MEDIUM-MU TWIN TRIODE

FOR "ON-OFF" CONTROL APPLICATIONS INVOLVING
LONG PERIODS OF OPERATION UNDER CUTOFF CONDITIONS

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode:
Voltage: 6.3 ± 10% ac or dc volts
Current: 0.45 amp

Microphonism: Not Tested

Direct Interelectrode Capacitances (Approx.):^o
Each Unit:
Grid to Plate: 1.3 \( \mu \)f
Grid to Cathode and Heater: 2.1 \( \mu \)f
Plate to Cathode and Heater: 0.4 \( \mu \)f
Grid of Unit No.1 to Grid of Unit No.2: 0.4 max. \( \mu \)f

^o with no external shielding.

Characteristics, Class A Amplifier (Each Unit, with both units operating):
Plate Voltage: 100 volts
Cathode-Bias Resistor: 50 ohms
Amplification Factor: 39
Plate Resistance: 6500 ohms
Transconductance: 6000 \( \mu \)hos
Plate Current: 9.5 ma

Mechanical:
Mounting Position: Any
Maximum Overall Length: 2-1/8"
Maximum Seated Length: 1-7/8"
Length, Base Seat to Bulb Top (Excluding tip): 1-1/2" ± 3/32"
Maximum Diameter: 3/4"
Bulb: T-5-1/2
Base: Small-Button Miniature 7-Pin
Basing Designation for BOTTOM VIEW: 7BF

FREQUENCY DIVIDER IN COMPUTER SERVICE & "ON-OFF" CONTROL SERVICE
Values are for each unit

Maximum Ratings, Absolute Values:
PLATE VOLTAGE: 250 max. volts

* Common to both units.

SEP. 1, 1950
# MEDIUM-MU TWIN TRIODE

## GRID VOLTAGE:
- Negative bias value: 100 max. volts
- Positive bias value: 0 max. volts
- Peak negative value: 200 max. volts

## PLATE DISSIPATION:
1.5 max. watts

## GRID INPUT:
0.1 max. watt

## DC CATHODE CURRENT:
15 max. ma

## PEAK CATHODE CURRENT:
75 max. ma

## PEAK HEATER-CATHODE VOLTAGE:
- Heater negative with respect to cathode: 90 max. volts
- Heater positive with respect to cathode: 90 max. volts

## BULB TEMPERATURE (At hottest point on bulb surface):
150 max. °C

## Typical Operation as Frequency Halfer (Each Unit):

<table>
<thead>
<tr>
<th>Cutoff Condition</th>
<th>Zero-Bias Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate-Supply Voltage</td>
<td>150</td>
</tr>
<tr>
<td>Plate-Circuit Resistance</td>
<td>20000</td>
</tr>
<tr>
<td>Grid-Supply Voltage</td>
<td>-10</td>
</tr>
<tr>
<td>Grid-Circuit Resistance</td>
<td>47000</td>
</tr>
<tr>
<td>Plate Current</td>
<td>0</td>
</tr>
</tbody>
</table>

## Maximum Circuit Values:
- Grid-Circuit Resistance:
  - For fixed-bias operation: 0.5 max. megohm
  - For cathode-bias operation: 1.0 max. megohm

## RANGE VALUES FOR EQUIPMENT DESIGN

<table>
<thead>
<tr>
<th>Cutoff Condition</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Current (Each Unit)</td>
<td>1</td>
<td>-</td>
<td>0.2 ma</td>
</tr>
<tr>
<td>Difference in Plate Current Between Units</td>
<td>-</td>
<td>-</td>
<td>0.2 ma</td>
</tr>
</tbody>
</table>

### Zero-Bias Condition

<table>
<thead>
<tr>
<th>Cutoff Condition</th>
<th>Note</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Current (Each Unit)</td>
<td>2</td>
<td>4.3</td>
<td>5.7 ma</td>
</tr>
<tr>
<td>Difference in Plate Current Between Units</td>
<td>-</td>
<td>-</td>
<td>1.4 ma</td>
</tr>
</tbody>
</table>

**Note 1:** For conditions with 6.3 volts on heater, plate-supply volts = 150, plate-circuit resistance (ohms) = 20000, grid-supply volts = -10, and grid-circuit resistance (ohms) = 47000.

**Note 2:** Conditions are same as for Note 1 except that grid-supply volts = 0.

*With both units operating, the dc cathode current should not exceed 30 milliamperes, and the peak cathode current should not exceed 150 milliamperes.*
AVERAGE OPERATION CHARACTERISTICS
FOR EACH UNIT

\[ E_p = 6.3 \text{ VOLTS} \]
\[ \text{GRID-CIRCUIT RESISTANCE (OHMS)} = 47000 \]