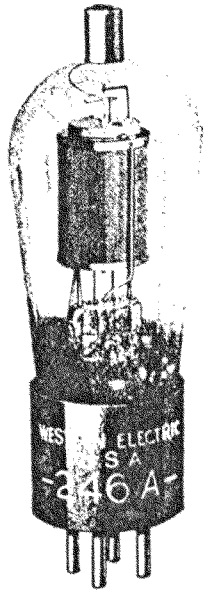


Western Electric

246A Vacuum Tube



Classification—Voltage-amplifier, filamentary, screen-grid tetrode

An important feature of the 246A tube is its low filament power consumption.

Applications

Carrier and radio-frequency voltage amplifier

Detector

Audio-frequency voltage amplifier

Dimensions—Dimensions, outline diagrams of the tube and base, and the arrangement of the electrode connections to the base terminals are shown in Figures 1 and 2.

Base—Medium, four-pin thrust type with bayonet pin. Small, metal cap control-grid terminal at the top of the bulb.

Socket—Standard, four-contact type, such as the Western Electric 143B socket.

Mounting Positions—The 246A tube may be mounted in any position.

Average Direct Interelectrode Capacitances

	A	B
Control grid to plate.....	0.020	0.010 $\mu\mu\text{f}$
Control grid to filament and screen grid.....	4.0	5.2 $\mu\mu\text{f}$
Plate to filament and screen grid.....	8.3	8.8 $\mu\mu\text{f}$

Column A—Without shield.

Column B—With close-fitting metal shield connected to filament.

Filament Rating

Filament current.....	0.100 ampere, d.c.
Nominal filament voltage.....	3.3 volts

The filament of this tube is designed to operate on a current basis and should be operated at as near the rated current as is practicable.

Characteristics—Plate current and screen-grid current characteristics of a typical 246A tube are shown as functions of plate voltage for several values of control-grid voltage in Figures 3 and 4 for screen-grid voltages of 45 and 67.5 volts, respectively. The plate, screen-grid, and control-grid voltages are measured from the negative end of the filament. Plate current, screen-grid current, and transconductance characteristics are given in Figures 5, 6 and 7, respectively, as functions of control-grid voltage for the same two values of screen-grid voltage and three values of plate voltage. Corresponding amplification factor and plate resistance characteristics are given in Figures 8, 9, 10 and 11.

Typical Operating Conditions

Plate Voltage	Screen-Grid Voltage	Control-Grid Bias	Plate Current	Screen-Grid Current	Amplification Factor	Plate Resistance	Transconductance
Volts	Volts	Volts	Milli-amperes	Milli-amperes		Ohms	Micro-mhos
135	45.0	—1.5	1.50	0.20	285	725000	390
*135	67.5	—3.0	2.85	0.30	165	325000	510
*180	45.0	—1.5	1.55	0.15	335	820000	410

*Maximum operating conditions.

Circuit Requirements—Screen-grid tubes are particularly well suited for use in high-frequency amplifiers and are capable of developing comparatively high gain per stage. In order to avoid undesired feed-back in the circuit, it is usually necessary to observe the following precautions: (1) use of a close-fitting shield around each tube, (2) shielding of each stage of the amplifier circuit, (3) use of a low-impedance condenser between the screen grid and filament of each tube, (4) filtering of each battery lead to each tube, and (5) minimization of impedances common to the plate, screen-grid, control-grid, or filament circuits of two or more tubes.

The screen-grid voltage should be obtained either directly from a low-resistance source or from a voltage divider. The use of a series resistance to reduce a high voltage supply to the desired value is not recommended because screen-grid currents differ widely in different tubes and vary during life in individual tubes.

