

TECHNICAL REPORT

ON

0.2 TO 2.0 GHz

≥65 dB DYNAMIC RANGE

25 nS FAST RISE TIME

**MINIATURE "FLAT-PACK"
SUCCESSIVE DETECTION LOG VIDEO
AMPLIFIER**

WITH

INTERNAL REGULATORS

PMI MODEL NO: SDLVAC-0120-70

(SERIAL NUMBERS: PM70506 AND PM70507)

DESIGNED

BY

A. K. GORWARA

TESTED

BY

B. BAKER

REPORTED

BY

P. D. WOOD

JANUARY 19, 1998

PLANAR MONOLITHICS INDUSTRIES, INC.

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SPECIFICATIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
A		ORIGINAL RELEASE	07/19/93	

MECHANICAL OUTLINE

NOTES:
 1) DIMENSIONS ARE IN INCHES
 2) TOLERANCES: X.XX ±0.020
 X.XXX ±0.010
 3) WEIGHT: 0.5 OZ

ENVIRONMENTAL RATINGS

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

DESCRIPTION

THE MODEL SDLVAC-0120-70 SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) OPERATES OVER THE 0.1 TO 2.0 GHZ RANGE (USEFUL RANGE UP TO 2.5 GHZ) AND SLVAC-06135 IS OPTIMIZED OVER THE 600 MHZ TO 1.35 GHZ FREQUENCY RANGE. THESE UNITS HAVE A DYNAMIC RANGE OF 65 TO 70 dB, A ISS OF -67 dBm AND A NOMINAL VIDEO BANDWIDTH OF 20 MHZ. FURTHERMORE, THESE UNITS ARE DESIGNED USING CUTTING EDGE GOAS 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 TYPICAL FAST RISE TIME ≤ 20ns, RAPID FALL TIME ≤ 25ns AS WELL AS SUPERIOR DELAY TIME OF 8 nsec.

THE LOG SLOPE IS 25mV/dB AND THE ACCURACY IS LESS THAN ±1.0 dB OVER THE -60 TO 0 dBm POWER INPUT RANGE. DYNAMIC OPTIONS ARE BE EXTENDED TO -65/+5 WITH LOG ERROR OF ±1.5 dB. AVAILABLE WITH ADJUSTABLE LOGGING SLOPE AND DC OFFSETS. GUARANTEED RISE TIMES ARE LESS THAN 25 ns AND MAXIMUM RECOVERY TIMES ARE LESS THAN 30 ns. RECOVERY TIMES AT LOWER POWER ARE FASTER. THE SDLVAC-0120-70 SDLVA IS COMMERCIALY SCREENED AND CHARACTERIZED FROM -55 TO +85°C. SIZES AVAILABLE ARE 0.75" x 0.75" x 0.135" OR TO ANY OTHER CUSTOMIZED CONFIGURATION DESIRED.

SPECIFICATIONS

- FREQUENCY RANGE: 0.1 TO 2.0 GHZ (USEFUL RANGE TO 2.5 GHZ)
0.6 TO 1.35 GHZ
- DYNAMIC RANGE: > 65 dB
- LOG LINEARITY: ±1.2 dB MAX (-60 dBm TO 0 dBm), ±0.8 dB TYPICAL
±1.5 dB MAX (-65 dBm TO +5 dBm), ±1.2 dB TYPICAL
- MINIMUM LOGGING RANGE: -60 dBm TYPICAL
- MAXIMUM LOGGING RANGE: +5 dBm (+8 dBm TYPICAL)
- VSWR INPUT: 1.8:1 MAXIMUM (1.5:1 TYPICAL)
- TANGENTIAL SENSITIVITY: -65 dBm MINIMUM (-70 dBm TYPICAL)
- LIMITED IF OUTPUT: -14 dBm (MINIMUM)
- MAXIMUM RF INPUT POWER: +10 dBm
- LOG VIDEO OUTPUT: DC
- OUTPUT COUPLING: 2.7 VOLTS
- MAXIMUM OUTPUT VOLTAGE: 25 ns MAXIMUM
- RISE TIME: 30 ns MAXIMUM
- FALL TIME: 40 ns MAXIMUM
- SETTLE TIME: 0.1 V NOMINAL
- DC OFFSET: 25 mV/dB NOMINAL
- SLOPE: ±0.5 mV/dB (OVER 80 MHZ RF BANDWIDTH)
- LOG SLOPE VARIATION WITH FREQUENCY: ±1 mV MAXIMUM
- LOG SLOPE VARIATION WITH TEMPERATURE: 10 ns MAXIMUM, 7 ns TYPICAL
- PROPAGATION DELAY: 100 ns ±10%
- VIDEO LOAD: +7 TO +18 VOLTS @ 50ma (NO VIDEO LOAD)
-7 TO -18 VOLTS @ 190ma
0.75" x 0.75" x 0.135"
- DC POWER SUPPLY: -V

