



## PENTODE

*Western Electric*

### DESCRIPTION

The 311A is a suppressor grid power pentode having an indirectly heated cathode. It is designed for use as an audio, carrier or radio-frequency amplifier.

### CHARACTERISTICS

Heater Voltage		10.0 volts
Plate Current	$\left. \begin{array}{l} E_b = 135 \text{ volts;} \\ E_{c2} = 135 \text{ volts;} E_{c1} = -15 \text{ volts} \end{array} \right\}$	33 milliamperes
Transconductance		2900 micromhos
Power Output		2.5 watts

**GENERAL CHARACTERISTICS****ELECTRICAL DATA**

Heater Voltage, A-C or D-C		10.0 volts
Heater Current		0.64 ampere
Direct Interelectrode Capacitances	without external shield	with external shield (RMA #311)
Grid to Plate	0.32	0.09 uuf
Input	8.0	9.5 uuf
Output	8.5	10.4 uuf

**MECHANICAL DATA**

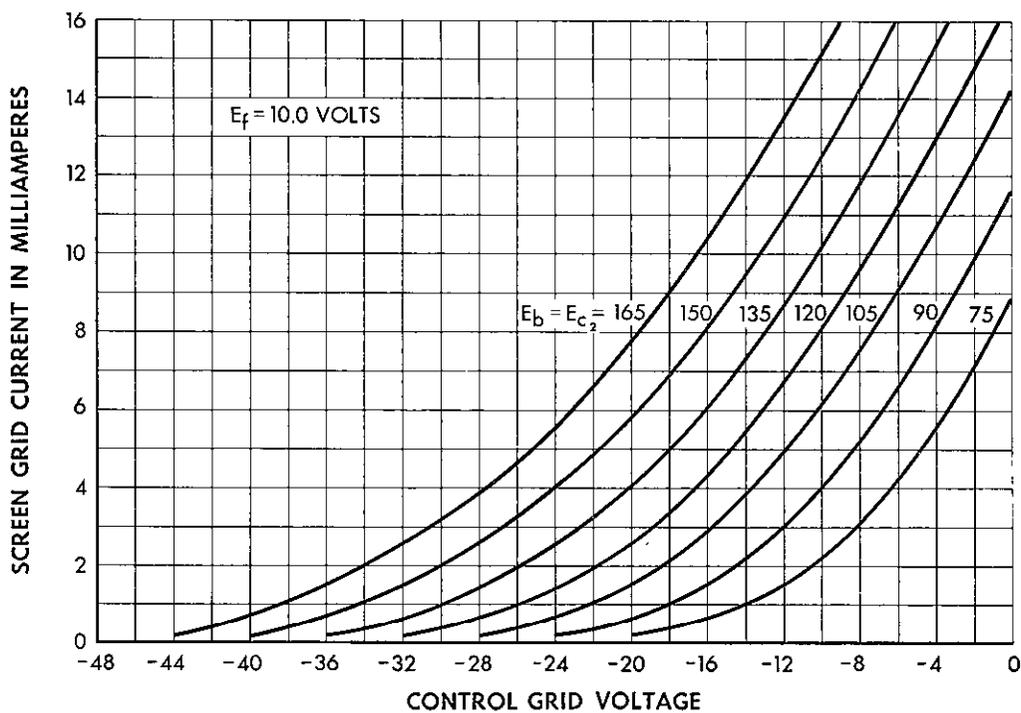
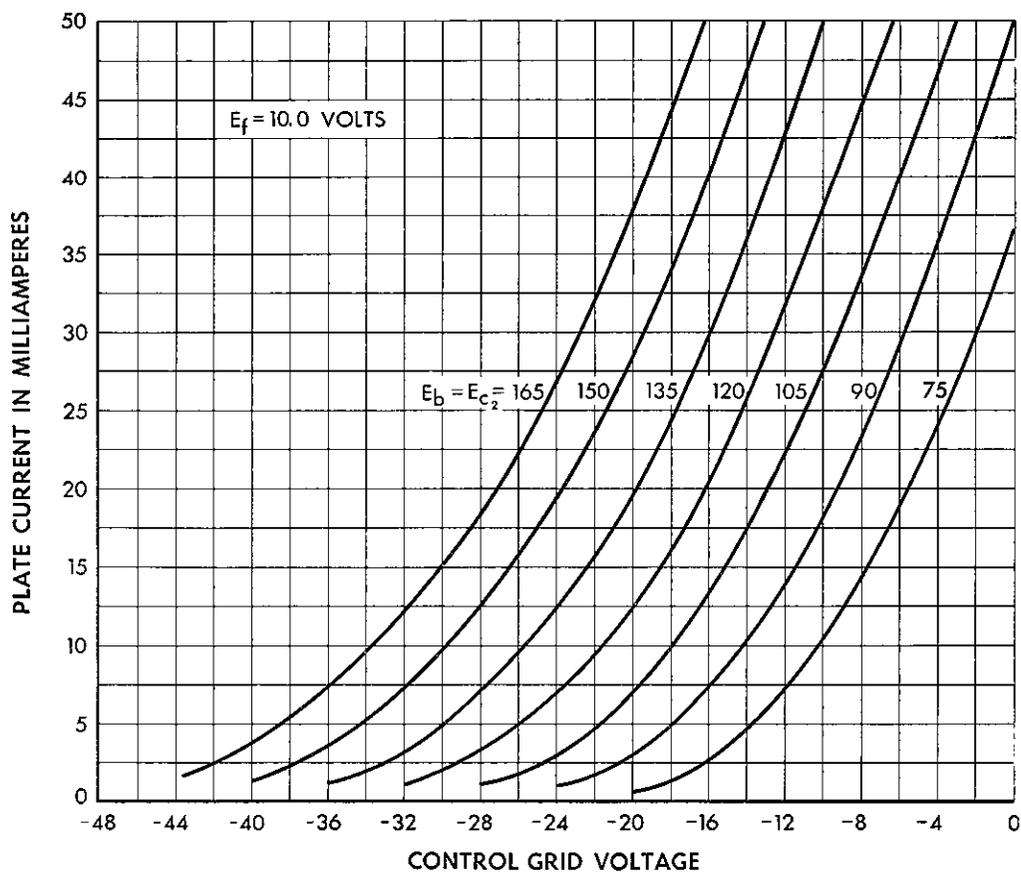
Cathode	Coated unipotential
Bulb	ST12
Base	Small, 5-pin
Mounting Position	Any
Dimensions and pin connections shown in outline drawing on Page 6	

