



12BL6

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# REMOTE-CUTOFF PENTODE

7-PIN MINIATURE TYPE

For use in automobile radio receivers operating directly from 12-volt storage batteries

## GENERAL DATA

### Electrical:

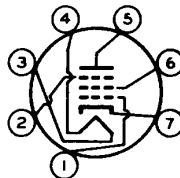
Heater<sup>•</sup>, for Unipotential Cathode:  
 Voltage range. . . . . 10.0 to 15.9 . . . . . dc volts  
*This voltage range is on an absolute basis. For longest life, it is recommended that the heater be operated within the voltage range of 11 to 14 volts.*  
 Current (Approx.)  
 at 12.6 volts. . . . . 0.15 . . . . . amp

Direct Interelectrode Capacitances:<sup>o</sup>  
 Grid No.1 to plate . . . . . 0.006 max.  $\mu\text{f}$   
 Grid No.1 to cathode, grid No.3 & internal shield, grid No.2, and heater. . . . . 5.5  $\mu\text{f}$   
 Plate to cathode, grid No.3 & internal shield, grid No.2, and heater. . . . . 4.8  $\mu\text{f}$

### Mechanical:

Operating Position . . . . . Any  
 Maximum Overall Length . . . . . 2-1/8"  
 Maximum Seated Length. . . . . 1-7/8"  
 Length, Base Seat to Bulb Top (Excluding tip). . . . . 1-1/2"  $\pm$  3/32"  
 Maximum Diameter . . . . . 3/4"  
 Dimensional Outline. . . . . See General Section  
 Bulb . . . . . T5-1/2  
 Base . . . . . Small-Button Miniature 7-Pin (JETEC No.E7-1)  
 Basing Designation for BOTTOM VIEW . . . . . 7BK

Pin 1 - Grid No.1  
 Pin 2 - Grid No.3,  
 Internal  
 Shield  
 Pin 3 - Heater



Pin 4 - Heater  
 Pin 5 - Plate  
 Pin 6 - Grid No.2  
 Pin 7 - Cathode

## AMPLIFIER — Class A<sub>1</sub>

### Maximum Ratings, Design-Center Values:

PLATE VOLTAGE. . . . . 30 max. volts  
 GRID-No.2 (SCREEN-GRID) VOLTAGE. . . . . 30 max. volts  
 GRID-No.1 (CONTROL-GRID) VOLTAGE:  
 Positive bias value. . . . . 0 max. volts  
 CATHODE CURRENT. . . . . 20 max. ma  
 PEAK HEATER-CATHODE VOLTAGE:  
 Heater negative with respect to cathode . . . . . 30 max. volts  
 Heater positive with respect to cathode . . . . . 30 max. volts

### Characteristics with 12.6 Volts on Heater:

Plate Voltage. . . . . 12.6 volts  
 Grid-No.3 (Suppressor-Grid) Voltage. . . . . 0 volts

<sup>•, o</sup>: See next page.

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Grid-No.2 Voltage. . . . .	12.6	volts
Grid-No.1 Supply Voltage . . . . .	0	volts
Grid-No.1 Resistor (Bypassed). . . . .	2.2	megohms
Plate Resistance (Approx.) . . . . .	0.5	megohm
Transconductance . . . . .	1350	$\mu$ nhos
Plate Current. . . . .	1.35	ma
Grid-No.2 Current. . . . .	0.5	ma
Grid-No.1 Voltage (Approx.) for trans- conductance of 10 $\mu$ nhos. . . . .	-6	volts
Grid-No.1 and Grid-No.3 Voltage (Approx.) for transconductance of 10 $\mu$ nhos . . . . .	-5	volts

**Maximum Circuit Values:**

Grid-No.1-Circuit Resistance . . . . .	10 max.	megohms
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- Operation of heater in series with other heaters is not recommended.
- With external shield JETEC No.316 connected to cathode.

**OPERATING CONSIDERATIONS**

The *maximum ratings* in the tabulated data for the 12BL6 are working design-center maximums established according to the standard design-center system of rating electron tubes. Tubes so rated will give satisfactory performance in storage-battery-operated equipment provided the following stipulations are observed:

In the case of storage-battery-with-charger supply or similar supplies, the normal battery-voltage fluctuation may be as much as 35 per cent or more. This fluctuation imposes severe operating conditions on tubes. Under these conditions, the equipment should be designed so that 90 per cent of the design-center maximum value of plate voltage and grid-No.2 voltage is never exceeded for a battery-terminal potential of 13.2 volts. Although the operating voltages of the 12BL6 in this service will, at times, exceed the design-center maximum values, satisfactory performance with probable sacrifice in life will be obtained.