AVAILABLE OPTIONS

- A01 EXTENDED DYNAMIC RANGE
- A02 HIGHER LIMITED IF OUTPUT
- A03 ALTERNATE LOG SLOPES
- A04 EXTERNAL ADJUST FOR LOG SLOPE
- A05 EXTERNAL ADJUST FOR OFFSET
- A06 HIGH POWER RF CW/PEAK PROTECTION
- A07 OTHER VIDEO LOADS
- A08 SCREENED TO MIL-STD-883 (MODIFIED VISUAL INSPECTION)

PRODUCT FEATURE

SDLVAC-0120-70
 SLVAC-06135

ENVIRONMENTAL RATINGS

- TEMPERATURE: -55°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
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PLANAR MONOLITHICS INDUSTRIES
 1112 PERKIOMENVILLE RD., PERKIOMENVILLE, PA. 18074
 TEL: (215) 754-9230

PRODUCT FEATURE

SDLVAC-0120-70
 SLVAC-06135

APPROVALS

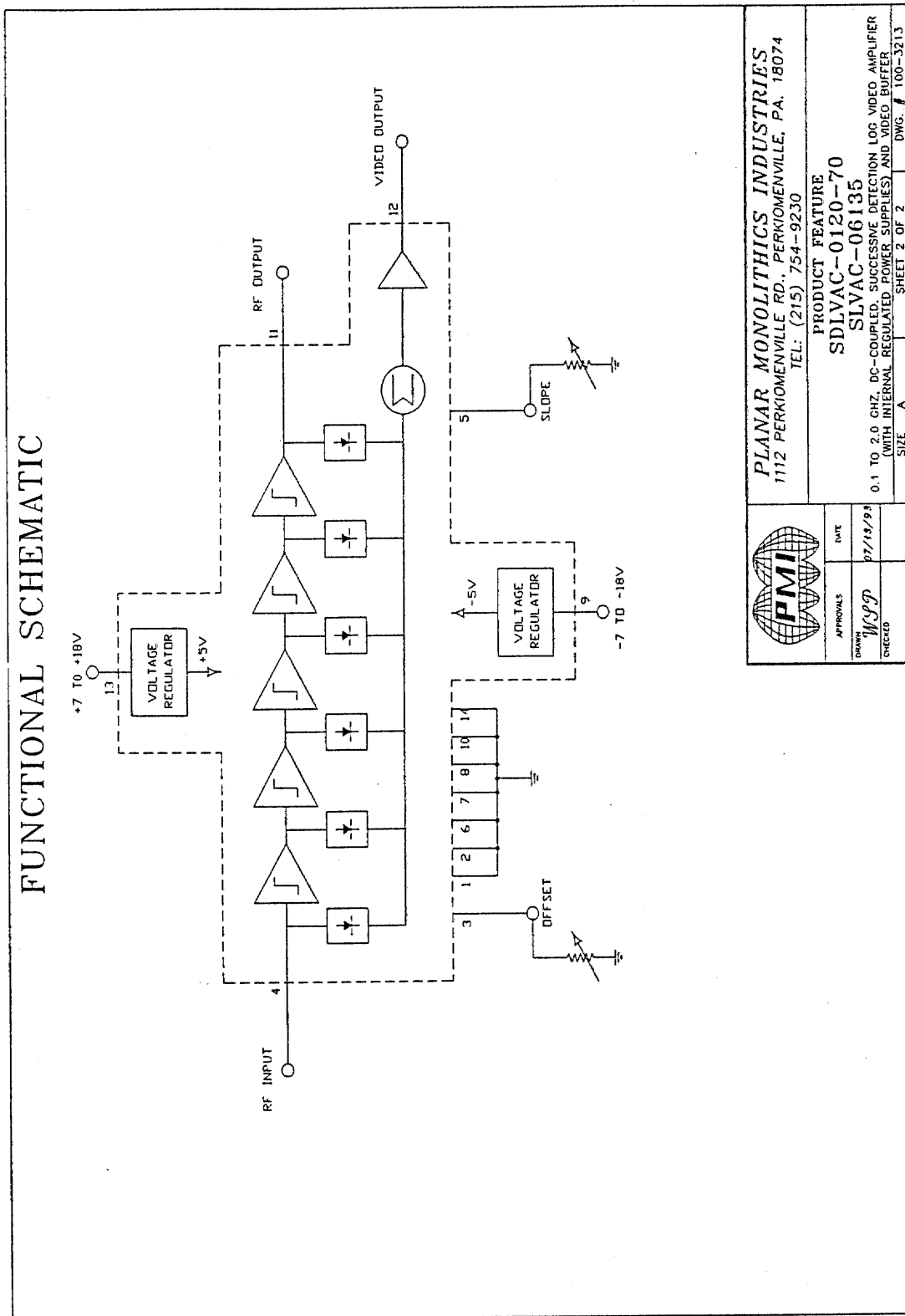
DATE: 07/19/93
 DRAWN: Wyp
 CHECKED:

