

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
B		REDRAWN AND REVISED PER TDRR 19001			5-10-65	WLC
C		REPLACED BY REV D WITH CHANGES PER TDRR 19259			4/16/65	WLC

REQUIREMENTS:

1. GENERAL:

- A. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
- B. UNITS SHALL MEET THE REQUIREMENTS OF MIL-S-19500 EXCEPT AS, AND IN ADDITION TO, THE REQUIREMENTS SPECIFIED HEREIN.
- C. SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 2.
- D. MARKING: UNITS SHALL BE MARKED IN ACCORDANCE WITH ND 1002019 WITH THE MANUFACTURER'S IDENTIFICATION, DATE CODE, KEYING STRIPE AND THE NUMBER 321.
- E. PREPARATION FOR DELIVERY SHALL BE IN ACCORDANCE WITH ND 1002215, CLASS I, CODE 2.

(1) MARKING OF SHIPPING CONTAINERS SHALL CONFORM TO THE MARKING OF UNIT AND INTERMEDIATE PACKAGES AND THE METHODS OF MARKING AS SPECIFIED IN ND 1002215.

2. ACCEPTANCE AND INSPECTION: QUALITY DEMONSTRATION PER TABLES I, II, AND III.

A. DEFINITION: A LOT IS DEFINED AS A GROUP OF PARTS IN A SINGLE PROCUREMENT SELECTED FROM A SINGLE CONTINUOUS PRODUCTION RUN USING LIKE MATERIALS WHICH ARE CONTROLLED USING A PROCESS WHICH IS THE SAME FROM THE BEGINNING TO THE END OF THE RUN. MAXIMUM SHIPPED NUMBER OF UNITS IN ANY LOT SHALL BE 5000 UNITS.

B. TEST CONDITIONS:

- (1) THE TESTS AS DEFINED IN TABLES I, II, AND III SHALL BE PERFORMED BY THE QUALITY CONTROL DEPARTMENT OF THE VENDOR.
- (2) UNLESS OTHERWISE SPECIFIED HEREIN ALL ELECTRICAL TESTS MUST BE REFERENCED TO AN AMBIENT TEMPERATURE OF PLUS 25 PLUS OR MINUS 1/2 DEGREE CENTIGRADE.
- (3) THE PRE-SEAL TEST PER TABLE I SHALL BE PERFORMED AFTER THE FINAL PRODUCTION INTERNAL VISUAL INSPECTION AND PRIOR TO SEALING.

C. VENDOR SUPPLIED DATA:

- (1) DATA FROM TABLE I AND II SHALL ACCOMPANY THE LOT WHEN SHIPPED TO THE PURCHASER. UNITS USED IN QUALITY DEMONSTRATION TESTS OF TABLE III SHALL NOT BE SHIPPED AS PART OF THE DELIVERY BUT SHALL BE FORWARDED ALONG WITH THE TEST DATA FROM TABLE III UNDER SEPARATE COVER TO THE PURCHASER, ATTENTION: PURCHASING AGENT.
- (2) THE DATA SUPPLIED PER TABLE I SHALL INCLUDE THE NUMBER OF SUB-LOTS TESTED, THE NUMBER OF UNITS THAT FAILED FROM EACH SUB-LOT, THE CAUSE OF FAILURE, AND THE NUMBER OF TIMES THE SUB-LOT WAS RE-SUBMITTED. THE MAXIMUM SIZE FOR ANY SUB-LOT SHALL BE 1000 UNITS.
- (3) THE DATA SUPPLIED PER TABLE II SHALL INCLUDE THE NUMBER OF UNITS REJECTED PER THE TEST, THE CAUSE OF REJECTION, AND THE DATE CODE OF THE UNITS TESTED.
- (4) THE DATA SUPPLIED PER TABLE III SHALL INCLUDE THE NUMBER OF UNITS REJECTED PER THE TEST, THE CAUSE FOR REJECTION BY SERIAL NUMBER AND THE DATE CODE OF THE UNITS.

D. SELECTION OF UNITS FOR TEST:

- (1) THE SAMPLE USED FOR TABLE II SHALL BE RANDOMLY SELECTED FROM THE ENTIRE GROUP OF UNITS WHICH CONSTITUTE A LOT.
- (2) A LOT MAY BE RESUBMITTED FOR TABLE II AND TABLE III ONCE. THE REQUIREMENT OF MIL-S-1900c FOR LOT RESUBMITTAL SHALL APPLY WITH THE TIGHTENED INSPECTION FOR THE CHARACTERISTICS WHICH FAILED.
- (3) UNITS USED IN TABLE III, SUBGROUPS 1 AND 5 MAY BE ELECTRICAL REJECTS FROM THE SAME LOT.
- (4) ACCEPTABLE UNITS USED IN TESTING SUBGROUP 2 OF TABLE II SHALL BE USED IN SUBGROUPS 2, 3, AND 4 OF TABLE III. IN TABLE III ACCEPTABLE UNITS FROM SUBGROUP 2 MAY BE USED IN SUBGROUP 5.
- (5) AFTER COMPLETION OF TESTS, UNITS USED IN SUBGROUP 3 OF TABLE III SHALL BE USED IN SUBGROUPS 6 OF TABLE III.

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PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES CAPACITOR VALUES ARE IN $\mu$ f RESISTOR VALUES ARE IN OHMS TOLERANCES ON FRACTIONS DECIMALS ANGLES $\pm$ $\pm$ $\pm$ DO NOT SCALE THIS DRAWING
		MATERIAL
NEXT ASSY	USED ON	
APPLICATION		

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN	<i>A. M. arts</i>	5-5-65	
CHECKED	<i>[Signature]</i>	17-5-65	
APPROVED	<i>R. D. Hanley</i>	18 May 65	
APPROVED	<i>[Signature]</i>	17 May 65	
APPROVED MIT	<i>[Signature]</i>	DATE	
APPROVED MSC	<i>[Signature]</i>	DATE	
CODE IDENT NO.	SIZE	DRAWING NO.	
80230	C	1006321	
SCALE		SHEET 1 OF 6	

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REVISIONS						
SYM	ZONE	DESCRIPTION	DR	CHK	DATE	APPROVED
B		REDRAWN AND REVISED PER TDRR 19001			5-11-65	WLL
C		REPLACED BY REV D WITH CHANGES PER TDRR 19259			5-11-65	WLL

E. DATE CODE:

- (1) UNITS SHALL BE DATE CODED INDICATING THE WEEK SEALING OPERATION WAS PERFORMED. AN ADDITIONAL LETTER MAY BE ADDED TO THE DATE CODE TO SEPARATE LOTS FOR THE PURPOSE OF TRACEABILITY.