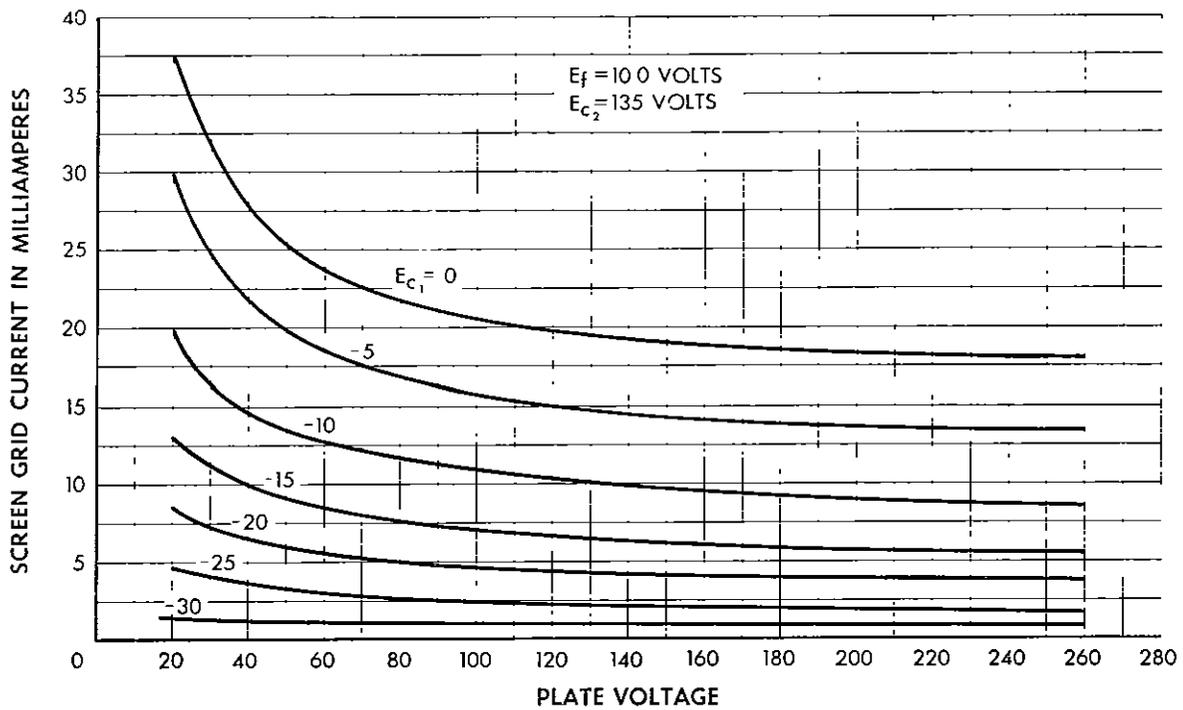
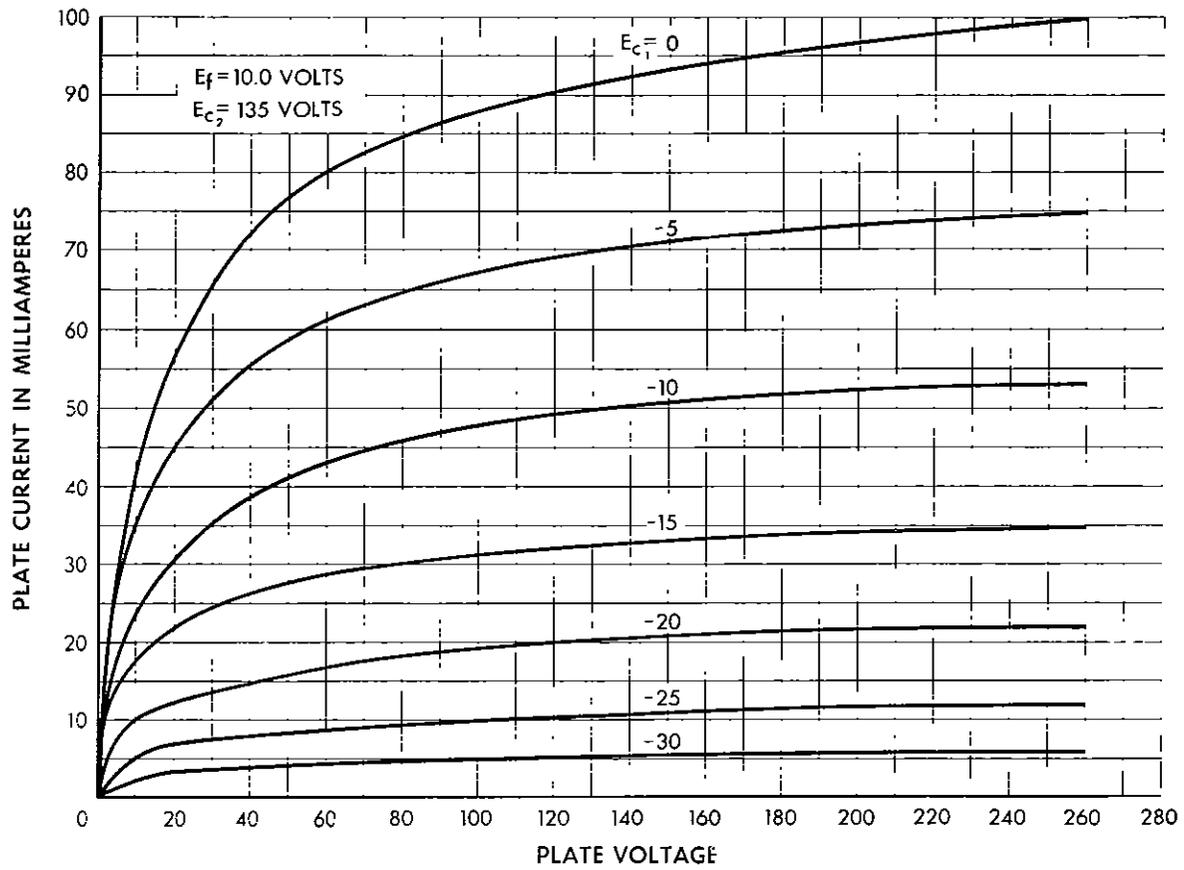
**MAXIMUM RATINGS, Design-Center Values**