ENVIRONMENTAL RATINGS

- TEMPERATURE: -55°C TO +85°C (OPERATING)
-65°C TO +100°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
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FUNCTIONAL SCHEMATIC



		APPROVALS DRAWN: <i>WJG</i> CHECKED:	
PLANAR MONOLITHICS INDUSTRIES 1112 PERKIOMENVILLE RD., PERKIOMENVILLE, PA. 18074 TEL: (215) 754-9230		PRODUCT FEATURE SDLVAC-0120-70 SLVAC-06135 0.1 TO 2.0 CHZ. DC-COUPLED, SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (WITH INTERNAL REGULATED POWER SUPPLIES) AND VIDEO BUFFER SHEET 2 OF 2 SIZE A DWG. # 100-3213	
DATE: 07/15/93		DATE:	



TEST DATA ON SDLVAC-0120-70M S/N: PM70506

FORM: SMB-P61119E



JOB NO: P61119E

SUMMARY TEST DATA
 ON
 SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: MB ELECTRONIQUE
 JOB NO: P61119E
 MODEL NO: SDLVAC-0120-70
 SERIAL NO: PM70506

TESTED BY: B.B.
 DATE: 5/30/97

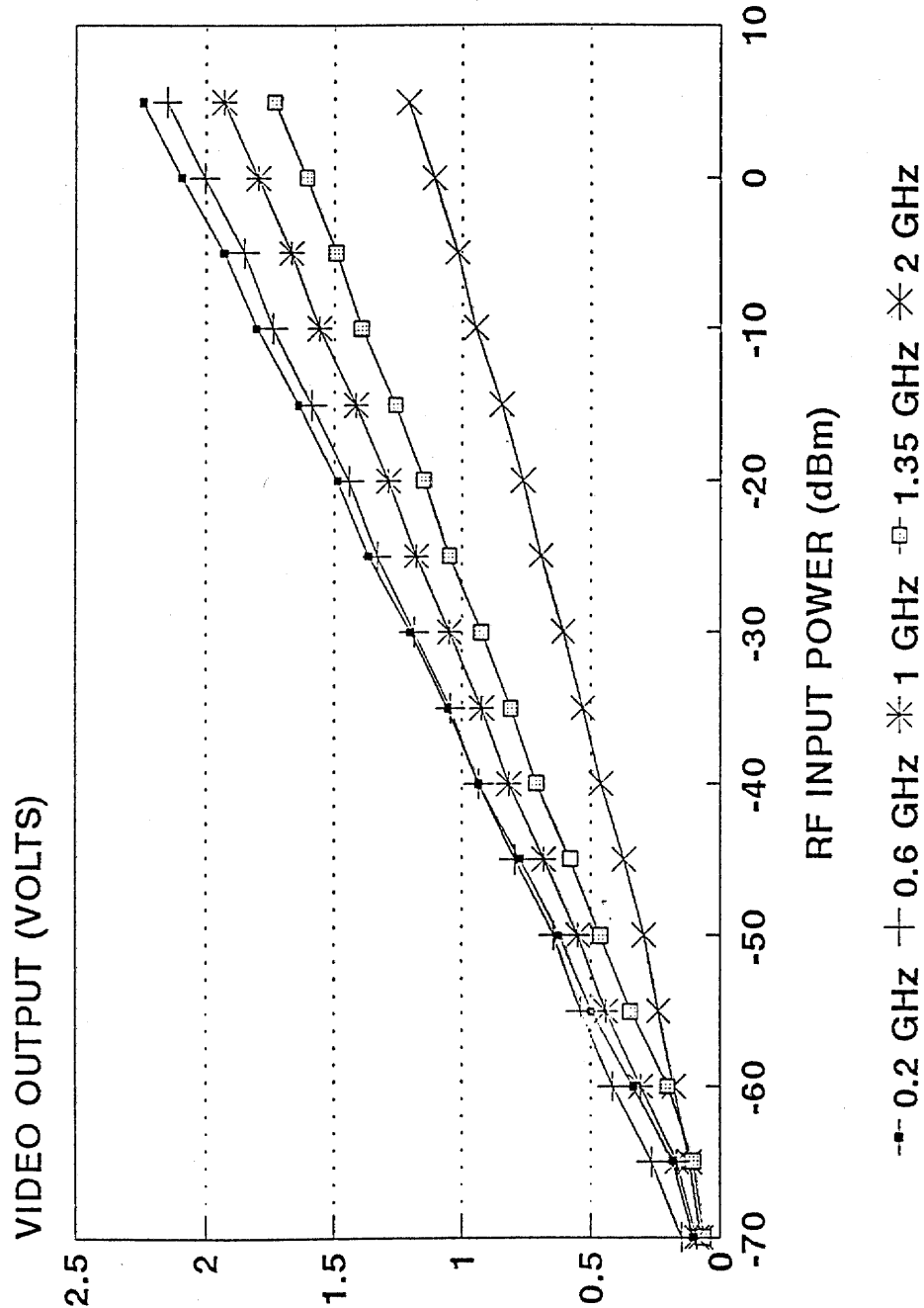
TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	FREQUENCY RANGE	0.1 TO 2 Ghz (min)	PASS	✓
2	DYNAMIC RANGE	-60 TO + 5 dBm(min)	PASS	✓
3	LOG LINEARITY ERROR : -60 to + 5 dBm	+/- 1.5 dB (max)	-1.4dB	✓
4	LOG SLOPE	ADJUSTABLE	PASS	✓
5	OFFSET	ADJUSTABLE	PASS	✓
6	RISE TIME	25 ns (max)	160 Sec	✓
7	FALL TIME	30 ns (max)	300 Sec	✓
8	LIMITED OUTPUT	-14 dBm Typical	-14dBm	✓
9	VSWR - INPUT	1.8:1 (max)	PASS	✓
10	DC POWER - 7 VOLTS	180 mA (max)	143mA	✓
11	DC POWER +7 VOLTS	40 mA (max)	26mA	✓

PRODUCTION MANAGER APPROVAL: [Signature] DATED: 5/30/97
 QA/QC APPROVAL: [Signature] DATED: 5/30/97
 BY: QI



LOG TRANSFER WITH FREQUENCY S/N: PM70506

SDLVAC-0120-70 : S/N PM70506
LOG TRANSFER WITH FREQUENCY

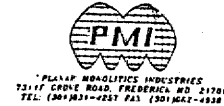


+ 25 C, 5/30/97



TEST DATA ON SDLVAC-0120-70M S/N: PM70507

FORM: SMB-P61119E



JOB NO: P61119E

SUMMARY TEST DATA
 ON
 SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER-SDLVA