3. DESIGN:

A. ABSOLUTE MAXIMUM RATINGS AT 25°C AMBIENT:

- (1) VOLTAGE TO PIN 10: PLUS 10.0 VOLTS WITH RESPECT TO PIN 5.
- (2) VOLTAGE APPLIED TO ANY INPUT PIN PLUS OR MINUS 4 VOLTS WITH RESPECT TO PIN 5.
- (3) THERMAL RESISTANCE, JUNCTION-CASE. (0<sub>JC</sub>): 200°C/WATT.
- (4) THERMAL RESISTANCE, JUNCTION-AMBIENT. (0<sub>JA</sub>): 500°C/WATT.

B. TEMPERATURE:

- (1) TEMPERATURE RANGE, JUNCTION, OPERATING: -55°C TO +125°C.
- (2) TEMPERATURE RANGE, JUNCTION, STORAGE: -65°C TO +150°C.
- (3) TEMPERATURE, SOLDERING LEADS: +250°C (1 MINUTE MAX).

C. CONSTRUCTION:

- (1) SEMICONDUCTOR: SILICON, NPN.
- (2) ENCLOSURE: SEE FIGURE, HERMETICALLY SEALED AND ELECTRICALLY ISOLATED FROM POWER OR GROUND.
- (3) LEADS:  
LEAD MATERIAL SHALL BE IN ACCORDANCE WITH NASA DOCUMENT PS 1015402 WITH THE FOLLOWING EXCEPTIONS:  
GOLD PLATE SHALL BE A MINIMUM OF 100 AND A MAXIMUM OF 200 MICRO INCHES, THE NICKEL STRIKE UNDER THE GOLD SHALL BE OPTIONAL BUT IF USED SHALL BE A MAXIMUM OF 100 MICRO INCHES, AND PARAGRAPH 3.4.2. SHALL NOT APPLY. CERTIFICATE OF COMPLIANCE FOR LEAD MATERIAL SHALL ACCOMPANY EACH LOT SHIPPED.

4. TEST METHODS: (REF. MIL-STD-750 WITH EXCEPTIONS NOTED BELOW).

- A. LEAD FATIGUE: LEADS SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING LEAD BEND TEST. THE UNIT SHALL BE HELD IN A VERTICAL POSITION WITH A 2 OUNCE WEIGHT SUSPENDED FROM THE LEAD TO BE TESTED. TWO CYCLES OF BENDING SHALL BE PERFORMED. A CYCLE CONSISTING OF MOVING THE BODY OF THE UNIT, 45 DEGREES FROM THE VERTICAL IN ONE DIRECTION, AND BACK 45 DEGREES TO THE ORIGINAL POSITION. NO MECHANICAL DAMAGE SHALL BE EVIDENCED AFTER THE TEST.
- B. LEAD TENSION: EACH LEAD SHALL BE CAPABLE OF WITHSTANDING AN AXIAL PULL OF 1 POUND MINIMUM FOR 30 SECONDS. NO MECHANICAL DAMAGE SHALL BE EVIDENCED AFTER THE TEST.
- C. SEAL TEST:  
THE UNITS SHALL BE SUBJECTED TO THE LEAK TESTS AS SPECIFIED IN ND 1002246. A LEAKAGE RATE OF  $5 \times 10^{-8}$  cc/atm/sec OR GREATER SHALL CONSTITUTE A FAILURE.
- D. AVERAGE PROPAGATION DELAY (T<sub>p</sub>): MEASUREMENTS SHALL BE PERFORMED ON EACH INPUT USING TEST CIRCUIT SPECIFIED IN FIGURE 1 MADE UP OF ACCEPTABLE UNITS WHERE  $T_p = (T_1 + T_2)/2$ . VOLTAGE  $4V \pm 10\%$  DURING TEST ALL UNUSED BASES SHALL BE GROUNDED.

NOTED  
© REPLACED BY REV(D) WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	MATERIAL OR NOTES	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS				
		MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
		DRAWN <i>A. Marts</i> 5-5-65 CHECKED <i>W. H. H.</i> 12-5-65 APPROVED <i>R. D. H.</i> 11-11-65 APPROVED <i>E. G. C.</i> 17-11-65	DUAL NOR GATE (FLAT PACK) SPECIFICATION CONTROL DRAWING	
		APPROVED <i>W. H. H.</i> 11-11-65 APPROVED <i>R. D. H.</i> 5-11-65	CODE IDENT NO. 80230 SIZE C	DRAWING NO. 1006321
NEXT ASSY		USED ON	SCALE	SHEET 2 OF 6
APPLICATION				

4

3

2

1

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MAX BODY DIMENSIONS INCLUDE ALL GLASS CLIMB. BODY DIM. TO BE SYMMETRICAL ABOUT  $\epsilon$  WITHIN .010 AND  $\epsilon$  OF LEADS TO BE SYMMETRICAL WITHIN .005 OF  $\epsilon$  OF PIN 1. LEAD DIMENSIONS TO BE MEASURED WITHIN .030 OF PACKAGE BODY

