



5654

## SHARP-CUTOFF PENTODE

MINIATURE TYPE

Intended for RP and IP Broad-Band Applications where dependable performance under shock and vibration are paramount. The 5654 is a "premium" version of the 6AK5.

PREMIUM TYPE 5654

## GENERAL DATA

## Electrical:

Heater, Pure Tungsten, for Unipotential Cathode:

Voltage . . . . . 6.3 ± 10% . . . . . ac or dc volts

Current . . . . . 0.175 . . . . . amp

Direct Interelectrode Capacitances:<sup>a</sup>

Grid No.1 to Plate . . . . . 0.020 max. . . . . μuf

Input . . . . . 4.0 . . . . . μuf

Output . . . . . 2.85 . . . . . μuf

## Mechanical:

Mounting Position . . . . . Any

Maximum Overall Length . . . . . 1-3/4"

Maximum Seated Length . . . . . 1-1/2"

Length from Base Seat to Bulb Top  
(Excluding tip) . . . . . 1-1/8" ± 3/32"

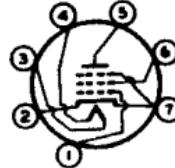
Maximum Diameter . . . . . 3/4"

Bulb . . . . . T-5-1/2"

Base . . . . . Small-Button Miniature 7-Pin (JETEC No.E7-1)

## BOTTOM VIEW

Pin 1 - Grid No.1  
Pin 2 - Cathode,  
Grid No.3,  
Int. Shield  
Pin 3 - Heater  
Pin 4 - Heater



Pin 5 - Plate  
Pin 6 - Grid No.2  
Pin 7 - Cathode,  
Grid No.3,  
Int. Shield

AMPLIFIER - Class A<sub>1</sub>

## Maximum Ratings, Absolute Values:

PLATE VOLTAGE . . . . . 200 max. volts

GRID-No.2 (SCREEN) VOLTAGE . . . . . 155 max. volts

PLATE DISSIPATION . . . . . 1.85 max. watts

GRID-No.2 INPUT . . . . . 0.55 max. watt

CATHODE CURRENT . . . . . 20 max. ma

## PEAK HEATER-CATHODE VOLTAGE:

Heater positive with respect to cathode . . . . . 100 max. volts

Heater negative with respect to cathode . . . . . 100 max. volts

## Typical Operation and Characteristics:

Plate Voltage . . . . . 120 180 volts

Grid-No.2 Voltage . . . . . 120 120 volts

<sup>a</sup> According to RTMA Standard ET-109A with external shield No.316.

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|  |      |      |                 |
|--|------|------|-----------------|
| Cathode-Bias Resistor . . . . .  | 180  | 180  | ohms            |
| Plate Resistance (Approx.) . . . .                                       | 0.30 | 0.50 | megohm          |
| Transconductance . . . . .   | 5000 | 5100 | $\mu\text{hos}$ |
| Plate Current . . . . .  | 7.5  | 7.7  | ma              |
| Grid-No.2 Current . . . . .  | 2.5  | 2.4  | ma              |
| Grid-No.1 Voltage (Approx.)<br>for plate current of 10 $\mu\text{amp}$ . | -8.5 | -8.5 | volts           |

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . . 0.5 max. megohm

**SPECIAL RATINGS & PERFORMANCE DATA****Shock Rating:**

Impact Acceleration . . . . . 500 max. g  
 Tubes are held rigid in three different positions in a Navy Type, High Impact (flyweight) Shock Machine and are subjected to 500 g impact acceleration.

**Fatigue Rating:**

Vibrational Acceleration . . . . . 2.5 max. g  
 Tubes are rigidly mounted and subjected in each of three positions to 2.5 g vibrational acceleration at 60 cycles per second for 32 hours.

**Heater Cycling Life Performance:**

Cycles of Intermittent Operation . . . . . 2000 min. cycles  
 Under the following conditions: With heater voltage of 7.5 volts cycled 1 minute on and 1 minute off, heater positive with respect to cathode by +100 volts dc, and plate, grid-No.2, and grid-No.1 voltage = 0 volts.

**CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN**

|  | Note | Min.  | Max.  |                 |
|--|------|-------|-------|-----------------|
| Heater Current . . . . .                 | 1    | 0.160 | 0.190 | amp             |
| Grid-No.1-to-Plate Capacitance . . . . . | -    | -     | 0.020 | $\mu\text{uf}$  |
| Input Capacitance . . . . .              | -    | 3.4   | 4.6   | $\mu\text{uf}$  |
| Output Capacitance . . . . .             | -    | 2.45  | 3.25  | $\mu\text{uf}$  |
| Plate Current . . . . .                  | 1.2  | 3.0   | 12.0  | ma              |
| Transconductance . . . . .               | 1.2  | 3500  | 6500  | $\mu\text{hos}$ |
| Reverse Grid Current . . . . .           | 1.3  | -     | 0.1   | $\mu\text{amp}$ |

Note 1: With 6.3 volts ac on heater.

Note 2: With plate voltage of 120 volts, grid-No.2 voltage of 120 volts, and grid-No.1 voltage of -2 volts.

Note 3: With plate voltage of 120 volts, grid-No.2 voltage of 120 volts, grid-No.1 voltage of -2 volts, and grid-No.1 resistor of 0.1 megohm.

**CURVES**

are the same as shown for Type 6AK5  
 in the Receiving Tube Section