

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 FOR ANY DELAY OR INADVERTENTLY 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 OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THEREBY.

1006751

| REVISIONS | | | |
|-----------|--|---------|--------------------|
| SYM | DESCRIPTION | DATE | APPROVAL |
| F | REPLACES REV E WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDRR 02006 | 7/17/63 | <i>[Signature]</i> |
| G | REVISED PER TDRR 02819 | 8/28/63 | <i>[Signature]</i> |

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.

- 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. A WEIGHT OF 16 OUNCES PLUS OR MINUS 1 OUNCE SHALL BE APPLIED TO EACH LEAD. THE LEAD SHALL BE RESTRICTED SUCH THAT THE BEND STARTS 3/32 INCH PLUS OR MINUS 1/32 INCH FROM THE BODY OF THE DEVICE. 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.

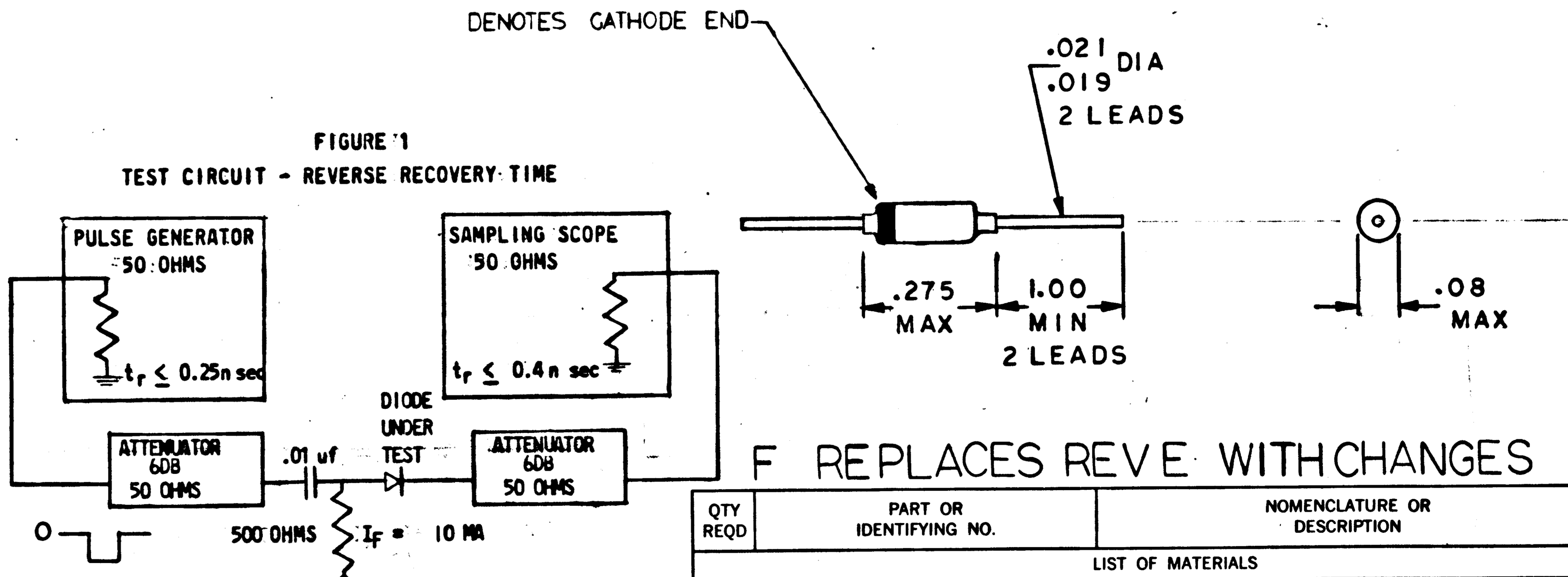
2. ACCEPTANCE AND INSPECTION:
- A. ELECTRICAL CHARACTERISTICS: PER TABLE I.
 - (1) ITEMS 1 THRU 5: 100 PERCENT INSPECTION.
 - (2) ITEMS 6 AND 7: SAMPLE IN ACCORDANCE WITH MIL-STD-105, INSPECTION LEVEL I, AQL OF 4 PERCENT.

