**DUAL PENTODE 8BM11**

Duodecator type used as if amplifier in television receivers. Unit No.1 is a semiremote-cutoff pentode, and unit No.2 is a sharp-cutoff pentode. Outlines section, 8B; requires duodecator 12-contact socket. **Heater**: volts (ac/dc), 8.4; amperes, 0.45; maximum heater-cathode volts, ±200 peak, 100 average.

**Class A. Amplifier**

<table>
<thead>
<tr>
<th>MAXIMUM RATINGS (Design-Maximum Values)</th>
<th>Unit No.1</th>
<th>Unit No.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Voltage</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>Grid-No.3 Voltage</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Grid-No.2 (Screen-Grid) Voltage</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td>Grid-No.1 (Control-Grid) Voltage, Positive-bias value</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Plate Dissipation</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Grid-No.2 Input</td>
<td>0.55</td>
<td>0.55</td>
</tr>
</tbody>
</table>

**CHARACTERISTICS**

<table>
<thead>
<tr>
<th></th>
<th>Unit No.1</th>
<th>Unit No.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate Supply Voltage</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Grid-No.3</td>
<td>Connected to cathode at socket</td>
<td></td>
</tr>
<tr>
<td>Grid-No.2 Voltage</td>
<td>125</td>
<td>125</td>
</tr>
<tr>
<td>Cathode-Bias Resistor</td>
<td>56</td>
<td>120</td>
</tr>
<tr>
<td>Plate Resistance (Approx.)</td>
<td>220000</td>
<td>300000</td>
</tr>
<tr>
<td>Transconductance</td>
<td>8000</td>
<td>5000</td>
</tr>
<tr>
<td>Plate Current</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Grid-No.2 Current</td>
<td>3.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) for plate current of 20 µA</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Grid-No.1 Voltage (Approx.) for transconductance of 50 µmho</td>
<td>—16.5</td>
<td>—</td>
</tr>
</tbody>
</table>

**MAXIMUM CIRCUIT VALUES**

Grid-No.1-Circuit Resistance, for cathode-bias operation 1 0.25 megarohm

Refer to type 6BN8.

Refer to chart at end of section.

Refer to type 6BQ5.

**SEMIREMOTE-CUTOFF DUAL PENTODE 8BQ11**

11BQ11, 16BQ11

Duodecator type used as intermediate-frequency amplifier in television receivers. **Outlines section**, 8B; requires duodecator 12-contact socket. Types 11BQ11 and 16BQ11 are identical with type 8BQ11 except for heater ratings.

<table>
<thead>
<tr>
<th></th>
<th>8BQ11</th>
<th>11BQ11</th>
<th>16BQ11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage (ac/dc)</td>
<td>8.4</td>
<td>11.2</td>
<td>16</td>
</tr>
<tr>
<td>Heater Current</td>
<td>0.6</td>
<td>0.45</td>
<td>0.315</td>
</tr>
<tr>
<td>Heater Warm-up Time (Average)</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Heater-Cathode Voltage:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak value</td>
<td>±200 max</td>
<td>±200 max</td>
<td>±200 max</td>
</tr>
<tr>
<td>Average value</td>
<td>100 max</td>
<td>100 max</td>
<td>100 max</td>
</tr>
</tbody>
</table>

**Direct Interelectrode Capacitances**: Grid No.1 to Plate 0.022 0.024 pF

Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield 10 — pF

Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield 2.8 — pF

Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, Grid No.3 of Unit No.1, and Internal Shield — 11 pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, Grid No.3 of Unit No.1, and Internal Shield . 2.8 pF
Plate of Unit No.1 to Plate of Unit No.2 . 0.015 pF
Grid No.1 of Unit No.1 to Plate of Unit No.2 . 0.002 pF
Grid No.1 of Unit No.2 to Plate of Unit No.1 . 0.008 pF
Grid No.1 of Unit No.1 to Grid No.1 of Unit No.2 . 0.002 pF

Class A, Amplifier

MAXIMUM RATINGS (Design-Maximum Values)  
Plate Voltage ........................................... 330 volts
Grid-No.3 (Suppressor-Grid) Voltage .......... 330 volts
Grid-No.2 (Screen-Grid) Supply Voltage .......... 0 volts
Grid-No.2 Voltage ...................................... 330 volts
Grid-No.1 (Control-Grid) Voltage, Positive-bias value See curve page 300
Plate Dissipation ...................................... 0 watts
Grid-No.2 Input:  
For grid-No.2 voltages up to 165 volts 0.65 watt
For grid-No.2 voltages between 165 and 330 volts See curve page 300

CHARACTERISTICS
Plate Supply Voltage .................................. 125 volts
Grid No.3 ............................................. Connected to cathode at socket
Grid-No.2 Voltage ..................................... 125 volts
Cathode-Bias Resistor .................................. 56 ohms
Plate Resistance (Approx.) ......................... 0.2 megohm
Transconductance .................................... 10500 µmhos
Plate Current .......................................... 11 mA
Grid-No.2 Current ..................................... 3.5 mA
Grid-No.1 Voltage (Approx.) for plate current of 20 µA — 3 volts
Grid-No.1 Voltage (Approx.) for transconductance of 50 µmho — 15 volts

MAXIMUM CIRCUIT VALUES
Grid-No.1-Circuit Resistance, for cathode-bias operation . 1 0.25 megohm

8BU11 MEDIUM-MU TWIN TRIODE—SHARP-CUTOFF PENTODE

Duodecar type used in television receiver applications. Outlines section, 8C; requires duodecar 12-contact socket. **Heater**: volts (ac/dc), 7.8; amperes, 0.6; warm-up time, 11 seconds, maximum heater-cathode volts, ±200 peak, 100 average.

Class A, Amplifier

MAXIMUM RATINGS (Design-Maximum Values)  
Plate Voltage ........................................... 330 volts
Grid-No.2 (Screen-Grid) Supply Voltage .......... 330 volts
Grid-No.2 Voltage ...................................... 330 volts
Grid-No.1 (Control-Grid) Voltage, Positive-bias value See curve page 300
Plate Dissipation ...................................... 2.5 watts
Grid-No.2 Input:  
For grid-No.2 voltages up to 165 volts 0.55 watt
For grid-No.2 voltages between 165 and 330 volts See curve page 300

CHARACTERISTICS
Plate Supply Voltage .................................. 125 volts
Grid-No.2 Voltage ..................................... 125 volts
Grid-No.1 Voltage ..................................... — 68 ohms
Cathode-Bias Resistor .................................. — 43 ohms
Plate Resistance (Approx.) ......................... 200000 50000 µmhos
Transconductance .................................... 75000 83000 µmhos
Plate Current .......................................... 12 13.5 mA
Grid-No.2 Current ..................................... 4 8 mA
Grid Voltage (Approx.) for plate current of 100 µA — — volts
Grid-No.1 Voltage (Approx.) for plate current of 30 µA — — volts

MAXIMUM CIRCUIT VALUES
Grid-No.1-Circuit Resistance:
For fixed-bias operation . 0.5 0.5 megohm
For cathode-bias operation . 1 1 megohm