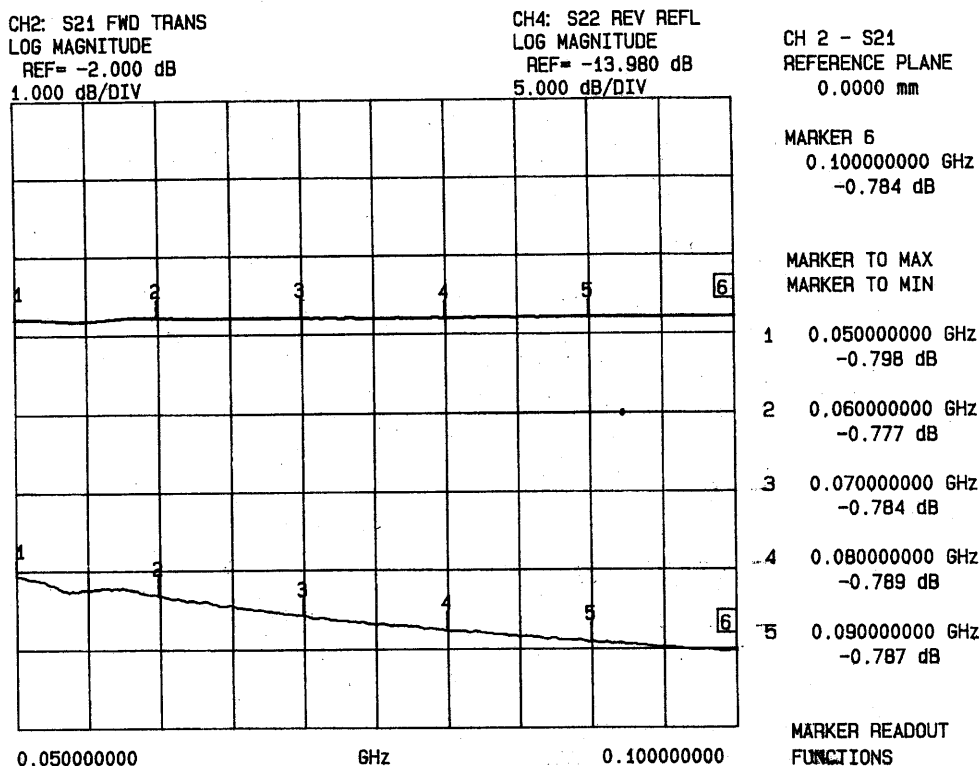


SUMMARY TEST DATA

MODEL NUMBER
 OPTION NUMBER
 SERIAL NUMBER
 ENGINEER
 VOLTAGE & CURRENT DRAW

: MSNN-3DT-04T-DEC-SP
 : RLC, 50M01
 : 3MS809820
 : RENE AFABLE
 : +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS* J1-J4



*J1: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	0.79 dB	24.37 dB
60 MHz	0.77 dB	25.58 dB
70 MHz	0.78 dB	26.87 dB
80 MHz	0.78 dB	27.80 dB
90 MHz	0.78 dB	28.52 dB
100 MHz	0.78 dB	29.13 dB

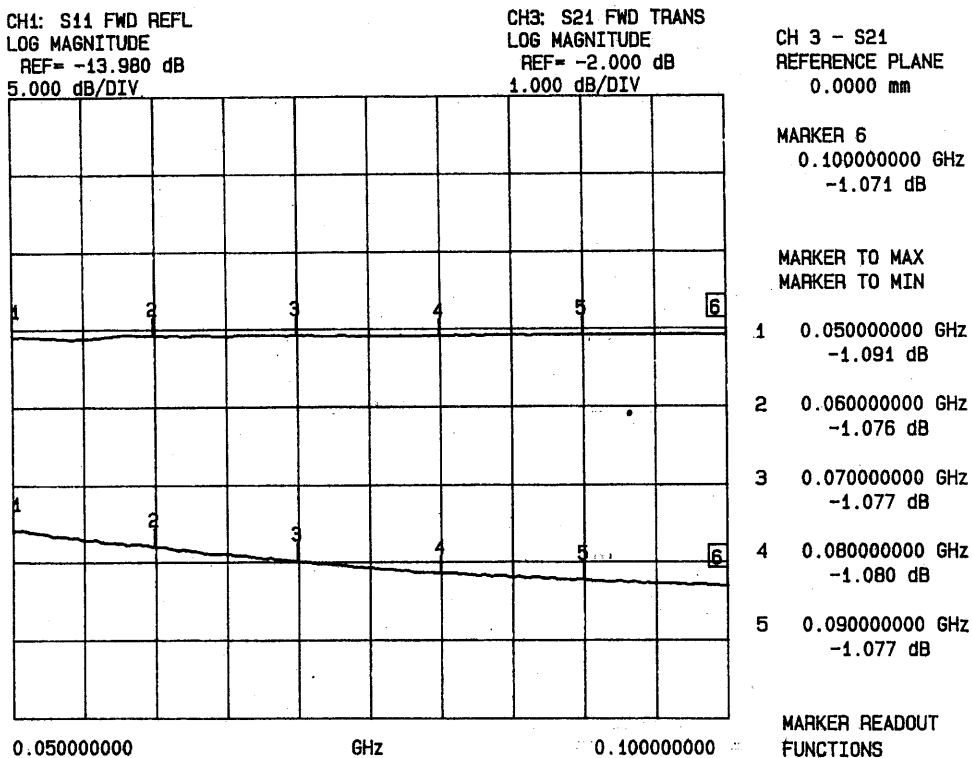


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J2



*J4: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	1.09 dB	21.89 dB
60 MHz	1.07 dB	22.97 dB
70 MHz	1.07 dB	23.91 dB
80 MHz	1.08 dB	24.70 dB
90 MHz	1.07 dB	25.10 dB
100 MHz	1.07 dB	25.49 dB

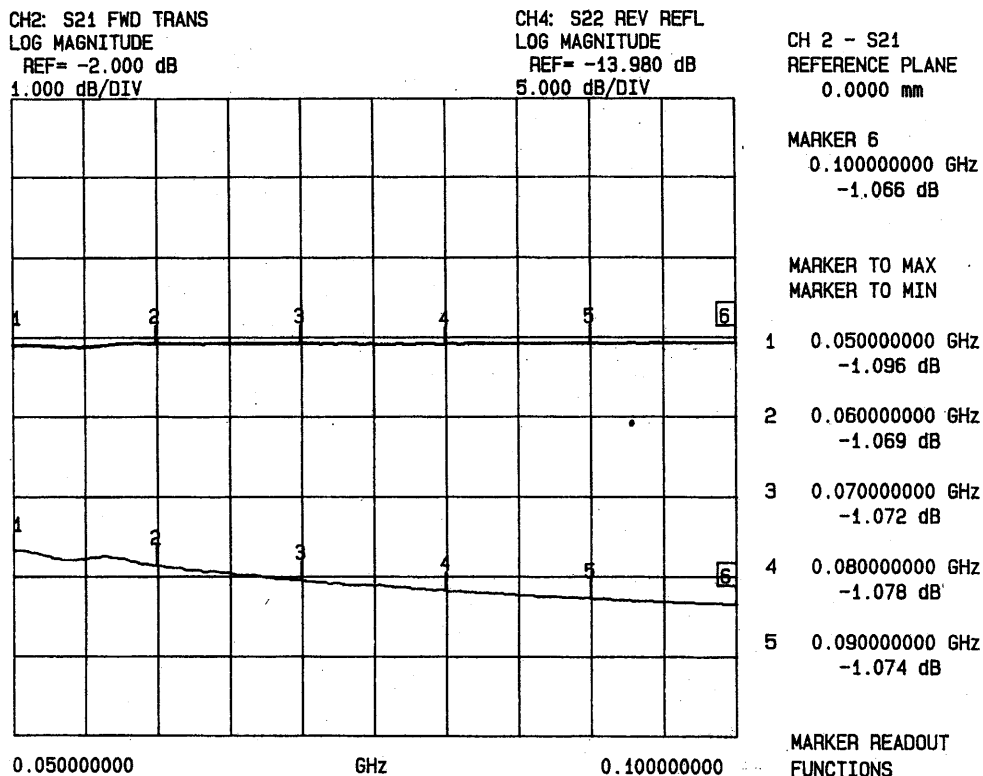


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J2-J4



*J2: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	1.09 dB	22.36 dB
60 MHz	1.06 dB	23.28 dB
70 MHz	1.07 dB	24.22 dB
80 MHz	1.07 dB	24.87 dB
90 MHz	1.07 dB	25.35 dB
100 MHz	1.06 dB	25.68 dB

