# 6EM5
## BEAM POWER TUBE
### 9-PIN MINIATURE TYPE

For vertical-deflection-amplifier service in 110° systems

### GENERAL DATA

#### Electrical:
- **Heater, for Unipotential Cathode:**
  - Voltage: 6.3 ac or dc volts
  - Current: 0.8 amp
- **Direct Interelectode Capacitances:**
  - Grid No.1 to plate: 0.7 max. µf
  - Grid No.1 to cathode & grid No.3, grid No.2, and heater: 10 µf
  - Plate to cathode & grid No.3, grid No.2, and heater: 5.1 µf

#### Characteristics, Class A, Amplifier:
- **Plate Voltage:** 60 - 250 volts
- **Grid-No.2 (Screen-Grid) Voltage:** 250 - 250 volts
- **Grid-No.1 (Control-Grid) Voltage:** 0 - 18 volts
- **Mu Factor, Grid No.1 to Grid No.2:** - 8.7
- **Transconductance:** - 5100 µhos
- **Plate Current:** 180* 35 ma
- **Grid-No.2 Current:** 30* 3 ma
- **Grid-No.1 Voltage (Approx.) for plate ma. = 1:** - 37 volts

#### Mechanical:
- **Operating Position:** Any
- **Maximum Overall Length:** 3-1/16" 2-13/16"
- **Maximum Seated Length:** 2-13/16"
- **Length, Base Seat to Bulb Top (Excluding tip):** 2-7/16" ± 3/32" 0.750" to 0.850"
- **Diameter:** 0.750" to 0.850"
- **Dimensional Outline:** See General Section
- **Bulb:** T6-1/2
- **Base:** Small-Button Noval 9-Pin (J3TEC No.E9-1)
  - Basing Designation for BOTTOM VIEW: 9HN

**VERTICAL-DEFLECTION AMPLIFIER**

**Maximum Ratings, Design-Center Values Except as Noted:**

For operation in a 525-line, 30-frame system

- **DC PLATE VOLTAGE:** 315 max. volts
- **PEAK POSITIVE-PULSE PLATE VOLTAGE**
  - (Absolute maximum)*: 2200 max. volts

* See next page.
**BEAM POWER TUBE**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC GRID-No.2 (SCREEN-GRID) VOLTAGE</td>
<td>285 max. volts</td>
</tr>
<tr>
<td>PEAK NEGATIVE-PULSE GRID-No.1</td>
<td></td>
</tr>
<tr>
<td>(CONTROL-GRID) VOLTAGE</td>
<td>250 max. volts</td>
</tr>
<tr>
<td>PEAK CATHODE CURRENT</td>
<td>210 max. mA</td>
</tr>
<tr>
<td>DC CATHODE CURRENT</td>
<td>60 max. mA</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>1.5 max. watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION</td>
<td>10 max. watts</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>200 max. volts</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>200* max. volts</td>
</tr>
<tr>
<td>BULB TEMPERATURE (At hottest point on bulb surface)</td>
<td>250 max. 0°C</td>
</tr>
</tbody>
</table>

**Maximum Circuit Values:**

<table>
<thead>
<tr>
<th>Circuit Resistance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid-No.1-Circuit Resistance:</td>
<td></td>
</tr>
<tr>
<td>For fixed-bias operation.</td>
<td>2.2 max. megohms</td>
</tr>
<tr>
<td>For cathode-bias operation.</td>
<td>2.2 max. megohms</td>
</tr>
</tbody>
</table>

\* Without external shield.

\* This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.

\# As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.

\# This rating is applicable when the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 per cent of one vertical scanning cycle is 2.5 milliseconds.

\* Under no circumstances should this absolute value be exceeded.

