

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 CONFERRING ANY RIGHTS OF PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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 WITH THE EXCEPTIONS AND ADDITIONS SPECIFIED HEREIN.
- C. THE SUPPLIER SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS AS CONTAINED IN ND 1015404, CLASS 2.
- D. UNITS SHALL BE CAPABLE OF MEETING THE QUALIFICATION REQUIREMENTS SPECIFIED IN ND 1002054.
- E. PACKAGING AND PACKING: UNIT PACKAGING AND PACKING SHALL BE IN ACCORDANCE WITH MIL-S-19491 LEVEL A, IN BOTH INSTANCES.

2. ACCEPTANCE AND INSPECTION:

- A. ELECTRICAL CHARACTERISTICS: PER TABLE I.
- (1) ITEMS 1 THRU 5: 100 PERCENT INSPECTION.
- (2) ITEMS 6 AND 7: SAMPLE IN ACCORDANCE WITH MIL-STD-105, INSPECTION LEVEL I, AQL OF 4 PERCENT.
- B. MECHANICAL PROPERTIES:
- (1) DIMENSIONS: PER OUTLINE. SAMPLE IN ACCORDANCE WITH MIL-STD-105, INSPECTION LEVEL I, AQL OF 4 PERCENT.
- (2) MARKING: DIODES SHALL BE MARKED IN ACCORDANCE WITH MIL-S-19500 WITH A BLACK BAND DENOTING THE CATHODE END AND THE THREE DIGITS 751 PER DRAWING. UNIT PACKAGES AND EXTERIOR SHIPPING CONTAINERS SHALL BE MARKED IN ACCORDANCE WITH ND1002019 AND SHALL INCLUDE THE NASA DRAWING NUMBER, REVISION LETTER AND DASH NUMBER.
- (3) LEAD MATERIAL: LEAD MATERIAL SHALL BE NICKEL PER PS 1015400. GOLD PLATING PER PARAGRAPH 3.2 IS OPTIONAL. A CERTIFICATE OF COMPLIANCE SHALL ACCOMPANY EACH SHIPMENT.

3. DESIGN:

- A. ABSOLUTE MAXIMUM RATINGS:
- (1) POWER DISSIPATION: 500 MILLIWATTS AT 25 DEGREES CENTIGRADE AMBIENT TEMPERATURE.
- (2) JUNCTION TEMPERATURE ( $T_j$ ): FROM MINUS 65 DEGREES CENTIGRADE TO PLUS 175 DEGREES CENTIGRADE.
- (3) STORAGE TEMPERATURE ( $T_{stg}$ ): FROM MINUS 65 DEGREES CENTIGRADE TO PLUS 200 DEGREES CENTIGRADE.
- (4) PEAK FORWARD SURGE CURRENT ( $i_f$  SURGE): 1 AMPERE FOR 1 SECOND MINIMUM. REPETITIVE DUTY CYCLE OF 1 PERCENT.
- B. CONSTRUCTION: CLEAR UNPAINTED GLASS, HERMETICALLY SEALED ENCLOSURE.
- C. THERMAL SHOCK: UNITS SHALL BE CAPABLE OF WITHSTANDING A THERMAL SHOCK IN SILICON OIL FROM ZERO DEGREES CENTIGRADE TO +300 DEGREES CENTIGRADE FOR 5 COMPLETE CYCLES. TOTAL IMMERSION TIME EACH HALF CYCLE SHALL BE 30 SECONDS. ELAPSED TRANSFER TIME FROM ONE TEMPERATURE EXTREME TO THE OTHER SHALL NOT EXCEED 3 SECONDS. UNITS SHALL SHOW NO PHYSICAL DAMAGE OR LACK OF ELECTRICAL PERFORMANCE AFTER THERMAL SHOCK.