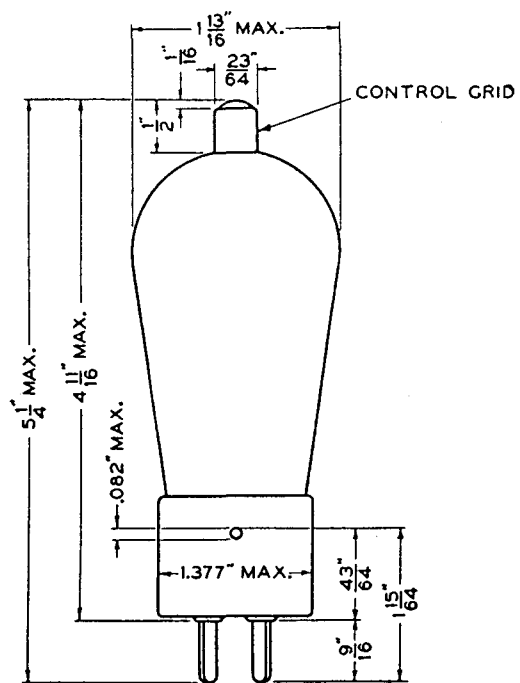


FIG. 1

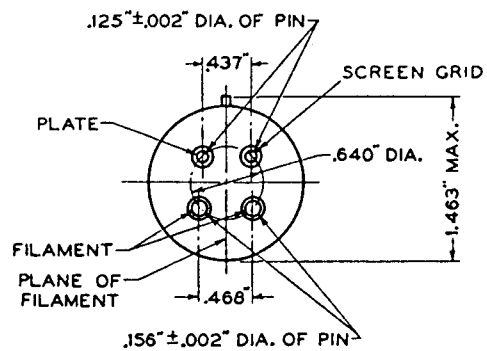


FIG. 2

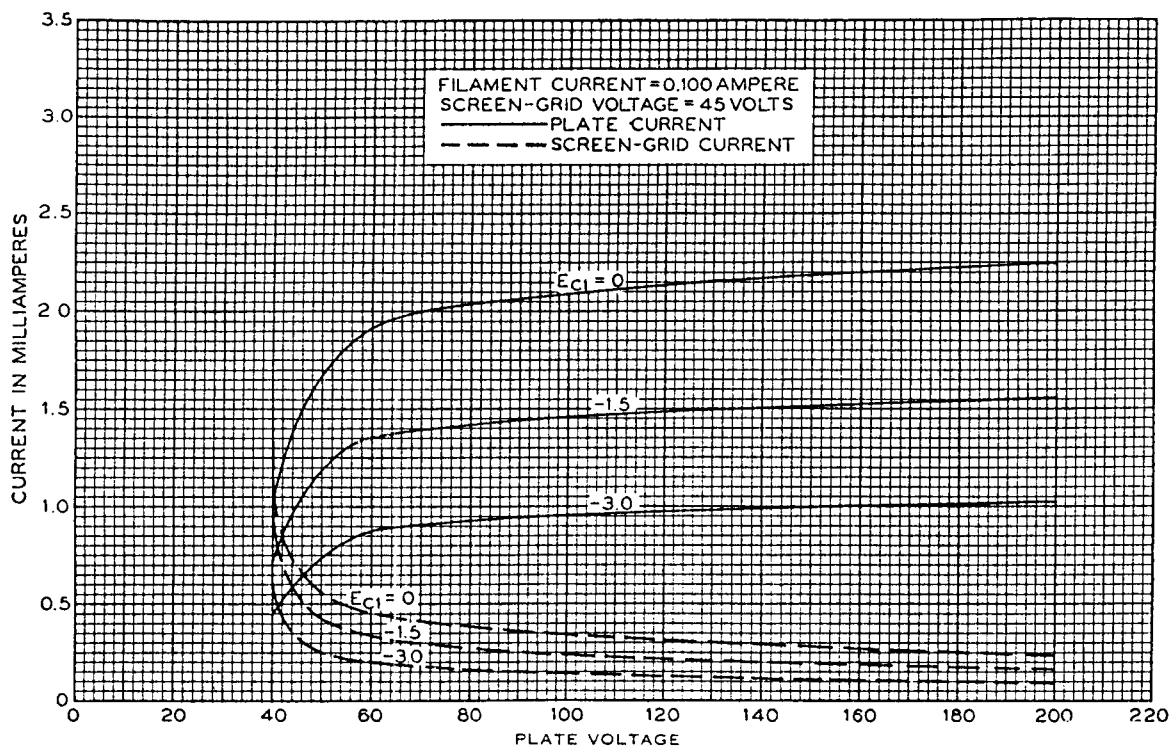


