

ELECTRONIC TUBE REFERENCE

6L6

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION  
CONSTRUCTION  
BEAMPOWER

Classic beam-power audio-output tube for single-ended and push-pull amplifiers, offering substantial reserve power and widely used in radio, hi-fi, and musical-instrument equipment.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | 7AC               | BASE PINS            | 8             |
| NOMINAL HEATER      | 6.3 V / 900 mA    | PARALLEL HEATER      | – / –         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

7AC - TERMINAL PINOUT

| TERMINAL     | SECTION | ELEMENT                 | STATUS               |
|--------------|---------|-------------------------|----------------------|
| PIN1 – Pin 1 | –       | –                       | NC · verified        |
| PIN2 – Pin 2 | –       | H – Heater              | CONNECTED · verified |
| PIN3 – Pin 3 | A       | P – Plate (Anode)       | CONNECTED · verified |
| PIN4 – Pin 4 | A       | G2 – Screen Grid        | CONNECTED · verified |
| PIN5 – Pin 5 | A       | G1 – Control Grid       | CONNECTED · verified |
| PIN7 – Pin 7 | –       | H – Heater              | CONNECTED · verified |
| PIN8 – Pin 8 | A       | BP – Beam-Forming Plate | CONNECTED · verified |
| PIN8 – Pin 8 | A       | K – Cathode             | CONNECTED · verified |

## SECTION RATINGS

| SECTION1 Beam Power                     |                |
|-----------------------------------------|----------------|
| PLATE RESISTANCE                        | 35000 $\Omega$ |
| TRANSCONDUCTANCE                        | 0.0053 S       |
| MAXIMUM PLATE VOLTAGE                   | 360 V          |
| MAXIMUM SCREEN VOLTAGE                  | 270 V          |
| MAXIMUM PLATE DISSIPATION               | 19 W           |
| MAXIMUM SCREEN DISSIPATION              | 2.5 W          |
| <i>Audio beam-power output section.</i> |                |

Beam power tube used in audio-amplifier output stages where ample reserve power-delivering ability is desired.

## SOURCE OPERATING CONDITIONS

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# 1937 Raytheon Radio Receiving Tubes

Published test conditions and operating points. Values on this page are preserved as reported by this source.

## 1937 RAYTHEON RADIO RECEIVING TUBES

## Section 1 · Beam Power

| OTHER                            |                 |                            |
|----------------------------------|-----------------|----------------------------|
| PARAMETER                        | PUBLISHED VALUE | CONDITION / NOTE           |
| Maximum plate voltage            | 400 V           | Published datasheet rating |
| Plate voltage                    | 250 V           | ClassA                     |
| Maximum screen dissipation       | 3.5 W           | BeamPower                  |
| Class-A fixed-bias plate voltage | 375 V           | ClassA FixedBias           |
| Push-pull plate voltage          | 250 V           | ClassA PushPull TwoTubes   |
| Push-pull power output           | 14.5 W          | ClassA PushPull TwoTubes   |
| Class-AB push-pull plate voltage | 400 V           | ClassAB PushPull TwoTubes  |

| CHARACTERISTIC                      |                 |                                    |
|-------------------------------------|-----------------|------------------------------------|
| PARAMETER                           | PUBLISHED VALUE | CONDITION / NOTE                   |
| Plate resistance                    | 22500 ohm       | Published datasheet characteristic |
| Transconductance                    | 6000 μS         | Published datasheet characteristic |
| Heater voltage                      | 6.3 V           | Published heater rating            |
| Heater current                      | 900 mA          | Published heater rating            |
| Class-A fixed-bias plate resistance | 22500 ohm       | ClassA FixedBias                   |
| Class-A fixed-bias transconductance | 6000 μS         | ClassA FixedBias                   |

# 1940 RCA

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1940 RCA

## Section 1 · Beam Power

| CHARACTERISTICS      |                 |                                    |
|----------------------|-----------------|------------------------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE                   |
| Heater voltage       | 6.3 V           | Published nominal value            |
| Heater current       | 900 mA          | Published nominal value            |
| Transconductance     | 6000 $\mu$ S    | Published operating characteristic |
| Amplification factor | 135             | Published operating characteristic |

| OTHER                           |                 |                                                |
|---------------------------------|-----------------|------------------------------------------------|
| PARAMETER                       | PUBLISHED VALUE | CONDITION / NOTE                               |
| Single-ended audio power output | 11 W            | Maximum-ratings discussion                     |
| Push-pull audio power output    | 60 W            | PushPull                                       |
| Push-pull audio power output    | 34 W            | PushPull; Load=6600 ohm; no grid-driving power |

[SOURCE DATA APPENDIX](#)

# 1950 Sylvania

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 SYLVANIA

## Section 1 · Beam Power

| APPLICATION |                       |                  |
|-------------|-----------------------|------------------|
| PARAMETER   | PUBLISHED VALUE       | CONDITION / NOTE |
| Service     | Audio power amplifier | PushPull         |

[SOURCE DATA APPENDIX](#)

# 1953 RFT Rundfunk Technik

Published test conditions and operating points. Values on this page are preserved as reported by this source.

