

PENTODE

Western Electric

DESCRIPTION

The 349A is a suppressor grid, power pentode with an indirectly heated cathode. It is designed for use as an audio-frequency power amplifier in Class A₁ and AB₁ service.

CHARACTERISTICS

Heater Voltage		6.3 volts
Plate Current	} $E_b = E_{c2} = 250$ volts; {	32.5 milliamperes
Transconductance		4250 micromhos
Power Output		3.5 watts
		} $E_{c1} = -14$ volts {

GENERAL CHARACTERISTICS**ELECTRICAL DATA**

Heater Voltage, A-C or D-C		6.3 volts
Heater Current		1.0 ampere
Direct Interelectrode Capacitances	without external shield	with external shield (RMA #311)
Grid to Plate	0.46	*0.31 uuf
Input	11.2	*11.7 uuf
Output	8.1	*10.5 uuf

MECHANICAL DATA

Cathode	Coated unipotential
Bulb	ST12
Base	Small shell octal
Mounting Position	Any
Dimensions and pin connections shown in outline drawing on Page 7	

MAXIMUM RATINGS, Design-Center Values

Plate Voltage	250 volts
Screen Grid Voltage	250 volts
Plate Dissipation	12 watts
Screen Grid Dissipation	3.5 watts
Cathode Current	50 milliamperes
Heater-Cathode Voltage	150 volts

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**SINGLE TUBE AMPLIFIER - PENTODE CONNECTION**

Plate Voltage	180	250	250 volts
Screen Grid Voltage	180	250	250 volts
Control Grid Voltage	-8	-14	... volts
Cathode Resistor	330 ohms
Peak A-F Grid Voltage	8	10	10 volts
Zero Signal Plate Current	28.0	32.0	32.0 milliamperes
Maximum Signal Plate Current	29.5	34.0	30.5 milliamperes
Zero Signal Screen Grid Current	6.0	6.5	6.5 milliamperes
Maximum Signal Screen Grid Current	8.2	11.0	10.5 milliamperes
Transconductance	4100	4250	4400 micromhos
Plate Resistance	70000	84500	75000 ohms
Load Resistance	5000	7000	7000 ohms
Maximum Signal Power Output	1.8	3.6	3.3 watts
Total Harmonic Distortion	6.3	8.0	8.8 per cent

* With external shield (RMA #311) connected to cathode pin.

SINGLE TUBE AMPLIFIER—TRIODE CONNECTION*

Plate Voltage	250 volts
Control Grid Voltage	-16 volts
Peak A-F Grid Voltage	16 volts
Zero Signal Plate Current	30.0 milliamperes
Maximum Signal Plate Current	33.0 milliamperes
Transconductance	4550 micromhos
Amplification Factor	10
Plate Resistance	2200 ohms
Load Resistance	4000 ohms
Maximum Signal Power Output	1.3 watts
Total Harmonic Distortion	4.8 per cent

