

ELECTRONIC TUBE REFERENCE

6GW8

Power - Pentode (NOT beam) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

PENTODE-TRIODE

High-mu triode plus sharp-cutoff power pentode used in audio preamplifier and output stages of audio equipment and television receivers, integrating voltage gain and power output in one envelope.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | 9LZ               | BASE PINS            | 9             |
| NOMINAL HEATER      | 6.3 V / 660 mA    | PARALLEL HEATER      | – / –         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Dissimilar    |

9LZ - TERMINAL PINOUT

| TERMINAL | SECTION | ELEMENT              | STATUS    |
|----------|---------|----------------------|-----------|
| PIN1     | B       | G1 – Control Grid    | CONNECTED |
| PIN2     | B       | K – Cathode          | CONNECTED |
| PIN3     | A       | G2 – Screen Grid     | CONNECTED |
| PIN4     | –       | H – Heater           | CONNECTED |
| PIN5     | –       | H – Heater           | CONNECTED |
| PIN6     | A       | P – Plate (Anode)    | CONNECTED |
| PIN7     | A       | G3 – Suppressor Grid | CONNECTED |
| PIN7     | A       | K – Cathode          | CONNECTED |
| PIN7     | –       | IS – Internal Screen | CONNECTED |
| PIN8     | A       | G1 – Control Grid    | CONNECTED |
| PIN9     | B       | P – Plate (Anode)    | CONNECTED |

SECTION RATINGS

| SECTION1 Triode                                                                                                                                   |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| PLATE RESISTANCE                                                                                                                                  | 45000 $\Omega$ |
| TRANSCONDUCTANCE                                                                                                                                  | 0.0016 S       |
| AMPLIFICATION FACTOR                                                                                                                              | 100            |
| MAXIMUM PLATE VOLTAGE                                                                                                                             | 330 V          |
| MAXIMUM PLATE DISSIPATION                                                                                                                         | 0.5 W          |
| MAXIMUM CATHODE CURRENT                                                                                                                           | 4 mA           |
| <i>Published maximum ratings and characteristic values promoted where applicable; additional table values retained in TUBE_SECTION_PARAMETER.</i> |                |

| SECTION2 Pentode                                                                                                                                  |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| PLATE RESISTANCE                                                                                                                                  | 48000 $\Omega$ |
| TRANSCONDUCTANCE                                                                                                                                  | 0.01 S         |
| MAXIMUM PLATE VOLTAGE                                                                                                                             | 330 V          |
| MAXIMUM SCREEN VOLTAGE                                                                                                                            | 330 V          |
| MAXIMUM PLATE DISSIPATION                                                                                                                         | 9 W            |
| MAXIMUM SCREEN DISSIPATION                                                                                                                        | 1.8 W          |
| MAXIMUM CATHODE CURRENT                                                                                                                           | 55 mA          |
| <i>Published maximum ratings and characteristic values promoted where applicable; additional table values retained in TUBE_SECTION_PARAMETER.</i> |                |

High-mu triode plus sharp-cutoff power pentode used in audio preamplifier and output stages of audio equipment and television receivers.

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1963 Amperex Condensed

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

## 1963 AMPEREX CONDENSED

## Section 1 · Triode

| CHARACTERISTIC              |                 |                           |
|-----------------------------|-----------------|---------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE          |
| Heater voltage              | 6.3 V           | Published heater rating   |
| Heater current              | 700 mA          | Published heater rating   |
| Triode amplification factor | 100             | TriodeSection AFAmplifier |

| OTHER                    |                 |                           |
|--------------------------|-----------------|---------------------------|
| PARAMETER                | PUBLISHED VALUE | CONDITION / NOTE          |
| Triode plate voltage     | 250 V           | TriodeSection AFAmplifier |
| Triode control-grid bias | -1.7 V          | TriodeSection AFAmplifier |
| Triode plate current     | 1.2 mA          | TriodeSection AFAmplifier |

