

ELECTRONIC TUBE REFERENCE

13DE7

Power - TV Vertical Output electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TRIODE

Dissimilar dual triode for television vertical-deflection oscillator and amplifier service. A higher-mu section supplies oscillator/voltage-gain duty while the low-mu 7 W section provides the high-current vertical-output function.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | 9HF               | BASE PINS            | 8             |
| NOMINAL HEATER      | 13 V / 450 mA     | PARALLEL HEATER      | – / –         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Dissimilar    |

9HF - TERMINAL PINOUT

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

SECTION RATINGS

| SECTION1 Triode                                                                                  |               |
|--------------------------------------------------------------------------------------------------|---------------|
| PLATE RESISTANCE                                                                                 | 8750 $\Omega$ |
| TRANSCONDUCTANCE                                                                                 | 0.002 S       |
| AMPLIFICATION FACTOR                                                                             | 17.5          |
| MAXIMUM PLATE VOLTAGE                                                                            | 330 V         |
| MAXIMUM PLATE DISSIPATION                                                                        | 1.5 W         |
| MAXIMUM CATHODE CURRENT                                                                          | 22 mA         |
| WARM-UP TIME                                                                                     | 11 s          |
| <i>Published promoted fields populated semantically; identical repeated sections compressed.</i> |               |

| SECTION2 Triode                                                                                  |              |
|--------------------------------------------------------------------------------------------------|--------------|
| PLATE RESISTANCE                                                                                 | 925 $\Omega$ |
| TRANSCONDUCTANCE                                                                                 | 0.0065 S     |
| AMPLIFICATION FACTOR                                                                             | 6            |
| MAXIMUM PLATE VOLTAGE                                                                            | 275 V        |
| MAXIMUM PLATE DISSIPATION                                                                        | 7 W          |
| MAXIMUM CATHODE CURRENT                                                                          | 50 mA        |
| WARM-UP TIME                                                                                     | 11 s         |
| <i>Published promoted fields populated semantically; identical repeated sections compressed.</i> |              |

Dissimilar dual triode for combined television vertical-deflection oscillator and amplifier service.



## SOURCE OPERATING CONDITIONS

# 1950 Sylvania

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

## 1950 SYLVANIA

## Section 1 · Triode

| OTHER                            |                 |                    |
|----------------------------------|-----------------|--------------------|
| PARAMETER                        | PUBLISHED VALUE | CONDITION / NOTE   |
| Peak Negative Pulse Grid Voltage | 400 V           | Oscillator section |

## 1950 SYLVANIA

## Section 2 · Triode

| OTHER                             |                 |                                     |
|-----------------------------------|-----------------|-------------------------------------|
| PARAMETER                         | PUBLISHED VALUE | CONDITION / NOTE                    |
| Peak Positive Pulse Plate Voltage | 1500 V          | Amplifier section; absolute maximum |
| Peak Negative Pulse Grid Voltage  | 250 V           | Amplifier section                   |



## 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 2 · Triode

| CHARACTERISTIC           |                 |                  |
|--------------------------|-----------------|------------------|
| PARAMETER                | PUBLISHED VALUE | CONDITION / NOTE |
| Section2Transconductance | 6500 $\mu$ S    | Section2         |

## SOURCE OPERATING CONDITIONS

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# 1966 Tung Sol Electronic Tubes 3 of 4

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

## 1966 TUNG SOL ELECTRONIC TUBES 3 OF 4

## Section 1 · Triode

| OTHER                        |                 |                    |
|------------------------------|-----------------|--------------------|
| PARAMETER                    | PUBLISHED VALUE | CONDITION / NOTE   |
| Typical plate voltage        | 250 V           | VerticalDeflection |
| Typical plate current        | 5.5 mA          | VerticalDeflection |
| Maximum peak cathode current | 77 mA           | VerticalDeflection |
| Maximum plate voltage        | 330 V           | PromotedValue      |
| Maximum plate dissipation    | 1.5 W           | PromotedValue      |
| Maximum cathode current      | 22 mA           | PromotedValue      |

| CHARACTERISTICS      |                 |                  |
|----------------------|-----------------|------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE |
| Plate resistance     | 8750 ohm        | PromotedValue    |
| Transconductance     | 0.002 A/V       | PromotedValue    |
| Amplification factor | 17.5            | PromotedValue    |

