

**TECHNICAL REPORT**

**ON**

**4 TO 8 GHz**

**(OTHER FREQUENCIES AVAILABLE)**

**SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER**

**PMI MODEL NO:**

◆ **MSDLVA-2020-70 OPTION: 48, SE** ◆

**SERIAL NUMBERS: PM101097**

**DESIGNED**

**BY**

**DANIEL J. VESCUSO**

**AND**

**FRANK RETHMEIER**

**TESTED**

**BY**

**BRENT BAKER**

**REPORTED**

**BY**

**STEVEN R. TURNER**

**JANUARY 25, 2002**

***PLANAR MONOLITHICS INDUSTRIES, INC.***

***7311-G GROVE ROAD, FREDERICK, MD 21704***

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**Page 1**

# MODEL NO: MSDLVA-2020-70 OPTION: 48, SE SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER



- ◆ TRUE SDLVA DESIGN
- ◆ HIGH SPEED GaAS TECHNOLOGY
- ◆ 80dB DYNAMIC RANGE
- ◆ SMALL COMPACT PACKAGE

## ● SPECIFICATIONS:

◆	<b>FREQUENCY RANGE</b>	:	4 GHz TO 8 GHz
	(OTHER FREQUENCIES AVAILABLE)		
◆	<b>FREQUENCY FLATNESS</b>	:	±1 dB TYPICAL, ± 2.0 dB MAXIMUM
◆	<b>VSWR</b>	:	1.6:1 TYPICAL, 2:1 MAXIMUM
◆	<b>TSS</b>	:	-73 dBm TYPICAL, -75 dBm MAXIMUM
◆	<b>LOGGING RANGE</b>	:	-65 dBm TO +15 dBm
◆	<b>LOG SLOPE</b>	:	50 mV/dB TYPICAL, 46.5 TO 49.7 mV/dB MAXIMUM
◆	<b>LOG LINEARITY</b>	:	±2 dB MAXIMUM, ±1.6 dB TYPICAL
◆	<b>LIMITED RF OUT</b>	:	+14 dBm ±1 dB TYPICAL, +12.5 TO 16.0 dBm (-60 dBm TO +10 dBm) MAXIMUM
◆	<b>PULSE WIDTH RANGE</b>	:	50 nSEC TO CW
◆	<b>RISE TIME</b>	:	25 nSEC MAXIMUM
◆	<b>SETTLING TIME</b>	:	40 nSEC MAXIMUM
◆	<b>RECOVERY TIME</b>	:	150 nSEC TYPICAL
◆	<b>DC POWER @ +12V</b>	:	570 mA TYPICAL, 600mA MAXIMUM
◆	<b>DC POWER @ -12V</b>	:	155 mA TYPICAL, 180mA MAXIMUM

## ● ENVIRONMENTAL RATINGS:

◆	<b>TEMPERATURE</b>	:	-54°C TO +85°C (OPERATING)
		:	-65°C TO +100°C (STORAGE)
◆	<b>HUMIDITY</b>	:	MIL-STD-202F, METHOD 103B, CONDITION B.
◆	<b>SHOCK</b>	:	MIL-STD-202F, METHOD 213B, CONDITION B.
◆	<b>VIBRATION</b>	:	MIL-STD-202F, METHOD 204D, CONDITION B.
◆	<b>ALTITUDE</b>	:	MIL-STD-202F, METHOD 105C, CONDITION B.
◆	<b>TEMPERATURE CYCLE</b>	:	MIL-STD-202F, METHOD 107D, CONDITION A.

