6BZ6 — 3BZ6
PENTODE

DESCRIPTION AND RATING

The 6BZ6 is a miniature semi-remote-cutoff pentode designed primarily for use as an intermediate-frequency amplifier in television receivers. Its semi-remote-cutoff characteristic makes the tube particularly useful in stages to which it is desired to apply automatic-gain-control. The tube also features a high transconductance and relatively low interelectrode capacitances.

Except for heater ratings, the 3BZ6 is identical to the 6BZ6. In addition the 3BZ6 has a controlled heater warm-up characteristic which makes it especially suited for use in television receivers that employ 600-milliampere, series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential
Heater Voltage, AC or DC 3.15 6.3 ± 10% Volts
Heater Current 0.6 ± 6% 0.3 Amperes
Heater Warm-up Time* 11 Seconds
With Without
Direct Interelectrode Capacitances Shield† Shield
Grid-Number 1 to Plate, maximum 0.015 0.025 μF
Input 7.0 7.0 μF
Output 3.0 2.0 μF

MECHANICAL

Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage 330 Volts
Screen-Supply Voltage 330 Volts
Screen Voltage—See Screen Rating Chart
Positive DC Grid-Number 1 Voltage 0 Volts
Plate Dissipation 2.3 Watts
Screen Dissipation 0.55 Watts
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
    Total DC and Peak 200 Volts

Design-Maximum Ratings are the limiting values expressed with respect to bogie tubes at which satisfactory tube life can be expected to occur for the types of service for which the tube is rated. Therefore, the equipment designer must establish the circuit design so that initially and throughout equipment life no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

PHYSICAL DIMENSIONS

Terminal Connections
Pin 1—Grid Number 1
Pin 2—Cathode
Pin 3—Heater
Pin 4—Heater
Pin 5—Plate
Pin 6—Grid Number 2
  (Screen)
Pin 7—Internal Shield and
  Grid Number 3
  (Suppressor)
CHARACTERISTICS AND TYPICAL OPERATION

CLASS A1 AMPLIFIER
Plate Voltage ................................................. 125 125 Volts
Suppressor, Connected to Cathode at Socket
Screen Voltage ................................................. 125 125 Volts
Grid-Number 1 Voltage ....................................... -4.5 ... Volts
Cathode-Bias Resistor ........................................ 56 Ohms
Plate Resistance, approximate .............................. 0.26 Megohms
Transconductance .............................................. 700 8000 Micromhos
Plate Current ................................................... 14 Milliamperes
Screen Current .................................................. 3.6 Milliamperes
Grid-Number 1 Voltage, approximate
Gm = 50 Micromhos ............................................. -19 Volts

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

† With external shield (RETMA 316) connected to pin 2.

AVERAGE PLATE CHARACTERISTICS

[Graph showing plate characteristics with labels 1_b * E_c2 = 150 VOLTS, E_f = RATED VALUE, E_c3 = 0 VOLTS, E_c1 = 0 VOLTS]
AVERAGE TRANSFER CHARACTERISTICS

$E_f = \text{RATED VALUE}$
$E_b = 125\ \text{VOLTS}$
$E_{c3} = 0\ \text{VOLTS}$

GRID-NUMBER 1 VOLTAGE IN VOLTS

TRANSFIGURATION IN MICROMOU'S

10000
1000
100
10