The 33GY7-A is a compactron containing a high-merveance diode and a beam-power pentode. The diode is intended for service as the damping diode and the pentode as the horizontal-deflection amplifier in television receivers.

The 33GY7-A is unilaterally interchangeable with the 33GY7 and differs only in utilizing a dimple anode construction to minimize snivets.

**GENERAL**

**ELECTRICAL**
- Cathode - Coated Unipotential
- Heater Characteristics and Ratings
  - Heater Voltage, AC or DC*: . . . . . . 33.6 Volts
  - Heater Current‡ . . . . . . . . . . . . 0.45±0.03 Amperes
  - Heater Warm-up Time, Average§ . . . . 11 Seconds
  - Direct Interelectrode Capacitances, approximate

**Diode Section**
- Cathode to Plate and Heater:
  - k to (p + h) . . . . . . . . . . . . 8.5 pf
- Plate to Cathode and Heater:
  - p to (k + h) . . . . . . . . . . . . 5.2 pf
- Heater to Cathode: (h to k) . . . . . . 3.2 pf

**Pentode Section**
- Grid-Number 1 to Plate: (g1 to p) . . . . 0.2 pf
- Input: g1 to (h + k + g2 + b.p.) . . . . 17 pf
- Output: p to (h + k + g2 + b.p.) . . . . 7.0 pf

**MECHANICAL**
- Operating Position - Any
- Envelope - T-12, Glass
- Base - E12-74, Button 12-Pin
- Outline Drawing - EIA 12-56
  - Maximum Diameter . . . . . . . . . . 1.563 Inches
  - Minimum Diameter . . . . . . . . . . 1.437 Inches
  - Maximum Over-all Length . . . . . . . 2.875 Inches
  - Maximum Seated Height . . . . . . . 2.500 Inches
  - Minimum Seated Height . . . . . . . 2.250 Inches

**MAXIMUM RATINGS**

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogy electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogy tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.
MAXIMUM RATINGS (Cont’d)

DESIGN-MAXIMUM VALUES

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE\—Pentode Section

DC Plate-Supply Voltage (Boost + DC Power Supply) .................................. 400 Volts
Peak Positive Pulse Plate Voltage .............................................................. 5000 Volts
Peak Negative Pulse Plate Voltage ............................................................ 0 Volts
Screen Voltage .............................................................................................. 150 Volts
Negative DC Grid-Number 1 Voltage ........................................................... 55 Volts
Peak Negative Grid-Number 1 Voltage .......................................................... 330 Volts
Plate Dissipation** ......................................................................................... 9.0 Watts
Screen Dissipation ......................................................................................... 3.0 Watts
DC Cathode Current ....................................................................................... 155 Milliamperes
Peak Cathode Current ................................................................................... 540 Milliamperes
Heater-Cathode Voltage
Heater Positive with Respect to Cathode
  DC Component ........................................................................................... 100 Volts
  Total DC and Peak. .................................................................................... 200 Volts
Heater Negative with Respect to Cathode
  DC Component ........................................................................................... 100 Volts
  Total DC and Peak. .................................................................................... 200 Volts
Grid-Number 1 Circuit Resistance ............................................................... 1.0 Megohms

TV DAMPER SERVICE\—Diode Section

Peak Inverse Plate Voltage ........................................................................... 4200 Volts
Plate Dissipation. ............................................................................................ 3.8 Watts
Steady-State Peak Plate Current .................................................................... 810 Milliamperes
DC Output Current. ........................................................................................ 135 Milliamperes
Heater-Cathode Voltage
Heater Positive with Respect to Cathode
  DC Component ........................................................................................... 100 Volts
  Total DC and Peak. .................................................................................... 200 Volts
Heater Negative with Respect to Cathode
  DC Component ........................................................................................... 400 Volts
  Total DC and Peak. .................................................................................... 4200 Volts
Bulb Temperature at Hottest Point ............................................................... 200°C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Pentode Section

Plate Voltage .................................................................................................. 5000 50 60 130 Volts
Screen Voltage ............................................................................................... 130 130 130 130 Volts
Grid-Number 1 Voltage ............................................................................... --- 0\### 0\### -22.5 Volts
Plate Resistance, approximate ................................................................. --- --- --- 10000 Ohms
Transconductance ......................................................................................... --- --- --- 6500 Micromhos
Plate Current ................................................................................................. --- 315 320 48 Milliamperes
Screen Current. .............................................................................................. --- 20 22 2.9 Milliamperes
Grid-Number 1 Voltage, approximate
  Ib = 1.0 Milliamperes ................................................................................ -80 --- --- -40 Volts
Triode Amplification Factor\### ................................................................... --- --- --- 4.0

Diode Section

Tube Voltage Drop
  Ib = 250 Milliamperes DC ......................................................................... 21 Volts

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.
NOTES

* Heater Voltage for a bogey tube at If = 0.45 amperes.

‡ The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.

§ The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.

¶ Without external shield.

# Socket terminals 3, 6, and 7 should not be used as tie points.

Δ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

** In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

‡‡ Applied for short interval (two seconds maximum) so as not to damage tube.

§§ Triode connection (screen tied to plate) with Eb = Ec2 = 130 volts and Ec1 = -22.5 volts.