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**Burroughs Corporation**

ELECTRONIC COMPONENTS DIVISION

PLAINFIELD, NEW JERSEY

Bulletin No. 1050

# 6714

## (BX-4001) Low Voltage Shielded

### BEAM-X® Switch

October 15, 1963

The 6714 (BX-4001) BEAM-X® Switch is a 10-position, high vacuum electronic switching device. It is specifically designed and tested for use in low voltage, multi-position electronic switching circuits. It has frequency capabilities in excess of 1 mc and its low voltage characteristics are compatible with standard transistor driving circuitry. In addition, it features magnetically shielded construction for applications where space conservation is important.

## ELECTRICAL CHARACTERISTICS

| RATINGS ABSOLUTE MAX. | VALUE | NOTES |
|---|---|---|
| Target Voltage (Et) | 300 Vdc | |
| Spade Voltage (Es) | 100 Vdc | |
| Grid Voltage (Ec) | 200 Vdc | |
| Shield Grid Voltage (Esg) | 200 Vdc | |
| Heater – Cathode Voltage (Ehk) | ±100 Vdc | |
| Cathode Current (Ik) | 10 ma | |
| Individual Target Dissipation (P/ta) | 1 W | |
| Heater Voltage (Ef) | 6.3 ±10% V | |
| Switching Speed (F) | 2 MC | 1 |

## MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| Overall Length | 3.125 in. max. | |
| Seated Height | 2.875 in. max. | |
| Diameter | 1.270 in. max. | |
| Weight Total | 2.75 oz. | |
| Mounting Position | Any | 5 |
| Outline | See Figure 4 | |
| Envelope Connection | See Figures 2, 3. | |

## TEST CONDITIONS AND TEST LIMITS

The BEAM-X® Switch, Type 6714 is tested in a circuit similar to Figure 5. These tests are designed to demonstrate current uniformity from position to position within specified limits and operating stability throughout the frequency range at high and low voltage limits.

| TEST CONDITIONS | VALUE | NOTES |
|---|---|---|
| Spade Resistance (Rs) | 270 K ohm | |
| Target Load Resistance (Rt) | 10 K ohm | |
| Target Voltage (Et) | Equals Es. | |
| Shield Grid Voltage (Esg) | Equals Es. | |
| Grid Bias Voltage (Ec) | 26 V. | |
| Grid Switching Voltage (Esig) | −24V | 3 |
| Heater Voltage (Ef) | 6.3 V | |
| Test Frequency (f) | Push Button and 10 Kc | 1, 3 |

| TEST LIMITS | VALUE | NOTES |
|---|---|---|
| Spade Voltage (Es) | 30 ±10% V. | |
| Individual Target Current (It) | 1.000 ±30% ma | 2 |
| Heater Current (If) | 150 ±10% ma | 4 |
| Firing Voltage (Eco) | 40 V. | 6 |

NOTES:

1. The tube is tested at pushbutton and 10 KC rates but may operate at rates up to 2 MC under suitable operating conditions.
2. When tube is operated in test circuit at Spade Voltage = 30 V.
3. For higher frequency operation, a greater pulse amplitude is required.
4. When filament is operated at 6.3 V.
5. Tubes may be mounted side by side (no minimum spacing). To avoid possible operational changes in tube characteristics, tubes should not be mounted on a ferrous chassis.
6. Firing Voltage (DC Cutoff Voltage) is that voltage between cathode and spade buss above which erratic electron beam formation will occur.

