

ELECTRONIC TUBE REFERENCE

4EH7

Voltage - Pentode Remote Cutoff (single) electronic tube

CONSOLIDATED TECHNICAL DATA  
1 SECTION  
CONSTRUCTION  
PENTODE

Semi-remote-cutoff pentode used as an IF amplifier in color and black-and-white television receivers. Its controlled transconductance provides automatic gain regulation in wideband television IF stages.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | 9A0               | BASE PINS            | 9             |
| NOMINAL HEATER      | 4.4 V / 450 mA    | PARALLEL HEATER      | – / –         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

SECTION RATINGS

|                                                                  |          |
|------------------------------------------------------------------|----------|
| SECTION1 Pentode                                                 |          |
| PLATE RESISTANCE                                                 | 500000 Ω |
| TRANSCONDUCTANCE                                                 | 0.0155 S |
| MAXIMUM PLATE VOLTAGE                                            | 250 V    |
| MAXIMUM SCREEN VOLTAGE                                           | 250 V    |
| MAXIMUM PLATE DISSIPATION                                        | 2.5 W    |
| MAXIMUM SCREEN DISSIPATION                                       | 0.7 W    |
| MAXIMUM CATHODE CURRENT                                          | 20 mA    |
| Remote-cutoff pentode; promoted gm from published typical table. |          |

Semiremote-cutoff pentode used as an IF-amplifier tube in color and black-and-white television receivers.



## SOURCE OPERATING CONDITIONS

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# 1953 Amperex

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

1953 AMPEREX

## Section 1 · Pentode

| CAPACITANCE                     |                 |                        |
|---------------------------------|-----------------|------------------------|
| PARAMETER                       | PUBLISHED VALUE | CONDITION / NOTE       |
| Input capacitance               | 9.5 pF          | Published source value |
| Output capacitance              | 3 pF            | Published source value |
| Plate-to-grid No. 1 capacitance | 0.005 pF        | Published source value |

| OTHER                       |                 |                        |
|-----------------------------|-----------------|------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE       |
| Typical plate voltage       | 200 V           | Published source value |
| Typical screen-grid voltage | 90 V            | Published source value |
| Typical plate current       | 12 mA           | Published source value |
| Typical screen-grid current | 4.5 mA          | Published source value |



## SOURCE OPERATING CONDITIONS

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# 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 · Pentode

| CHARACTERISTIC            |                 |                  |
|---------------------------|-----------------|------------------|
| PARAMETER                 | PUBLISHED VALUE | CONDITION / NOTE |
| TransconductancePublished | 15500 uS        | —                |



## SOURCE OPERATING CONDITIONS

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# 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 · Pentode

| OTHER          |                 |                  |
|----------------|-----------------|------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE |
| Plate voltage  | 250 V           | IF amplifier     |
| Screen voltage | 250 V           | IF amplifier     |
| Grid voltage   | -1.3 V          | IF amplifier     |
| Plate current  | 1 mA            | IF amplifier     |
| Screen current | 4.1 mA          | IF amplifier     |

| CHARACTERISTIC   |                 |                  |
|------------------|-----------------|------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE |
| Transconductance | 15000 $\mu$ S   | IF amplifier     |



## SOURCE OPERATING CONDITIONS

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# 1966 Tung Sol Electronic Tubes 1 of 4

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

1966 TUNG SOL ELECTRONIC TUBES 1 OF 4

## Section 1 · Pentode

| OTHER                          |                 |                                                                    |
|--------------------------------|-----------------|--------------------------------------------------------------------|
| PARAMETER                      | PUBLISHED VALUE | CONDITION / NOTE                                                   |
| CURRENT OPERATION              | 30 mA           | Average Characteristics   CURRENT OPERATION. 450 $\pm$ 30 MA.      |
| MAXIMUM HEATER CATHODE VOLTAGE | 165 V           | Average Characteristics   MAXIMUM HEATER CATHODE VOLTAGE 165 VOLTS |
|                                |                 |                                                                    |

| PARAMETER           | PUBLISHED VALUE | CONDITION / NOTE                                             |
|---------------------|-----------------|--------------------------------------------------------------|
| HEATER WARM-UP TIME | 11 s            | Average Characteristics   HEATER WARM-UP TIME 11 SECONDS     |
| PLATE DISSIPATION   | 2.5 W           | Maximum Ratings   PLATE DISSIPATION 2.5 WATTS                |
| GRID #              | 250 V           | Maximum Ratings   GRID #2 VOLTAGE 250 VOLTS                  |
| GRID #              | 0.65 W          | Maximum Ratings   GRID #2 DISSIPATION 0.65 WATTS             |
| GRID #              | -2 V            | Maximum Ratings   GRID #1 VOLTAGE -2 -2 VOLTS                |
| GRID #              | 1250 MMHOS      | Maximum Ratings   GRID #1 CUTOFF: EC1 - -6.5 1250 $\mu$ MHOS |