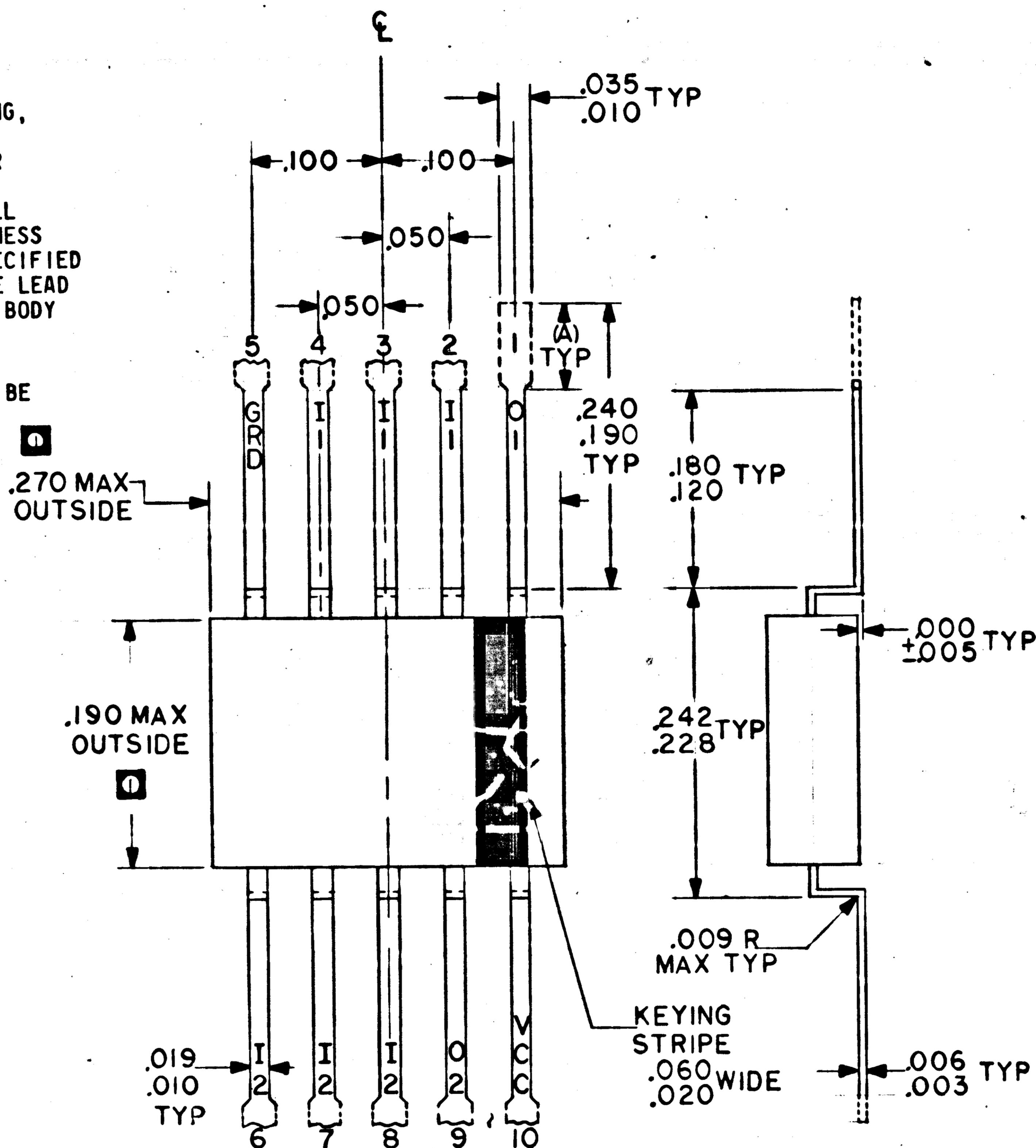
E. OPERATION LIFE: AN ODD NUMBER OF UNITS (GATES) SHALL BE CONNECTED IN SERIES WITH THE OUTPUT OF THE LAST UNIT SUPPLYING THE INPUT TO THE FIRST UNIT, THUS FORMING A "RING" AS SHOWN IN FIGURE 2 WITH 8V  $\pm$  5% DC APPLIED TO THE POWER TERMINALS OF ALL UNITS IN THE CIRCUIT ("RING") OSCILLATION MUST OCCUR AT THE INITIATION OF THE TEST.

F. VISUAL AND MECHANICAL EXTERNAL EXAMINATION:

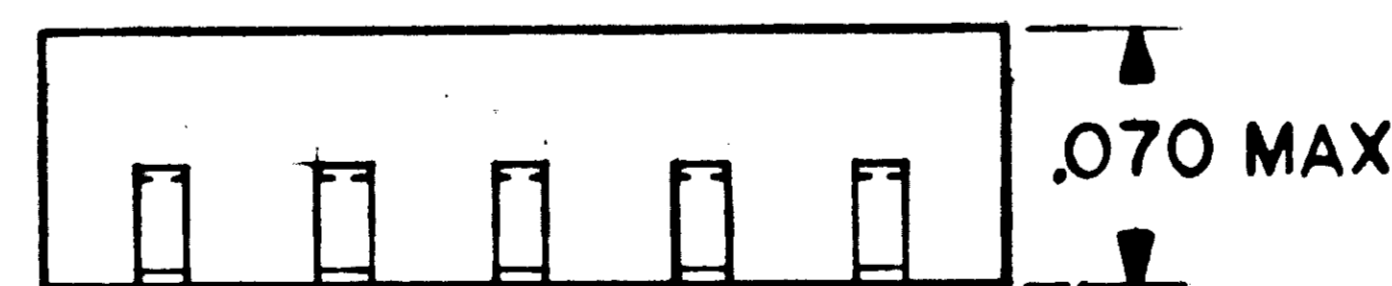
MARKINGS SHALL BE LEGIBLE. THE CASE FINISH SHALL HAVE NO FLAKING, SPATTERING, CHIPPING OR HOLES. THE GLASS OR CERAMIC SHALL HAVE NO SEAL IMPAIRING CRACKS. RE-ENTRANCE AT THE GLASS, CERAMIC OR SOLDER SEAL SHALL NOT EXTEND TO OVER 50% OF THE SEAL WIDTH. NO FOREIGN MATTER SHALL BE IN OR ON THE SEAL INTERFACE. LEADS SHALL BE FREE FROM KINKS AND NICKS AND SHALL MAINTAIN A UNIFORM THICKNESS WITHIN LEAD SPECIFICATIONS. THE UNITS SHALL COMPLY WITH THE SPECIFIED LEAD MATERIAL REQUIREMENT. LEAD SECTION (A) MAY BE CUT FROM THE LEAD PREFORM AND SHALL NOT BE SUBJECT TO PHYSICAL EXAMINATION. NO BODY PAINT SHALL BE ON THE LEADS OR PACKAGE SEAL AREA.

G. PRESEAL VISUAL INSPECTION: THE PRESEAL VISUAL INSPECTION SHALL BE PERFORMED USING THE REJECTION CRITERIA OF ND 1002257.

H. EMITTER-BASE BACK BIAS TEST: ALL BASE INPUTS SHALL HAVE MINUS 4 VOLTS WITH RESPECT TO THE COMMON EMITTER CONNECTION. THE DC CURRENT OF TABLE II SHALL BE PERFORMED BEFORE AND AFTER THE EMITTER-BASE BACK BIAS TEST WITH A MAXIMUM TOLERABLE CHANGE IN BETA OF  $\pm$ 10%.