PUSH-PULL AMPLIFIER—PENTODE CONNECTION

Unless otherwise specified, values are for 2 tubes

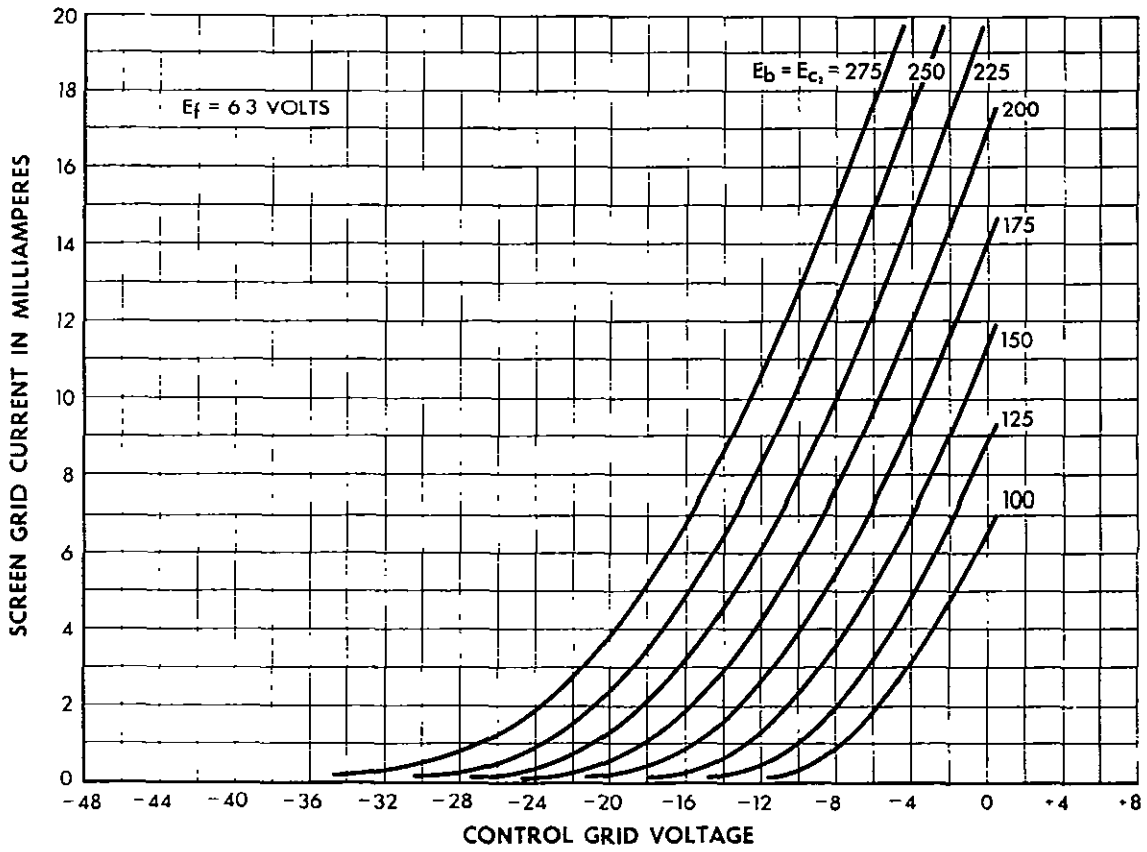
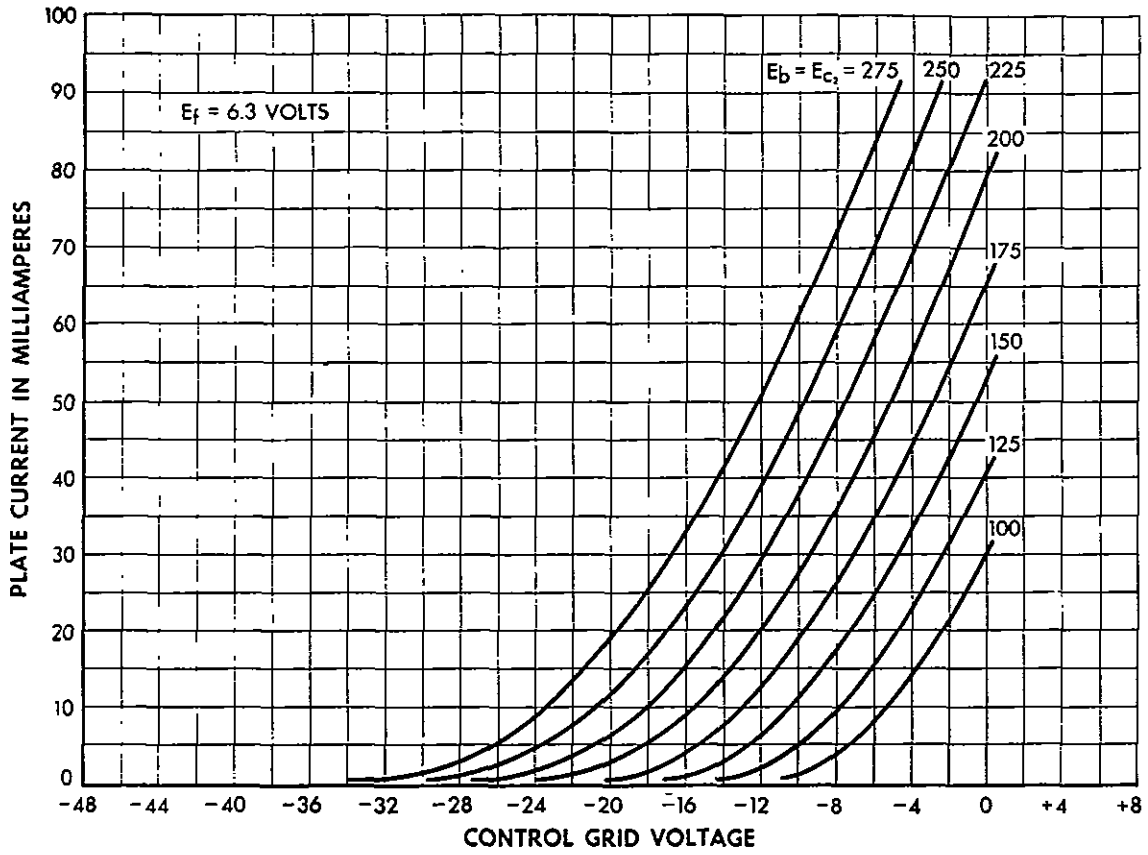
Plate Voltage	250	250 volts
Screen Grid Voltage	250	250 volts
Control Grid Voltage	-18	... volts
Cathode Resistor	...	200 ohms
Peak A-F Grid-to-Grid Voltage	36	36 volts
Zero Signal Plate Current	35.5	55.0 milliamperes
Maximum Signal Plate Current	68.0	64.0 milliamperes
Zero Signal Screen Grid Current	8.0	12.0 milliamperes
Maximum Signal Screen Grid Current	20.5	19.5 milliamperes
Effective Load Resistance (plate-to-plate)	7000	7000 ohms
Maximum Signal Power Output	8.2	7.2 watts
Total Harmonic Distortion	5.5	5 per cent