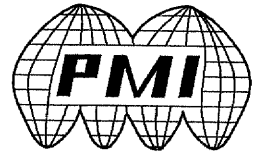
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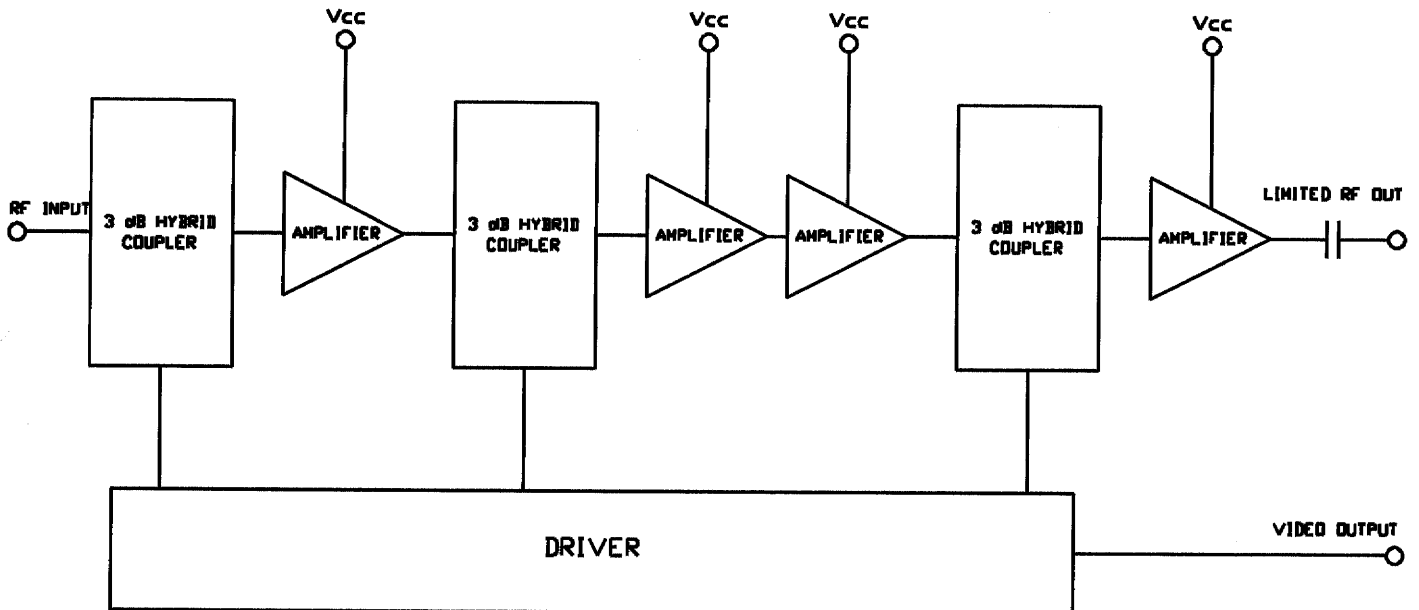
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● **FUNCTIONAL BLOCK DIAGRAM:**



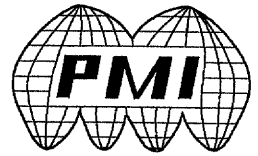
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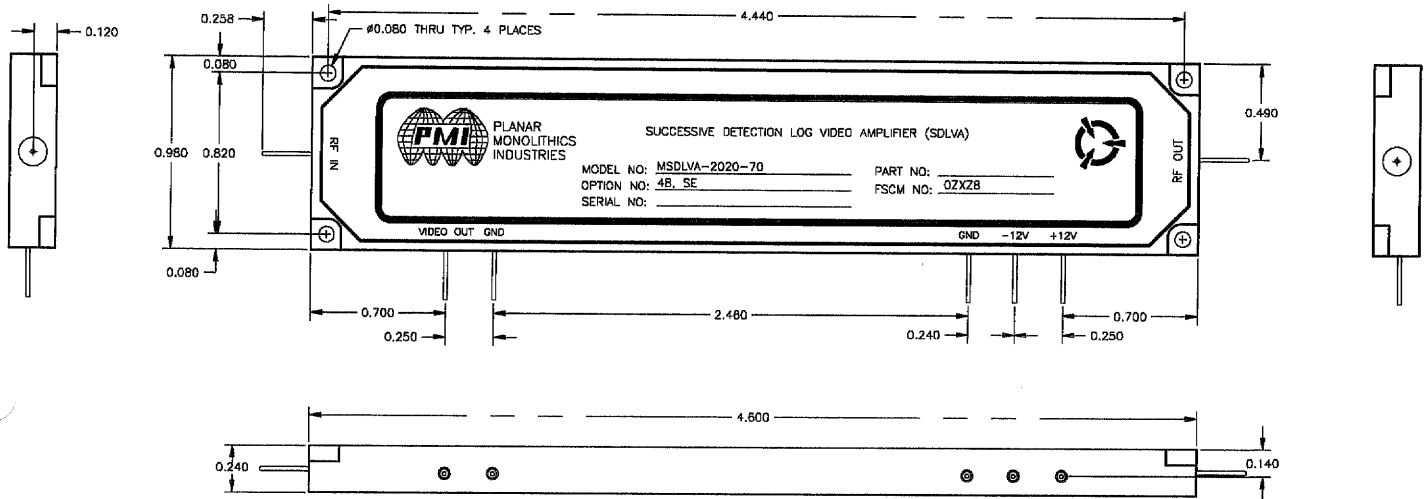
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● **MECHANICAL OUTLINE:**



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

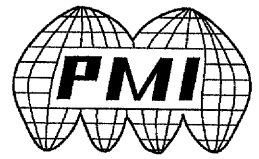
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ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	ORIGINAL JOB#91030PE	4/17/02	