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

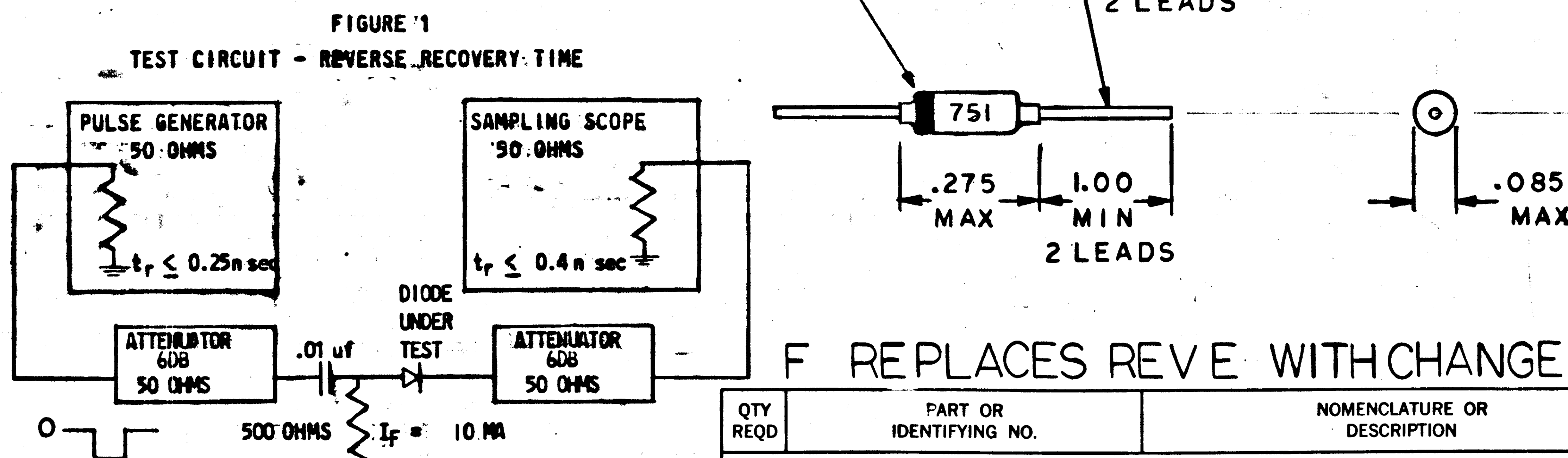
- D. LEAD BEND TEST: EACH LEAD SHALL BE CAPABLE OF WITHSTANDING A LEAD BEND TEST IN ACCORDANCE WITH MIL-STD-750, METHOD 2036, TEST CONDITION E.

NO MECHANICAL DAMAGE OR LACK OF ELECTRICAL PERFORMANCE SHALL BE EVIDENCED AFTER THIS TEST.

- E. LEAD PULL TEST: EACH LEAD SHALL BE CAPABLE OF WITHSTANDING A LEAD PULL TEST IN ACCORDANCE WITH MIL-STD-750, METHOD 2036, TEST CONDITION A WITH A STRAIGHT AXIAL PULL OF 4 POUNDS MINIMUM FOR 1 MINUTE: NO MECHANICAL DAMAGE OR LACK OF ELECTRICAL PERFORMANCE SHALL BE EVIDENCED AFTER THIS TEST.

4. SPECIAL CONDITIONING BY SUPPLIER.

- A. "BURN-IN: PARTS SHALL BE BURNED-IN FOR 240 HOURS AT THE FOLLOWING CONDITIONS:
- (1) AMBIENT TEMPERATURE,  $T_A = +25^\circ \pm 5^\circ\text{C}$ .
- (2) THE DIODE SHALL BE STRESSED BY AN APPROXIMATELY SINUSOIDAL  $60 \pm 6$  CPS SINE WAVE AT 25 VOLT PEAK. THE AVERAGE AC CURRENT SHALL BE 75 MA.
- (3) DIODES THAT FAIL TO MEET ALL INITIAL REQUIREMENTS AND THE SPECIFIED LIMITS FOR PARAMETRIC CHANGES FOLLOWING BURN-IN SHALL NOT BE ACCEPTABLE.
- (4) PARAMETRIC CHANGE LIMITS:
- (a) FORWARD VOLTAGE DROP: .030 VOLT MAXIMUM CHANGE
- (b) REVERSE CURRENT: 3 TIMES INITIAL MEASUREMENT OR 10 NANOAMPS, WHICHEVER IS GREATER. UNITS MEASURING 1 NANOAMP OR LESS MAY INCREASE TO 5 NANOAMPS."
- B. "THE MANUFACTURER SHALL DETERMINE AND RECORD THE FOLLOWING ELECTRICAL CHARACTERISTICS PRIOR TO AND FOLLOWING BURN-IN:
- (1) FORWARD VOLTAGE DROP AT  $I_F = 400$  MA.
- (2) REVERSE CURRENT AT  $T_A = -25^\circ\text{C}$ ."
- (CONTINUED ON SHEET 2)