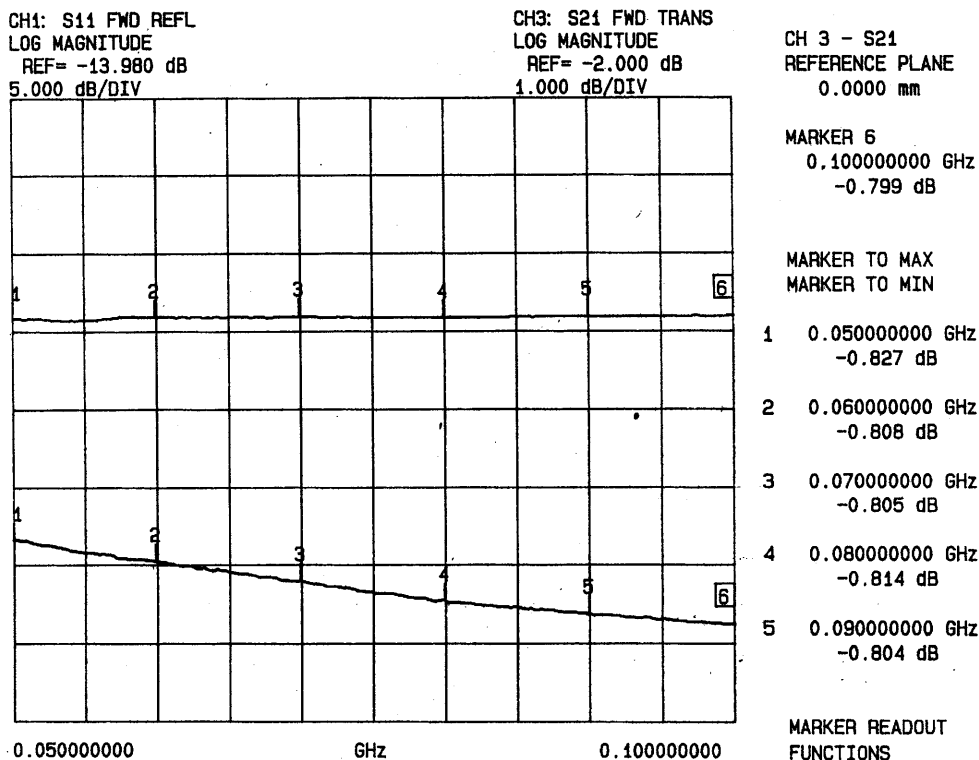


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS*

J4-J3



*J4: INPUT ARM

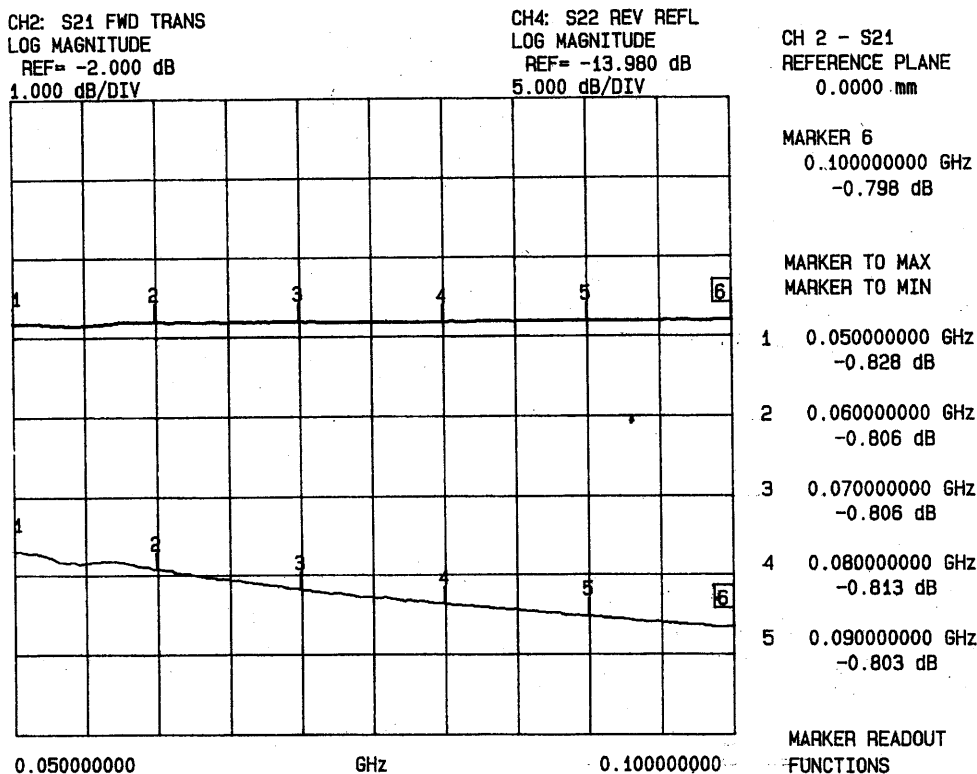
FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	0.82 dB	22.36 dB
60 MHz	0.80 dB	23.73 dB
70 MHz	0.80 dB	25.02 dB
80 MHz	0.81 dB	26.26 dB
90 MHz	0.80 dB	27.10 dB
100 MHz	0.79 dB	27.75 dB



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

INSERTION LOSS & RETURN LOSS* J3-J4



*J3: INPUT ARM

FREQUENCY	INSERTION LOSS	RETURN LOSS
50 MHz	0.82 dB	22.43 dB
60 MHz	0.80 dB	23.62 dB
70 MHz	0.80 dB	24.92 dB
80 MHz	0.81 dB	25.83 dB
90 MHz	0.80 dB	26.61 dB
100 MHz	0.79 dB	27.26 dB



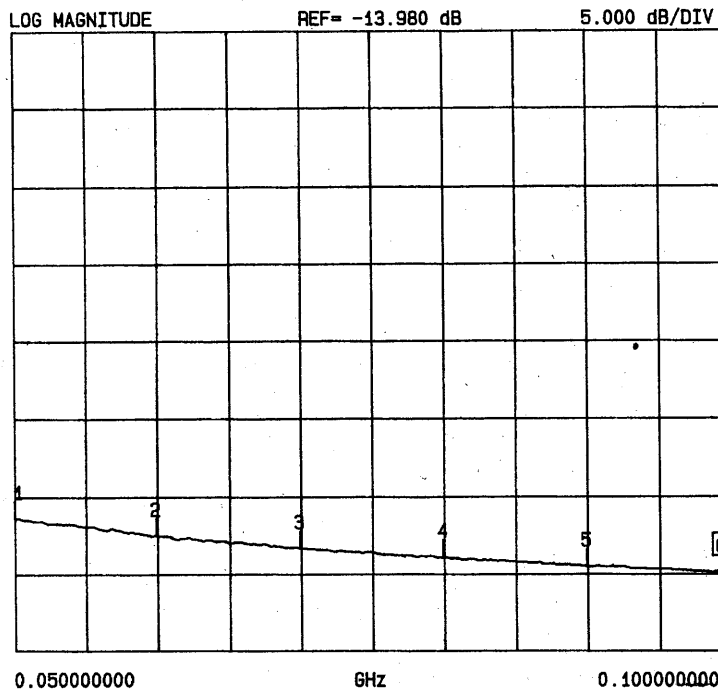
SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J1

S22 REVERSE REFLECTION



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 6
0.100000000 GHz
-28.895 dB

MARKER TO MAX
MARKER TO MIN

- 1 0.050000000 GHz
-25.360 dB
- 2 0.060000000 GHz
-26.474 dB
- 3 0.070000000 GHz
-27.310 dB
- 4 0.080000000 GHz
-27.906 dB
- 5 0.090000000 GHz
-28.503 dB

MARKER READOUT
FUNCTIONS

*J1: INPUT ARM

FREQUENCY	RETURN LOSS
50 MHz	25.3 dB
60 MHz	26.4 dB
70 MHz	27.3 dB
80 MHz	27.9 dB
90 MHz	28.5 dB
100 MHz	28.8 dB



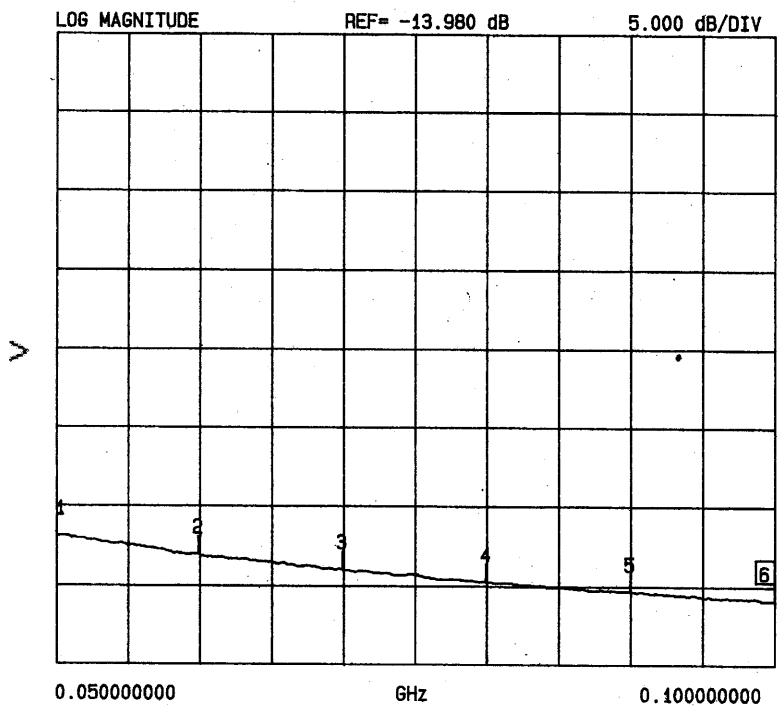
SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J2

S22 REVERSE REFLECTION



CH 4 - S22
REFERENCE PLANE
0.0000 mm

MARKER 6
0.100000000 GHz
-29.880 dB

MARKER TO MAX
MARKER TO MIN

- 1 0.050000000 GHz
-25.839 dB
- 2 0.060000000 GHz
-27.055 dB
- 3 0.070000000 GHz
-27.963 dB
- 4 0.080000000 GHz
-28.714 dB
- 5 0.090000000 GHz
-29.321 dB

MARKER READOUT
FUNCTIONS

*J2: INPUT ARM

FREQUENCY	RETURN LOSS
50 MHz	25.8 dB
60 MHz	27.0 dB
70 MHz	27.9 dB
80 MHz	28.7 dB
90 MHz	29.3 dB
100 MHz	29.8 dB