## 1963 AMPEREX CONDENSED

## Section 2 · Pentode

| OTHER                     |                 |                            |
|---------------------------|-----------------|----------------------------|
| PARAMETER                 | PUBLISHED VALUE | CONDITION / NOTE           |
| Pentode plate voltage     | 250 V           | PentodeSection AFAmplifier |
| Pentode screen voltage    | 250 V           | PentodeSection AFAmplifier |
| Pentode control-grid bias | -7 V            | PentodeSection AFAmplifier |
| Pentode plate current     | 36 mA           | PentodeSection AFAmplifier |
| Pentode screen current    | 5.5 mA          | PentodeSection AFAmplifier |

| CHARACTERISTIC           |                 |                            |
|--------------------------|-----------------|----------------------------|
| PARAMETER                | PUBLISHED VALUE | CONDITION / NOTE           |
| Pentode plate resistance | 45000 ohm       | PentodeSection AFAmplifier |
| Pentode transconductance | 10000 $\mu$ S   | PentodeSection AFAmplifier |

**SOURCE OPERATING CONDITIONS**

# 1967 Mullard Receiving and Amplifying Valves

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

**1967 MULLARD RECEIVING AND AMPLIFYING VALVES**
**Section 1 · Triode**

| OTHER                    |                 |                                                              |
|--------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER                | PUBLISHED VALUE | CONDITION / NOTE                                             |
| c ap - gt <              | <b>0.006 pF</b> | Published in approved ECL86 target datasheet entry; Section1 |
| c at - gl <              | <b>0.2 pF</b>   | Published in approved ECL86 target datasheet entry; Section1 |
| ( cgt - gl <             | <b>0.02 pF</b>  | Published in approved ECL86 target datasheet entry; Section1 |
| c at - ap <              | <b>0.15 pF</b>  | Published in approved ECL86 target datasheet entry; Section1 |
| cin                      | <b>10 pF</b>    | Published in approved ECL86 target datasheet entry; Section1 |
| ca - gl <                | <b>0.4 pF</b>   | Published in approved ECL86 target datasheet entry; Section1 |
| c in 2                   | <b>3 pF</b>     | Published in approved ECL86 target datasheet entry; Section1 |
| cout 2                   | <b>5 pF</b>     | Published in approved ECL86 target datasheet entry; Section1 |
| ca - g 1                 | <b>4 pF</b>     | Published in approved ECL86 target datasheet entry; Section1 |
| cg - h < 6               | <b>0 pF</b>     | Published in approved ECL86 target datasheet entry; Section1 |
| gm                       | <b>10 mA</b>    | Published in approved ECL86 target datasheet entry; Section1 |
| gm 1                     | <b>6 mA</b>     | Published in approved ECL86 target datasheet entry; Section1 |
| Yin (r .m. s .) (Po ut = | <b>50 mW</b>    | Published in approved ECL86 target datasheet entry; Section1 |
|                          |                 |                                                              |

| PARAMETER                           | PUBLISHED VALUE | CONDITION / NOTE                                             |
|-------------------------------------|-----------------|--------------------------------------------------------------|
| Yin (r .m .s .) (P out =            | 50 mW           | Published in approved ECL86 target datasheet entry; Section1 |
| Yin (r .m .s .) (P out = 50 mW) 480 | 520 mV          | Published in approved ECL86 target datasheet entry; Section1 |

#### 1967 MULLARD RECEIVING AND AMPLIFYING VALVES

### Section 2 · Pentode

| OTHER                               |                 |                                                              |
|-------------------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER                           | PUBLISHED VALUE | CONDITION / NOTE                                             |
| c ap - gt <                         | 0.006 pF        | Published in approved ECL86 target datasheet entry; Section2 |
| c at - gl <                         | 0.2 pF          | Published in approved ECL86 target datasheet entry; Section2 |
| ( cgt - gl <                        | 0.02 pF         | Published in approved ECL86 target datasheet entry; Section2 |
| c at - ap <                         | 0.15 pF         | Published in approved ECL86 target datasheet entry; Section2 |
| cin                                 | 10 pF           | Published in approved ECL86 target datasheet entry; Section2 |
| ca - gl <                           | 0.4 pF          | Published in approved ECL86 target datasheet entry; Section2 |
| c in 2                              | 3 pF            | Published in approved ECL86 target datasheet entry; Section2 |
| cout 2                              | 5 pF            | Published in approved ECL86 target datasheet entry; Section2 |
| ca - g 1                            | 4 pF            | Published in approved ECL86 target datasheet entry; Section2 |
| cg - h < 6                          | 0 pF            | Published in approved ECL86 target datasheet entry; Section2 |
| gm                                  | 10 mA           | Published in approved ECL86 target datasheet entry; Section2 |
| gm 1                                | 6 mA            | Published in approved ECL86 target datasheet entry; Section2 |
| Yin (r .m .s .) (Po ut =            | 50 mW           | Published in approved ECL86 target datasheet entry; Section2 |
| Yin (r .m .s .) (P out =            | 50 mW           | Published in approved ECL86 target datasheet entry; Section2 |
| Yin (r .m .s .) (P out = 50 mW) 480 | 520 mV          | Published in approved ECL86 target datasheet entry; Section2 |