CUSTOMER: MB ELECTRONIQUE
 JOB NO: P61119E
 MODEL NO: SDLVAC-0120-70
 SERIAL NO: PM 70507

TESTED BY: B.B.
 DATE: 5/30/97

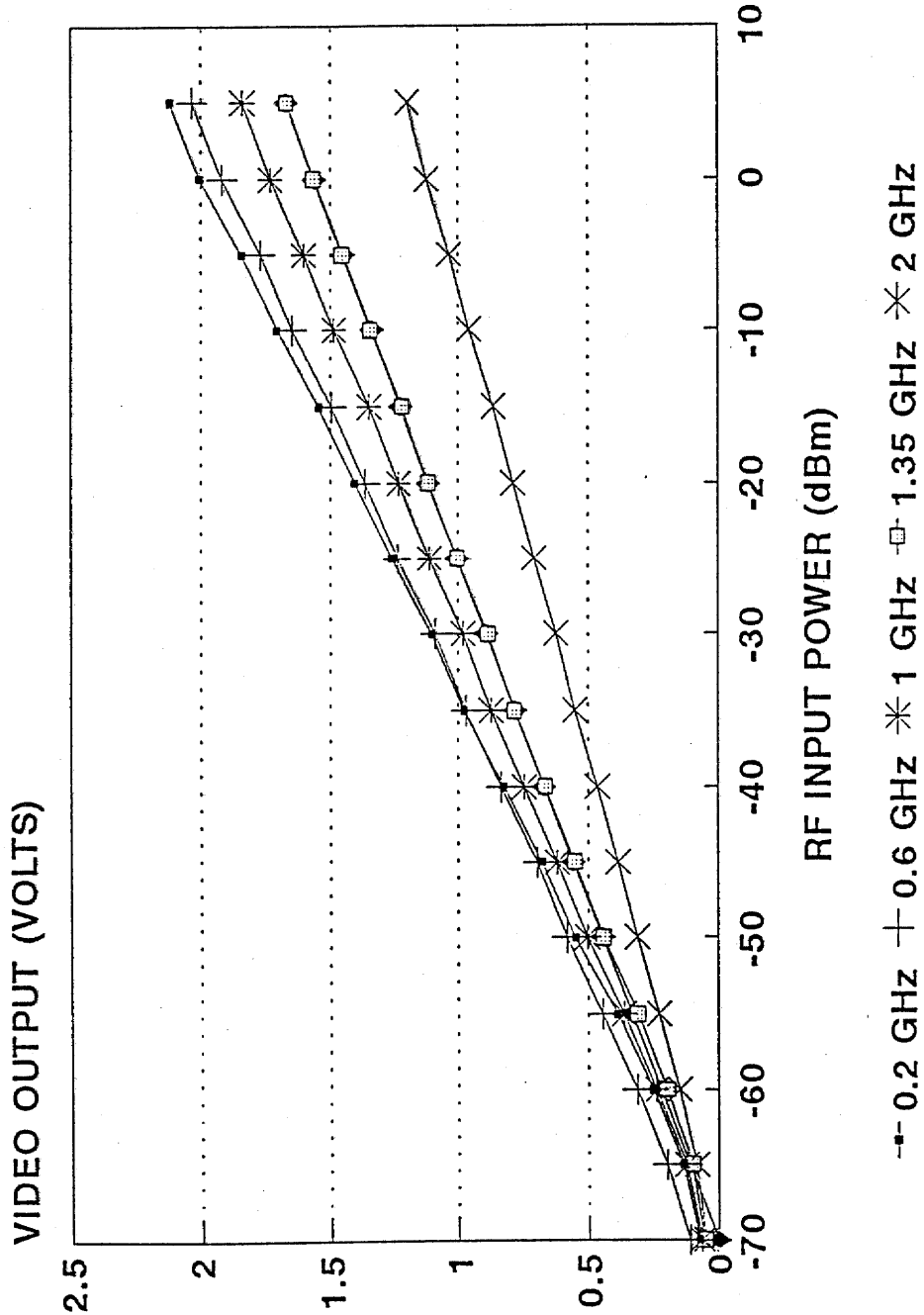
TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	REMARKS QA/QC
1	FREQUENCY RANGE	0.1 TO 2 Ghz (min)	PASS	✓
2	DYNAMIC RANGE	-60 TO + 5 dBm(min)	PASS	✓
3	LOG LINEARITY ERROR : -60 to + 5 dBm	+/- 1.5 dB (max)	±0.6dB	✓
4	LOG SLOPE	ADJUSTABLE	PASS	✓
5	OFFSET	ADJUSTABLE	PASS	✓
6	RISE TIME	25 ns (max)	18ns	✓
7	FALL TIME	30 ns (max)	28ns	✓
8	LIMITED OUTPUT	-14 dBm Typical	-16dBm	✓
9	VSWR - INPUT	1.8:1 (max)	PASS	✓
10	DC POWER -7 VOLTS	180 mA (max)	127mA	✓
11	DC POWER +7 VOLTS	40 mA (max)	25mA	✓

PRODUCTION MANAGER APPROVAL: [Signature] DATED: 5/30/97
 QA/QC APPROVAL: [Signature] DATED: 5/30/97



LOG TRANSFER WITH FREQUENCY S/N: PM70507

**SDLVAC-0120-70 : S/N PM70507
LOG TRANSFER WITH FREQUENCY**



+ 25 C, 5/30/97