TEST	TEST CONDITIONS	SUB LOT
VISUAL INTERNAL INSPECTION	SEE NOTE 2C(2) AND 4G	LTPD* = 7 MAX ACC NO = 1



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QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>J. Murphy</i>	21 APR 65	DUAL NOR GATE (FLAT PACK) SPECIFICATION CONTROL DRAWING	
CHECKED <i>R. H. S.</i>	17 MAY 65		
APPROVED <i>R. D. Hanley</i>	18 MAY 65	DRAWING NO. 1006321	
APPROVED <i>Ellen C. Hall</i>	17 MAY 65		
APPROVED MIT <i>W. J. ...</i>	16 MAY 65	CODE IDENT NO. 80230	SIZE C
APPROVED MSC <i>W. J. ...</i>	DATE	SCALE NONE	SHEET 3 OF 6

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1006321

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE CLASS A PER TDRR	15729 1/26/65	WJ
A	REVISED PER TDRR 17886	4/26/65	WJ
B	REVISED PER TDRR 19001	5-18-65	WJ
C	REPLACED BY REV D WITH CHANGES PER TDRR 19259	1/2/65	WJ

TABLE II

*** ACCEPTANCE INSPECTION **											
TEST	SYMBOL	TEST CONDITIONS						LIMITS		UNITS	LOT
								MIN	MAX		
SUBGROUP 1 VISUAL AND MECHANICAL EXAMINATION	-	METHOD 2071 SEE NOTE 3 D (6)						-	-		*LTPD = 10 MAX. ACC. NO. = 3
SUBGROUP 2 BASE CURRENT BASE CURRENT BASE CURRENT	I <sub>B</sub> I <sub>B</sub> I <sub>B</sub>	PIN 2,6 +870±2mV +1800±10mV +1800±10mV	PIN 3,7 +1800±10mV +870±2mV +1800±10mV	OV OV OV	PIN 4,8 +1800±10mV +1800±10mV +870±2mV	PIN 1,9 +4±.01V +4±.01V +4±.01V	PIN 10 +4±.01V +4±.01V +4±.01V	152 152 152	uA uA uA	*LPTD = 1.0 MAX. ACC. NO. 2 (COMBINED)	
OUTPUT VOLT. PIN 1,9 OUTPUT VOLT. PIN 1,9 OUTPUT VOLT. PIN 1,9	V <sub>O</sub> V <sub>O</sub> V <sub>O</sub>	+770±2mV OPEN OPEN	OPEN +770±2mV OPEN	OV OV OV	OPEN OPEN +770±2mV	+4±.01V +4±.01V +4±.01V	300 300 300	mV mV mV			
SAT. VOLT. PIN 1,9 SAT. VOLT. PIN 1,9 SAT. VOLT. PIN 1,9	V <sub>S</sub> V <sub>S</sub> V <sub>S</sub>	+870±2mV OPEN OPEN	OPEN +870±2mV OPEN	OV OV OV	OPEN OPEN +870±2mV	+4±.01V +4±.01V +4±.01V	220 220 220	mV mV mV	*LTPD = 5 (COMBINED) MAX. ACC. NO. = 3		
OUTPUT CURRENT PIN 1,9 COLLECTOR-EMITTER THRESHOLD CURRENT	I <sub>O</sub> I <sub>CEX</sub>	+500±2mV +500±2mV	+500±2mV +500±2mV	OV OV	+500±2mV +500±2mV	+870±2mV +100±.01V	+4±.01V OPEN	760 15	uA uA		
COLLECT. CUTOFF CURRENT EMITTER CUTOFF CURRENT COLLECT. CUTOFF CURRENT	I <sub>CEO</sub> I <sub>EBO</sub> I <sub>CBO</sub>	OPEN OV OV	OPEN OV OV	OV +4±.1V OPEN	OPEN OV OV	+5±.1V OPEN +8±.1V	OPEN OPEN OPEN	100 100 100	uA uA uA		
INTERFACE TEST	B <sub>1</sub>	870±2mV	OPEN	OV	OPEN	5KΩ TO +10V	OPEN	400	mV		
INTERFACE TEST	B <sub>2</sub>	OPEN	870±2mV	OV	OPEN	5KΩ TO +10V	OPEN	400	mV		
INTERFACE TEST	B <sub>3</sub>	OPEN	OPEN	OV	870±2mV	5KΩ TO +10V	OPEN	400	mV		
COLLECTOR EMITTER SUSTAINING VOLTAGE	V <sub>CEO</sub> SUST.	I <sub>C</sub> = 5mA (PULSED) PINS 1,9 AND 5						5		VOLTS	
AVERAGE PROPAGATION DELAY	T <sub>p</sub>	SEE NOTE 3D (4) AND FIGURE 1						24		nsec	*LTPD = 7 MAX. ACC. NO. = 1
COLLECTOR RESISTANCE	R <sub>L</sub>	BETWEEN PINS 10 AND 1,9 MEASUREMENT CURRENT = 1mA						2.7	4.15	Kohms	*LTPD = 10 MAX. ACC. NO. = 3
D.C. CURRENT GAIN	h <sub>FE</sub>	I <sub>C</sub> = 1mA, V <sub>CE</sub> = 0.5V ALL TRANSISTORS						30	200		*LTPD = 7 MAX. ACC. NO. = 1

- \* LTPD PER MIL-S-19500C, TABLE IV
- \*\* SAMPLE SIZE USED BY THE BUYER AND VENDOR SHALL BE THE SAME AND SHALL CORRESPOND TO THE MAX ACC NUMBER SPECIFIED IN MIL-S-19500C, TABLE IV
- \*\*\* MEASUREMENTS TO BE MADE ON GATE 1 AND GATE 2.
- \*\*\*\* TEKTRONIX SAMPLING PROBE P6032 WITH 50X ATTENUATOR
- \*\*\*\*\* TEST TO BE PERFORMED IN SEQUENCE INDICATED

© REPLACED BY REV(D) WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>A. Adams</i> DATE 22 DEC 64		<b>DUAL NOR GATE (FLAT PACK)</b> SPECIFICATION CONTROL DRAWING CODE IDENT NO. SIZE NASA DRAWING NO. <b>C C 1006321</b>	
CHECKED <i>R. D. Hanley</i>			
APPROVAL <i>R. D. Hanley</i>		SCALE _____ WT _____ SHEET 4 OF 6	
APPROVAL <i>Edmund Chel</i>			
NASA APPROVAL <i>W. J. P. Jones</i>			
MIT APPROVAL <i>W. J. P. Jones</i>			