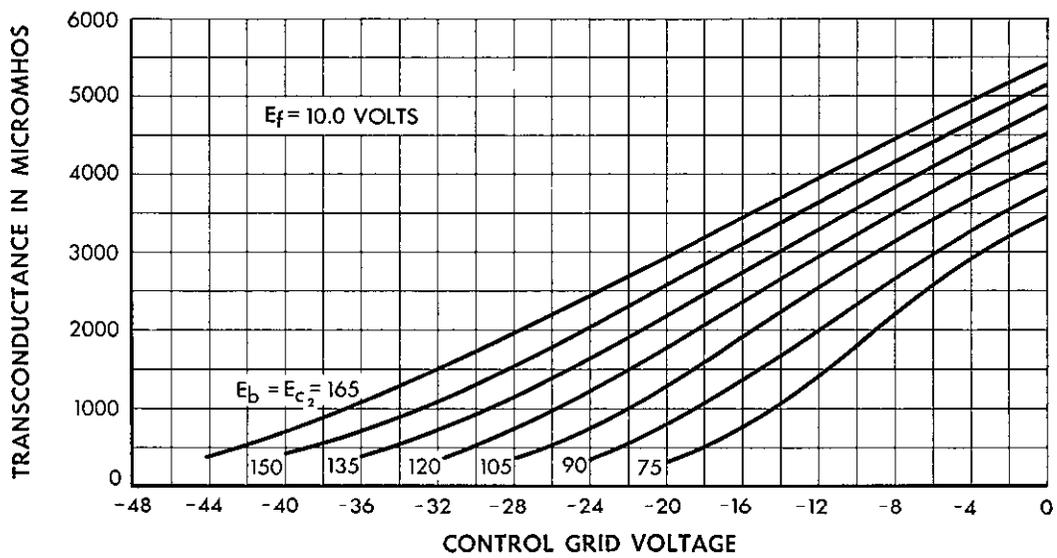
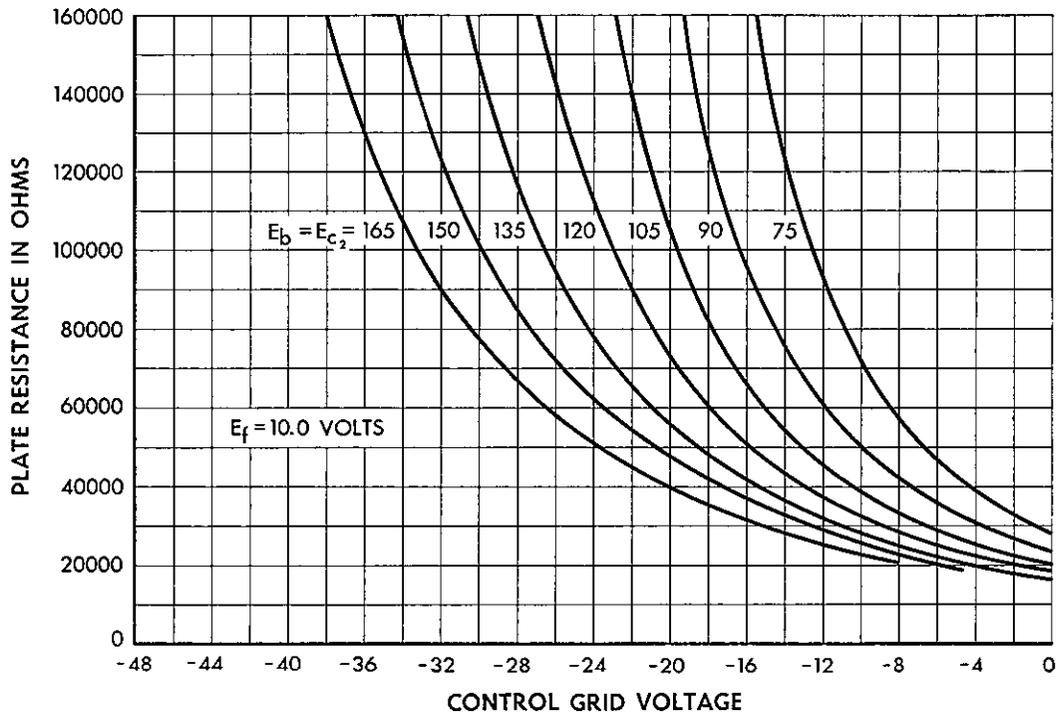
Plate Voltage	180 volts
Screen Grid Voltage	150 volts
Plate Dissipation	8 watts
Screen Grid Dissipation	2 watts
Cathode Current	60 milliamperes
Heater-Cathode Voltage	150 volts

