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 EXCEPTIONS AND ADDITIONS SPECIFIED HEREIN.
   D. UNITS SHALL BE CAPABLE OF MEETING THE QUALIFICATION REQUIREMENTS SPECIFIED IN MIL-STD-105D.
   E. PACKAGING AND PACKAGING: UNIT PACKAGING AND PACKAGING SHALL BE IN ACCORDANCE WITH MIL-STD-19491 LEVEL A, IN BOTH INSTANCES.

2. ACCEPTANCE AND INSPECTION:
   A. ELECTRICAL CHARACTERISTICS: PER TABLE 1.
      (1) ITEMS 1 THRU 5: 100 PERCENT INSPECTION.
      (2) ITEMS 6 AND 7: SAMPLE IN ACCORDANCE WITH MIL-STD-105D, INSPECTION LEVEL 1, AQL OF 4 PERCENT.
   B. MECHANICAL PROPERTIES:
      (1) DIMENSIONS: PER OUTLINE, SAMPLE IN ACCORDANCE WITH MIL-STD-105D, INSPECTION LEVEL 1, AQL OF 4 PERCENT.
      (2) MARKING: ITEMS 8 AND 9: DEPICTED IN ACCORDANCE WITH MIL-STD-19500.
   C. CONSTRUCTION:
      (1) MATERIAL: CLEAR UNPAINTED GLASS, HERMETICALLY SEALED ENCLOSURE.
      (2) PACKAGING AND PACKING: UNIT PACKAGING AND PACKAGING SHALL BE IN ACCORDANCE WITH MIL-STD-105D, LEVEL 1, IN BOTH INSTANCES.

3. DESIGN:
   A. ABSOLUTE MAXIMUM RATINGS:
      (1) POWER DISSIPATION: 500 MILLIWATTS AT 25 DEGREES CENTIGRADE AMBIENT TEMPERATURE.
      (2) JUNCTION TEMPERATURE (TJ): FROM MINUS 65 DEGREES CENTIGRADE TO PLUS 175 DEGREES CENTIGRADE.
      (3) STORAGE TEMPERATURE (TSTG): FROM MINUS 65 DEGREES CENTIGRADE TO PLUS 200 DEGREES CENTIGRADE.
      (4) PEAK FORWARD SURE CURRENT (IF): 1 AMPERE FOR 1 SECOND MINIMUM, REPEATED 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 400 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.

4. SPECIAL TESTING BY SUPPLIER:
   A. BURN-IN: PARTS SHALL BE BURNED-IN FOR 240 HOURS AT THE FOLLOWING CONDITIONS:
      (1) AMBIENT TEMPERATURE, Ta = +25 ± 5°C.
      (2) THE DIODE SHALL BE STRESSED AT 300 DEGREES CENTIGRADE FOR 240 HOURS.
      (3) FORWARD VOLTAGE DROP AT IF = 400 MA.
      (4) REVERSE CURRENT: 3 TIMES INITIAL MEASUREMENT OR 10 NANOAMPS, WHICHEVER IS GREATER.
      (5) ELAPSED TRANSFER TIME FROM ONE TEMPERATURE EXTREME TO THE OTHER SHALL NOT EXCEED 3 SECONDS.
   B. EXPLOSION-PROOF: UNITS SHALL BE CAPABLE OF WITHSTANDING AN EXPLOSION IN A HAZARDOUS ENVIRONMENT.

5. SPECIFICATIONS:
   A. MECHANICAL PROPERTIES:
      (1) ITEMS 1 THRU 3: 100 PERCENT INSPECTION.
      (2) ITEMS 4 AND 5: SAMPLE IN ACCORDANCE WITH MIL-STD-105D, INSPECTION LEVEL 1, AQL OF 4 PERCENT.
   B. CONSTRUCTION:
      (1) MATERIAL: LEAD MATERIAL SHALL BE NICKEL PLATED.
      (2) MARKING: Diodes shall be marked in accordance with requirements specified in MIL-STD-105D.

