



## ELECTRONIC TUBE REFERENCE

## DK91

Voltage - Pentode or Tetrode (under 100V) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

HEPTODE

Directly heated battery heptode for oscillator-mixer frequency conversion in portable superheterodyne receivers. Its 1.4 V, 50 mA filament provides useful receiver conversion performance with very low filament power consumption.

## GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | B7G               | BASE PINS            | 7             |
| NOMINAL HEATER      | 1.4 V / 50 mA     | PARALLEL HEATER      | 1.4 V / 50 mA |
| HEATING             | Direct            | SERIES OPERATION     | Capable       |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

## SECTION RATINGS

|                                                  |                 |
|--------------------------------------------------|-----------------|
| SECTION 1 Heptode                                |                 |
| PLATE RESISTANCE                                 | 800000 $\Omega$ |
| TRANSCONDUCTANCE                                 | 0.0014 S        |
| MAXIMUM PLATE VOLTAGE                            | 90 V            |
| MAXIMUM SCREEN VOLTAGE                           | 67.5 V          |
| MAXIMUM PLATE DISSIPATION                        | 0.15 W          |
| MAXIMUM SCREEN DISSIPATION                       | 0.25 W          |
| MAXIMUM CATHODE CURRENT                          | 5.5 mA          |
| Heptode frequency changer for battery receivers. |                 |

Miniature heptode frequency changer for battery-operated receivers, suitable for AVC and including an oscillator function.



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1951 Mullard Valve and Service Manual

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

## 1951 MULLARD VALVE AND SERVICE MANUAL

## Section 1 · Heptode

| OTHER          |                 |                  |
|----------------|-----------------|------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE |
| Plate Voltage  | 90 V            | —                |
| Screen Voltage | 67.5 V          | —                |
| Plate Current  | 1.6 mA          | —                |

| CHARACTERISTIC              |                 |                  |
|-----------------------------|-----------------|------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE |
| Conversion Conductance      | 300 $\mu$ S     | —                |
| Plate Resistance            | 600000 ohm      | —                |
| Oscillator Transconductance | 1400 $\mu$ S    | —                |



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1961 Ferranti Technical Handbook

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

## 1961 FERRANTI TECHNICAL HANDBOOK

## Section 1 · Heptode

| APPLICATION |                                      |                  |
|-------------|--------------------------------------|------------------|
| PARAMETER   | PUBLISHED VALUE                      | CONDITION / NOTE |
| Application | Frequency changer / oscillator-mixer | —                |

| OTHER                    |                 |                  |
|--------------------------|-----------------|------------------|
| PARAMETER                | PUBLISHED VALUE | CONDITION / NOTE |
| Maximum useful frequency | 20 MHz          | —                |



SOURCE DATA APPENDIX

## SOURCE OPERATING CONDITIONS

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# 1963 Mullard

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

1963 MULLARD

## Section 1 · Heptode

| CHARACTERISTICS             |                 |                   |
|-----------------------------|-----------------|-------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE  |
| Filament Voltage            | 1.4 V           | DCOnly            |
| Filament Current            | 50 mA           | DCOnly            |
| Plate Resistance            | 600000 ohm      | Representative    |
| Conversion Transconductance | 300 uS          | Representative    |
| Oscillator Transconductance | 1400 uS         | OscillatorSection |

| OTHER                   |                 |                  |
|-------------------------|-----------------|------------------|
| PARAMETER               | PUBLISHED VALUE | CONDITION / NOTE |
| Plate Voltage           | 90 V            | FrequencyChanger |
| Screen Voltage          | 67.5 V          | FrequencyChanger |
| Plate Current           | 1.6 mA          | FrequencyChanger |
| Screen Current          | 3.2 mA          | FrequencyChanger |
| Grid Current            | 250 uA          | FrequencyChanger |
| Total Cathode Current   | 5 mA            | FrequencyChanger |
| Maximum Plate Voltage   | 90 V            | —                |
| Maximum Screen Voltage  | 67.5 V          | —                |
| Maximum Cathode Current | 5.5 mA          | —                |



SOURCE DATA APPENDIX

# 1963 Philips Electron Tubes Handbook V1

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1963 PHILIPS ELECTRON TUBES HANDBOOK V1

## Section 1 · Heptode

| CAPACITANCE                 |                 |                  |
|-----------------------------|-----------------|------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE |
| Plate capacitance           | 7.5 pF          | —                |
| Grid-3 capacitance          | 7 pF            | —                |
| Plate-to-grid-3 capacitance | —0.4 pF         | —                |

| OTHER          |                 |                  |
|----------------|-----------------|------------------|
| PARAMETER      | PUBLISHED VALUE | CONDITION / NOTE |
| Plate voltage  | 67.5 V          | FrequencyChanger |
| Screen voltage | 67.5 V          | FrequencyChanger |
| Plate current  | 1.6 mA          | FrequencyChanger |
| Screen current | 3.2 mA          | FrequencyChanger |

| CHARACTERISTIC   |                 |                  |
|------------------|-----------------|------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE |
| Plate resistance | 0.6 Mohm        | —                |



SOURCE DATA APPENDIX

# 1967 Mullard Receiving Tubes for Maintenance

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

1967 MULLARD RECEIVING TUBES FOR MAINTENANCE

## Section 1 · Heptode

| CAPACITANCE                          |                 |                      |
|--------------------------------------|-----------------|----------------------|
| PARAMETER                            | PUBLISHED VALUE | CONDITION / NOTE     |
| All-Grid Input Capacitance           | 7 pF            | PublishedCapacitance |
| Plate-to-All Capacitance             | 7.5 pF          | PublishedCapacitance |
| Control-Grid-to-All Capacitance      | 3.8 pF          | PublishedCapacitance |
| Oscillator-Grid-to-Plate Capacitance | <0.4 pF         | PublishedCapacitance |

| OTHER                          |                 |                           |
|--------------------------------|-----------------|---------------------------|
| PARAMETER                      | PUBLISHED VALUE | CONDITION / NOTE          |
| Plate Voltage                  | 90 V            | FrequencyChanger;90VPoint |
| Screen/Oscillator Grid Voltage | 67.5 V          | FrequencyChanger;90VPoint |
| Plate Resistance               | 600 kohm        | FrequencyChanger;90VPoint |
| Conversion Conductance         | 300 uS          | FrequencyChanger;90VPoint |
| Plate Current                  | 1.6 mA          | FrequencyChanger;90VPoint |
| Screen/Oscillator Grid Current | 3.2 mA          | FrequencyChanger;90VPoint |
| Oscillator Grid Current        | 250 uA          | FrequencyChanger;90VPoint |
| Cathode Current                | 5 mA            | FrequencyChanger;90VPoint |
| Oscillator Transconductance    | 1400 uS         | FrequencyChanger;90VPoint |
| Plate Voltage                  | 90 V            | PublishedLimits           |
| Grid 2+4 Supply Voltage        | 90 V            | PublishedLimits           |
| Grid 2+4 Voltage               | 67.5 V          | PublishedLimits           |
| Cathode Current                | 5.5 mA          | PublishedLimits           |



SOURCE DATA APPENDIX

### SOURCE OPERATING CONDITIONS

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# 1999 Philips 0-D

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

1999 PHILIPS 0-D

| OTHER                                 |                 |                    |
|---------------------------------------|-----------------|--------------------|
| PARAMETER                             | PUBLISHED VALUE | CONDITION / NOTE   |
| Conversion transconductance at 45 V   | 235 $\mu$ S     | FrequencyConverter |
| Conversion transconductance at 67.5 V | 280 $\mu$ S     | FrequencyConverter |

### TUBE TINKER

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