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 COMPLY WITH THE QUALITY ASSURANCE PROVISIONS CONTAINED IN ND 1015404, CLASS 2.
   D. UNITS SHALL BE CAPABLE OF MEETING THE QUALIFICATION REQUIREMENTS OF ND 1002051.

2. ACCEPTANCE AND INSPECTION:
   A. MECHANICAL REQUIREMENTS (MIL-STD-105D, LEVEL I, AQL = 4.0)
      (1) DIMENSIONS: AS DELINEATED HEREIN.
      (2) MOUNTING HARDWARE: THE FOLLOWING PARTS AS DELINEATED SHALL ACCOMPANY EACH TRANSISTOR, PACKAGED IN ACCORDANCE WITH MD 1002215 - CLASS I CODE: 2.
         NUT, PLAIN, HEXAGON: CODE 7
         INSULATOR, WASHER: CODE 4
         INSULATOR, BUSHING: ALUMINA (96% A503)
   B. ELECTRICAL CHARACTERISTICS: THE FOLLOWING PARAMETERS, AS SPECIFIED IN TABLE I, SHALL BE INSPECTED ON 100 PERCENT OF PROCUREMENT.
      (1) BREAKDOWN VOLTAGE: BV(DS), BV(CS)
      (2) CUTOFF CURRENT: IC
      (3) SATURATION VOLTAGE: VCESAT1 - VCESAT2
   C. VENDOR-SUPPLIED DATA: EACH SHIPMENT OF PARTS SHALL BE ACCOMPANIED BY THE FOLLOWING INFORMATION.
      (1) CERTIFICATE OF COMPLIANCE WITH LEAD MATERIAL REQUIREMENT.
      (2) CERTIFICATE OF COMPLIANCE WITH ND 1002215, CLASS 2.

3. DESIGN:
   A. STORAGE LIFE: INDEFINITE WHEN STORED AT TEMPERATURES BETWEEN -65°C AND +200°C.
   B. ABSOLUTE MAXIMUM RATINGS (AT +25° x 3°C UNLESS OTHERWISE SPECIFIED).
      (1) COLLECTOR-BASE VOLTAGE (Vcb): 100 VDC
      (2) COLLECTOR-EMITTER VOLTAGE (Vce): 80 VDC
      (3) Emitter-Base Voltage (Veb): 8 VDC
      (4) Collector Current (IC): 30 AMPERES DC
      (5) Power Dissipation, Total (Pd): 100 WATTS AT +100°C CASE TEMPERATURE.
      (6) Thermal Resistance, Junction-Case (RJC): +200°C
      (7) Junction Operating Temperature (TJ): +200°C
      (8) Storage Temperature (Tstg): +200°C
   C. CONSTRUCTION:
      (1) MATERIAL:
         LEADS: WELDABLE, GOLD PLATED, ANNEALED IRON-METAL-COBALT ALLOY (KOVAR) IN ACCORDANCE WITH ND 1015402 EXCEPT AS FOLLOWS:
            NUT, PLAIN, HEXAGON: CODE 7
            INSULATOR, WASHER: CODE 4
            INSULATOR, BUSHING: CODE 4
      (2) TERMINAL DIMENSIONS AS SPECIFIED ON DRAWING.
      (3) PLATING THICKNESS TO BE 10-20 MICROINCHES GOLD AND 10-20 MICROINCHES NICKEL.
      (4) TERMINAL IDENTIFICATION.
      (5) STORAGE LIFE: INDEFINITE WHEN STORED AT TEMPERATURES BETWEEN -65°C AND +200°C.
   D. CONSTRUCTION:
      (1) MATERIAL:
         LEADS: WELDABLE, GOLD PLATED, ANNEALED IRON-METAL-COBALT ALLOY (KOVAR) IN ACCORDANCE WITH ND 1015402 EXCEPT AS FOLLOWS:
            NUT, PLAIN, HEXAGON: CODE 7
            INSULATOR, WASHER: CODE 4
            INSULATOR, BUSHING: CODE 4
      (2) TERMINAL DIMENSIONS AS SPECIFIED ON DRAWING.
      (3) PLATING THICKNESS TO BE 10-20 MICROINCHES GOLD AND 10-20 MICROINCHES NICKEL.
      (4) TERMINAL IDENTIFICATION.
      (5) STORAGE LIFE: INDEFINITE WHEN STORED AT TEMPERATURES BETWEEN -65°C AND +200°C.
   E. PART MARKING: PARTS SHALL BE PERMANENTLY AND LEGIBLY MARKED, IN ACCORDANCE WITH ND 1002019, WITH THE NASA PART NUMBER (DRAWING NUMBER AND REVISION LETTER), LOT CODE, SERIAL NUMBER AND TERMINAL IDENTIFICATION.
   F. PREPARATION FOR DELIVERY SHALL BE IN ACCORDANCE WITH ND 1002215, CLASS 2, CODE 2.
      (1) MARKING OF SHIPPING CONTAINERS SHALL COMPLY WITH THE MARKING OF UNIT AND INTERMEDIATE PACKAGES AND THE METHODS OF MARKING AS SPECIFIED IN ND 1002215.