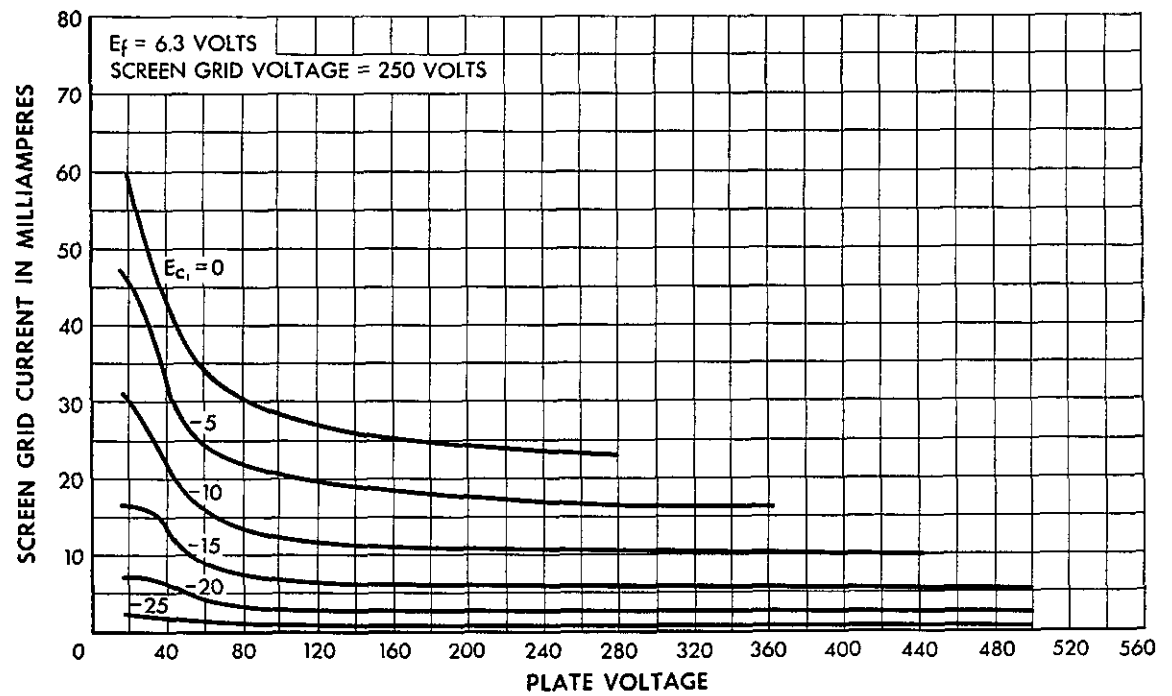
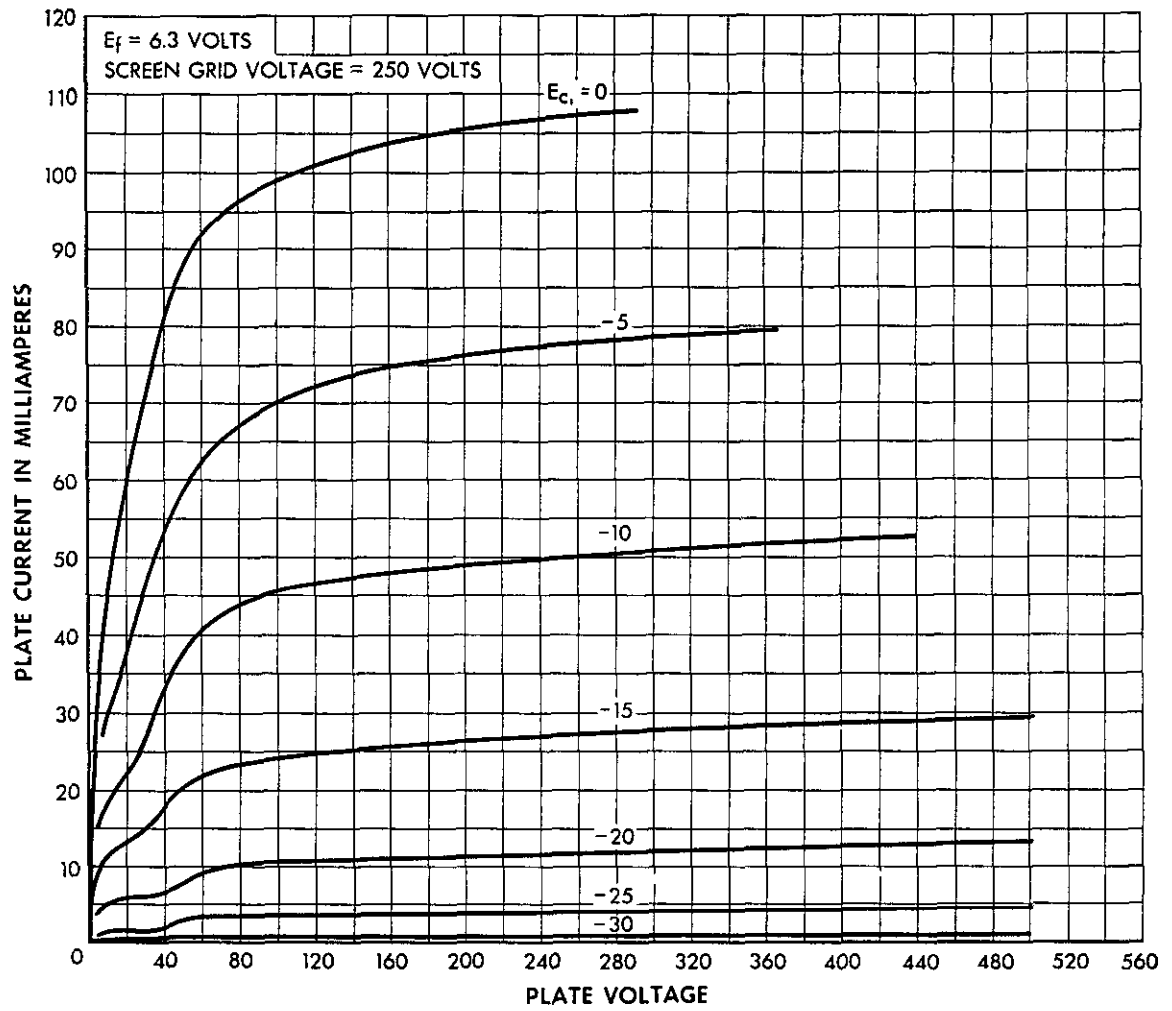
PUSH-PULL AMPLIFIER—TRIODE CONNECTION*