FIG. 3

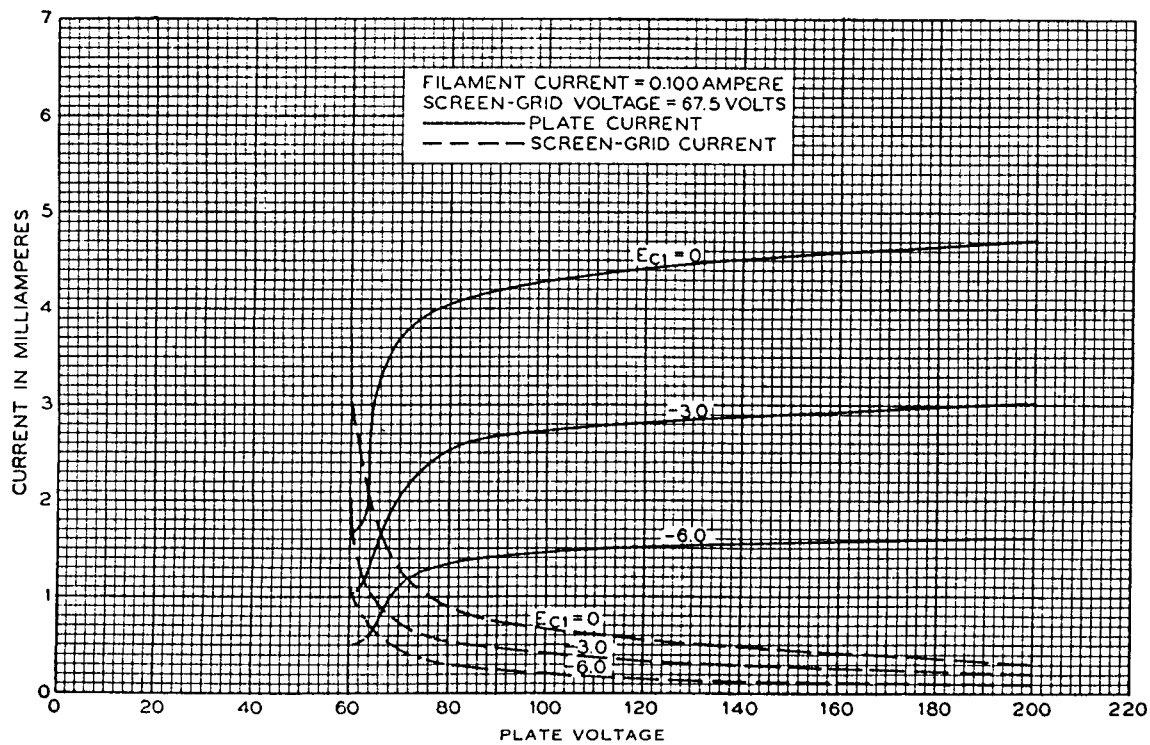


FIG. 4

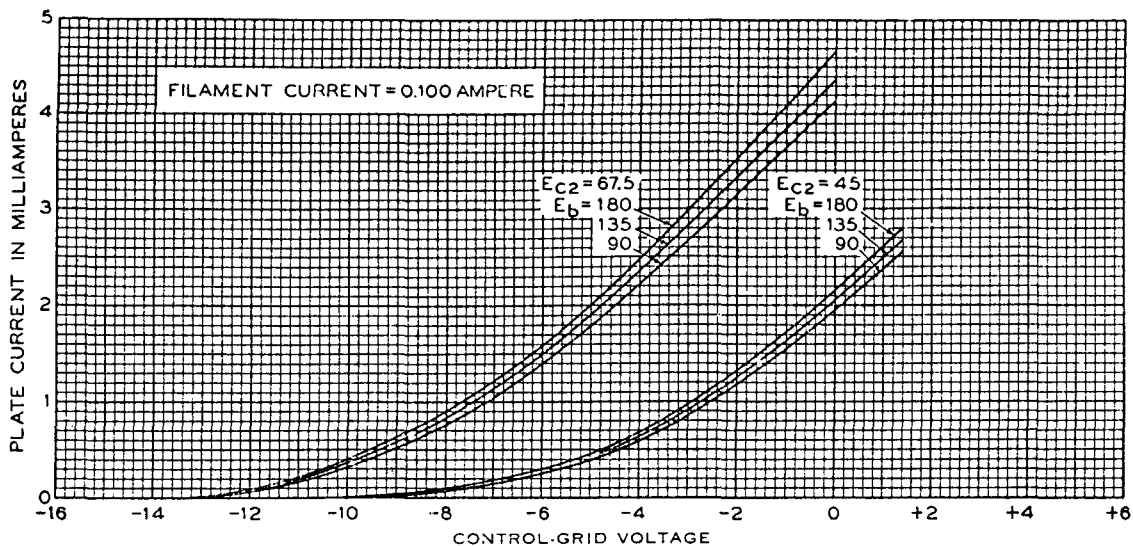


FIG. 5

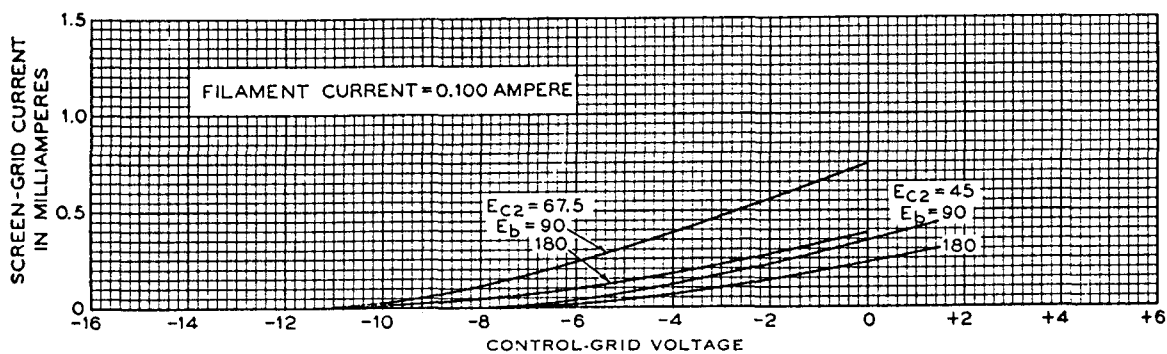