6. LEAD BEND TEST:
   A. EACH LEAD SHALL BE CAPABLE OF WITHSTANDING A LEAD BEND TEST IN ACCORDANCE WITH MIL-STD-750, METHOD 2016, TEST CONDITION E.
   B. NO MECHANICAL DAMAGE OR LACK OF ELECTRICAL PERFORMANCE SHALL BE EVIDENCED AFTER THIS TEST.

7. LEAD PULL TEST:
   A. EACH LEAD SHALL BE CAPABLE OF WITHSTANDING A LEAD PULL TEST IN ACCORDANCE WITH MIL-STD-750, METHOD 2016, TEST CONDITION C WITH A STRAIGHT AXIAL PULL OF 4 POUNDS MINIMUM FOR 1 MINUTE.
   B. NO MECHANICAL DAMAGE OR LACK OF ELECTRICAL PERFORMANCE SHALL BE EVIDENCED AFTER THIS TEST.

8. THERMAL SHOCK:
   A. UNITS SHALL BE CAPABLE OF WITHSTANDING A THERMAL SHOCK IN SILICON OIL FROM ZERO DEGREES CENTIGRADE TO PLUS 175 DEGREES CENTIGRADE.

9. ELECTRICAL PROPERTIES:
   A. ITEMS 1 THRU 3: 100 PERCENT INSPECTION.
   B. ITEMS 4 AND 5: SAMPLE IN ACCORDANCE WITH MIL-STD-105D, INSPECTION LEVEL 1, AQL OF 4 PERCENT.

10. DESCRIPTION:
    A. SPECIAL CONDITIONING BY SUPPLIER.
    B. THE MANUFACTURER SHALL DETERMINE AND RECORD THE FOLLOWING ELECTRICAL CHARACTERISTICS PRIOR TO AND FOLLOWING BURN-IN:
       (1) FORWARD VOLTAGE DROP AT IF = 400 MA.
       (2) REVERSE CURRENT, Ta = +25°C.

11. TOLERANCES ON MATERIAL:
    A. TOLERANCES:_+0.05_{\text{0.125}}" MAXIMUM CHANGE
    B. TOLERANCES:_+0.02_{\text{0.125}}" MAXIMUM CHANGE

This drawing replaces REV. E with changes and updated to class A release per TDRR 0622.

Specifications drawing number: NASA DRAWING NO. 1006751

Manned Spacecraft Center
Houston, Texas

Semiconductor Device, Diode

Designation: 1006751
**TABLE I**

**ELECTRICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>CONDITIONS</th>
<th>LIMITS</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>REVERSE CURRENT</td>
<td>$I_R$</td>
<td>$V_R = 25$ Volts Min</td>
<td>$-50$</td>
<td>NANOAMPS</td>
</tr>
<tr>
<td>2</td>
<td>REVERSE BREAKDOWN VOLTAGE</td>
<td>$V_{BR}$</td>
<td>$I_R = 100$ mA</td>
<td>$30$</td>
<td>VOLTS</td>
</tr>
<tr>
<td>3</td>
<td>REVERSE RECOVERY TIME (SEE TEST CIRCUIT FIGURE 1)</td>
<td>$t_{rec}$</td>
<td>$V_R = 40$ Volts</td>
<td>$100$ NANOSECONDS</td>
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</tr>
<tr>
<td>4</td>
<td>FORWARD VOLTAGE DROP</td>
<td>$V_F$</td>
<td>$I_F = 400$ mA</td>
<td>$0.750$</td>
<td>VOLTS</td>
</tr>
<tr>
<td>5</td>
<td>FORWARD VOLTAGE DROP</td>
<td>$V_F$</td>
<td>$I_F = 100$ mA</td>
<td>$3.50$</td>
<td>VOLTS</td>
</tr>
<tr>
<td>6</td>
<td>CAPACITANCE</td>
<td>$C$</td>
<td>$V_R = 1$ Volts</td>
<td>$10$</td>
<td>PICOFARADS</td>
</tr>
<tr>
<td>7</td>
<td>REVERSE CURRENT</td>
<td>$I_R$</td>
<td>$V_R = 25$ Volts Min</td>
<td>$30$</td>
<td>NANOAMPS</td>
</tr>
</tbody>
</table>

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. "Plot 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 by a process which is the same from the beginning to the end of the run."