6714

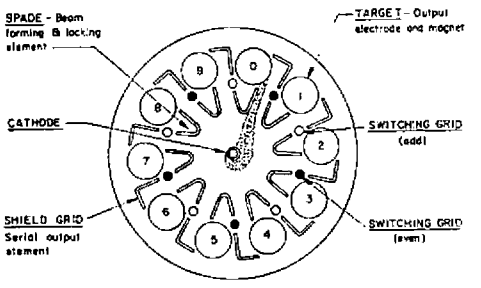


Fig. 1. CROSS SECTION

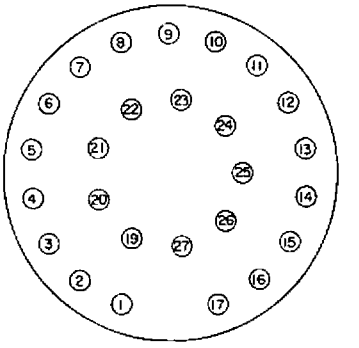

FIG. 2. PIN NUMBERING DIAGRAM

| Pin No. | Connection | Pin No. | Connection |
|---|---|---|---|
| 1 | Spade-0 | 14 | Spade-2 |
| 2 | Target-9 | 15 | Target-1 |
| 3 | Target-8 | 16 | Grid Even |
| 4 | Grid Odd | 17 | Target-0 |
| 5 | Target-7 | 19 | Spade-9 |
| 6 | Spade-7 | 20 | Spade-8 |
| 7 | Target-6 | 21 | Heater |
| 8 | Target-5 | 22 | Spade-6 |
| 9 | Spade-5 | 23 | Spade-4 |
| 10 | Target-4 | 24 | Spade-3 |
| 11 | Shield Grid | 25 | Heater |
| 12 | Target-3 | 26 | Spade-1 |
| 13 | Target-2 | 27 | Cathode |

FIG. 3. PIN CONNECTION CHART

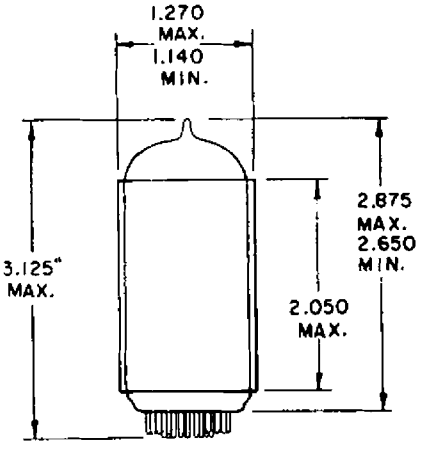


FIG. 4. OUTLINE DRAWING

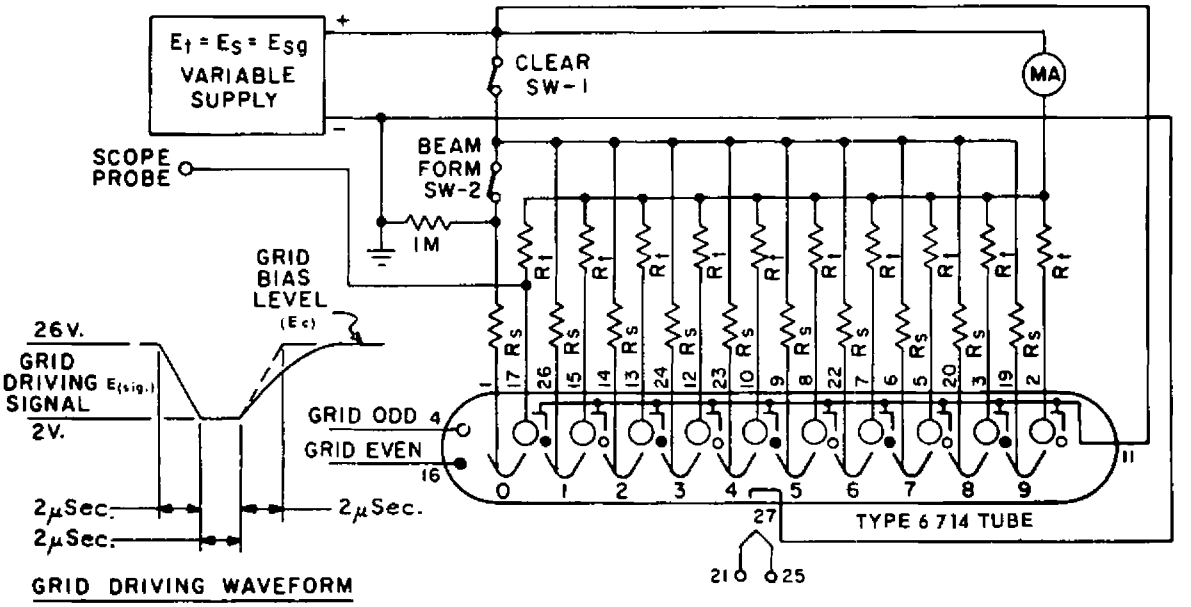


FIG. 5 TEST CIRCUIT