F REPLACES REV E 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>C. Crisp</i> CHECKED <i>R. J. H. H. H. H.</i> APPROVAL <i>E. L. C. H. H. H.</i>		SEMICONDUCTOR DEVICE, DIODE	
SEE NOTES		SPECIFICATION CONTROL DRAWING	
HEAT TREATMENT		NASA APPROVAL <i>W. J. H. H. H.</i> 07-17-63	NASA DRAWING NO. 1006751
FINAL FINISH		MIT APPROVAL <i>L. H. H. H.</i> 7/7/63	CODE IDENT NO. SIZE C
NEXT ASSY		SCALE NONE WT	
USED ON		SHEET 1 OF 2	
APPLICATION			



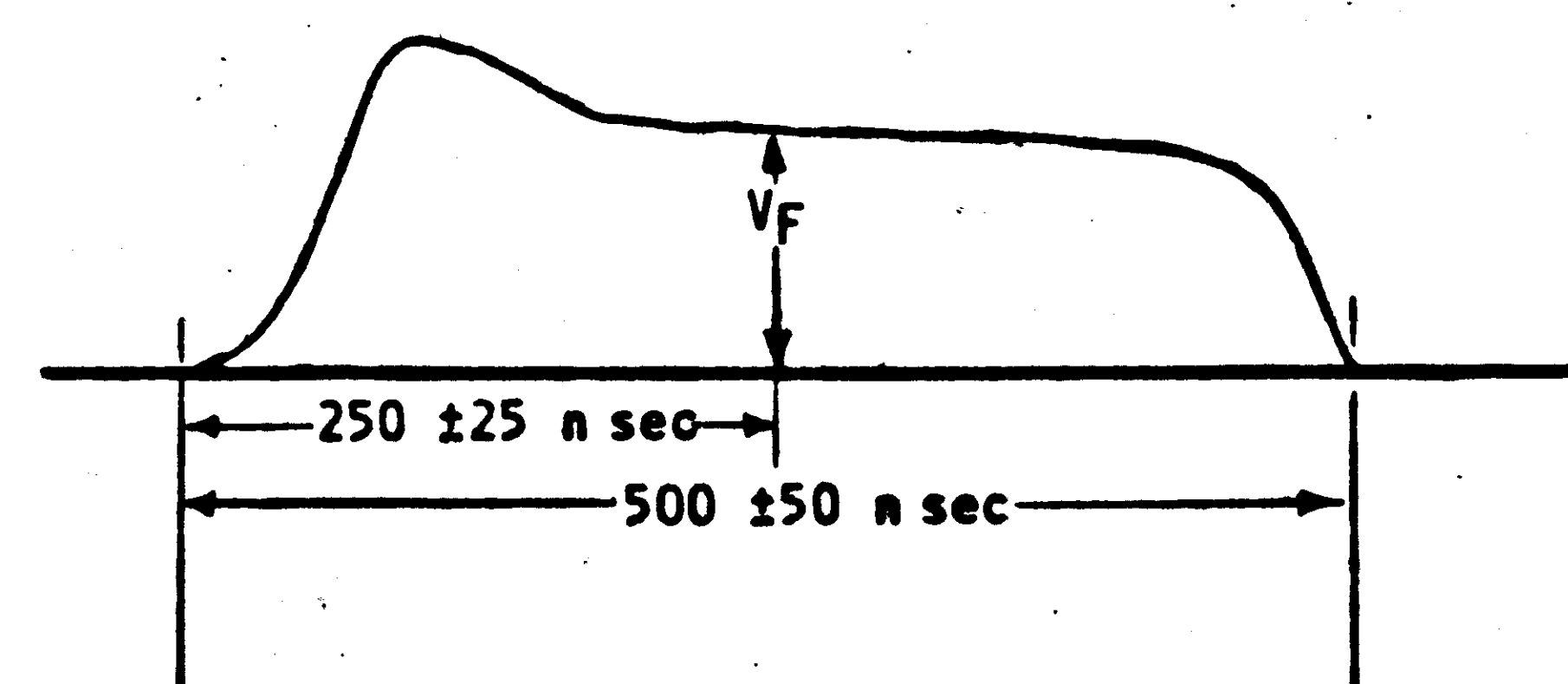
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TABLE I  
ELECTRICAL CHARACTERISTICS