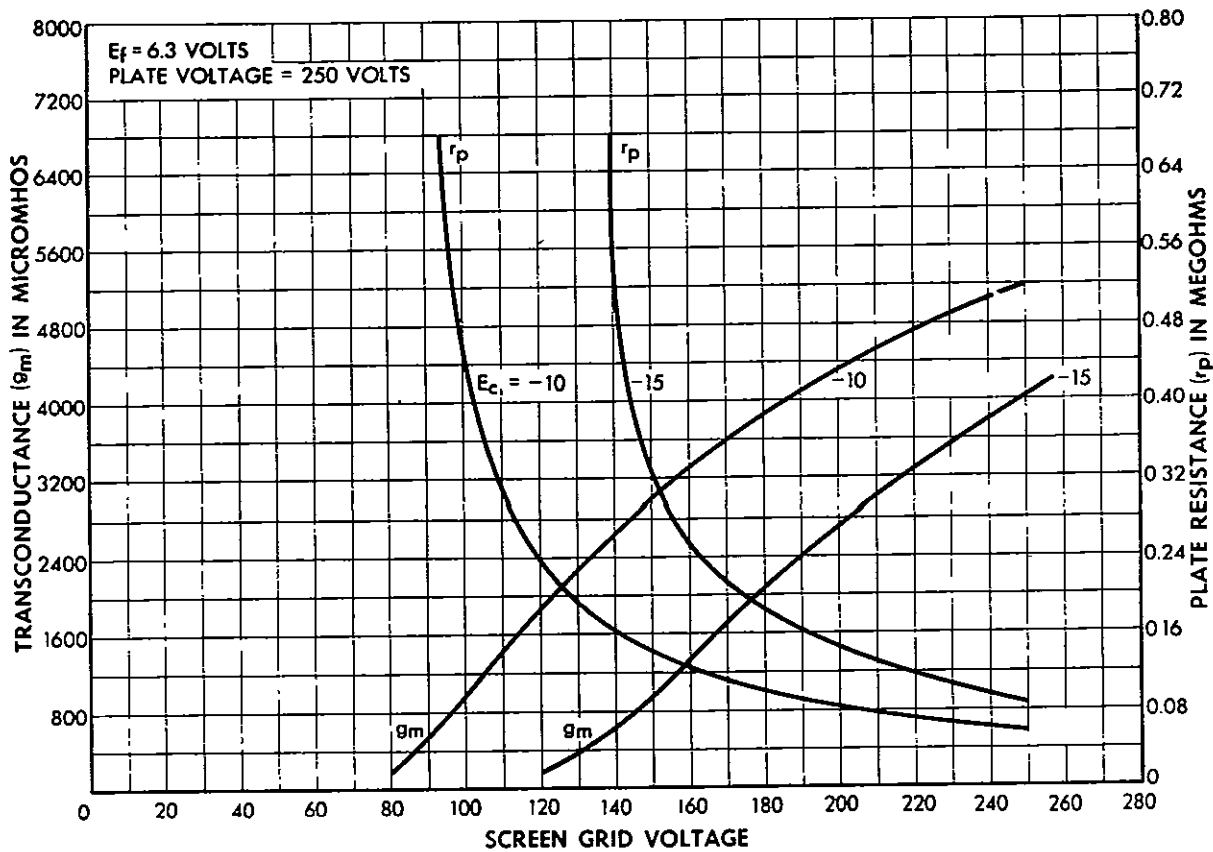
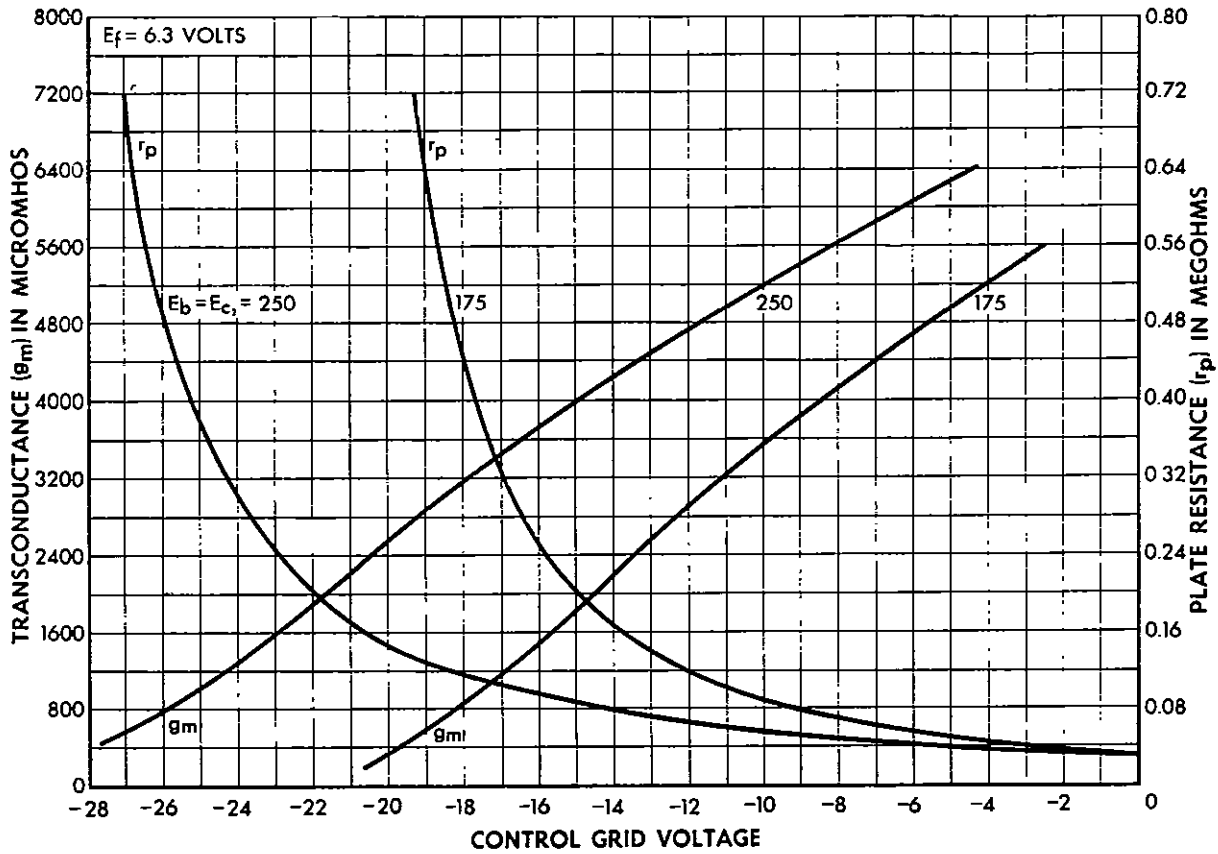
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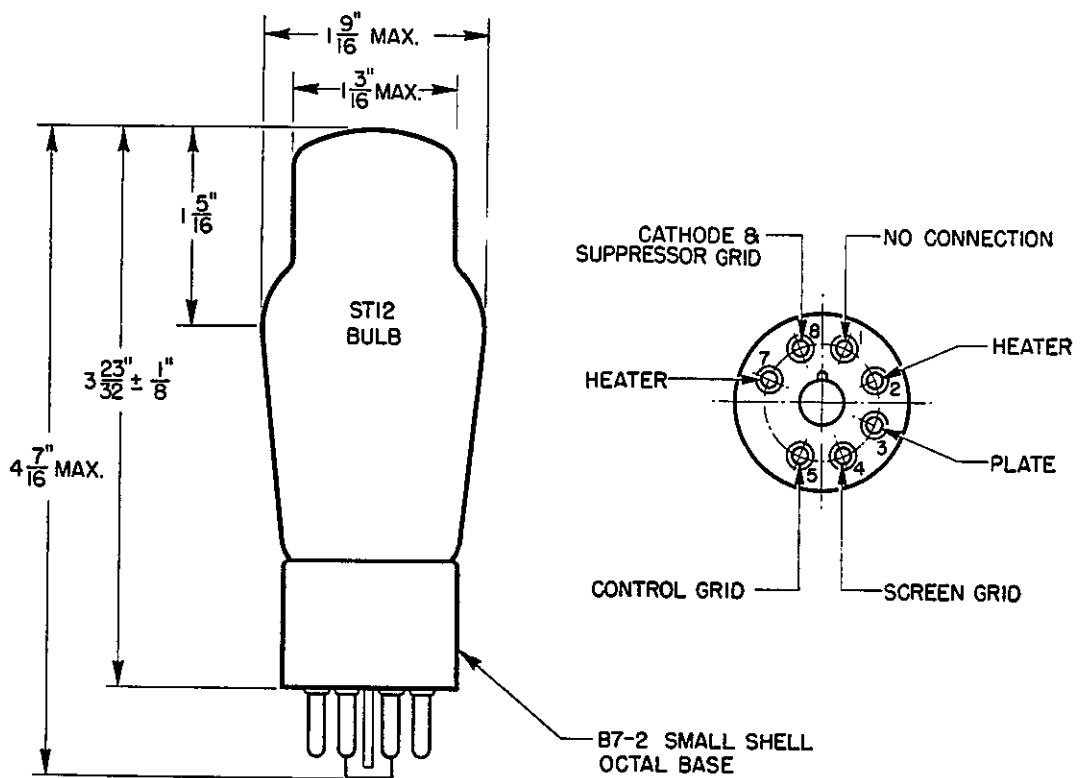
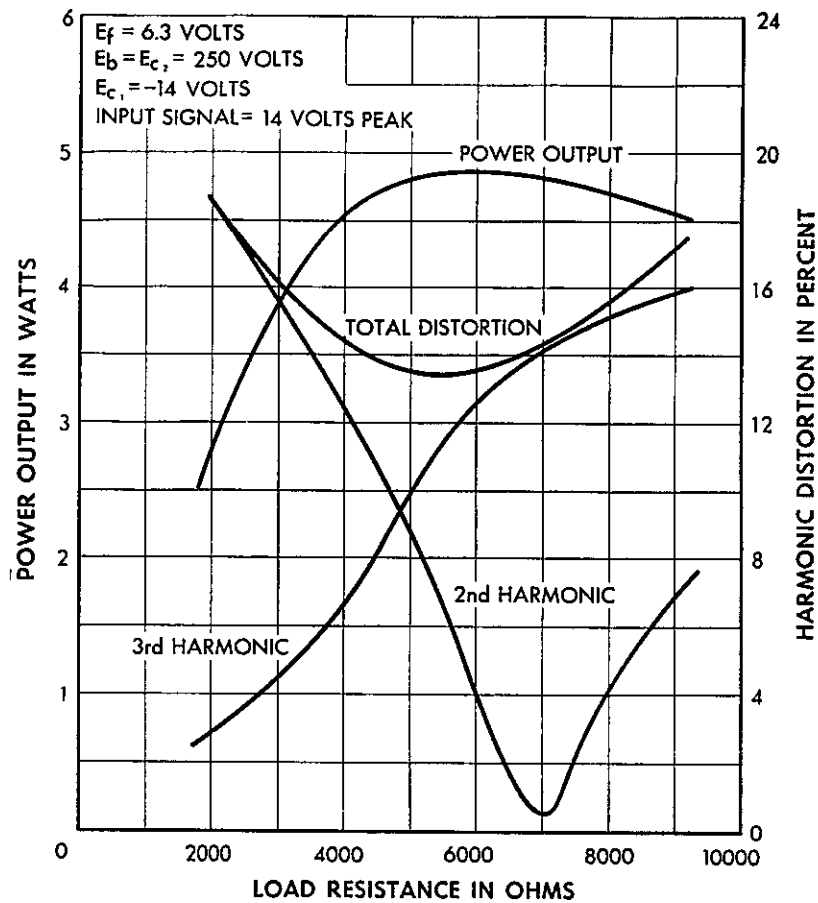
Plate Voltage	250 volts
Control Grid Voltage	-18 volts
Peak A-F Grid-to-Grid Voltage	36 volts
Zero Signal Plate Current	47.5 milliamperes
Maximum Signal Plate Current	59.5 milliamperes
Effective Load Resistance (plate-to-plate)	7000 ohms
Maximum Signal Power Output	3.0 watts
Total Harmonic Distortion	3.2 per cent

* Screen grid connected to plate.









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A development of Bell Telephone Laboratories, the research laboratories of the American Telephone and Telegraph Company and the Western Electric Company