FIG. 6

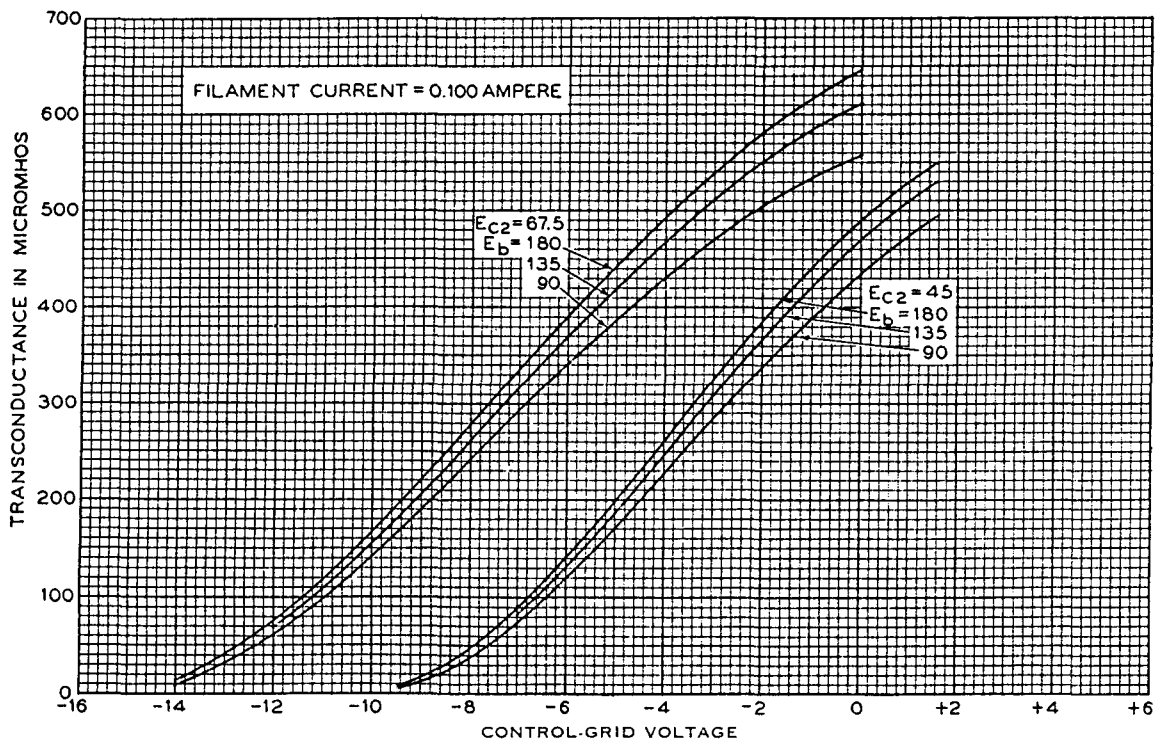


FIG. 7

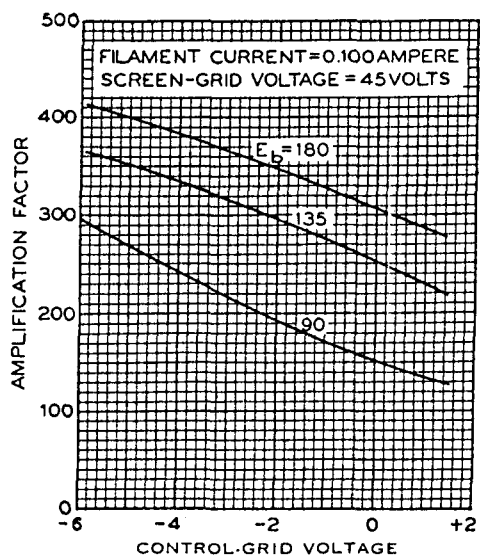


FIG. 8