## 1953 RFT RUNDFUNK TECHNIK

### Section 1 · Beam Power

| OTHER                      |                 |                  |
|----------------------------|-----------------|------------------|
| PARAMETER                  | PUBLISHED VALUE | CONDITION / NOTE |
| HeaterVoltageNominal       | 6.3 V           | Nominal          |
| HeaterCurrentNominal       | 1.1 A           | Nominal          |
| Maximum Plate Voltage      | 360 V           | —                |
| Maximum Screen Voltage     | 270 V           | —                |
| Maximum Plate Dissipation  | 19 W            | —                |
| Maximum Screen Dissipation | 2.5 W           | —                |

| CHARACTERISTIC   |                    |                  |
|------------------|--------------------|------------------|
| PARAMETER        | PUBLISHED VALUE    | CONDITION / NOTE |
| Transconductance | 5200 $\mu\text{S}$ | Typical          |
| Plate Resistance | 33000 ohm          | Typical          |



SOURCE DATA APPENDIX

## SOURCE OPERATING CONDITIONS

# 195X General Electric Essential Characteristics

Published test conditions and operating points. Values on this page are preserved as reported by this source.

## 195X GENERAL ELECTRIC ESSENTIAL CHARACTERISTICS

### Section 1 · Beam Power

| OTHER           |                 |                  |
|-----------------|-----------------|------------------|
| PARAMETER       | PUBLISHED VALUE | CONDITION / NOTE |
| Load resistance | 2500 $\Omega$   | OneTube          |
| Power output    | 6.5 W           | OneTube          |

## SOURCE OPERATING CONDITIONS

# 1961 Tung Sol

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1961 TUNG SOL

## Section 1 · Beam Power

| OTHER          |                 |                                    |
|----------------|-----------------|------------------------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE                   |
| Plate Voltage  | 300 V           | ClassA PentodeConnection           |
| Screen Voltage | 200 V           | ClassA PentodeConnection           |
| Plate Voltage  | 250 V           | ClassA TriodeConnection            |
| Plate Voltage  | 360 V           | ClassAB PushPull PentodeConnection |
| Screen Voltage | 270 V           | ClassAB PushPull PentodeConnection |

| CHARACTERISTIC |                 |                          |
|----------------|-----------------|--------------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE         |
| Plate Current  | 48 mA           | ClassA PentodeConnection |
| Power Output   | 6.5 W           | ClassA PentodeConnection |
| Power Output   | 1.4 W           | ClassA TriodeConnection  |

## SOURCE OPERATING CONDITIONS

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# 1966 Tung Sol Electronic Tubes 2 of 4

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1966 TUNG SOL ELECTRONIC TUBES 2 OF 4

## Section 1 · Beam Power

| OTHER          |                 |                  |
|----------------|-----------------|------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE |
| Plate voltage  | 250 V           | ClassA           |
| Screen voltage | 250 V           | ClassA           |

| PARAMETER    | PUBLISHED VALUE | CONDITION / NOTE  |
|--------------|-----------------|-------------------|
| Power_output | 6.5 W           | ClassA,OneTube    |
| Power_output | 26.5 W          | PushPull,TwoTubes |

| CHARACTERISTIC       |                 |                  |
|----------------------|-----------------|------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE |
| Transconductance     | 5300 $\mu$ S    | ClassA           |
| Plate resistance     | 35000 ohm       | ClassA           |
| Plate_current        | 72 mA           | ClassA,OneTube   |
| Amplification_factor | 8               | TriodeConnection |

| CAPACITANCE        |                 |                  |
|--------------------|-----------------|------------------|
| PARAMETER          | PUBLISHED VALUE | CONDITION / NOTE |
| Input capacitance  | 3 pF            | Section1         |
| Output capacitance | 3 pF            | Section1         |



## SOURCE OPERATING CONDITIONS

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# 1971 RCA HB3 Binder 5 of 7

