from JEDEC release #3295, May 29, 1961

**NUMERICAL INDICATOR**

**engineering data report**

**8037**

**(B 5031) ULTRA LONG LIFE NIXIE® TUBE**

The 8037 (B 5031) is a gas-filled, cold cathode, 10-digit ("0" through "9"), numerical indicator tube, having a common anode with a suppressor screen to minimize darkening of the viewing dome. This tube features a cup design providing a non-glare background. It is intended for use as a direct, in-line, readout device.

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**MECHANICAL DATA**

(See Figure 1)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Length</td>
<td>1.380&quot; max.</td>
</tr>
<tr>
<td>Seated Height</td>
<td>1.124&quot; max.</td>
</tr>
<tr>
<td>Bulb Diameter</td>
<td>1.080&quot; max.</td>
</tr>
<tr>
<td>Envelope Connection</td>
<td>See Figure 2</td>
</tr>
<tr>
<td>Height of Numerals</td>
<td>0.61&quot; nom.</td>
</tr>
<tr>
<td>Numerical Design</td>
<td>See Figure 3</td>
</tr>
<tr>
<td>Socket, 15-Pin</td>
<td>(HSK=112) See Figure 4</td>
</tr>
<tr>
<td>Weight</td>
<td>0.4 oz. max.</td>
</tr>
<tr>
<td>Mounting Position</td>
<td>See Note 4</td>
</tr>
<tr>
<td>Cathode (a)</td>
<td>Glow Discharge</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL DATA**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>-65° to +85° C</td>
</tr>
<tr>
<td>Altitude</td>
<td>70,000 ft.</td>
</tr>
<tr>
<td>Vibration</td>
<td>10 - 50 cps</td>
</tr>
<tr>
<td>shock</td>
<td>0.08 in. excursion</td>
</tr>
<tr>
<td></td>
<td>55 g ± 11 ±1 msec</td>
</tr>
</tbody>
</table>

**ELECTRICAL DATA**

1. **ABSOLUTE RATINGS:**

   - Ionization Voltage: 170 Vdc Maximum
   - Supply Voltage: 170 Vdc Minimum
   - Cathode Current: 3.0 ma Maximum

2. **TEST CONDITIONS:**

   (See Typical Circuit) Note 3

   - Anode Supply Voltage (E) ... 170 Vdc
   - Anode Series Resistor (R) ... 10 K ohms ±1%
   - Cathode Current (I_k) ... 2.25 ma ±33%

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**TYPICAL CIRCUIT**

(SEE NOTE 3)

**TYPICAL OPERATING CONDITIONS**

<table>
<thead>
<tr>
<th>E</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>170 V</td>
<td>10 K ohm</td>
</tr>
<tr>
<td>250 V</td>
<td>47 K ohm</td>
</tr>
<tr>
<td>300 V</td>
<td>110 K ohm</td>
</tr>
</tbody>
</table>

**NOTES**

1. All 8037 tubes will ionize at 170 volts or less. The minimum supply voltage should be 170 Vdc; however, the use of the highest voltage available with the appropriate series resistor is recommended.

2. For pulsed or time sharing operation of the tube, the maximum cathode current rating corresponds to the peak pulse current. At currents exceeding this limit, the tube pins or cathode leads can glow.

3. With the tube operated in the test circuit and with the specified anode supply voltage and series resistance, the cathode current will be within the specified test limits. If an anode supply voltage greater than the minimum specified is available, it can be used with a correspondingly larger series resistance so that cathode current remains between the specified limits.

4. The centerline of the numbers to be displayed passes through pins 1 and 8 of the tube. The tube and socket should be oriented so that pins 1 and 8 are in a vertical line with pin 8 at the top. The numbers are viewed through the end of the tube opposite from the base.

5. At -65° C cathode current may increase by 60% or decrease by 50%. At +85° C cathode current may decrease by 50%.

6. The selected character should glow over its entire surface when the test voltage is applied.
ANUER ELECTRONIC CONTRIBUTION BY
Burroughs Corporation
ELECTRONIC COMPONENTS DIVISION
PLAINFIELD, NEW JERSEY
Formerly Electronic Tube Division

ANGULAR DISPLACEMENT OF NUMERALS FROM
ε: 3° MAX.

.61 NOM.

1.040 ± .040

.375 NOM. DEPTH OF NUMERALS.

1.062 ± .062

1.315 ± .065

.25 NOM.

.375 MAX.

1.080 MAX.

FIG. 1

DIA.
.144 ± .005
(2 HOLES)

.375 DIAM. HOLE
.007 DEEP
(NOM.)

.625 ± .031

SADDLE - STEEL
CADMIUM PLATED

MICA FILLED CASTING

815 CONTACTS
BERYLLIUM COPPER
SILVER PLATED TIN DIPPED.

KEYWAY .093
X .093 X .165 DEEP

FIG. 4

1234567890
(REF. WADC TR 54-160 APPENDIX PAGE 102)

FIG. 3

AN APPLICATIONS ENGINEERING DEPARTMENT,
OFFERING ENGINEERING SERVICE AND
CONSULTATION, IS AVAILABLE TO ASSIST YOU IN
TAKING FULL ADVANTAGE OF THIS DEVICE.
WRITE FOR FURTHER INFORMATION.
Phone PLainfield 7-5000.