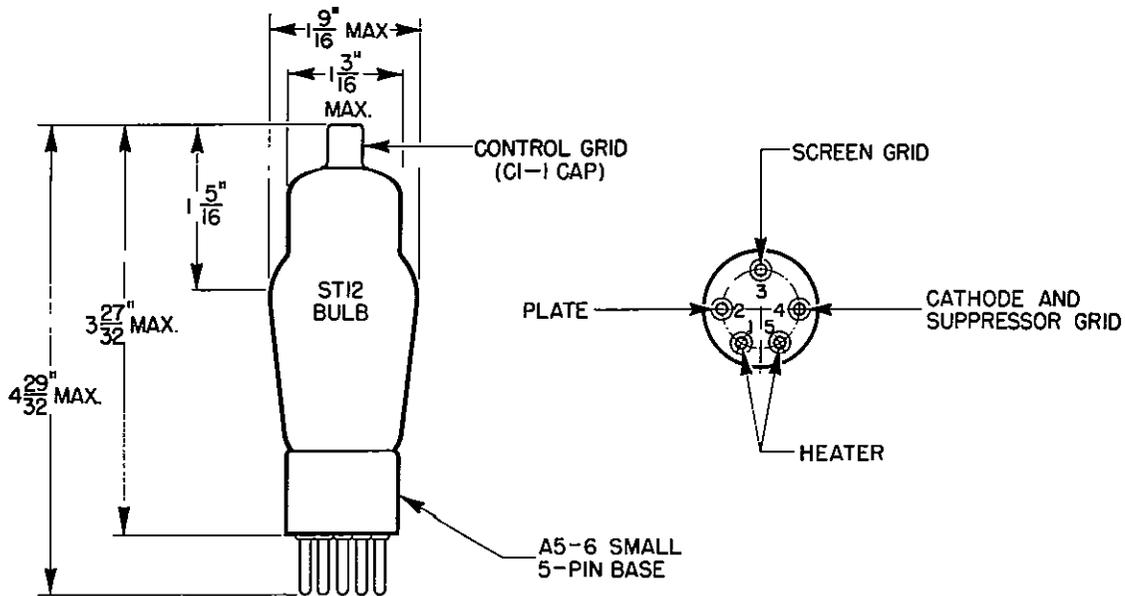
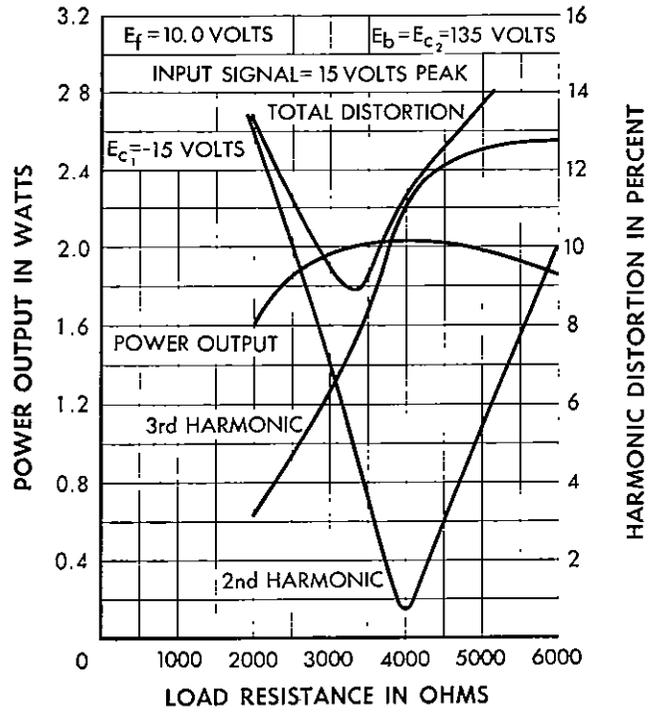
**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS****SINGLE TUBE AMPLIFIER—CLASS A<sub>1</sub>**

Plate Voltage	135	180 volts
Screen Grid Voltage	135	135 volts
Control Grid Voltage	-15	-15 volts
Peak A-F Grid Voltage	15	15 volts
Zero Signal Plate Current	33	34 milliamperes
Maximum Signal Plate Current	36	38 milliamperes
Zero Signal Screen Grid Current	6.5	6.0 milliamperes
Maximum Signal Screen Grid Current	11.0	10.0 milliamperes
Transconductance	2900	3000 micromhos
Plate Resistance	40000	47000 ohms
Load Resistance	3500	4000 ohms
Maximum Signal Power Output	2.0	2.8 watts
Total Harmonic Distortion	9.0	10.5 per cent









# Western Electric

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