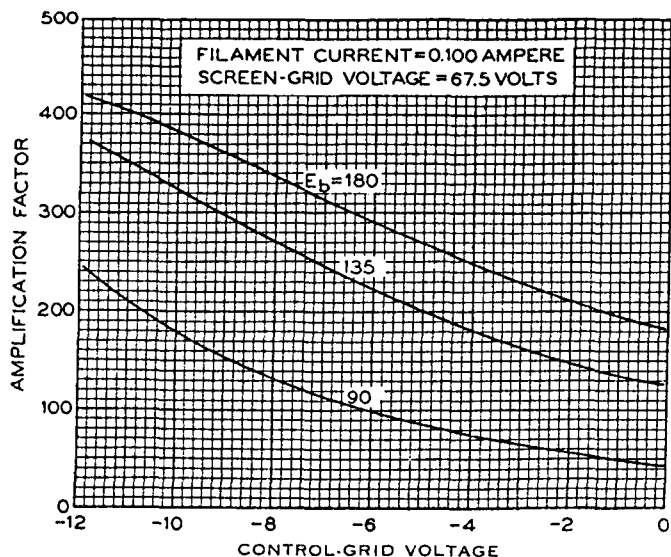


FIG. 9

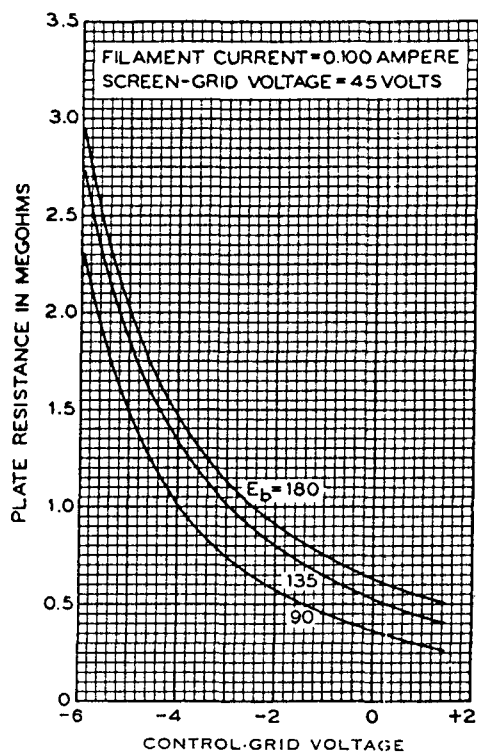


FIG. 10

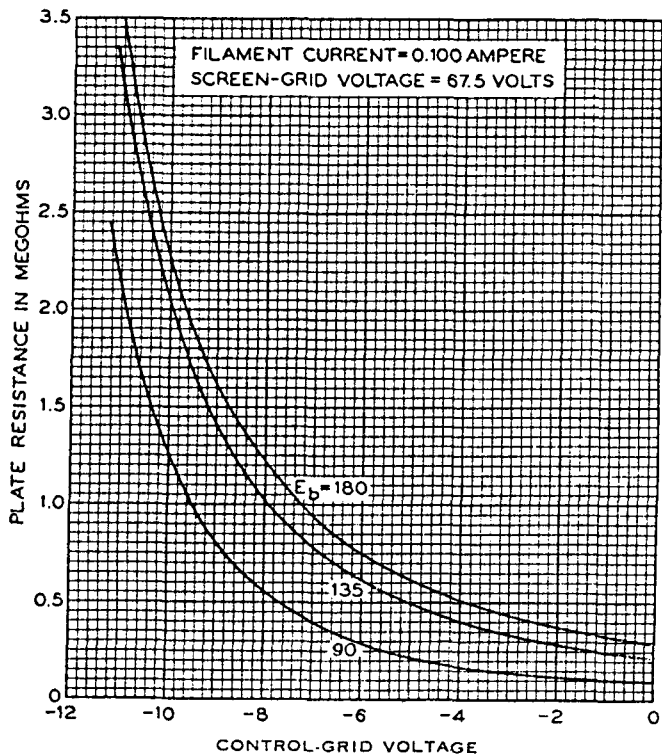


FIG. 11