## 1966 TUNG SOL ELECTRONIC TUBES 3 OF 4

## Section 2 · Triode

| OTHER                                     |                 |                    |
|-------------------------------------------|-----------------|--------------------|
| PARAMETER                                 | PUBLISHED VALUE | CONDITION / NOTE   |
| Typical plate voltage                     | 150 V           | VerticalDeflection |
| Typical plate current                     | 35 mA           | VerticalDeflection |
| Maximum peak cathode current              | 175 mA          | VerticalDeflection |
| Maximum peak positive pulse plate voltage | 1500 V          | VerticalDeflection |
| Maximum plate voltage                     | 275 V           | PromotedValue      |
| Maximum plate dissipation                 | 7 W             | PromotedValue      |

| PARAMETER               | PUBLISHED VALUE | CONDITION / NOTE |
|-------------------------|-----------------|------------------|
| Maximum cathode current | 50 mA           | PromotedValue    |

| CHARACTERISTICS      |                 |                  |
|----------------------|-----------------|------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE |
| Plate resistance     | 925 ohm         | PromotedValue    |
| Transconductance     | 0.0065 A/V      | PromotedValue    |
| Amplification factor | 6               | PromotedValue    |


SOURCE DATA APPENDIX

#### 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                                                |
| Plate voltage | 250 V           | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |
| Grid voltage  | -11 V           | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |
| Plate current | 5.5 mA          | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |

| CAPACITANCE               |                 |                                            |
|---------------------------|-----------------|--------------------------------------------|
| PARAMETER                 | PUBLISHED VALUE | CONDITION / NOTE                           |
| Grid-to-plate capacitance | 4 pF            | Inherited from explicitly referenced 6DE7. |
| Input capacitance         | 2.2 pF          | Inherited from explicitly referenced 6DE7. |
| Output capacitance        | 0.52 pF         | Inherited from explicitly referenced 6DE7. |

1971 RCA HB3 BINDER 5 OF 7

| OTHER         |                 |                                                                 |
|---------------|-----------------|-----------------------------------------------------------------|
| PARAMETER     | PUBLISHED VALUE | CONDITION / NOTE                                                |
| Plate voltage | 150 V           | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |
| Grid voltage  | -17.5 V         | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |
| Plate current | 35 mA           | TVVerticalDeflection Inherited from explicitly referenced 6DE7. |

| CAPACITANCE               |                 |                                            |
|---------------------------|-----------------|--------------------------------------------|
| PARAMETER                 | PUBLISHED VALUE | CONDITION / NOTE                           |
| Grid-to-plate capacitance | 8.5 pF          | Inherited from explicitly referenced 6DE7. |
| Input capacitance         | 5.5 pF          | Inherited from explicitly referenced 6DE7. |
| Output capacitance        | 1 pF            | Inherited from explicitly referenced 6DE7. |



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 · Triode

| CHARACTERISTIC                  |                 |                                |
|---------------------------------|-----------------|--------------------------------|
| PARAMETER                       | PUBLISHED VALUE | CONDITION / NOTE               |
| Heater Warm-up Time (Average) – | 11 s            | Characteristic;PublishedValue1 |
| Heater Warm-up Time (Average) – | 11 s            | Characteristic;PublishedValue2 |
| Peak value                      | 200 V           | Characteristic;PublishedValue1 |
| Peak value                      | 200 V           | Characteristic;PublishedValue2 |
| Peak value                      | 200 V           | Characteristic;PublishedValue3 |
| Average value                   | 100 V           | Characteristic;PublishedValue1 |
| Average value                   | 100 V           | Characteristic;PublishedValue2 |
| Average value                   | 100 V           | Characteristic;PublishedValue3 |