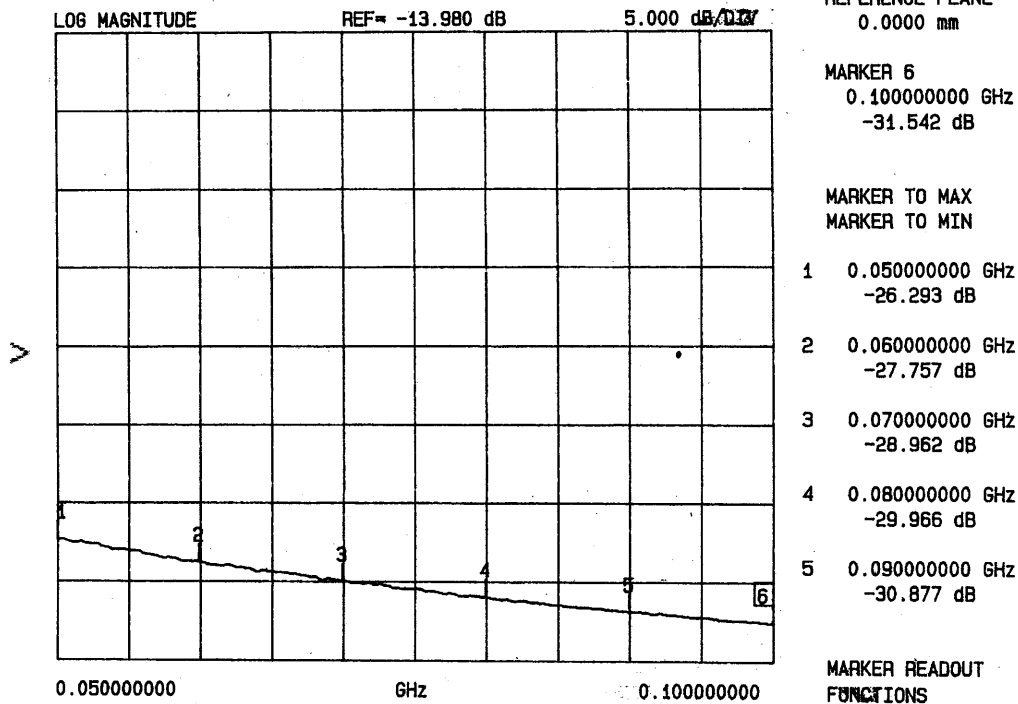
SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

OFF ARM TERMINATION*

J3

S22 REVERSE REFLECTION



*J3: INPUT ARM

FREQUENCY	RETURN LOSS
50 MHz	26.2 dB
60 MHz	27.7 dB
70 MHz	28.9 dB
80 MHz	29.9 dB
90 MHz	30.8 dB
100 MHz	31.5 dB



**AMPLITUDE
DATA
BETWEEN
PORT TO PORT
FROM
40 MHz TO 4 GHz
ON A
SP3T
SOLID STATE SWITCH**

**AMC MODEL No:
MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01
(Serial Number: 3MS809820)**

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

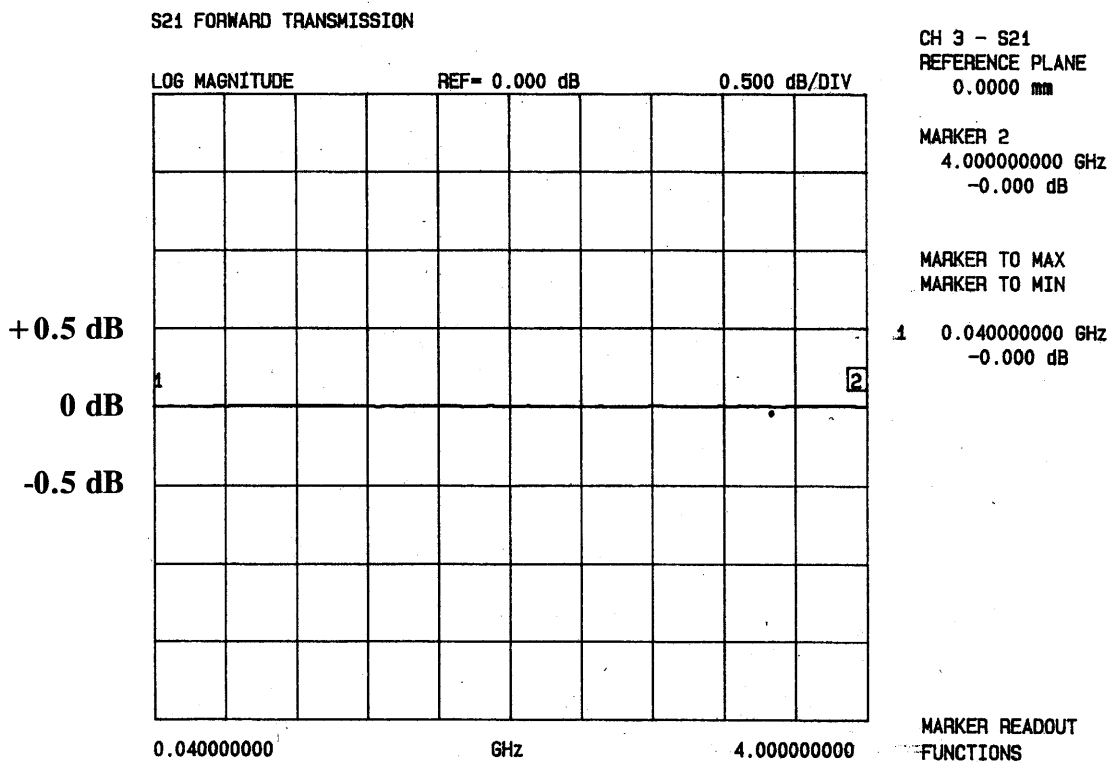
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*
J4-J1 (REFERENCE)



***J4: INPUT ARM**

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
40 MHz	0.00 dB	
4.0 GHz	0.00 dB	

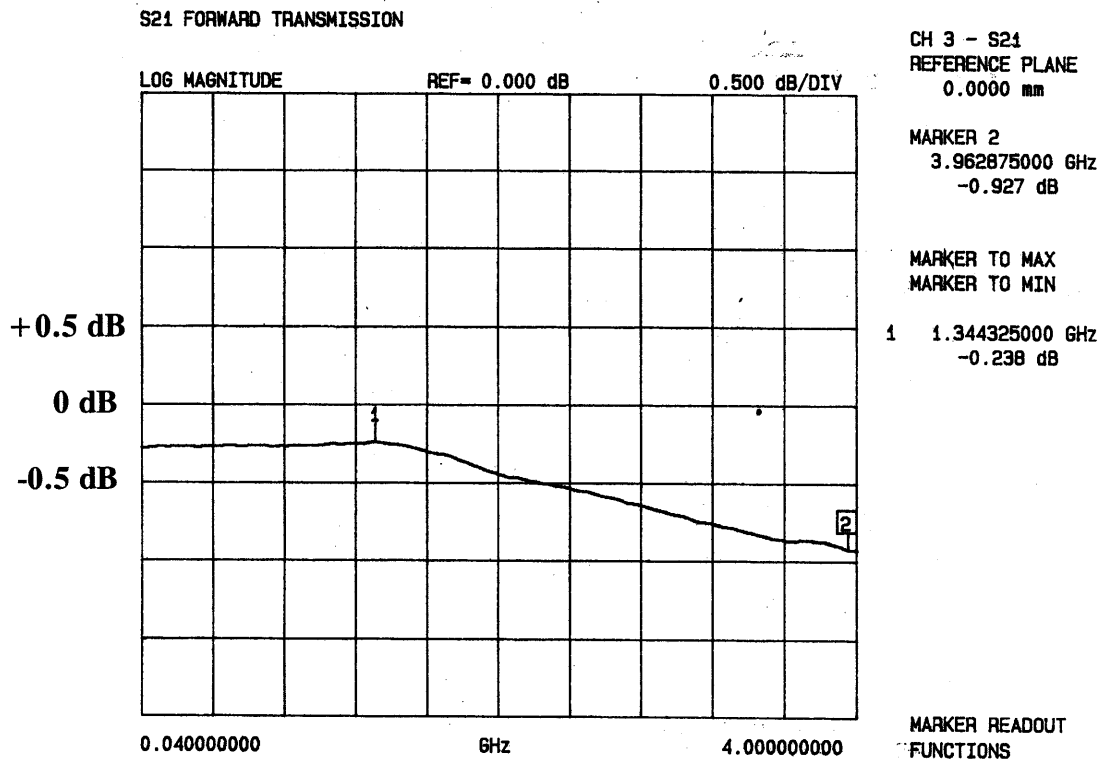
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*
J4-J2



*J4: INPUT ARM

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
1.34 GHz		-0238 dB
3.96 GHz		-0.927 dB

DECEMBER 11, 2000

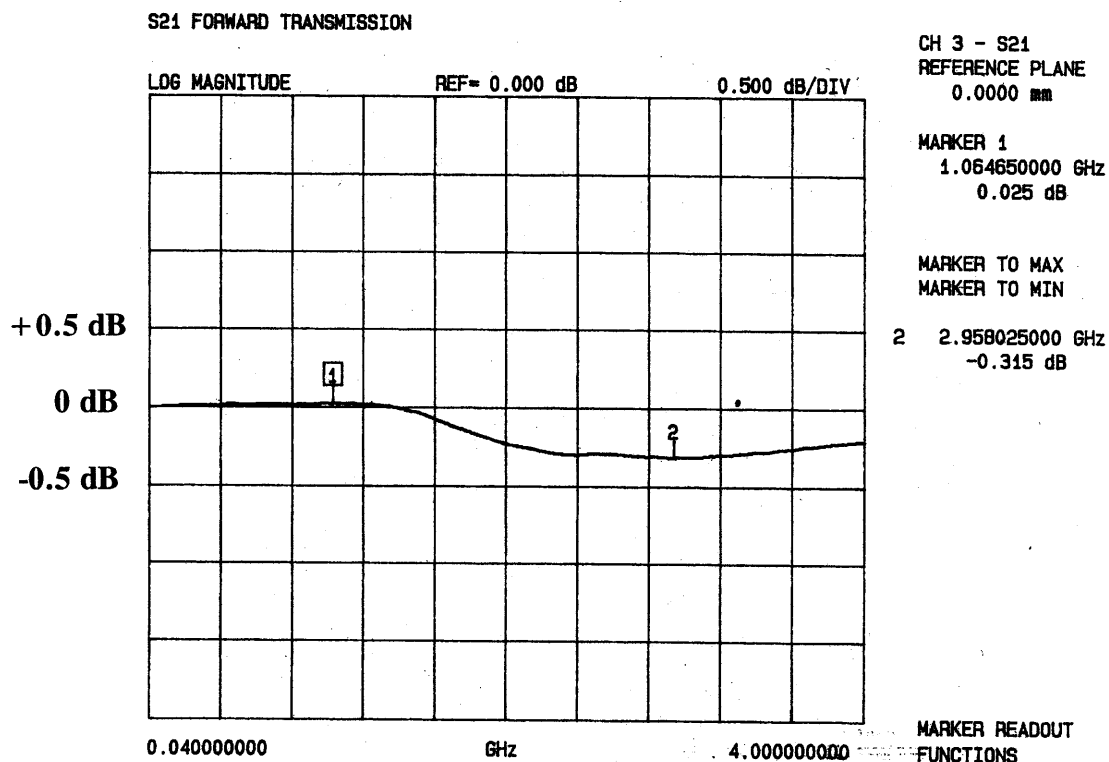


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*

J4-J3



*J4: INPUT ARM

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
1.06 GHz	0.025 dB	
2.95 GHz		-0.315 dB