ALL MEASUREMENTS AT 25°C ± 3°C UNLESS OTHERWISE NOTED						
ITEM	PARAMETER	SYMBOL	CONDITIONS	LIMITS		UNITS
				MIN	MAX	
1	REVERSE CURRENT	$I_R$	$V_R = 25$ VOLTS MIN	-	50	NANOAMPS
2	REVERSE BREAKDOWN VOLTAGE	BV	$I_R = 100$ UA	30	-	VOLTS
3	REVERSE RECOVERY TIME (SEE TEST CIRCUIT FIGURE 1)	$t_{rr}$	$I_F = 10$ MA $I_R = 10$ MA RECOVER TO 1 MA	-	70	NANOSECONDS
4	FORWARD VOLTAGE DROP  MIL-STD-750 METHOD 4026	$V_F$	$I_F = 40$ MA RISE TIME ≤ 100 NANOSEC DUTY CYCLE ≤ 1% SEE FIG. 2	.730	.850	VOLTS
5	FORWARD VOLTAGE DROP  MIL-STD-750 METHOD 4026	$V_F$	$I_F = 400$ MA RISE TIME ≤ 100 NANOSEC DUTY CYCLE ≤ 1% SEE FIG 2	-	1.35	VOLTS
6	CAPACITANCE	C	$V_R = 1$ VDC $f = 1$ MC	-	10	PICOFARADS
7	REVERSE CURRENT	$I_R$	AT 150°C $V_R = 25$ VOLTS MIN	-	30	MICROAMPS

NOTE: USING TEST METHOD UNIT PLACING STATION - NAME AND ADDRESS FOLLOWING  
UNIT PLACING STATION: 1006751-000, 1006751-001, 1006751-002

TABLE II		
PART NUMBER	ELECTRICAL CHARACTERISTICS	SPECIAL CONDITIONING BY SUPPLIER
1006751-000	PER TABLE I	NONE
1006751-001	PER TABLE I	PER PARAGRAPH 4



OUTPUT VOLTAGE WAVE SHAPE  
FIGURE 2

MASTER

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

4. SPECIAL CONDITIONING BY SUPPLIER (CONTINUED)

C. "THE DATA SHALL BE PRESENTED IN A MANNER THAT PROVIDES POSITIVE IDENTIFICATION OF EACH INDIVIDUAL DIODE WITH THE INITIAL TEST READING, THE FINAL READING, AND THE PER CENT OR ABSOLUTE CHANGE BETWEEN THE FINAL AND INITIAL READING. THE TEST DATA SUBMITTED SHALL ALSO IDENTIFY PARTS THAT FAIL TO MEET THE SPECIFIED REQUIREMENTS."

D. "LOT: 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."

1929001

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
F	REPLACES REV. E WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDRR 02006	7/17/63	Det
G	REVISED PER TDRR 02819	8/29/63	ecm / JH
H	REVISED PER TDRR 06009		WKR
J	REVISED PER TDRR 06669		WKR
K	REVISED PER TDRR 13255	10/4	DD
L	REVISED PER TDRR 19608	6-2-65	WKR

F REPLACES REVE WITH CHANGES

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWS. NO. CONTRACT		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <u>E. G. Gaspard</u> DATE <u>27 June 63</u> CHECKED <u>A. W. Gaspard</u> DATE <u>27 June 63</u> APPROVAL <u>E. G. Gaspard</u> DATE <u>10 July 63</u>		SEMICONDUCTOR DEVICE, DIODE  SPECIFICATION CONTROL DRAWING	
NASA APPROVAL <u>W. J. Rhine</u> DATE <u>7-17-63</u>		CODE IDENT NO. SIZE C	NASA DRAWING NO. 1006751
MIT APPROVAL <u>W. J. Rhine</u> DATE <u>7/17/63</u>		SCALE NONE WT	SHEET 2 OF 2