\* The dc component must not exceed 100 volts.
AVERAGE CHARACTERISTICS

$E_C = 6.3$ VOLTS
GRID-N=2 VOLTS= 250

PLATE (I_b) OR GRID-N=2 (I_{c2}) MILLIAMPERES

ELECTRON TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-9797
AVERAGE CHARACTERISTICS

$E_F = 6.3$ VOLTS
PLATE VOLTS = 250
Beam Power Tube

9-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:
- Voltage (AC or DC) ...................... 6.3 volts
- Current .................................. 0.8 amp

Direct Inter electrode Capacitances:
- Grid No.1 to plate ...................... 0.7 max. μf
- Grid No.1 to cathode & grid No.3, grid No.2, and heater .......... 10 μf
- Plate to cathode & grid No.3, grid No.2, and heater .......... 5.1 μf

Characteristics, Class A Amplifier:
- Plate Voltage .......................... 60 250 volts
- Grid-No.2 Voltage ..................... 250 volts
- Grid-No.1 Voltage ..................... 250 volts
- Mu Factor, Grid No.1 to Grid No.2 ...... – 8.7
- Plate Resistance (Approx.) ............. – 0.05 megohm
- Transconductance ..................... – 5100 μhos
- Plate Current .......................... 180 40 ma
- Grid-No.2 Current ..................... 30 3 ma
- Grid-No.1 Voltage (Approx.) for plate ma. = 0.2 ................ – 37 volts

Mechanical:

Operating Position ............................ Any
Maximum Overall Length .................... 3–1/16" 2–13/16"
Maximum Seated Length .................... 2–13/16" 2–17/16" + 3/32"
Length, Base Seat to Bulb Top (Excluding tip) .......... 2–7/16" to 0.850"
Diameter .................................. 0.750" to 0.850"
Dimensional Outline ...................... See General Section
Bulb ..................................... .T6–1/2
Base ....................................... Small-Button Noval 9-Pin (JEDEC No.E9-1)
Basing Designation for BOTTOM VIEW .............................. 9HN

Pin 1-Grid No.2 ............................. 4
Pin 2-No Connection ........................ 5
Pin 3-Grid No.1 ............................. 6
Pin 4-Heater ................................ 7
Pin 5-Heater ................................ 8
Pin 6-Grid No.1 ............................. 9
Pin 7-Cathode, Grid No.3 .................. 10
Pin 8-Internal Connection—Do Not Use
Pin 9-Plate ................................ 11

VERTICAL-DEFLECTION AMPLIFIER

Maximum Ratings, Design-Center Values Except as Noted:

For operation in a 525-line, 30-frame system

DC PLATE VOLTAGE ....................... 315 max. volts
PEAK POSITIVE-PULSE PLATE VOLTAGE
(Absolute maximum) ..................... 2200 volts max.

*Indicates a change.
DC GRID-No.2 (SCREEN-GRID) VOLTAGE ..... 285 max. volts
PEAK NEGATIVE-PULSE GRID-No.1 (CONTROL-GRID) VOLTAGE ..... 250 max. volts
CATHODE CURRENT:
Peak ..... 210 max. ma
Average ..... 60 max. ma
GRID-No.2 INPUT ..... 1.5 max. watts
PLATE DISSIPATION ..... 10 max. watts
PEAK HEATER—CATHODE VOLTAGE:
Heater negative with respect to cathode ..... 200 max. volts
Heater positive with respect to cathode ..... 200 max. volts
BULB TEMPERATURE (At hottest point on bulb surface) ..... 250 max. °C

Maximum Circuit Values:
Grid-No.1—Circuit Resistance:
For fixed-bias operation ..... 2.2 max. megohms
For cathode-bias operation ..... 2.2 max. megohms

a Without external shield.
b This value can be measured by a method involving a recurrent wave form such that the maximum ratings of the tube will not be exceeded.
c As described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission.
d This rating is applicable when the duration of the voltage pulse does not exceed 15 per cent of one vertical scanning cycle. In a 525-line, 30-frame system, 15 per cent of one vertical scanning cycle is 2.5 milliseconds.
e Under no circumstances should this absolute-maximum value be exceeded.
f The dc component must not exceed 100 volts.
AVERAGE PLATE CHARACTERISTICS

$E_F = 6.3$ VOLTS
GRID-N°1 VOLTS = 0

PLATE MILLIAMPERES

PLATE VOLTS
AVERAGE CHARACTERISTICS

$E_F = 6.3$ VOLTS
PLATE VOLTS = 250

GRID NO. 1 VOLTS
GRID NO. 2 (IC-2) MILLIAMPERES
GRID NO. 1 (IC-1) MILLIAMPERES
PLATE MILLIAMPERES