### MECHANICAL OUTLINE

### ENVIRONMENTAL RATINGS

- TEMPERATURE
  - 54°C TO +85°C (OPERATING)
  - 65°C TO +100°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

### DESCRIPTION

THE MODEL MSDLVA-2020-70 OPT. 48, SE SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDVA) OPERATES OVER THE 4.0 TO 8.0 GHz RANGE. THESE UNITS ARE A TRUE SDVA AND HAVE A DYNAMIC RANGE OF 80 dB, AND TSS OF -75 dBm MAXIMUM. FURTHERMORE, THESE UNITS ARE DESIGNED USING CUTTING EDGE GaAs TECHNOLOGY WHICH PROVIDES STUNNING PERFORMANCE AND RELIABILITY IN A COMPACT PACKAGE MAKING IT AN OPTIMUM SOLUTION FOR HIGH SPEED CHANNELIZED RECEIVER APPLICATIONS. THESE UNITS OFFER A TYPICAL FAST RISE TIME OF  $\leq 25$  ns, AND A SETTLING TIME OF  $< 40$  ns AS WELL AS A RECOVERY TIME OF 150 ns TYPICAL.

### SPECIFICATIONS

- FREQUENCY RANGE
  - 4.0-8.0 GHz (OTHER FREQUENCIES AVAILABLE)
- LOGGING RANGE
  - 65dBm TO +15dBm
- LOG LINEARITY
  - $\pm 2.0$ dB MAXIMUM,  $\pm 1.6$ dB TYPICAL
- FREQUENCY FLATNESS
  - $\pm 1.0$ dB TYPICAL,  $\pm 2.0$ dB MAXIMUM
- PULSE WIDTH RANGE
  - 50 ns TO CW
- RF OUT SAT
  - +14 dBm  $\pm 1.0$ dB MAXIMUM (-60dBm TO +10dBm)
- TSS
  - 73 dBm TYPICAL, -75 dBm MAXIMUM
- INPUT VSWR
  - 1.6:1 TYPICAL, 2.0:1 MAXIMUM
- LOG VIDEO OUTPUT:
  - RISE TIME
    - 25 ns MAXIMUM
  - SETTLING TIME
    - 40 ns MAXIMUM
  - RECOVERY TIME
    - 150 ns TYPICAL
  - LOG SLOPE
    - 50 mV/dB ( NOT CRITICAL )
  - VIDEO LOAD
    - 100 OHMS
- DC POWER SUPPLY
  - +V
    - +12VDC @ 570 mA TYPICAL, 600mA MAXIMUM
  - V
    - 12VDC @ 150 mA TYPICAL, 180 mA MAXIMUM
- SIZE:
  - 4.6" (L) X 0.98" (W) X 0.24" (H)

APPROVALS  
DRAWN: *YRJ*  
CHECKED:

DATE: 4/11/02

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FREDERICK, MARYLAND

PRODUCT FEATURE  
MSDLVA-2020-70 OPT. 48, SE

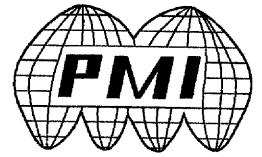
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SHEET 1 OF 3      DWG. # 100-5259

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CUSTOMER: SEMATRON, SPAIN  
JOB NO: 91030PE  
MODEL NO: MSDLVA-2020-70 OPT:48, SE

TESTED BY: BRENT BAKER  
SERIAL NO: PM101097  
DATE: 12/05/01

## SUMMARY TEST DATA ON SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	FREQUENCY RANGE	4-8 GHz	PASS	✓ Set
2	FREQUENCY FLATNESS	+/- 1 dB	±2.0dB	-
3	VSWR	2:1	1.6:1	✓
4	TSS	-70 dBm MAX.	-73dBm	✓
5	LOGGING RANGE	-65 dBm TO +15 dBm	PASS	See Chart ✓
6	LOG SLOPE	50 mV/dB (Z LOAD=100Ω)	46.5 TO 49.7 mV/dB	- ✓
7	LOG LINEARITY	+/- 2 dB	+1.6dB	✓
8	LIMITED RF OUT (-60 dBm TO +10dBm)	+14 dBm +/- 1 dB	+12.5 TO 16.0 dBm	- "
9	PULSE WIDTH RANGE	50 nsec TO CW	PASS	✓
10	RISE TIME	25 nsec MAX.	14 nsec	✓
11	SETTLING TIME	40 nsec MAX.	PASS	✓
12	RECOVERY TIME	150 nsec MAX.	NOT COMPLIANT	-
13	DC POWER @ +12V	550 mA (GOAL)	570 mA	✓
14	DC CURRENT @ -12V	100 mA (GOAL)	155 mA	✓

