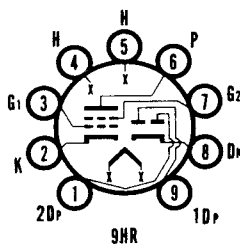


# SYLVANIA TYPE 12DL8

**DUO DIODE  
SPACE-CHARGE GRID TETRODE**

## MECHANICAL DATA



Bulb.....	T-6½
Base.....	E9-1, Miniature Button 9-Pin
Outline.....	6-3
Basing.....	9HR
Cathode.....	Coated Unipotential
Mounting Position.....	Any

## ELECTRICAL DATA

### HEATER CHARACTERISTICS<sup>1</sup>

Heater Voltage.....	12.6 Volts
Heater Current.....	0.55 Amp.
Heater Cathode Voltage (Design Center Values)	
Heater Negative with Respect to Cathode.....	30
Heater Positive with Respect to Cathode.....	30

### DIRECT INTERELECTRODE CAPACITANCES

#### Tetrode Section

Grid No. 2 to Plate.....	14 μμf
Input: g2 to (g1+k+h).....	12 μμf
Output: p to (g1+k+h).....	1.3 μμf

#### Diode Section

Input: Dp1 to (k+h).....	1.6 μμf
Input: Dp2 to (k+h).....	1.6 μμf
Diode Plate No. 1 to Diode Plate 2.....	.03 μμf
Coupling: (Diode Plate No. 1 to Tetrode Grid No. 2) ..	.02 μμf Max.
(Diode Plate No. 2 to Tetrode Grid No. 2) ..	.006 μμf Max.

# 12DL8 (Cont'd)

## MAXIMUM RATINGS (Design Center Values—Except as Noted)

Plate Voltage.....	30 Volts
Positive Grid No. 1 Voltage (Abs. Max.).....	16 Volts
Negative Grid No. 2 Voltage.....	20 Volts
Grid No. 2 Circuit Resistance.....	10 Megohms
Average Diode Current.....	5 Ma

## CHARACTERISTICS

### Class A1 Amplifier

Plate Voltage.....	12.6 Volts
Grid No. 1 (Space-Charge Grid) Voltage.....	12.6 Volts
Grid No. 2 (Control Grid) Voltage <sup>2</sup> .....	-0.5 Volts
Plate Current.....	40 Ma
Grid No. 1 (Space-Charge Grid) Current.....	75 Ma
Transconductance <sup>3</sup> .....	15000 $\mu$ mhos
Amplification Factor <sup>3</sup> .....	7.2
Plate Resistance.....	480 Ohms
Diode Current with 10.0 Volts DC Applied (Each Diode)	3 Ma

## TYPICAL OPERATION

### Class A1 Amplifier

Plate Voltage.....	12.6 Volts
Grid No. 1 (Space-Charge Grid) Voltage.....	12.6 Volts
Grid No. 2 (Control Grid) Voltage <sup>4</sup> .....	-2.0 Volts
Peak AF Grid No. 2 Voltage.....	2.5 Volts
AF Signal Source Resistance.....	100000 Ohms
Plate Current <sup>5</sup> (Signal Applied).....	8.0 Ma
Grid No. 1 (Space-Charge Grid) Current.....	75 Ma
Load Resistance.....	800 Ohms
Power Output.....	40 mw
Total Harmonic Distortion (Max.).....	10 Percent

## 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 that the maximum ratings provide a safety factor for the wide voltage variation encountered with this type of supply.
2. Average contact potential developed across a 2.2 megohm resistor.
3. Measured from Grid No. 2 to Plate.
4. Bias voltage is developed across a 2.2 megohm resistor by means of Grid No. 2 rectification (obtained when applying the special signal voltage) and contact potential.
5. With no signal applied to Grid No. 2 and bias developed solely by contact potential, the plate current is 40 ma. (approx.).

## APPLICATION

The Sylvania Type 12DL8 has a combined duo-diode and space-charge grid tetrode contained in a miniature envelope.

The diode section is intended for AVC or detector applications and the tetrode section is intended for use as a power amplifier driver.

It is designed primarily to operate where the heater plate and space-charge grid voltages are obtained directly from a 12-volt automotive storage battery.