

**RATINGS (Design Center Rating System)**

|                                            |            |
|--------------------------------------------|------------|
| Plate Voltage (Max.) .....                 | 30 Volts   |
| Grid No. 2 Voltage (Max.) .....            | 30 Volts   |
| Cathode Current (Max.) .....               | 20 Ma      |
| Grid No. 1 Circuit Resistance (Max.) ..... | 10 Megohms |

**CHARACTERISTICS AND TYPICAL OPERATION**

|                                                                      |                 |
|----------------------------------------------------------------------|-----------------|
| Plate Voltage .....                                                  | 12.6 Volts      |
| Grid No. 3 Voltage <sup>(2)</sup> .....                              | 0 Volt          |
| Grid No. 2 Voltage .....                                             | 12.6 Volts      |
| Grid No. 1 Voltage <sup>(3)</sup> .....                              | -0.65 Volts     |
| Plate Current .....                                                  | 1350 $\mu$ a    |
| Grid No. 2 Current .....                                             | 500 $\mu$ a     |
| Transconductance <sup>(4)</sup> .....                                | 1350 $\mu$ mhos |
| Plate Resistance (Approx.) .....                                     | 0.5 Megohm      |
| Grid No. 1 Voltage for $G_m = 10 \mu$ mhos (Approx.) .....           | -6.0 Volts      |
| Grid No. 1 and No. 3 Voltage for $G_m = 10 \mu$ mhos (Approx.) ..... | -5.0 Volts      |

**NOTES:**

- (1) This tube is intended for use in automobile radios operated from a nominal 12-volt battery. Design of the tube is such that the heater will operate satisfactorily over the range 10.0 volts to 15.9 volts, and the maximum ratings provide a safety factor for the wide voltage variation encountered with this type of supply.
- (2) Connected to Cathode at socket.
- (3) Average contact potential bias developed across a 2.2 megohm grid resistor.
- (4) From Grid No. 1 to plate.

**12BR7****9BR7****DETECTOR  
GENERAL PURPOSE AMPLIFIER****Double Diode and High Mu Triode**

|                              |                    |
|------------------------------|--------------------|
| Construction .....           | Miniature T-6½     |
| Base .....                   | Button 9 Pin, E9-1 |
| Basing .....                 | 9CF                |
| Outline .....                | 6-2                |
| Maximum Diameter .....       | 0.875 In.          |
| Maximum Seated Height .....  | 1.937 In.          |
| Maximum Overall Height ..... | 2.187 In.          |

**ELECTRICAL DATA  
HEATER OPERATION**

|                                         |                        |                                |
|-----------------------------------------|------------------------|--------------------------------|
| Heater Voltage .....                    | <b>9BR7</b><br>9.4/4.7 | <b>12BR7</b><br>12.6/6.3 Volts |
| Heater Current .....                    | 300/600                | 225/450 Ma                     |
| Heater Warm-up Time .....               | 11                     | — Seconds                      |
| Maximum Heater-Cathode Voltage          |                        |                                |
| Heater Negative with Respect to Cathode |                        |                                |
| Total DC and Peak .....                 |                        | 200 Volts                      |
| Heater Positive with Respect to Cathode |                        |                                |
| DC .....                                |                        | 100 Volts                      |
| Total DC and Peak .....                 |                        | 200 Volts                      |

**DIRECT INTERELECTRODE CAPACITANCES (Shielded)<sup>(1)</sup>**

|                                |        |
|--------------------------------|--------|
| Triode Grid to Plate .....     | 1.9 Pf |
| Triode Input .....             | 2.8 Pf |
| Triode Output .....            | 1.0 Pf |
| Diode Input (Each Diode) ..... | 2.0 Pf |

**RATINGS (Design Center Rating System)**

|                                         |           |
|-----------------------------------------|-----------|
| Plate Voltage (Triode) (Max.) .....     | 300 Volts |
| Plate Dissipation (Triode) (Max.) ..... | 2.5 Watts |
| Peak Inverse Diode Voltage (Max.) ..... | 300 Volts |
| Peak Diode Current (Max.) .....         | 60 Ma     |

**CHARACTERISTICS AND TYPICAL OPERATION****Class A1 Amplifier**

|                                                   |        |                 |
|---------------------------------------------------|--------|-----------------|
| Plate Voltage .....                               | 100    | 250 Volts       |
| Cathode Bias Resistor .....                       | 270    | 200 Ohms        |
| Amplification Factor .....                        | 60     | 60              |
| Plate Resistance (Approx.) .....                  | 15,000 | 10,900 Ohms     |
| Transconductance .....                            | 4000   | 5500 $\mu$ mhos |
| Plate Current .....                               | 3.7    | 10 Ma           |
| Grid Voltage (Approx.) for $I_b = 10 \mu$ a ..... | -5     | -12 Volts       |
| Average Diode Current                             |        |                 |
| Each Diode with 5.0 volts DC applied .....        | —      | 17 Ma           |

**NOTE:**

- (1) Shield No. 315.