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1971 RCA HB3 BINDER 5 OF 7

## Section 1 · Beam Power

| OTHER                  |                 |                      |
|------------------------|-----------------|----------------------|
| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE     |
| Heater voltage nominal | 6.3 V           | —                    |
| Heater current         | 900 mA          | —                    |
| Voltage                | 63 V            | Published source row |
| Current                | 9 A             | Published source row |

| CAPACITANCE       |                 |                      |
|-------------------|-----------------|----------------------|
| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE     |
| grid No           | 3               | Published source row |
| grid No (value 2) | 2               | Published source row |
|                   |                 |                      |

| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE     |
|-------------------|-----------------|----------------------|
| grid No           | 3               | Published source row |
| grid No (value 2) | 2               | Published source row |
| ^e PLATE VOLTAGE  | 275 V           | Published source row |
| PLATE DISSIPATION | 19 W            | Published source row |

| CHARACTERISTICS                     |                 |                      |
|-------------------------------------|-----------------|----------------------|
| PARAMETER                           | PUBLISHED VALUE | CONDITION / NOTE     |
| Plate Voltage                       | 250 V           | Published source row |
| Plate Voltage (value 2)             | 250 V           | Published source row |
| Voltage                             | -20 V           | Published source row |
| Peak AF Grid-No.1 Voltage           | 20 V            | Published source row |
| Peak AF Grid-No.1 Voltage (value 2) | 20 V            | Published source row |
| ax.-Signal Plate Current            | 44 mA           | Published source row |
| ax.-Signal Plate Current (value 2)  | 42 mA           | Published source row |
| Amplification Factor                | 8               | Published source row |
| Plate Resistance (Approx.)          | 1700 ohm        | Published source row |
| Transconductance                    | 4700 μS         | Published source row |
| Load Resistance                     | 5000 ohm        | Published source row |
| Load Resistance (value 2)           | 6000 ohm        | Published source row |
| Total Harnanic Distortion           | 5 %             | Published source row |
| Total Harnanic Distortion (value 2) | 6 %             | Published source row |
| ax.-Signal Power Output             | 1.4 W           | Published source row |
| ax.-Signal Power Output (value 2)   | 1.3 W           | Published source row |




**SOURCE DATA APPENDIX**

## SOURCE OPERATING CONDITIONS

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# 1975 RCA RC30

Published test conditions and operating points. Values on this page are preserved as reported by this source.

## Section 1 · Beam Power

| OTHER                       |                 |                          |
|-----------------------------|-----------------|--------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE         |
| Heater Voltage              | 6.3 V           | Nominal                  |
| Heater Current              | 900 mA          | Nominal                  |
| Peak Heater-Cathode Voltage | 180 V           | —                        |
| Plate Voltage               | 250 V           | ClassA;PlateVoltage=250V |
| Screen Voltage              | 250 V           | ClassA;PlateVoltage=250V |
| Control Grid Voltage        | -14 V           | ClassA;PlateVoltage=250V |
| Zero-Signal Plate Current   | 72 mA           | ClassA;PlateVoltage=250V |
| Zero-Signal Screen Current  | 5 mA            | ClassA;PlateVoltage=250V |
| Load Resistance             | 2500 ohm        | ClassA;PlateVoltage=250V |
| Total Harmonic Distortion   | 10 %            | ClassA;PlateVoltage=250V |
| Maximum-Signal Power Output | 6.5 W           | ClassA;PlateVoltage=250V |
| Plate Voltage               | 300 V           | ClassA;PlateVoltage=300V |
| Screen Voltage              | 200 V           | ClassA;PlateVoltage=300V |
| Control Grid Voltage        | -12.5 V         | ClassA;PlateVoltage=300V |
| Zero-Signal Plate Current   | 48 mA           | ClassA;PlateVoltage=300V |
| Zero-Signal Screen Current  | 2.5 mA          | ClassA;PlateVoltage=300V |
| Load Resistance             | 4500 ohm        | ClassA;PlateVoltage=300V |
| Total Harmonic Distortion   | 11 %            | ClassA;PlateVoltage=300V |

| CAPACITANCE                    |                 |                  |
|--------------------------------|-----------------|------------------|
| PARAMETER                      | PUBLISHED VALUE | CONDITION / NOTE |
| Grid No.1-to-Plate Capacitance | 0.4 pF          | —                |
| Grid No.1 Input Capacitance    | 10 pF           | —                |
| Plate Output Capacitance       | 12 pF           | —                |

| CHARACTERISTIC   |                 |                          |
|------------------|-----------------|--------------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE         |
| Plate Resistance | 22500 ohm       | ClassA;PlateVoltage=250V |
| Transconductance | 6000 uS         | ClassA;PlateVoltage=250V |
| Plate Resistance | 35000 ohm       | ClassA;PlateVoltage=300V |
| Transconductance | 5300 uS         | ClassA;PlateVoltage=300V |

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