REQUIREMENTS:

1. GENERAL:
   A. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.
   B. UNITS SHALL MEET THE GENERAL SPECIFICATION REQUIREMENTS OF MIL-S-19500 EXCEPT AS MODIFIED HEREIN.
   C. SUPPLIERS SHALL CONFORM TO THE QUALITY ASSURANCE PROVISIONS OF NO 1015460, CLASS 2.
   D. THE PARTS SHALL BE CAPABLE OF MEETING THE QUALIFICATION REQUIREMENTS OF ND 1002191 AND ND 1002190.
   E. PART MARKING: UNITS SHALL BE MARKED, IN ACCORDANCE WITH NO 1002191 WITH THE MANUFACTURER'S NAME, PART NUMBER, TYPE DESIGNATION, LOT CODE, AND NASA PART NUMBER (DRAWING NUMBER AND REVISION LETTER). POLARITY SHALL ALSO BE MARKED.
   F. PREPARATION FOR DELIVERY: UNIT PACKAGING AND PACKING SHALL BE IN ACCORDANCE WITH MIL-P-19491, LEVEL A. UNITS SHALL NOT BE PACKED IN ANY MANNER WHICH MAY CAUSE DAMAGE TO LEADS. PACKAGE MARKING SHALL BE IN ACCORDANCE WITH NO 1002215.

2. INSPECTION AND ACCEPTANCE:
   A. MECHANICAL REQUIREMENTS:
      (1) DIMENSIONS: AS DELINEATED HEREIN.
      (2) TOLERANCES: 6 UNITS SHALL BE Alloy No. 92 solder dipped.
      (3) MANUFACTURING: AS SPECIFIED HEREIN.
   B. ELECTRICAL CHARACTERISTICS: PER TABLE I.
      (1) REVERSE CURRENT (Iq)
      (2) FORWARD VOLTAGE (Vf)
      (3) RECUPERY TIME (Tja)
      (4) REVERSE BREAKDOWN (Pv)
   C. VENDOR SUPPLIED DATA: EACH SHIPMENT OF PARTS SHALL BE ACCOMPANIED BY THE FOLLOWING DATA:
      (1) CERTIFICATE OF COMPLIANCE WITH LEAD MATERIAL.

3. DESIGN REQUIREMENTS:
   A. ELECTRICAL RATINGS AT 25°C.
      (1) MAXIMUM RATING VOLTAGE (V): 180VOLTS (INTO RESISTIVE LOAD).
      (2) MAXIMUM AVERAGE FORWARD CURRENT: 14 AMPERES.
      (3) MAXIMUM FORWARD SURGE CURRENT: 150 AMPS, 1/2 CYCLE, 60 CPS, OPERATING AT CASE TEMPERATURE (Tc) 100°C.
   B. TEMPERATURE RATINGS:
      (1) OPERATING CASE TEMPERATURE (Tc) WITHOUT DERATING: -65°C TO +100°C.
      (2) STORAGE TEMPERATURE: -65°C TO +175°C.
      (3) THERMAL RESISTANCE: JUNCTION TO CASE TEMPERATURE 2°C/WATT.
   C. CONSTRUCTION:
      (1) SEMICONDUCTOR MATERIAL: SILICON.
      (2) CASE MATERIAL: NICKEL PLATED STEEL.
      (3) STUD MATERIAL: NICKEL PLATED COPPER ALLOY.
      (4) STUD TORQUE: SHALL BE CAPABLE OF 30 INCH-POUNDS MAXIMUM.

PROCURE ONLY FROM APPROVED SOURCES LISTED IN NO 1002215 FOR THIS DRAWING.

UNIT DIMENSIONS ARE IN INCHES
TOLERANCES ON CONTRACT NO. 4002034 MANNED SPACECRAFT CENTER HOUSTON, TEXAS

DECIMALS
ANGLES

SPECIFICATION CONTROL DRAWING

NEXT ASSY
USED ON
APPLICATION

MIT INSTRUMENTATION LAB
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEMICORPORATOR DEVICE, RECTIFIER,
POWER-FAST SWITCHING

UNLESS OTHERWISE SPECIFIED
CONDITIONS ARE IN INCHES
TOLERANCES ON
DECIMALS
ANGLES

DO NOT SCALE DRAWING
MATERIAL

APPROVAL
NASA

SCALE NONE

SHR 1 OF 2
TABLE 2 - ELECTRICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>LIMITS</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>Reverse Voltage, Peak</td>
<td>V_{R}</td>
<td>200</td>
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<tr>
<td>Reverse Current</td>
<td>I_{R}</td>
<td>10</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>V_{F}</td>
<td>1.3</td>
</tr>
<tr>
<td>Recovery Time, Reverse</td>
<td>t_{R}</td>
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</tr>
</tbody>
</table>

PARAMETER MIL-STD-750 TEST CONDITIONS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MIN</th>
<th>MAX</th>
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</thead>
<tbody>
<tr>
<td>Tc</td>
<td>25°C ± 3°C UNLESS SPECIFIED</td>
<td></td>
</tr>
</tbody>
</table>

REVERSE VOLTAGE, V_{R} = 30 VDC, Tc = 100°C

REVERSE CURRENT, I_{R} = 10 mA

FORWARD VOLTAGE, V_{F} = 1.3 VDC

RECOVERY TIME, t_{R} = 160 NANO-SEC

FROM I_{F} = 1.0 A TO V_{F} = 30 VDC

SEE FIGURE 2

REVERSE VOLTAGE, V_{R} = 30 VDC, Tc = 100°C

FIG.1 TYPICAL RECOVERY PATTERN

FIG.2 RECOVERY TIME TEST CIRCUIT

MERCURY DELAY MAKE BEFORE BREAK (FORM D)

BATTERIES - 5 BURGESS 4F4H (4 VOLT) SERIES
C1, C2 = 1 UF x 100 VOLDC DUAL FILM FILLER
F1 = 10 K 2 W
R3 = 50 OHM 3 WATT 1% CARBON FILM NON-INDUCTIVE
R4 = 4 WATT 10 K NON-INDUCTIVE
R1 = 10 K 2 W OHM
F3 = SUL0-36-6B-1 AMP

POWER SUPPLY = 35 VOLTS AT 1.0 AMP MINIMUM, RIPPLE 3 MILLIVOLTS OR LESS, OUTPUT IMPEDANCE 1/2 OHM MAXIMUM, DC TO 2000 CPS.

LIST OF MATERIALS

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES

INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327