- 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. UNIT PACKAGES AND EXTERIOR SHIPPING CONTAINERS SHALL BE MARKED IN ACCORDANCE WITH MIL-STD-129 AND SHALL INCLUDE THE NASA DRAWING NUMBER, REVISION LETTER AND DASH NUMBER.
 - (3) LEAD MATERIAL: LEAD MATERIAL SHALL BE NICKEL AND GOLD PLATED PER ND 1015400. A CERTIFICATE OF COMPLIANCE WITH THIS REQUIREMENT 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. REPETATIVE DUTY CYCLE OF 1 PERCENT.
 - B. CONSTRUCTION: GLASS, HERMETICALLY SEALED ENCLOSURE.
 - C. THERMAL SHOCK: UNITS SHALL BE CAPABLE OF WITHSTANDING A THERMAL SHOCK IN SILICON OIL FROM 270 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.

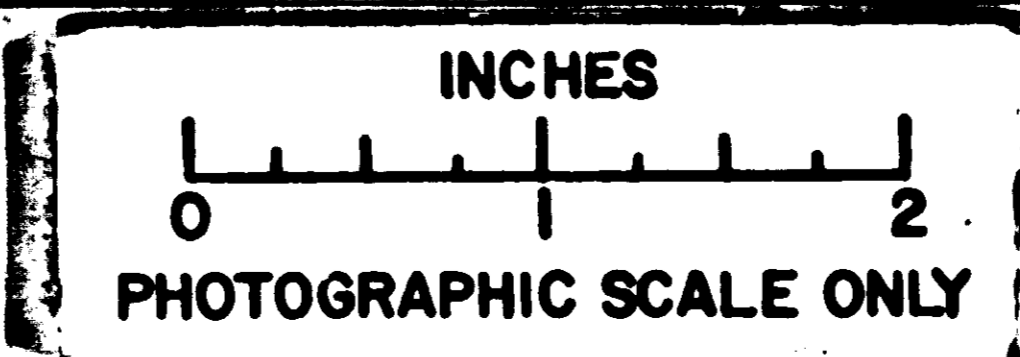
PROCURE ONLY FROM APPROVED SOURCES LISTED IN ND 1002034 FOR THIS DRAWING.

| | |
|---------------------------|---------|
| G | G |
| F | F |
| SHEET 1 | SHEET 2 |
| REVISION STATUS OF SHEETS | |



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>[Signature]</i> CHECKED: <i>[Signature]</i> APPROVAL: <i>[Signature]</i> | | SEMICONDUCTOR DEVICE, DIODE | |
| MATERIAL: SEE NOTES | | SPECIFICATION CONTROL DRAWING | |
| HEAT TREATMENT: | | CODE IDENT NO. C | NASA DRAWING NO. 1006751 |
| FINAL FINISH: | | SCALE NONE | SHEET 1 OF 2 |
| NEXT ASSY | USED ON | | |
| APPLICATION | | | |