DECEMBER 11, 2000



**PHASE
DATA
BETWEEN
PORT TO PORT
FROM
40 MHz TO 4 GHz
ON A
SP3T
SOLID STATE SWITCH**

**AMC MODEL No:
MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01
(Serial Number: 3MS809820)**

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

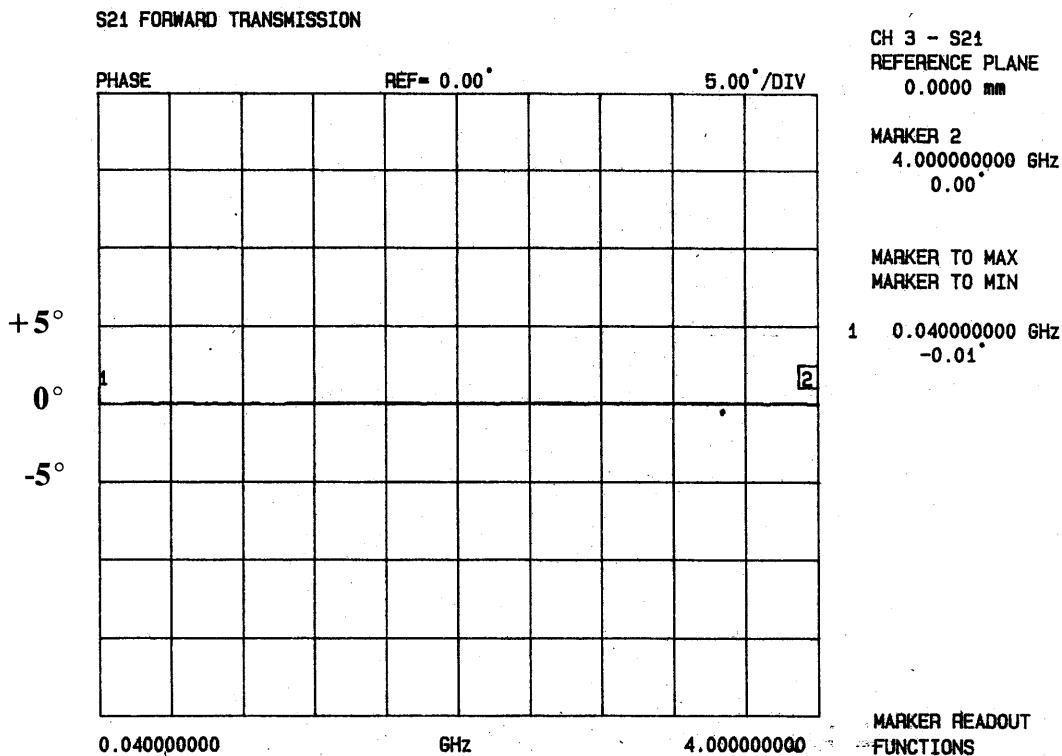
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J1 (REFERENCE)



*J4: INPUT ARM

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
40 MHz		-0.01°
4.0 GHz	0.00°	

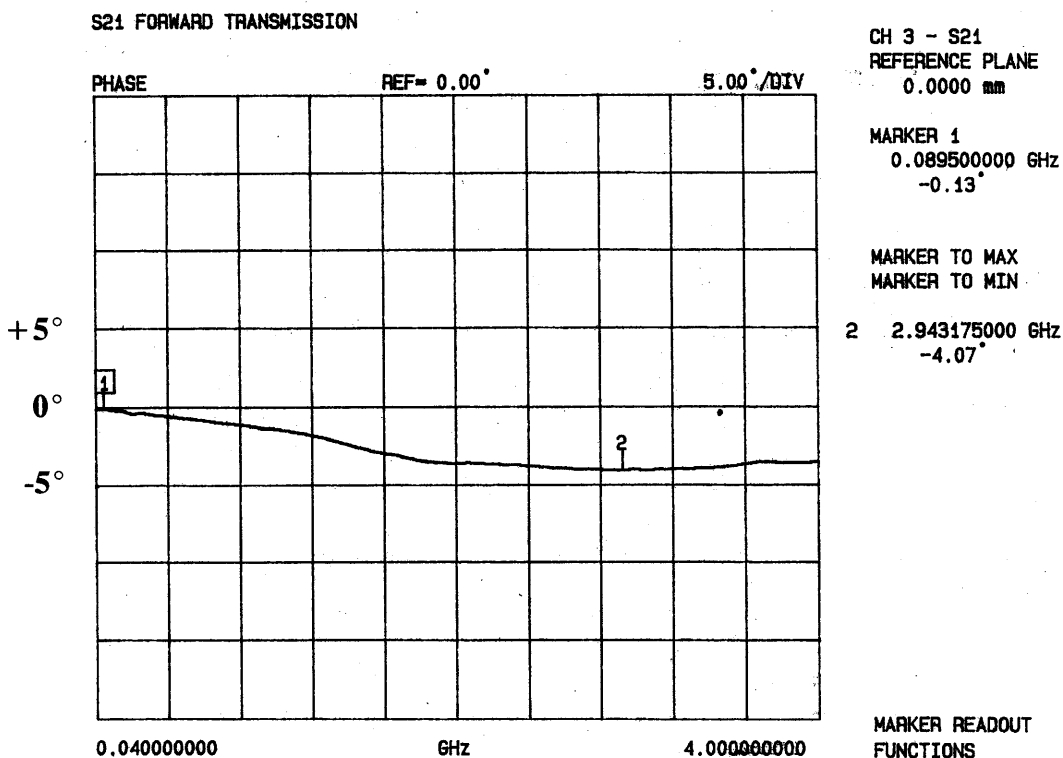
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J2



*J4: INPUT ARM

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
2.94 GHz		-4.07°
89 MHz		-0.13°

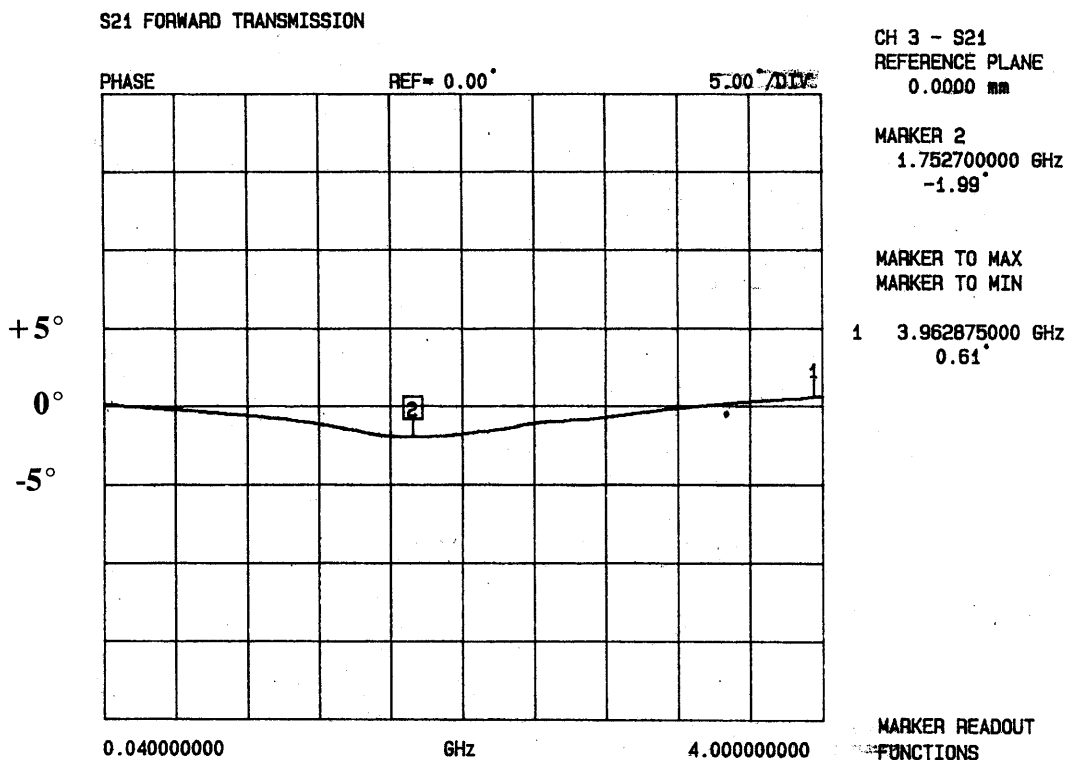
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J3



*J4: INPUT ARM

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
3.96 GHz	0.61°	
1.75 MHz		-1.99°