## 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 · Triode

| OTHER                  |                 |                  |
|------------------------|-----------------|------------------|
| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE |
| Heater voltage nominal | 6.3 V           | —                |
| Heater current nominal | 660 mA          | —                |

| CHARACTERISTICS             |                 |                        |
|-----------------------------|-----------------|------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE       |
| Voltage (AC or DC)          | 6.3 V           | Published source row   |
| Current at heater volts =   | 6.3 V           | Published table column |
| Peak heater–cathode voltage | 100 V           | Published source row   |

1971 RCA HB3 BINDER 5 OF 7

## Section 2 · Pentode

| OTHER                          |                 |                      |
|--------------------------------|-----------------|----------------------|
| PARAMETER                      | PUBLISHED VALUE | CONDITION / NOTE     |
| Heater voltage nominal         | 6.3 V           | —                    |
| Heater current nominal         | 660 mA          | —                    |
| Plate Supply Voltage           | 550 V           | Published source row |
| Plate Supply Voltage (value 2) | 550 V           | Published source row |
| Plate Voltage                  | 300 V           | Published source row |
| Plate Voltage (value 2)        | 300 V           | Published source row |
| Grid-No                        | 2 V             | Published source row |
| Grid-No (value 2)              | 550 V           | Published source row |
| Grid-No                        | 2 V             | Published source row |
| Grid-No (value 2)              | 300 V           | Published source row |
| Average Cathode Current        | 4 mA            | Published source row |

| PARAMETER                              | PUBLISHED VALUE | CONDITION / NOTE     |
|----------------------------------------|-----------------|----------------------|
| Average Cathode Current (value 2)      | 55 mA           | Published source row |
| Grid-No                                | 2 W             | Published source row |
| Grid-No (value 2)                      | 1.8 W           | Published source row |
| Plate Dissipation                      | 0.5 W           | Published source row |
| Plate Dissipation (value 2)            | 9 W             | Published source row |
| Grid-No.1 Voltage at grid No           | 1 V             | Published source row |
| Grid-No.1 Voltage at grid No (value 2) | 0.3 V           | Published source row |
| Grid-No.1 Voltage at grid No (value 3) | -1.3 V          | Published source row |
| Grid-No                                | 1               | Published source row |

| CHARACTERISTICS             |                 |                        |
|-----------------------------|-----------------|------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE       |
| Voltage (AC or DC)          | 6.3 V           | Published source row   |
| Current at heater volts =   | 0.66 V          | Published table column |
| Peak heater–cathode voltage | 100 V           | Published source row   |
| Plate Voltage               | 250 V           | Published source row   |
| Plate Voltage (value 2)     | 250 V           | Published source row   |
| Grid No                     | 2 V             | Published source row   |
| Grid No (value 2)           | 250 V           | Published source row   |
| Grid No                     | 1 V             | Published source row   |
| Grid No (value 2)           | -1.9 V          | Published source row   |
| Grid No (value 3)           | -7 V            | Published source row   |
| Plate Resistance (Approx.)  | 48000 ohm       | Published source row   |
| Transconductance            | 1600 $\mu$ S    | Published source row   |
| Transconductance (value 2)  | 10000 $\mu$ S   | Published source row   |
| Plate Current               | 1.2 mA          | Published source row   |
| Plate Current (value 2)     | 36 mA           | Published source row   |
| Grid-No                     | 2 mA            | Published source row   |
| Grid-No (value 2)           | 6 mA            | Published source row   |