PRODUCTION MANAGER APPROVAL: Raymond Phibbs DATED: 12/7/01  
QA/QC APPROVAL: BY DATED: 12/7/01

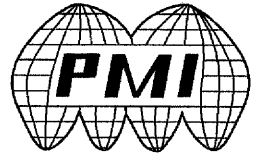
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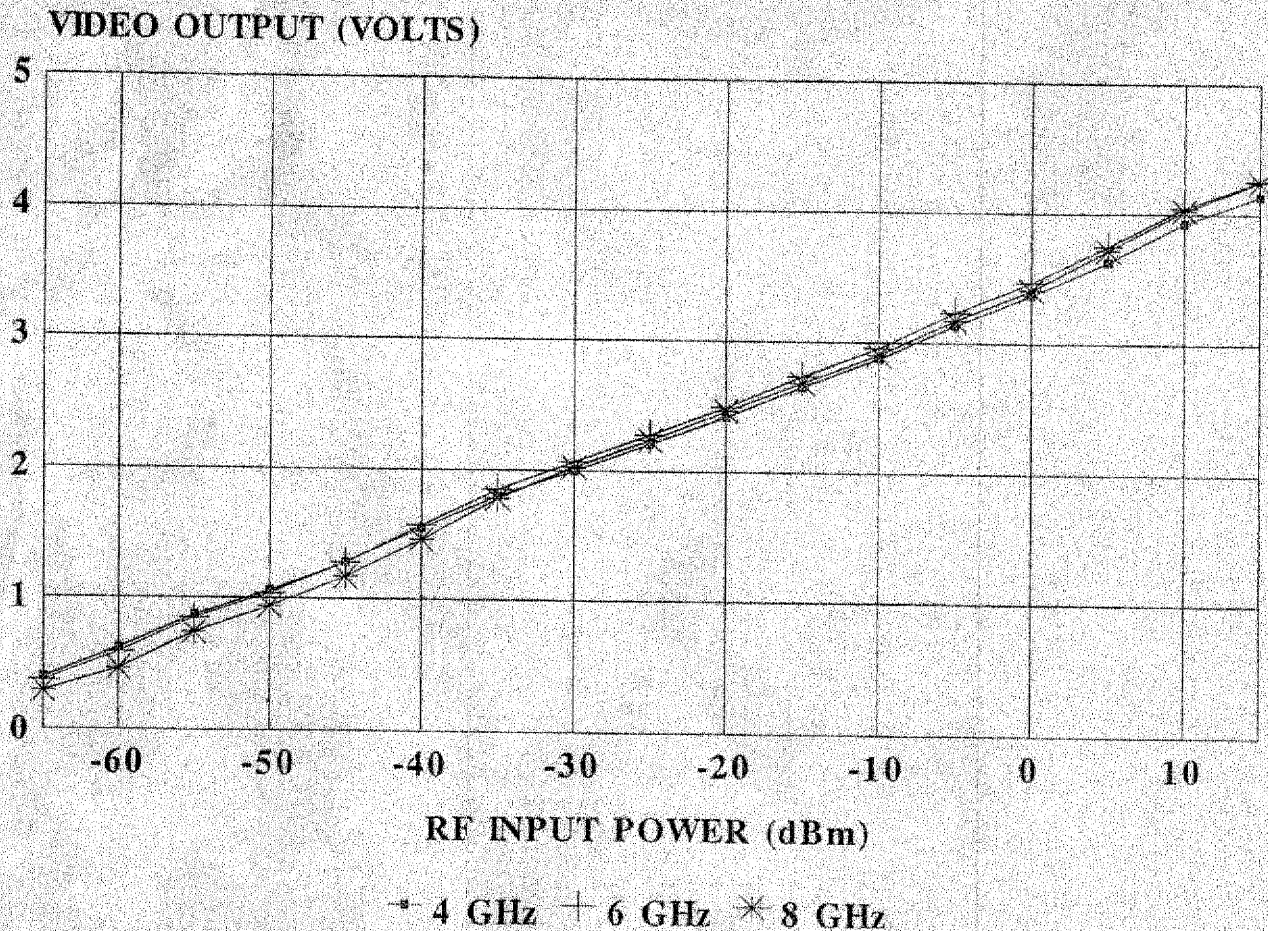


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TESTED BY: BRENT BAKER  
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**LOG TRANSFER WITH FREQUENCY**

MSDLVA-2020-70 S/N PM101097  
 LOG TRANSFER WITH FREQUENCY



+ 25 C, 11/05/01

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