DECEMBER 11, 2000



**AMPLITUDE
DATA
BETWEEN
PORT TO PORT
FROM
50 MHz TO 100 MHz
ON A
SP3T
SOLID STATE SWITCH**

**AMC MODEL No:
MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01
(Serial Number: 3MS809820)**

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

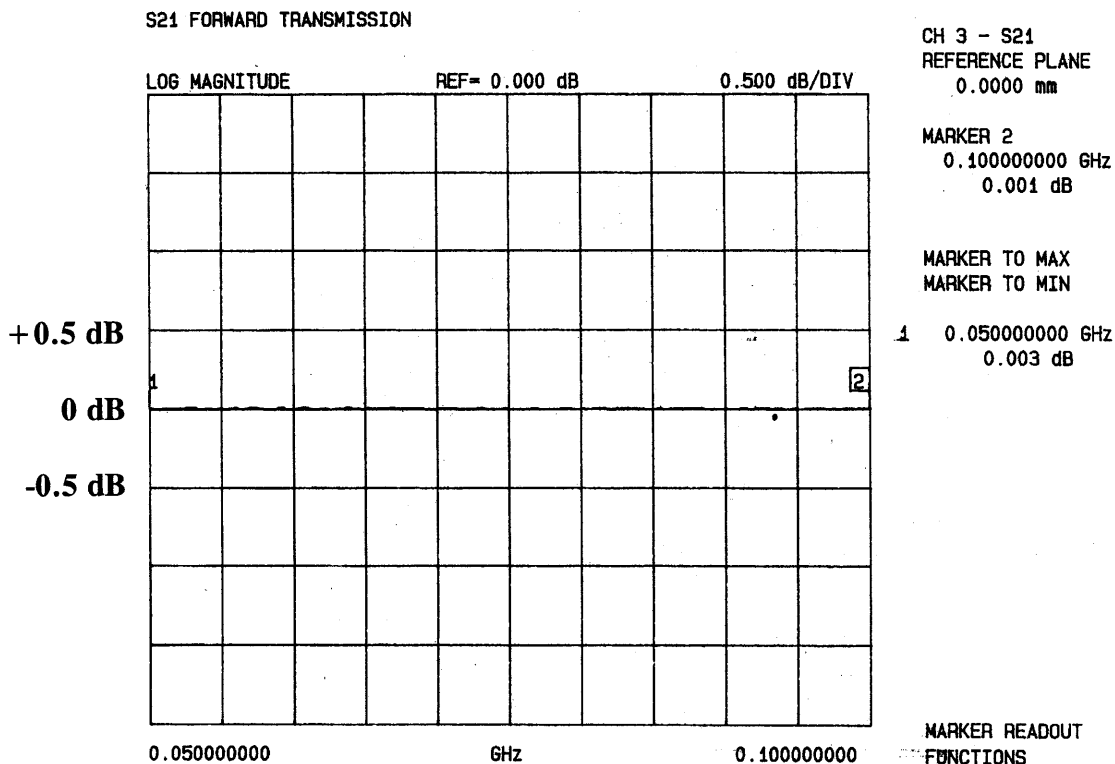
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*
J4-J1 (REFERENCE)



*J4: INPUT ARM

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
50 MHz	0.003 dB	
100 MHz	0.001 dB	

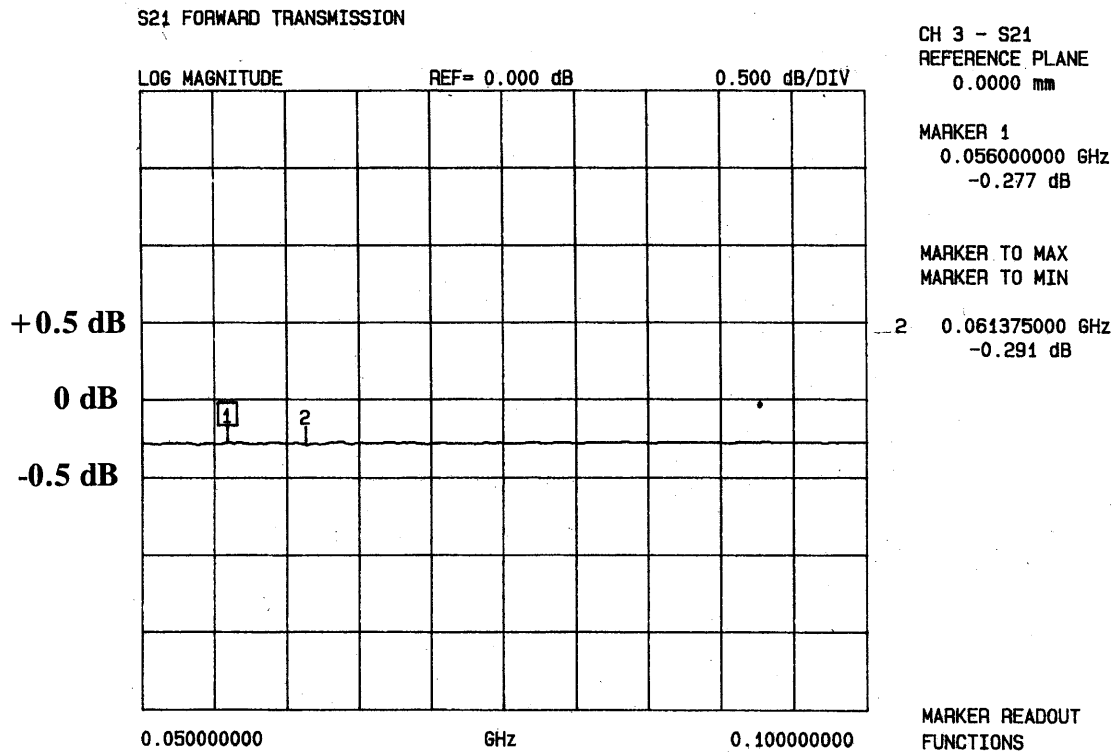
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*
J4-J2



***J4: INPUT ARM**

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
56 MHz		-0.277 dB
61 MHz		-0.291 dB

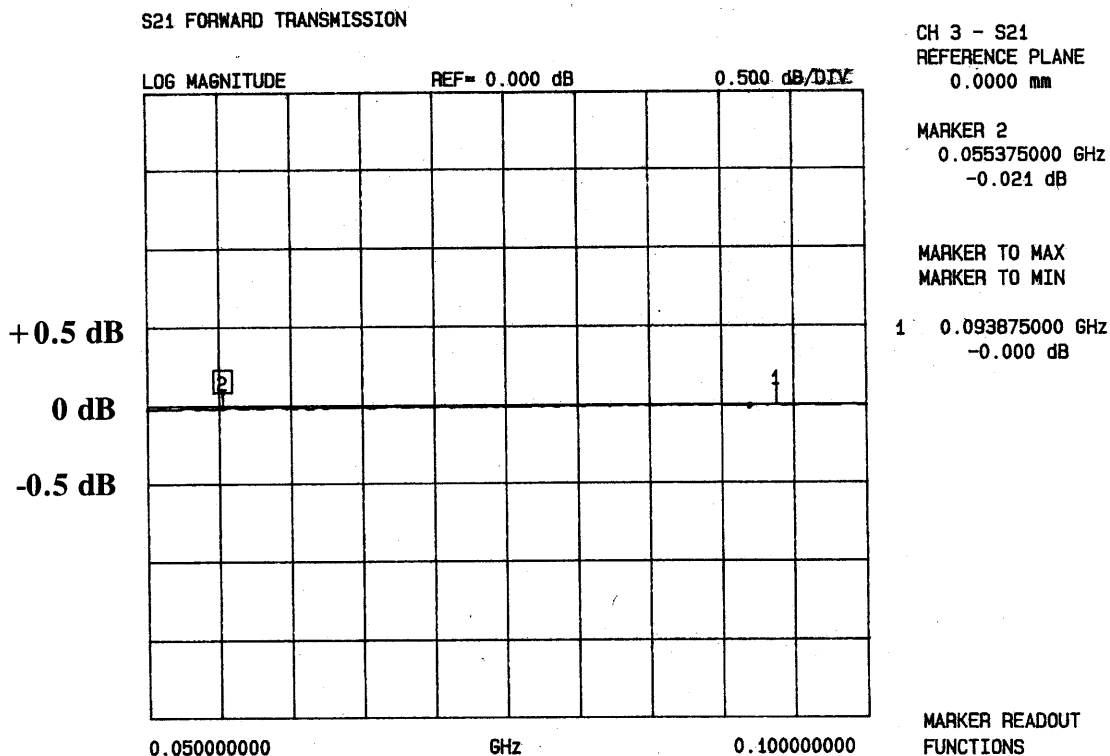
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

