



## ELECTRONIC TUBE REFERENCE

# CBL31

Power - Pentode (NOT beam) electronic tube

CONSOLIDATED TECHNICAL DATA

**3 SECTIONS**

CONSTRUCTION

**DIODE-DIODE-PENTODE**

High-sensitivity output pentode combined with two diode sections for mains-operated receiver equipment. Manufacturer data include audio output, distortion, load, and limiting ratings for the power section.

## GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | —             |
| NOMINAL HEATER      | 44 V / 200 mA     | PARALLEL HEATER      | — / —         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Dissimilar    |

## SECTION RATINGS

|                                                  |        |
|--------------------------------------------------|--------|
| <b>SECTION1</b> Diode                            |        |
| MAXIMUM PLATE VOLTAGE                            | 200 V  |
| MAXIMUM CATHODE CURRENT                          | 0.8 mA |
| <i>Representative of the two diode sections.</i> |        |

| SECTION2 Pentode               |                |
|--------------------------------|----------------|
| PLATE RESISTANCE               | 33500 $\Omega$ |
| TRANSCONDUCTANCE               | 0.008 S        |
| MAXIMUM PLATE VOLTAGE          | 250 V          |
| MAXIMUM SCREEN VOLTAGE         | 250 V          |
| MAXIMUM PLATE DISSIPATION      | 9 W            |
| MAXIMUM SCREEN DISSIPATION     | 2 W            |
| MAXIMUM CATHODE CURRENT        | 70 mA          |
| <i>Output pentode section.</i> |                |

| SECTION3 Diode               |        |
|------------------------------|--------|
| MAXIMUM PLATE VOLTAGE        | 200 V  |
| MAXIMUM CATHODE CURRENT      | 0.8 mA |
| <i>Second diode section.</i> |        |

High-sensitivity output pentode for AC mains-operated equipment combined with two diode sections, with published audio output, distortion, load and limiting ratings.



## 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 2 · Pentode

| OTHER                |                 |                  |
|----------------------|-----------------|------------------|
| PARAMETER            | PUBLISHED VALUE | CONDITION / NOTE |
| Anode Voltage        | 200 V           | ClassA           |
| Screen Voltage       | 200 V           | ClassA           |
| Control Grid Voltage | -8.5 V          | ClassA           |
| Anode Current        | 45 mA           | ClassA           |
| Screen Current       | 6 mA            | ClassA           |
| Optimum Load         | 4500 ohm        | ClassA           |
| Power Output         | 4 W             | ClassA           |



## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1963 Mullard

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

## 1963 MULLARD

## Section 1 · Diode

| OTHER                                   |                 |                  |
|-----------------------------------------|-----------------|------------------|
| PARAMETER                               | PUBLISHED VALUE | CONDITION / NOTE |
| Diode anode voltage maximum             | 200 V           | —                |
| Diode anode current maximum             | 0.8 mA          | —                |
| Diode grid-current test voltage maximum | -1.3 V          | At Id=+0.3 uA    |

| OTHER                          |                 |                  |
|--------------------------------|-----------------|------------------|
| PARAMETER                      | PUBLISHED VALUE | CONDITION / NOTE |
| Anode voltage                  | 200 V           | —                |
| Screen voltage                 | 200 V           | —                |
| Control-grid voltage           | -8.5 V          | —                |
| Anode current                  | 45 mA           | —                |
| Screen current                 | 6 mA            | —                |
| Load resistance                | 4500 ohm        | —                |
| Output power                   | 4 W             | —                |
| Total distortion               | 10 %            | —                |
| Cathode resistor               | 167 ohm         | —                |
| Anode supply voltage maximum   | 550 V           | —                |
| Plate voltage maximum          | 250 V           | —                |
| Plate dissipation maximum      | 9 W             | —                |
| Cathode current maximum        | 70 mA           | —                |
| Screen supply voltage maximum  | 550 V           | —                |
| Screen voltage maximum         | 250 V           | —                |
| Screen dissipation maximum     | 2 W             | —                |
| Heater-cathode voltage maximum | 125 V           | —                |

| CHARACTERISTIC   |                 |                  |
|------------------|-----------------|------------------|
| PARAMETER        | PUBLISHED VALUE | CONDITION / NOTE |
| Transconductance | 8000 uS         | —                |
| Plate resistance | 35000 ohm       | —                |

| OTHER                       |                 |                  |
|-----------------------------|-----------------|------------------|
| PARAMETER                   | PUBLISHED VALUE | CONDITION / NOTE |
| Diode anode voltage maximum | 200 V           | —                |
| Diode anode current maximum | 0.8 mA          | —                |
|                             |                 |                  |

| PARAMETER                                  | PUBLISHED VALUE | CONDITION / NOTE           |
|--------------------------------------------|-----------------|----------------------------|
| Diode grid-current test<br>voltage maximum | <b>-1.3 V</b>   | At $I_d = +0.3 \text{ uA}$ |