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES ON

FRACTIONS	DECIMALS	ANGLES
± .001	± .0005	± .01

DO NOT SCALE THIS DRAWING

MATERIAL \_\_\_\_\_

HEAT TREATMENT \_\_\_\_\_

FINAL FINISH \_\_\_\_\_

NEXT ASSY \_\_\_\_\_ USED ON \_\_\_\_\_

APPLICATION \_\_\_\_\_

POSTER

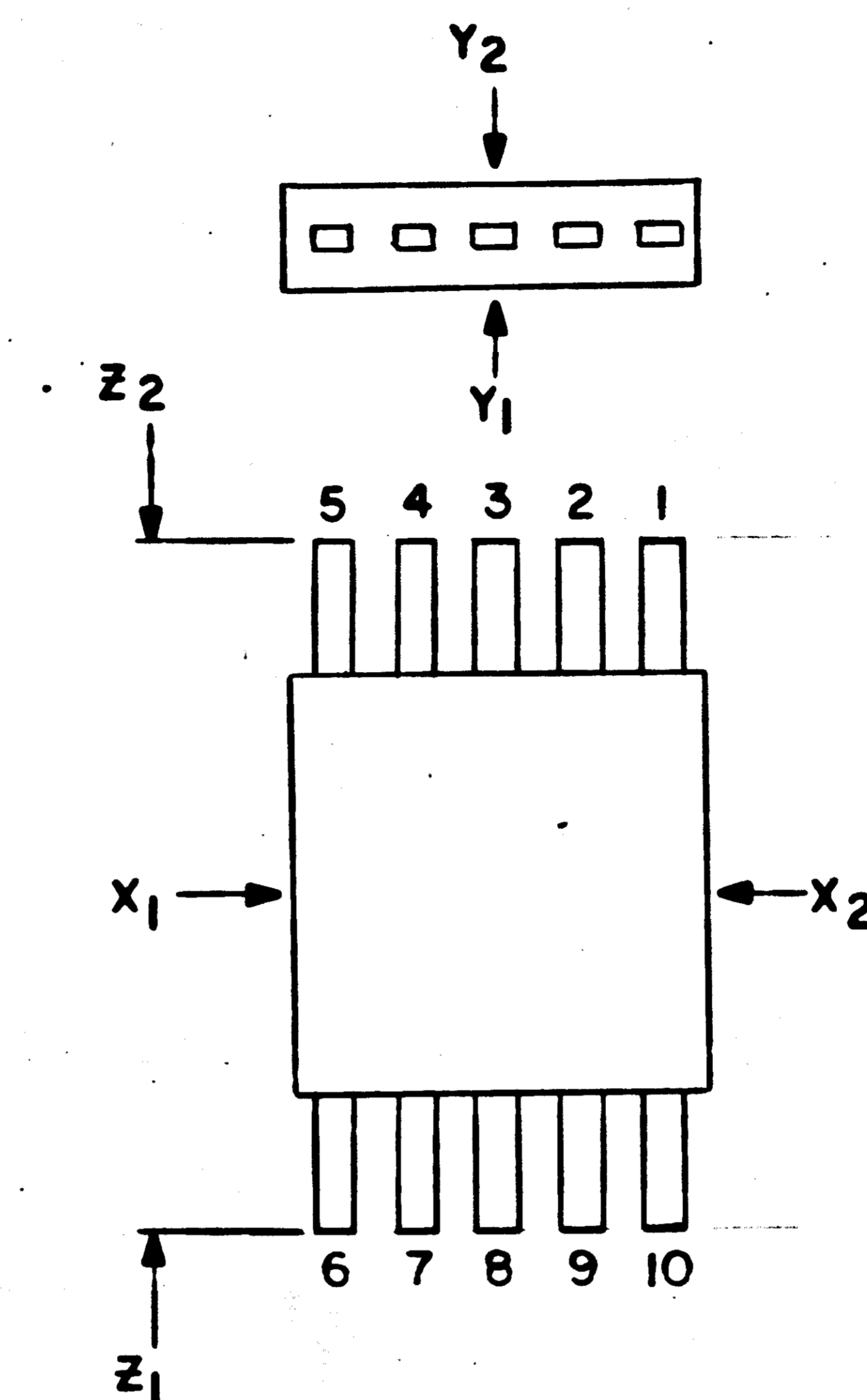
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1006321

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE CLASS A PER TDRR 15729	1/24/65	WR
A	REVISED PER TDRR 17886	4/21/65	WR
B	REVISED PER TDRR 19001	5-12-65	WR
C	THIS SHEET DELETED PER TDRR 19259	10/16/65	WR

TABLE III  
QUALITY DEMONSTRATION TESTS\*\*

TEST	TEST CONDITION	LOT
SUBGROUP 1 PHYSICAL DIMENSION	SEE NOTE 2 D(3) METHOD 2066	LTPD* = 20 MAX. ACC. NO.=1
SUBGROUP 2***** THERMAL SHOCK SEAL TEST	SEE NOTE 2 D(4) METHOD 1056, CONDITION B (150°C TO -65°C, 5 CYCLES) SEE NOTE 4 C	LTPD* = 7 (COMBINED) MAX. ACC. NO.=1
SUBGROUP 3***** STORAGE LIFE SHOCK VIBRATION VARIABLE FREQUENCY CONSTANT ACCELERATION	SEE NOTE 2D(4) METHOD 1031 tstg = 150 ± 5°C, 1000 HOURS METHOD 2016, 1500 G, 0.5 MSEC 5 BLOWS EACH IN ALL AXIS DIRECTIONS 30 BLOWS TOTAL METHOD 2056, 30 G FROM 5 TO 2000 CPS LIMITED TO 0.12 DOUBLE AMPLITUDE, 3 CYCLES, 15 MINUTES PER CYCLE MINIMUM METHOD 2006, (20,000 G) Y1 & Y2 AXIS ONLY	LTPD* = 5 (COMBINED) MAX. ACC. NO.= 1
SUBGROUP 4 OPERATION LIFE	SEE NOTE 2 D (4) METHOD 1026 SEE NOTE 4 E AND FIGURE 2 T <sub>A</sub> = +22°C MIN IN FREE AMBIENT AIR t = 1000 HOURS	λ* = 3 MAX. ACC. NO. = 0
SUBGROUP 5***** LEAD TENSION LEAD FATIGUE	SEE NOTE 2D(3) SEE NOTE 4A SEE NOTE 4B	LTPD* = 20 (COMBINED) MAX. ACC. NO.=1
SUBGROUP 6***** EMITTER-BASE BACK BIAS	SEE NOTE 4H (8) AND NOTE 2 D(5) t = 72 HOURS T <sub>A</sub> = 100 ± 5°C	LTPD* = 15 MAX. ACC. NO.=2



VIEW SHOWN FOR AXIS REFERENCE ONLY  
TABLE III (CONTINUED)