AMPLITUDE*
J4-J3



*J4: INPUT ARM

FREQUENCY	AMPLITUDE (PEAK) (POSITIVE SIDE)	AMPLITUDE (PEAK) (NEGATIVE SIDE)
93 MHz	0.000 dB	
55 MHz		-0.021 dB



**PHASE
DATA
BETWEEN
PORT TO PORT
FROM
50 MHz TO 100 MHz
ON A
SP3T
SOLID STATE SWITCH**

**AMC MODEL No:
MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01
(Serial Number: 3MS809820)**

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

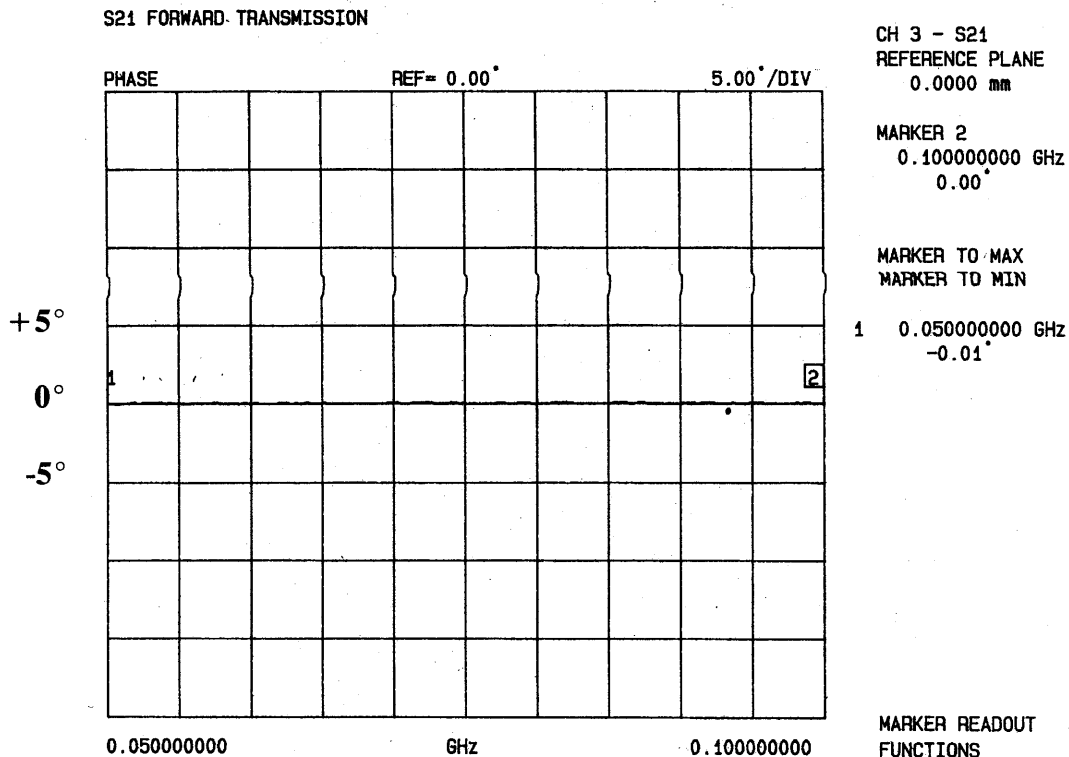
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J1 (REFERENCE)



*J4: INPUT ARM

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
50 MHz		-0.01°
100 MHz	0.00°	

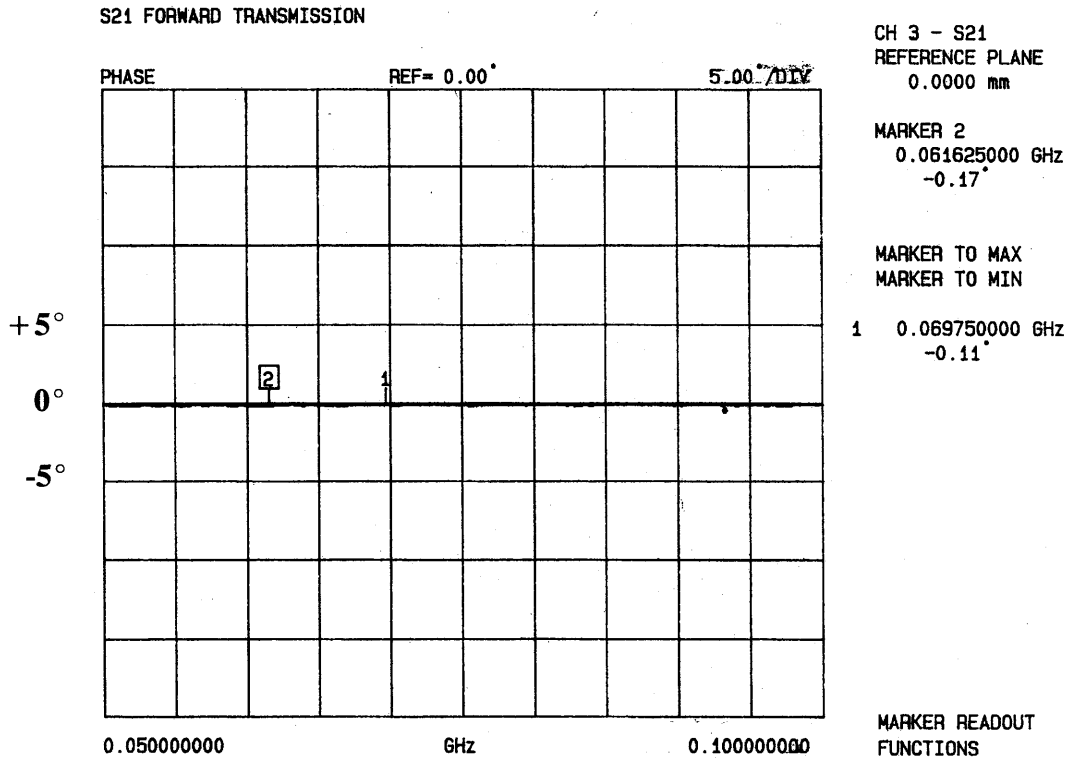
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J2



*J4: INPUT ARM

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
69 MHz		-0.11°
61 MHz		-0.17°

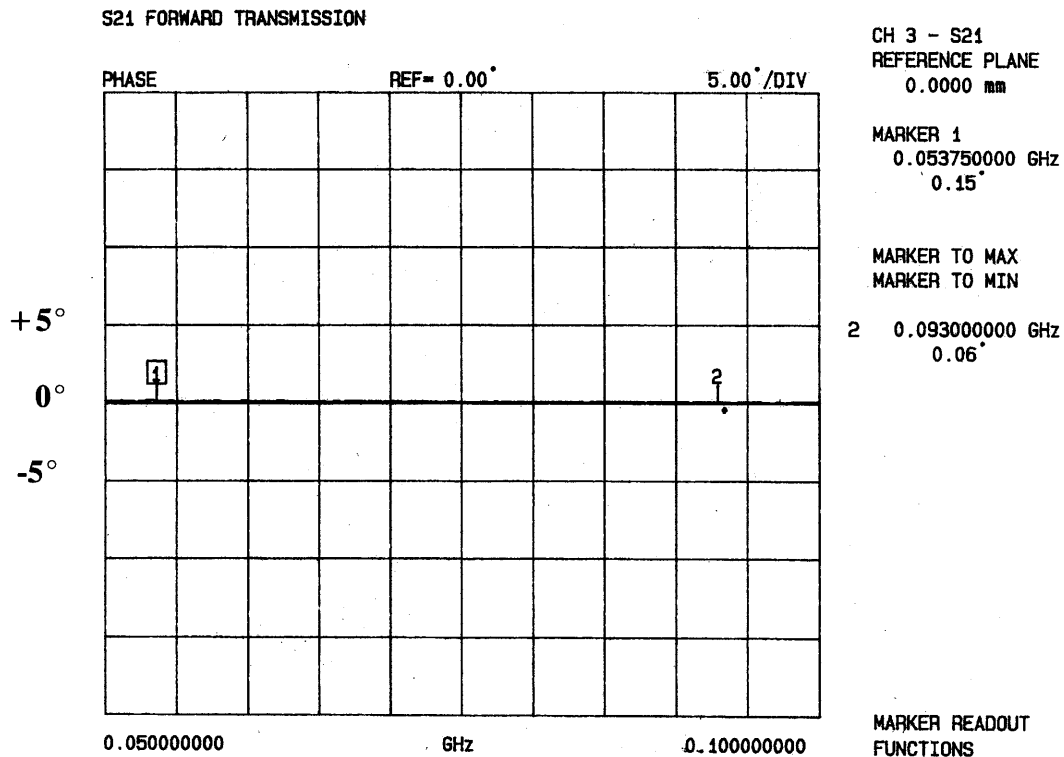
DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