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>CONDITION</th>
<th>SYMBOL</th>
<th>MIN</th>
<th>MAX</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>Breakdown Voltage, Collector-Base</td>
<td>Ic&gt;200mA, Vbe=0</td>
<td>Vcc=30</td>
<td>100</td>
<td>-</td>
<td>Vpp</td>
</tr>
<tr>
<td>Breakdown Voltage, Emitter-Base</td>
<td>Ie&gt;200mA, Vbe=0</td>
<td>Vcc=50</td>
<td>8</td>
<td>-</td>
<td>Vpp</td>
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<tr>
<td>Breakdown Voltage, Collector-Emitter</td>
<td>Ic&gt;100mA, Vce=0</td>
<td>Vcc=80</td>
<td>80</td>
<td>-</td>
<td>Vpp</td>
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<tr>
<td>Sustaining Voltage, Collector-Emitter</td>
<td>Ic&gt;100mA, Vce=0</td>
<td>Vce=70</td>
<td>70</td>
<td>-</td>
<td>Vpp</td>
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<tr>
<td>Cutoff Current, Collector</td>
<td>Vce=50V, Ic=0</td>
<td>Vce=10</td>
<td>10</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td>Static Forward Current Transfer Ratio</td>
<td>Vce=5V, Ic=1mA</td>
<td>Vce=100</td>
<td>100</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td>Voltage Transfer Ratio</td>
<td>Vce=5V, Ic=1mA</td>
<td>Vce=200</td>
<td>10</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td>Saturation Voltage, Collector-Emitter</td>
<td>Ic=100mA, Vbe=1.4</td>
<td>Vce=100</td>
<td>100</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td>Saturation Voltage, Base-Emitter</td>
<td>Ic=100mA, Vbe=1.4</td>
<td>Vce=100</td>
<td>100</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td>Gain Bandwidth Product</td>
<td>Vce=10V, Ic=1mA</td>
<td>Vce=100</td>
<td>25</td>
<td>-</td>
<td>Hz</td>
</tr>
</tbody>
</table>

1 Pulse conditions: Width < 500 microseconds; Duty Cycle < 2%.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PART OR IDENTIFYING NO.</th>
<th>NOMENCLATURE OR DESCRIPTION</th>
<th>REQUIRED</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>5-24UNF-2A</td>
<td>MAX PITCH DIA OF PLATED THREADS SHALL BE BASIC PITCH DIA (2.054)</td>
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<td>2</td>
<td>REF(SWITCH THREAD STD FOR FEDERAL SERVICES 1957 Handbook H2B 1957 PART 1)</td>
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</table>

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

INSTRUMENTATION LAB

M.S.S.P.

TRANSISTOR, NPN, SILICON, POWER

SPECIFICATION CONTROL DRAWING

CODE IDENT NO. SIZE

NACA IMPL No. T.S.

NAGA DRAWING C 1006317

SPECIFICATIONS

-UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

- TOLERANCES ON DECIMALS ANGLES ARE AS SHOWN.

- MATERIAL: SEE NOTES

- HEAT TREATMENT: NONE

- FINISH: SEE NOTES

- SCALE NONE