TEST	SYMBOL	TEST CONDITIONS	LIMIT		UNITS
			MIN	MAX	
END POINTS FOR SUBGROUPS 2, 3, 4 AND 6					
OUTPUT VOLTAGE, PIN 1, 9	V <sub>O</sub>	SAME AS SPECIFIED IN TABLE II	-	300	mV
OUTPUT VOLTAGE, PIN 1, 9	V <sub>O</sub>		-	300	mV
OUTPUT VOLTAGE, PIN 1, 9	V <sub>O</sub>		-	300	mV
OUTPUT CURRENT, PIN 1, 9	I <sub>O</sub>		760	-	mA
COLLECTOR EMITTER THRESHOLD CURRENT	I <sub>CEX</sub>		-	20	uA
BASE CURRENT, I 2, 6	I <sub>B</sub>		-	152	uA
BASE CURRENT, I 3, 7	I <sub>B</sub>		-	152	uA
BASE CURRENT, I 4, 8	I <sub>B</sub>		-	152	uA

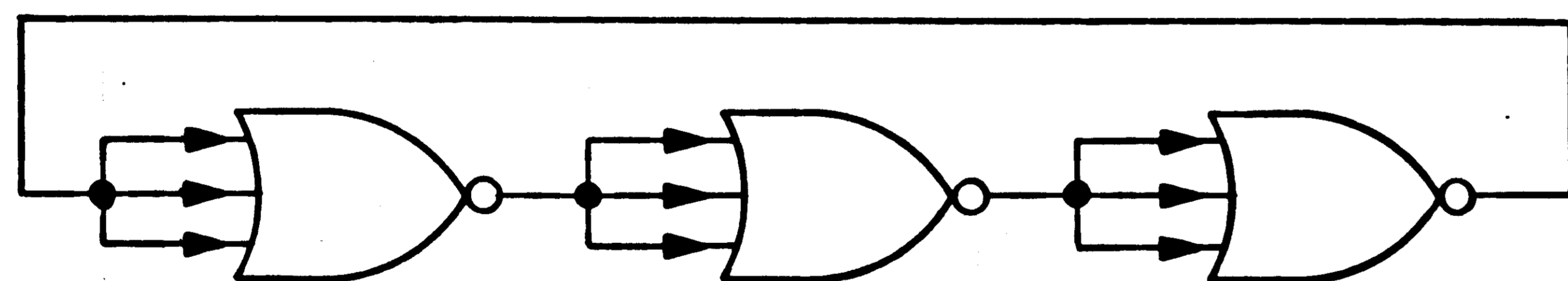


FIGURE 2  
TEST CIRCUIT - POWER BURN IN

© THIS SHEET DELETED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	
FRACTIONS DECIMALS ANGLES	± ± ±
DO NOT SCALE THIS DRAWING	
MATERIAL	
HEAT TREATMENT	
FINAL FINISH	
NEXT ASSY USED ON	
APPLICATION	

MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.	
DWG. NO.	CONTRACT
DRAWN <i>A. Addison Jr.</i> DATE <i>24 DEC 64</i>	
CHECKED <i>L. D. Hanley</i>	
APPROVAL <i>L. D. Hanley</i>	
APPROVAL <i>Elden C. Hall 20 Dec 64</i>	
NASA APPROVAL <i>W. J. R. 12-24-64</i>	
MIT APPROVAL <i>W. J. R. 12/24/64</i>	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MANNED SPACECRAFT CENTER HOUSTON, TEXAS			
DUAL NOR GATE (FLAT PACK) SPECIFICATION CONTROL DRAWING			
CODE IDENT NO.	SIZE	NASA DRAWING NO.	
	C	1006321	
SCALE NONE	WT	SHEET 5 OF 6	

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1006321

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	INITIAL RELEASE CLASS A PER TDRR 15729	1/24/65	WJK
A	REVISED PER TDRR 17886	4/2/65	WJK
B	THIS SHEET ADDED PER TDRR 19001	5-10-65	WJK
C	REPLACED BY REV D WITH CHANGES PER TDRR 19259	1/24/65	WJK