PHASE*
J4-J3



***J4: INPUT ARM**

FREQUENCY	PHASE (PEAK) (POSITIVE SIDE)	PHASE (PEAK) (NEGATIVE SIDE)
53 MHz	0.15°	
93 MHz	0.06°	

DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

SWITCHING SPEED

"Rise/Fall" Time: 10% RF to 90% RF & 90% RF to 10% RF

"On/Off" Time: 50% TTL to 90% RF or 10% RF

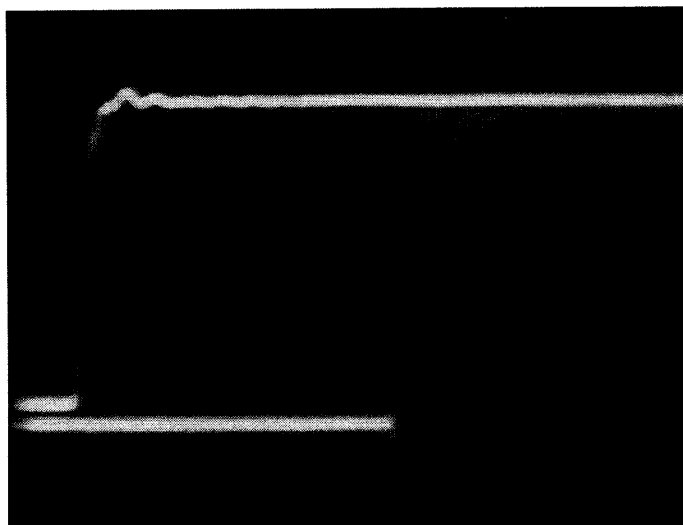
TYPICAL OF ALL ARMS

"DELAY ON": 98 nS

"RISE TIME": 2 nS

HORIZONTAL SCALE:
20 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION

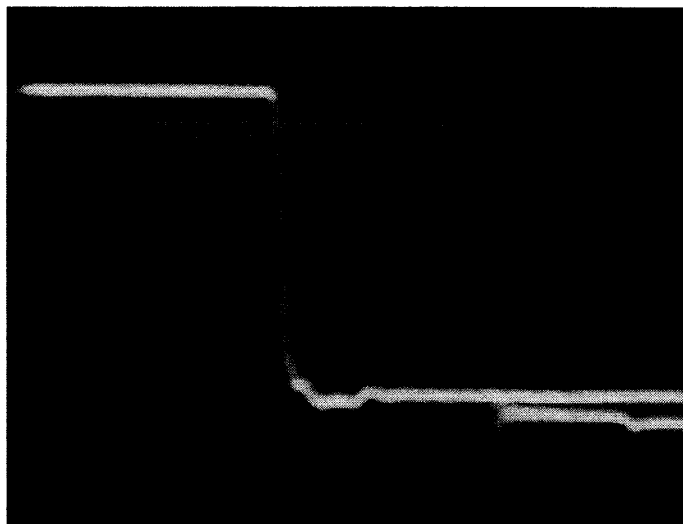


"DELAY OFF": 66 nS

"FALL TIME": 8 nS

HORIZONTAL SCALE:
20 nS PER DIVISION

VERTICAL SCALE:
10 mV PER DIVISION



DECEMBER 11, 2000



SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

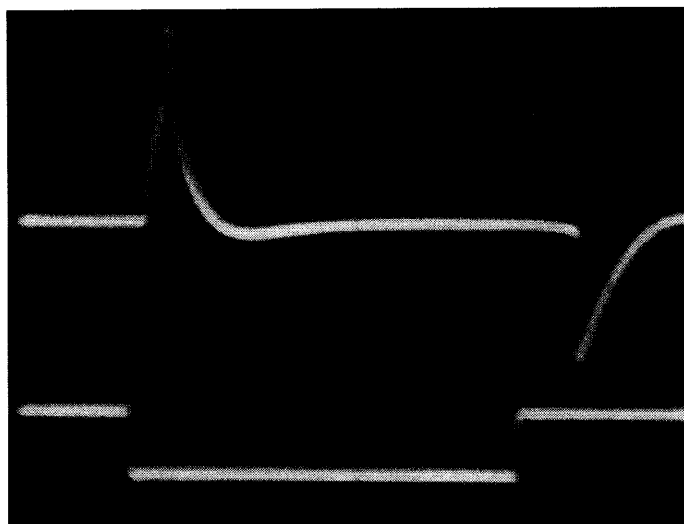
VIDEO TRANSIENTS

TYPICAL OF ALL ARMS

≤ 1.3 V P-P
 MEASURED IN A
 300 MHZ BANDWIDTH

VERTICAL SCALE:
 200 mV PER DIVISION

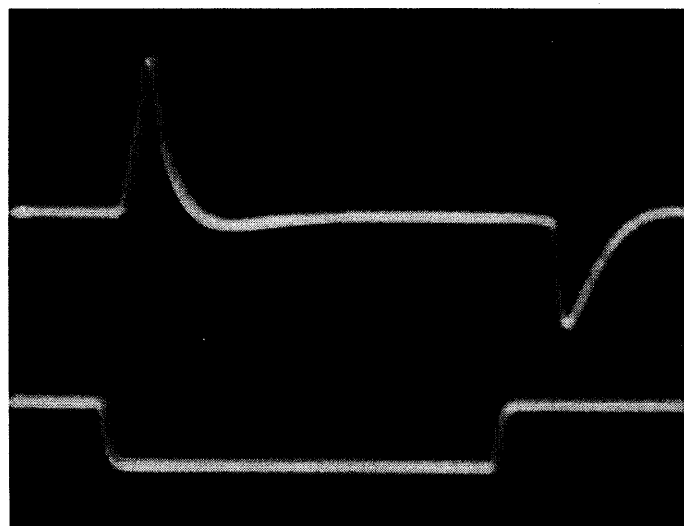
HORIZONTAL SCALE:
 500 nS PER DIVISION



≤ 830 mV P-P
 MEASURED IN A
 20 MHZ BANDWIDTH

VERTICAL SCALE:
 200 mV PER DIVISION

HORIZONTAL SCALE:
 500 nS PER DIVISION



DECEMBER 11, 2000



APPENDIX A
MISCELLANEOUS
TEST DATA AND PLOTS
ON
ISOLATION
AS
MEASURED
ON A VECTOR NETWORK ANALYZER
ON A
SP3T
SOLID STATE SWITCH
AMC MODEL No:
MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01
(Serial Number: 3MS809820)
FROM
40 MHz TO 4 GHz
AND
50 MHz TO 100 MHz
DECEMBER 11, 2000



ISOLATION DATA

AND PLOTS

FROM

40 MHz TO 4 GHz

ON A

LOW INSERTION LOSS

HIGH ISOLATION

RECTANGULAR

SP3T

SOLID STATE SWITCH

AMC MODEL No:

MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

(Serial Number: 3MS809820)

**PREPARED
BY
KATIE BAISEY**

**TESTED
BY
RENE AFABLE**

DECEMBER 11, 2000

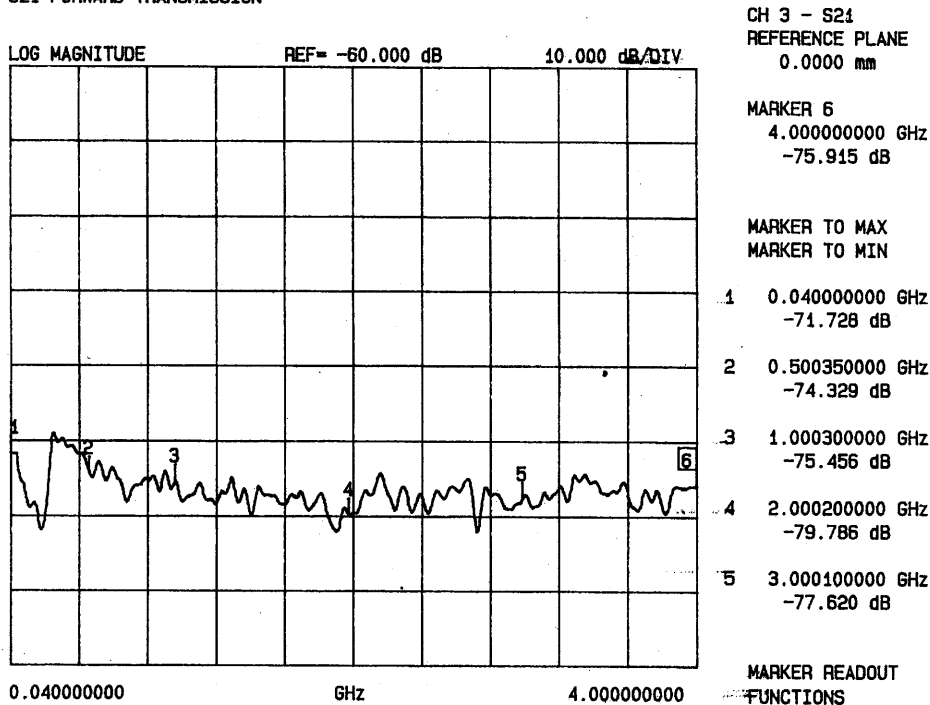


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J1

S21 FORWARD TRANSMISSION



*J4: INPUT ARM

FREQUENCY	ISOLATION
40 MHz	71.72 dB
500 MHz	74.32 dB
1.0 GHz	75.45 dB
2.0 GHz	79.78 dB
3.0 GHz	77.62 dB
4.0 GHz	75.91 dB

DECEMBER 11, 2000

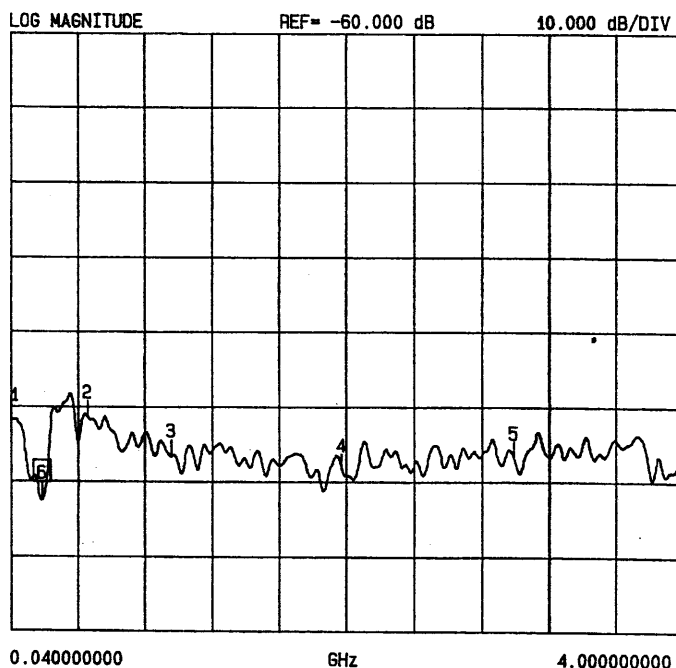


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J2

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
0.233050000 GHz
-82.331 dB

MARKER TO MAX
MARKER TO MIN

1	0.040000000 GHz	-71.754 dB
2	0.500350000 GHz	-71.504 dB
3	1.000300000 GHz	-76.596 dB
4	2.000200000 GHz	-78.536 dB
5	3.000100000 GHz	-76.930 dB

MARKER READOUT
FUNCTIONS

*J2: INPUT ARM

FREQUENCY	ISOLATION
40 MHz	71.75 dB
500 MHz	71.50 dB
1.0 GHz	76.59 dB
2.0 GHz	78.53 dB
3.0 GHz	76.93 dB
233 MHz	82.33 dB