## 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.

1975 RCA RC30

## Section 1 · Triode

| OTHER                                                     |                 |                                                              |
|-----------------------------------------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER                                                 | PUBLISHED VALUE | CONDITION / NOTE                                             |
| Plate Supply Voltage 550                                  | 550 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Plate Voltage 300                                         | 300 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Grid-No.2 (Screen-Grid) Supply Voltage                    | 550 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Grid-No.2 Voltage                                         | 300 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Cathode Current 4                                         | 55 mA           | Published in approved ECL86 target datasheet entry; Section1 |
| Plate Dissipation 0.5                                     | 9 W             | Published in approved ECL86 target datasheet entry; Section1 |
| Grid-No.2 Input                                           | 1.5 W           | Published in approved ECL86 target datasheet entry; Section1 |
| Plate Voltage 250                                         | 250 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Grid-No. 1-Circuit Resistance, for fixed-bias operation 1 | 0.5 MΩ          | Published in approved ECL86 target datasheet entry; Section1 |
| Heater Voltage (ac/dc)                                    | 6.3 V           | Published in approved ECL86 target datasheet entry; Section1 |
| Heater Current                                            | 400 mA          | Published in approved ECL86 target datasheet entry; Section1 |

| CHARACTERISTIC    |                 |                                                              |
|-------------------|-----------------|--------------------------------------------------------------|
| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE                                             |
| Grid-No.1 Voltage | -1.9 V          | Published in approved ECL86 target datasheet entry; Section1 |
|                   |                 |                                                              |

| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE                                             |
|-------------------|-----------------|--------------------------------------------------------------|
| Plate Current 1.2 | 36 mA           | Published in approved ECL86 target datasheet entry; Section1 |

| CAPACITANCE            |                 |                                                              |
|------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE                                             |
| andInternal Shield     | 2.3 pF          | Published in approved ECL86 target datasheet entry; Section1 |
| Grid No.1 to Plate     | 0.005 pF        | Published in approved ECL86 target datasheet entry; Section1 |
| Internal Shield        | 3.3 pF          | Published in approved ECL86 target datasheet entry; Section1 |
| Grid No.1 to Grid No.2 | 1.6 pF          | Published in approved ECL86 target datasheet entry; Section1 |

1975 RCA RC30

## Section 2 · Pentode

| OTHER                                                     |                 |                                                              |
|-----------------------------------------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER                                                 | PUBLISHED VALUE | CONDITION / NOTE                                             |
| Plate Supply Voltage 550                                  | 550 V           | Published in approved ECL86 target datasheet entry; Section2 |
| Plate Voltage 300                                         | 300 V           | Published in approved ECL86 target datasheet entry; Section2 |
| Grid-No.2 (Screen-Grid) Supply Voltage                    | 550 V           | Published in approved ECL86 target datasheet entry; Section2 |
| Grid-No.2 Voltage                                         | 300 V           | Published in approved ECL86 target datasheet entry; Section2 |
| Cathode Current 4                                         | 55 mA           | Published in approved ECL86 target datasheet entry; Section2 |
| Plate Dissipation 0.5                                     | 9 W             | Published in approved ECL86 target datasheet entry; Section2 |
| Grid-No.2 Input                                           | 1.5 W           | Published in approved ECL86 target datasheet entry; Section2 |
| Plate Voltage 250                                         | 250 V           | Published in approved ECL86 target datasheet entry; Section2 |
| Grid-No. 1-Circuit Resistance, for fixed-bias operation 1 | 0.5 MΩ          | Published in approved ECL86 target datasheet entry; Section2 |
| Heater Voltage (ac/dc)                                    | 6.3 V           | Published in approved ECL86 target datasheet entry; Section2 |
|                                                           |                 |                                                              |

| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE                                             |
|----------------|-----------------|--------------------------------------------------------------|
| Heater Current | <b>400 mA</b>   | Published in approved ECL86 target datasheet entry; Section2 |

| CHARACTERISTIC    |                 |                                                              |
|-------------------|-----------------|--------------------------------------------------------------|
| PARAMETER         | PUBLISHED VALUE | CONDITION / NOTE                                             |
| Grid-No.1 Voltage | <b>-1.9 V</b>   | Published in approved ECL86 target datasheet entry; Section2 |
| Plate Current 1.2 | <b>36 mA</b>    | Published in approved ECL86 target datasheet entry; Section2 |

| CAPACITANCE            |                 |                                                              |
|------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE                                             |
| andInternal Shield     | <b>2.3 pF</b>   | Published in approved ECL86 target datasheet entry; Section2 |
| Grid No.1 to Plate     | <b>0.005 pF</b> | Published in approved ECL86 target datasheet entry; Section2 |
| Internal Shield        | <b>3.3 pF</b>   | Published in approved ECL86 target datasheet entry; Section2 |
| Grid No.1 to Grid No.2 | <b>1.6 pF</b>   | Published in approved ECL86 target datasheet entry; Section2 |

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