

Hygrade Sylvania

CORPORATION

TECHNICAL DATA

SYLVANIA TYPE 1E7G

Double Pentode Power Amplifier

TENTATIVE CHARACTERISTICS

| | | |
|------------------|-------|--------|
| Filament Voltage | 2.0 | Volts |
| Filament Current | 0.240 | Ampere |

RATING AND CHARACTERISTICS

| | | |
|-------------------------------|--------|-------|
| Filament Voltage | 2.0 | Volts |
| Plate Voltage | 135 | Volts |
| Screen Voltage | 135 | Volts |
| Grid Voltage * | -4.5 | Volts |
| Plate Current**(per section) | 7.5 | Ma. |
| Screen Current**(per section) | 2.1 | Ma. |
| Plate Resistance | 220000 | Ohms |
| Mutual Conductance | 1600 | μmhos |
| Amplification Factor | 350 | |

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

| | | |
|-------------------------------------------|-------|-------------|
| Filament Voltage | 2.0 | Volts |
| Plate Voltage | 135 | Volts |
| Screen Voltage | 135 | Volts |
| Grid Voltage * | -7.5 | Volts |
| Plate Current(total for both sections)** | 6.5 | Ma.(Approx) |
| Screen Current(total for both sections)** | 2.0 | Ma.(Approx) |
| Load Resistance (plate-to-plate) | 24000 | Ohms |
| Power Output ^o | 0.650 | Watt |
| Total Harmonic Distortion | 5 | Percent |

* Negative filament return.

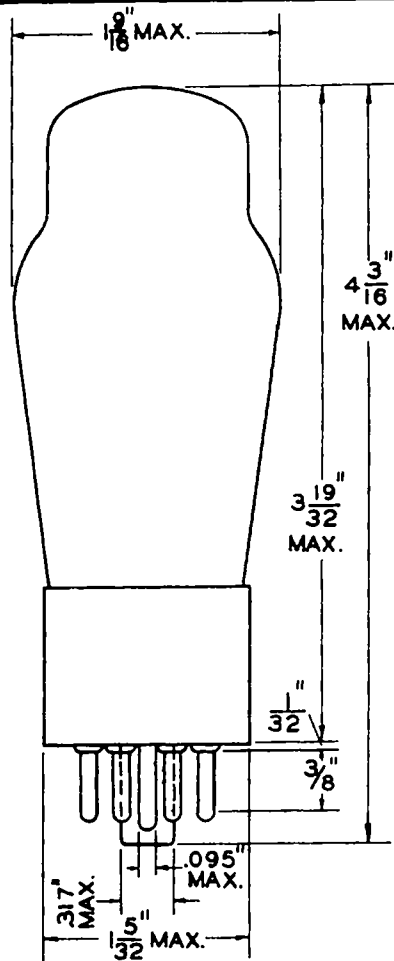
**With zero signal.

^o With 12 r-m-s volts input signal grid to grid. See "Circuit Application" notes.

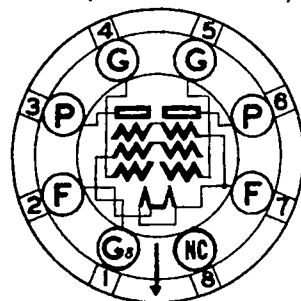
CIRCUIT APPLICATION

Sylvania 1E7G is a double pentode power amplifier designed especially for use in the output stage of battery operated receivers. This tube, equipped with an octal base, has high power sensitivity and readily provides Class A push-pull operation with considerable power output at low distortion. These characteristics along with reduced filament current (240 ma. as compared with 260 ma. for Types 19 and 33) and low plate and screen current consumption (8.5 ma.) make possible an economical output system.

SYLVANIA
1E7G



TUBE AND BASE DIAGRAM
(BOTTOM VIEW)



Sylvania Type 1E7G (Continued)

When transformer coupled to a Type 1H6G (the "G" type equivalent of the 1B5/25S), Type 1E7G will deliver the rated power output under Class A conditions. Although the optimum load resistance per section is 16,000 ohms, the recommended plate-to-plate load for push-pull operation is 24,000 ohms. However, this value is not critical since the load characteristic is rather flat up to 30,000 ohms.

If additional power is desired the 1E7G may be over-driven to a limited extent. For example, under Class AB conditions, an output of approximately 1.1 watts with less than 10% total distortion is delivered for a total grid current of about 200 microamperes. No additional audio stage is required for this type of service since the 1H6G is capable of furnishing sufficient input signal to secure such performance.

It may be desirable to employ a Type 1H4G (the "G" type equivalent of Type 30) as a driver tube for the 1E7G. This would of course affect the design of the interstage transformer since the plate impedance of Type 1H6G is about three times that of the 1H4G. When a 1H6G driver is used the grids cannot be driven very far positive before excessive distortion is experienced due to the effects of grid current. However, with a 1H4G driver stage this condition would not be encountered as soon.

Reference may be made to the data in Engineering News Letter No. 21 on "Characteristics of Audio Systems Using Type 1F4". The 1F4 is a single pentode power amplifier and when used in a push-pull stage the design problems are somewhat similar to those for a single Type 1E7G.