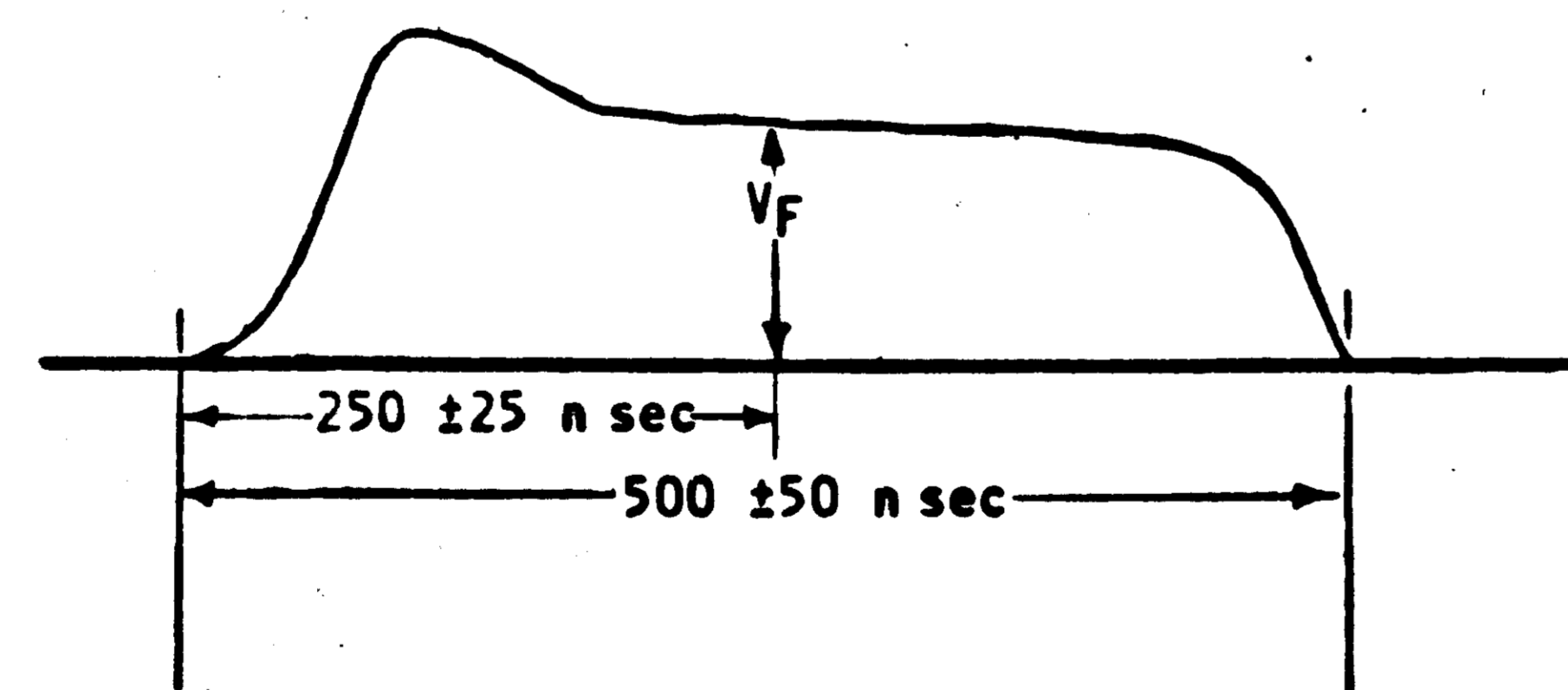
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| F | REPLACES REV. E WITH CHANGES AND UPGRADED TO CLASS A RELEASE PER TDRR 02006 | 7/17/63 | <i>JG</i> |
| G | REVISED PER TDRR 02819 | 8/28/63 | <i>ECM-1 JW</i> |

TABLE I
ELECTRICAL CHARACTERISTICS

| 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 OR EQUIVALENT SEE NOTE RECOVER TO 1 MA | - | 8 | NANOSECONDS |
| 4 | FORWARD VOLTAGE DROP MIL-STD-750 METHOD 4026 | V_F | $I_F = 40$ MA RISE TIME ≤ 100 NANOSEC DUTY CYCLE $\leq 1\%$ SEE FIG. 2 | .750 | .850 | VOLTS |
| 5 | FORWARD VOLTAGE DROP MIL-STD-750 METHOD 4026 | V_F | $I_F = 400$ MA RISE TIME ≤ 100 NANOSEC DUTY CYCLE $\leq 1\%$, SEE FIG 2 | - | 1.25 | VOLTS |
| 6 | CAPACITANCE | C | $V_R = 0$ VDC $f = 1$ MC | - | 3.5 | PICOFARADS |
| 7 | REVERSE CURRENT | I_R | AT 150°C $V_R = 25$ VOLTS MIN | - | 30 | MICROAMPS |

NOTE: USING TECHTRONIC S UNIT MEASURE STORED CHARGE UNDER FOLLOWING CONDITIONS: $I_F = 5$ ma; $I_R = 100$ u amp; t_{rr} max 0.5 u sec



OUTPUT VOLTAGE WAVE SHAPE
FIGURE 2

NOTED

F REPLACES REVE 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>E. Coopers</i> DATE 2/17/63 CHECKED <i>A. Hayward</i> 2/27/63 | | SEMICONDUCTOR DEVICE, DIODE | |
| APPROVAL <i>Edmund Hall</i> 7/17/63 | | SPECIFICATION CONTROL DRAWING | |
| HEAT TREATMENT | | CODE IDENT NO. | SIZE |
| NEXT ASSY | | NASA DRAWING NO. | |
| USED ON | | 1006751 | |
| APPLICATION | | SCALE NONE | WT |
| | | SHEET 2 OF 2 | |