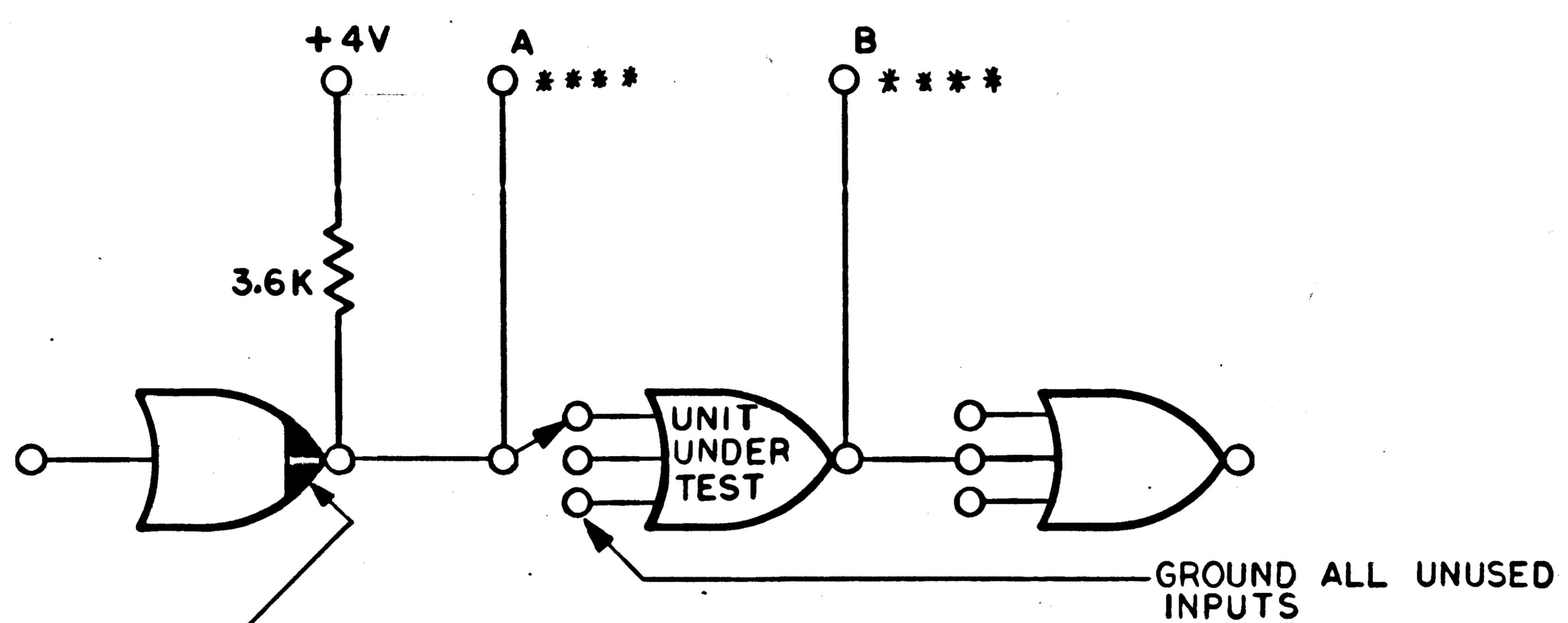
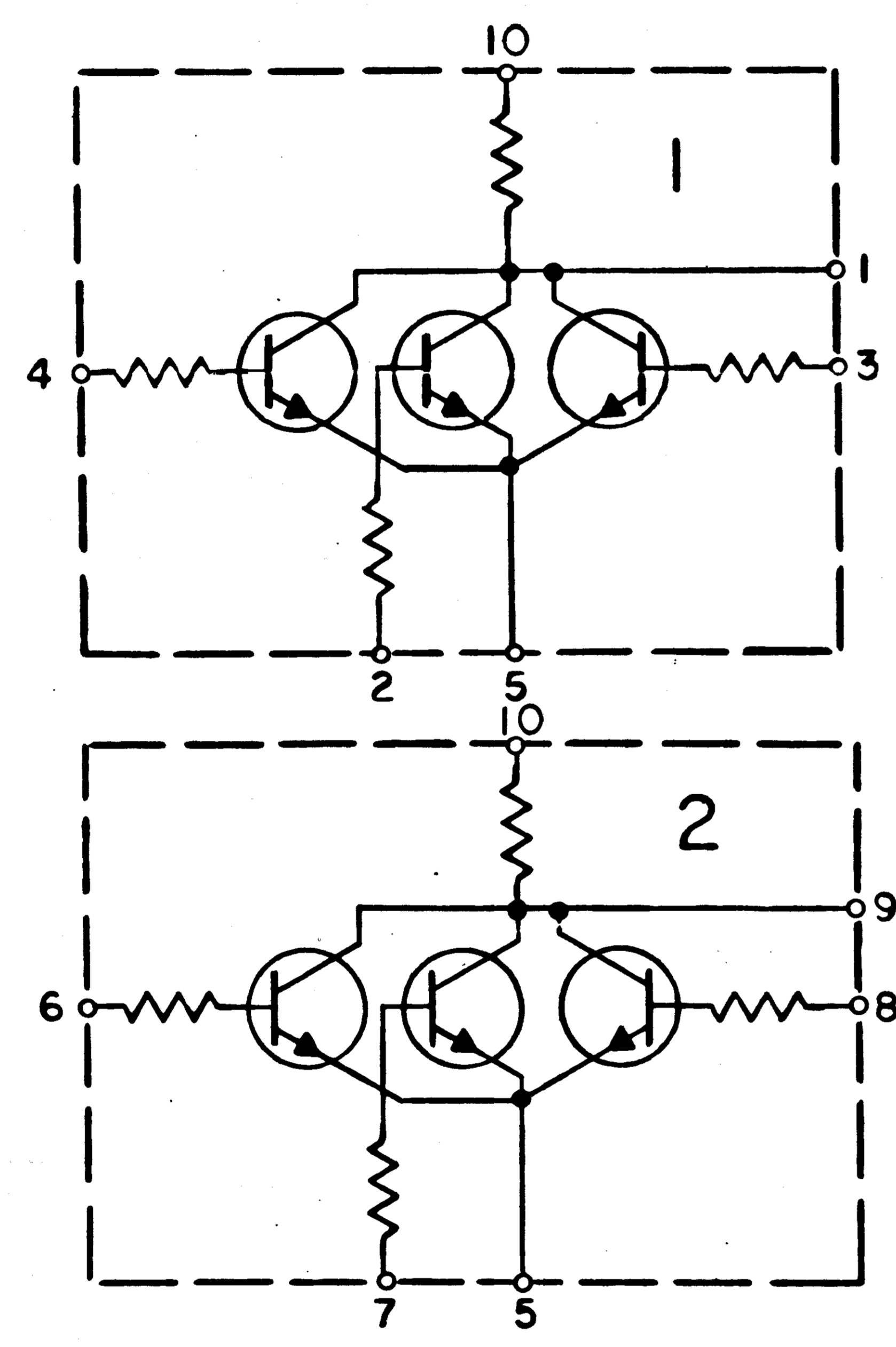
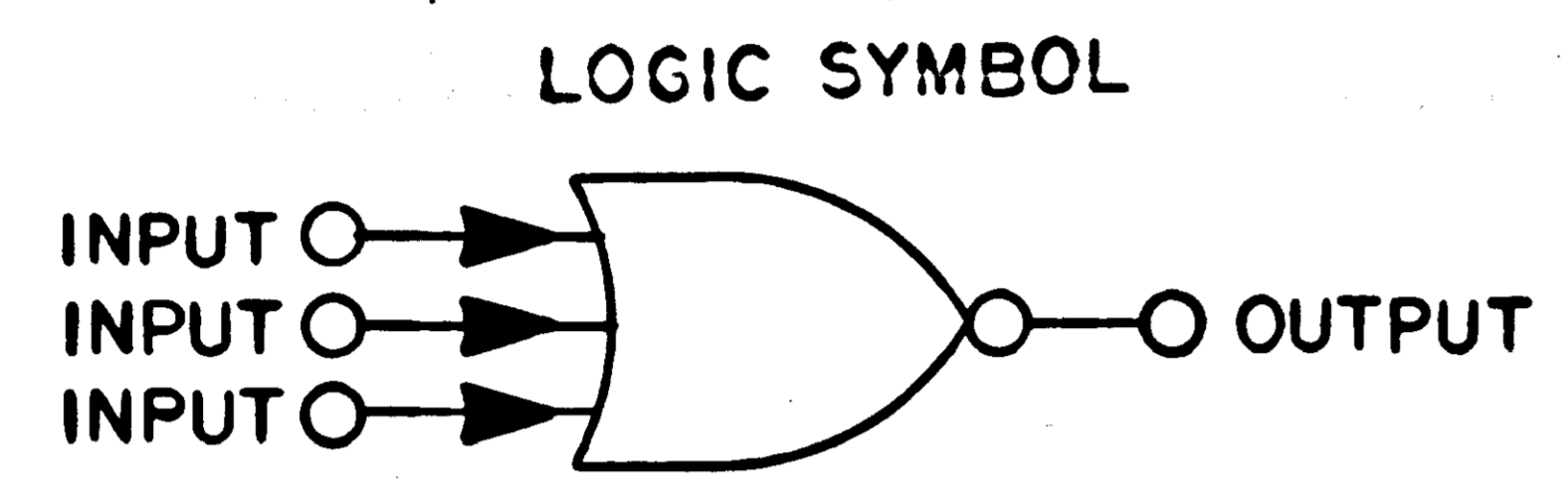
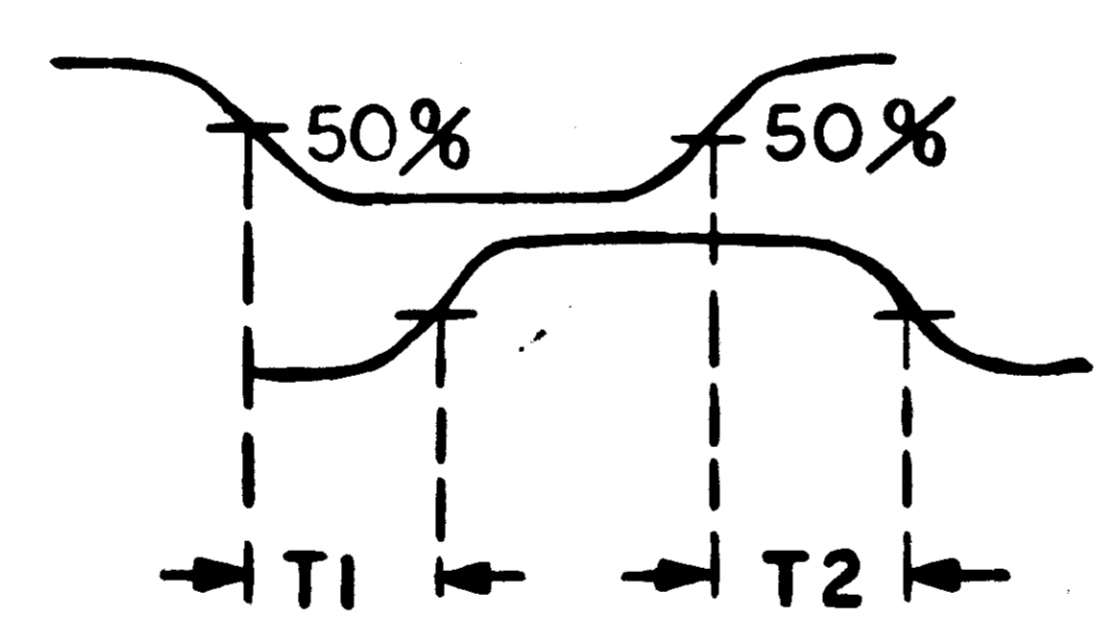
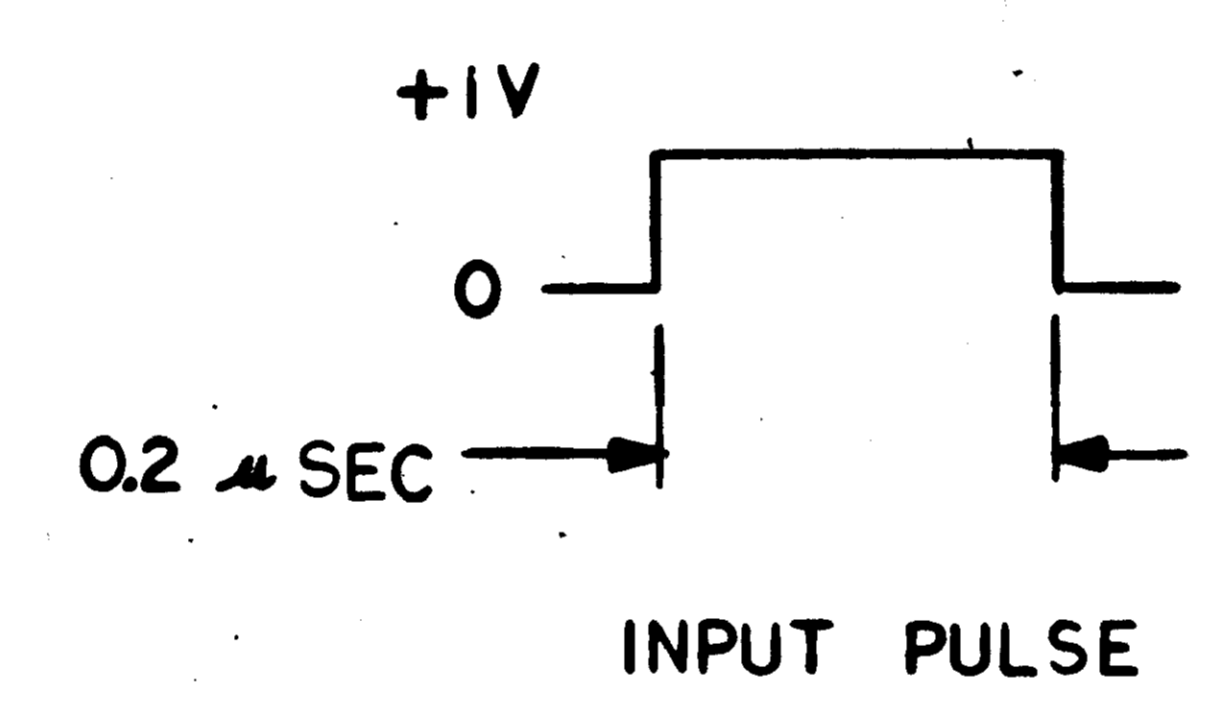


FIGURE I  
AVERAGE PROPAGATION DELAY



ⓑ THIS SHEET ADDED

ⓒ REPLACED BY REV(D) WITH CHANGES

MASTER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.	MANNED SPACECRAFT CENTER HOUSTON, TEXAS
TOLERANCES ON FRACTIONS DECIMALS ANGLES	DRAWN <i>A. Adamez</i> DATE 22 DEC 64	DUAL NOR GATE (FLAT PACK)
DO NOT SCALE THIS DRAWING	CHECKED <i>R. W. Hamby</i>	
MATERIAL	APPROVAL <i>R. W. Hamby</i>	SPECIFICATION CONTROL DRAWING
HEAT TREATMENT	NASA APPROVAL <i>W. J. R. [Signature]</i> 12-22-64	CODE IDENT NO. SIZE
FINAL FINISH	MIT APPROVAL <i>W. J. R. [Signature]</i> 1/24/65	NASA DRAWING NO. 1006321
NEXT ASSY USED ON APPLICATION		SCALE WT SHEET 6 OF 6

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			