DECEMBER 11, 2000

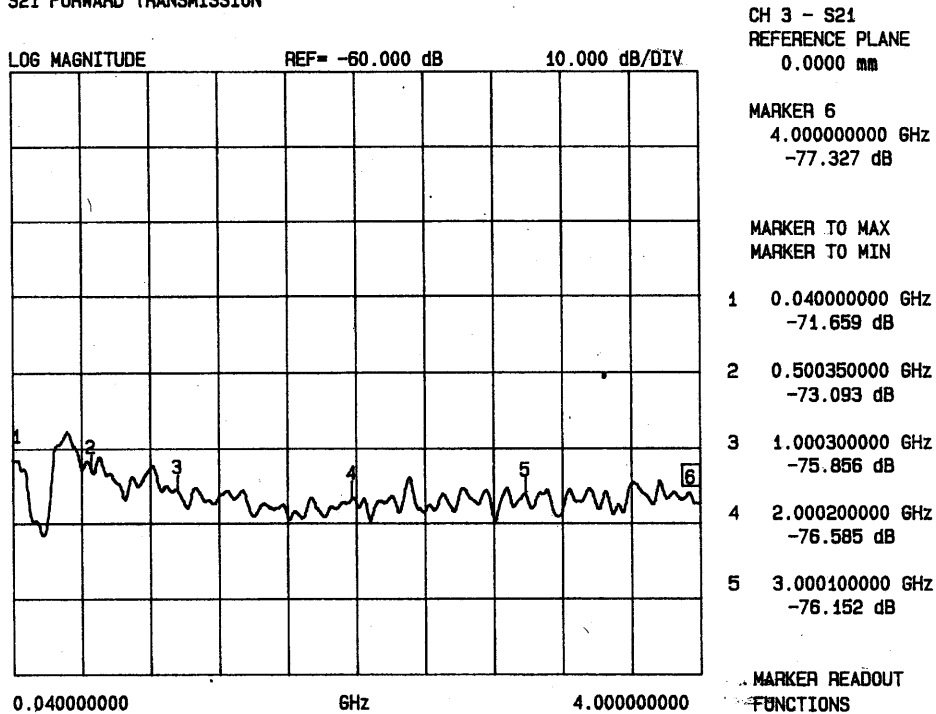


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J3

S21 FORWARD TRANSMISSION



*J3: INPUT ARM

FREQUENCY	ISOLATION
40 MHz	71.65 dB
500 MHz	73.09 dB
1.0 GHz	75.85 dB
2.0 GHz	76.58 dB
3.0 GHz	76.15 dB
4.0 GHz	77.32 dB

DECEMBER 11, 2000



ISOLATION DATA

AND PLOTS

FROM

50 MHz TO 100 MHz

ON A

LOW INSERTION LOSS

HIGH ISOLATION

RECTANGULAR

SP3T

SOLID STATE SWITCH

AMC MODEL No:

MSNN-3DT-04T-DEC-SP OPTIONS RLC, 50M01

(Serial Number: 3MS809820)

PREPARED

BY

KATIE BAISEY

TESTED

BY

RENE AFABLE

DECEMBER 11, 2000

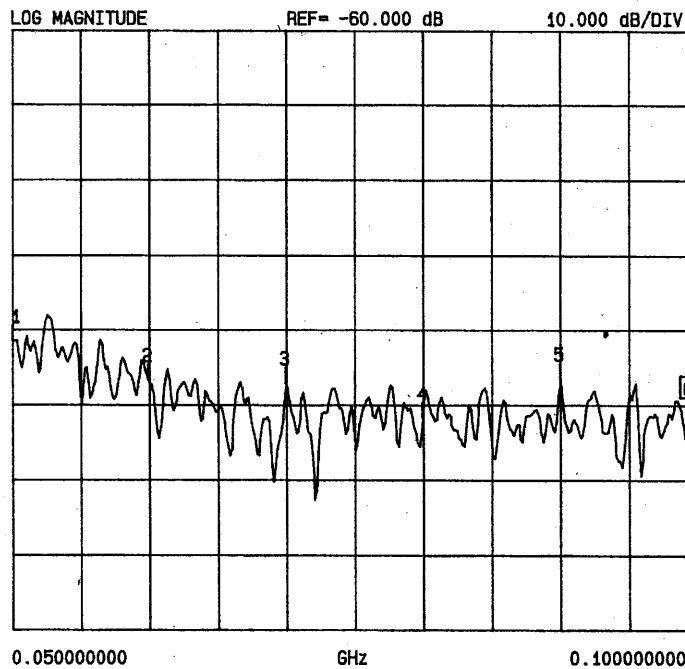


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J1

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
0.100000000 GHz
-71.213 dB

MARKER TO MAX
MARKER TO MIN

- 1 0.050000000 GHz
-61.492 dB
- 2 0.060000000 GHz
-66.800 dB
- 3 0.070000000 GHz
-67.225 dB
- 4 0.080000000 GHz
-71.747 dB
- 5 0.090000000 GHz
-66.587 dB

MARKER READOUT
FUNCTIONS

*J4: INPUT ARM

FREQUENCY	ISOLATION
50 MHz	61.49 dB
60 MHz	66.80 dB
70 MHz	67.22 dB
80 MHz	71.74 dB
90 MHz	66.58 dB
100 MHz	71.21 dB

DECEMBER 11, 2000

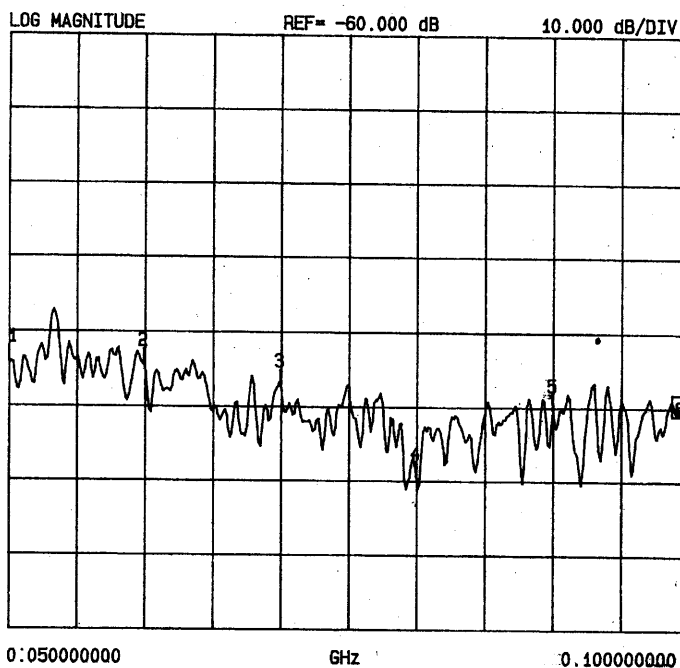


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J2

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
0.100000000 GHz
-73.387 dB

MARKER TO MAX
MARKER TO MIN

1	0.050000000 GHz	-64.143 dB
2	0.060000000 GHz	-64.531 dB
3	0.070000000 GHz	-67.325 dB
4	0.080000000 GHz	-79.567 dB
5	0.090000000 GHz	-70.431 dB

MARKER READOUT
FUNCTIONS

***J4: INPUT ARM**

FREQUENCY	ISOLATION
50 MHz	64.14 dB
60 MHz	64.53 dB
70 MHz	67.32 dB
80 MHz	79.56 dB
90 MHz	70.43 dB
100 MHz	73.38 dB

DECEMBER 11, 2000

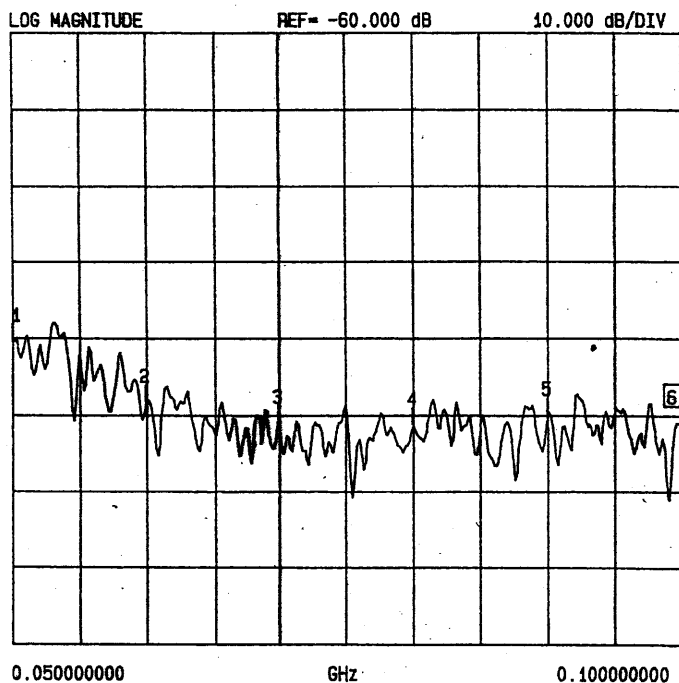


SUMMARY TEST DATA

MODEL NUMBER	: MSNN-3DT-04T-DEC-SP
OPTION NUMBER	: RLC, 50M01
SERIAL NUMBER	: 3MS809820
ENGINEER	: RENE AFABLE
VOLTAGE & CURRENT DRAW	: +5vdc @ 120.3mA; -15vdc @ 44.7mA

ISOLATION*
(AS MEASURED ON A VECTOR NETWORK ANALYZER)
J4-J3

S21 FORWARD TRANSMISSION



CH 3 - S21
REFERENCE PLANE
0.0000 mm

MARKER 6
0.100000000 GHz
-70.937 dB

MARKER TO MAX
MARKER TO MIN

1	0.050000000 GHz	-60.325 dB
2	0.060000000 GHz	-68.357 dB
3	0.070000000 GHz	-71.025 dB
4	0.080000000 GHz	-71.284 dB
5	0.090000000 GHz	-69.868 dB

MARKER READOUT
FUNCTIONS

***J4: INPUT ARM**

FREQUENCY	ISOLATION
50 MHz	60.32 dB
60 MHz	68.35 dB
70 MHz	71.02 dB
80 MHz	71.28 dB
90 MHz	69.86 dB
100 MHz	70.93 dB