SOURCE DATA APPENDIX

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 · Pentode

| OTHER               |                 |                                                              |
|---------------------|-----------------|--------------------------------------------------------------|
| PARAMETER           | PUBLISHED VALUE | CONDITION / NOTE                                             |
| I. 11.6 11.8 11 .7  | 11.4 mA         | Published in approved EF183 target datasheet entry; Section1 |
| Ig2 4.3 4.4 4.4     | 4.3 mA          | Published in approved EF183 target datasheet entry; Section1 |
| gm 12 .3 12.4 12 .2 | 12 mA           | Published in approved EF183 target datasheet entry; Section1 |
| Itotal 16 27 24     | 21 mA           | Published in approved EF183 target datasheet entry; Section1 |
| I. 11.8 11.9 12     | 11.6 mA         | Published in approved EF183 target datasheet entry; Section1 |
| Ig2 4.4 4.5 4.5     | 4.4 mA          | Published in approved EF183 target datasheet entry; Section1 |
|                     |                 |                                                              |

| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE                                             |
|------------------------|-----------------|--------------------------------------------------------------|
| gm 12.3 12.5 12.5      | 15.5 mA         | Published in approved EF183 target datasheet entry; Section1 |
| ltotal 19.7 18 .5 14.7 | 16 mA           | Published in approved EF183 target datasheet entry; Section1 |
| la 11.7 12 11.8        | 11.4 mA         | Published in approved EF183 target datasheet entry; Section1 |
| Ig2 4.3 4.5 4.4        | 4.3 mA          | Published in approved EF183 target datasheet entry; Section1 |
| gm 12.4 13 12.3        | 12 mA           | Published in approved EF183 target datasheet entry; Section1 |
| ltotal 16 27 24        | 21 mA           | Published in approved EF183 target datasheet entry; Section1 |
| la 11.8 12             | 12 mA           | Published in approved EF183 target datasheet entry; Section1 |
| Ig2 4.4 4.5            | 4.5 mA          | Published in approved EF183 target datasheet entry; Section1 |
| gm 12 .4 12 .5 12      | 5 mA            | Published in approved EF183 target datasheet entry; Section1 |
| Ito'al 19.7 18.5       | 17.5 mA         | Published in approved EF183 target datasheet entry; Section1 |
| Pg2 max                | 650 mW          | Published in approved EF183 target datasheet entry; Section1 |
| Ik max                 | 20 mA           | Published in approved EF183 target datasheet entry; Section1 |
| T bulb max             | 180 °C          | Published in approved EF183 target datasheet entry; Section1 |



SOURCE DATA APPENDIX

#### SOURCE OPERATING CONDITIONS

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# 1971 RCA HB3 Binder 4 of 7

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

1971 RCA HB3 BINDER 4 OF 7

Section 1 · Pentode

| OTHER          |                 |                  |
|----------------|-----------------|------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE |
| Plate voltage  | 200 V           | IF-Amplifier     |
| Grid 2 voltage | 90 V            | IF-Amplifier     |
| Grid 1 voltage | -2 V            | IF-Amplifier     |
| Plate current  | 12 mA           | IF-Amplifier     |
| Grid 2 current | 4.5 mA          | IF-Amplifier     |

| CHARACTERISTIC             |                 |                  |
|----------------------------|-----------------|------------------|
| PARAMETER                  | PUBLISHED VALUE | CONDITION / NOTE |
| Grid 1 impedance at 40 MHz | 13 kohm         | IF-Amplifier     |
| Heater warm-up time        | 11 s            | ControlledWarmUp |



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

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 · Pentode

| OTHER                                               |                 |                                                              |
|-----------------------------------------------------|-----------------|--------------------------------------------------------------|
| PARAMETER                                           | PUBLISHED VALUE | CONDITION / NOTE                                             |
| Heater Voltage (ac/dc) 3.4 4.4                      | 6.3 V           | Published in approved XF183 target datasheet entry; Section1 |
| Heater Current 0.6 0.45                             | 300 mA          | Published in approved XF183 target datasheet entry; Section1 |
| Plate Supply Voltage                                | 550 V           | Published in approved XF183 target datasheet entry; Section1 |
| Plate Voltage                                       | 250 V           | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.3 (Suppressor-Grid) Voltage, Positive value | 0 V             | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 (Screen-Grid) Supply Voltage              | 550 V           | Published in approved XF183 target datasheet entry; Section1 |

| PARAMETER                                   | PUBLISHED VALUE                       | CONDITION / NOTE                                             |
|---------------------------------------------|---------------------------------------|--------------------------------------------------------------|
| Grid-No.2 Voltage                           | <b>250 V</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Cathode Current                             | <b>20 mA</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Plate Dissipation                           | <b>2.5 W</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 Input                             | <b>0.65 W</b>                         | Published in approved XF183 target datasheet entry; Section1 |
| Plate Voltage                               | <b>200 V</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 Voltage                           | <b>90 V</b>                           | Published in approved XF183 target datasheet entry; Section1 |
| Plate Voltage 200 200 200                   | <b>200 V</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 Supply Voltage 200 200 200        | <b>200 V</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 Series Resistor 22000 22000 22000 | <b>22000 <math>\Omega</math></b>      | Published in approved XF183 target datasheet entry; Section1 |
| Transconductance 125 625 1250               | <b>12500 <math>\mu\text{S}</math></b> | Published in approved XF183 target datasheet entry; Section1 |
| cross-modulation factor of 0.01 450 160     | <b>100 mV</b>                         | Published in approved XF183 target datasheet entry; Section1 |

| CHARACTERISTIC             |                                       |                                                              |
|----------------------------|---------------------------------------|--------------------------------------------------------------|
| PARAMETER                  | PUBLISHED VALUE                       | CONDITION / NOTE                                             |
| Grid-No. 1 Voltage         | <b>-2 V</b>                           | Published in approved XF183 target datasheet entry; Section1 |
| Plate Resistance (Approx.) | <b>0.5 M<math>\Omega</math></b>       | Published in approved XF183 target datasheet entry; Section1 |
| Transconductance           | <b>12500 <math>\mu\text{S}</math></b> | Published in approved XF183 target datasheet entry; Section1 |
| Plate Current              | <b>12 mA</b>                          | Published in approved XF183 target datasheet entry; Section1 |
| Grid-No.2 Current          | <b>4.5 mA</b>                         | Published in approved XF183 target datasheet entry; Section1 |

## TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