| PARAMETER                                   | PUBLISHED VALUE | CONDITION / NOTE               |
|---------------------------------------------|-----------------|--------------------------------|
| Plate Voltage                               | 250 V           | Characteristic;PublishedValue1 |
| Plate Voltage                               | 150 V           | Characteristic;PublishedValue2 |
| Grid Voltage                                | -11 V           | Characteristic;PublishedValue1 |
| Grid Voltage                                | -17.5 V         | Characteristic;PublishedValue2 |
| Plate Resistance (Approx.)                  | 8750 ohm        | Characteristic;PublishedValue1 |
| Plate Resistance (Approx.)                  | 925 ohm         | Characteristic;PublishedValue2 |
| Transconductance                            | 2000 uS         | Characteristic;PublishedValue1 |
| Transconductance                            | 6500 uS         | Characteristic;PublishedValue2 |
| Plate Current                               | 5.5 mA          | Characteristic;PublishedValue1 |
| Plate Current                               | 35 mA           | Characteristic;PublishedValue2 |
| Plate Current for grid voltage of           | 24 V            | Characteristic;PublishedValue1 |
| Plate Current for grid voltage of           | -20 V           | Characteristic;PublishedValue2 |
| – –                                         | 10 mA           | Characteristic                 |
| Grid Voltage (Approx.) for plate current of | 10 uA           | Characteristic                 |
| Grid Voltage (Approx.) for plate current of | 50 V            | Characteristic                 |
| Plate Resistance                            | 8750 ohm        | Section1                       |
| Transconductance                            | 2000 uS         | Section1                       |
| Amplification Factor                        | 17.5            | Section1                       |

| CAPACITANCE                 |                 |                             |
|-----------------------------|-----------------|-----------------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE            |
| Grid to Plate               | 4 pF            | Capacitance;PublishedValue1 |
| Grid to Plate               | 8.5 pF          | Capacitance;PublishedValue2 |
| Plate to Cathode and Heater | 0.52 pF         | Capacitance;PublishedValue1 |
| Plate to Cathode and Heater | 1 pF            | Capacitance;PublishedValue2 |

| OTHER            |                 |                               |
|------------------|-----------------|-------------------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE              |
| DC Plate Voltage | 330 V           | MaximumRating;PublishedValue1 |
| DC Plate Voltage | 275 V           | MaximumRating;PublishedValue2 |
|                  |                 |                               |

| PARAMETER                                        | PUBLISHED VALUE | CONDITION / NOTE                    |
|--------------------------------------------------|-----------------|-------------------------------------|
| Peak Positive-Pulse Plate Voltage* –             | 1500 V          | MaximumRating                       |
| Peak Negative-Pulse Grid Voltage                 | 400 V           | MaximumRating;PublishedValue1       |
| Peak Negative-Pulse Grid Voltage                 | 250 V           | MaximumRating;PublishedValue2       |
| Peak Cathode Current "                           | 175 mA          | MaximumRating                       |
| Average Cathode Current                          | 22 mA           | MaximumRating;PublishedValue1       |
| Average Cathode Current                          | 60 mA           | MaximumRating;PublishedValue2       |
| Plate Dissipation                                | 1.6 W           | MaximumRating;PublishedValue1       |
| Plate Dissipation                                | 7 W             | MaximumRating;PublishedValue2       |
| For grid-resistor bias or cathode-bias operation | 2.2 megohm      | MaximumCircuitValue;PublishedValue1 |
| For grid-resistor bias or cathode-bias operation | 2.2 megohm      | MaximumCircuitValue;PublishedValue2 |
| PLATE                                            | 92 V            | MaximumCircuitValue                 |
| Maximum Plate Voltage                            | 330 V           | Section1                            |
| Maximum Plate Dissipation                        | 1.6 W           | Section1                            |
| Maximum Cathode Current                          | 22 mA           | Section1                            |

1975 RCA RC30

## Section 2 · Triode

| OTHER                     |                 |                  |
|---------------------------|-----------------|------------------|
| PARAMETER                 | PUBLISHED VALUE | CONDITION / NOTE |
| Maximum Plate Voltage     | 275 V           | Section2         |
| Maximum Plate Dissipation | 7 W             | Section2         |
| Maximum Cathode Current   | 175 mA          | Section2         |

| CHARACTERISTIC       |                 |                  |
|----------------------|-----------------|------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE |
| Plate Resistance     | 925 ohm         | Section2         |
| Transconductance     | 6500 uS         | Section2         |
| Amplification Factor | 6               | Section2         |

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