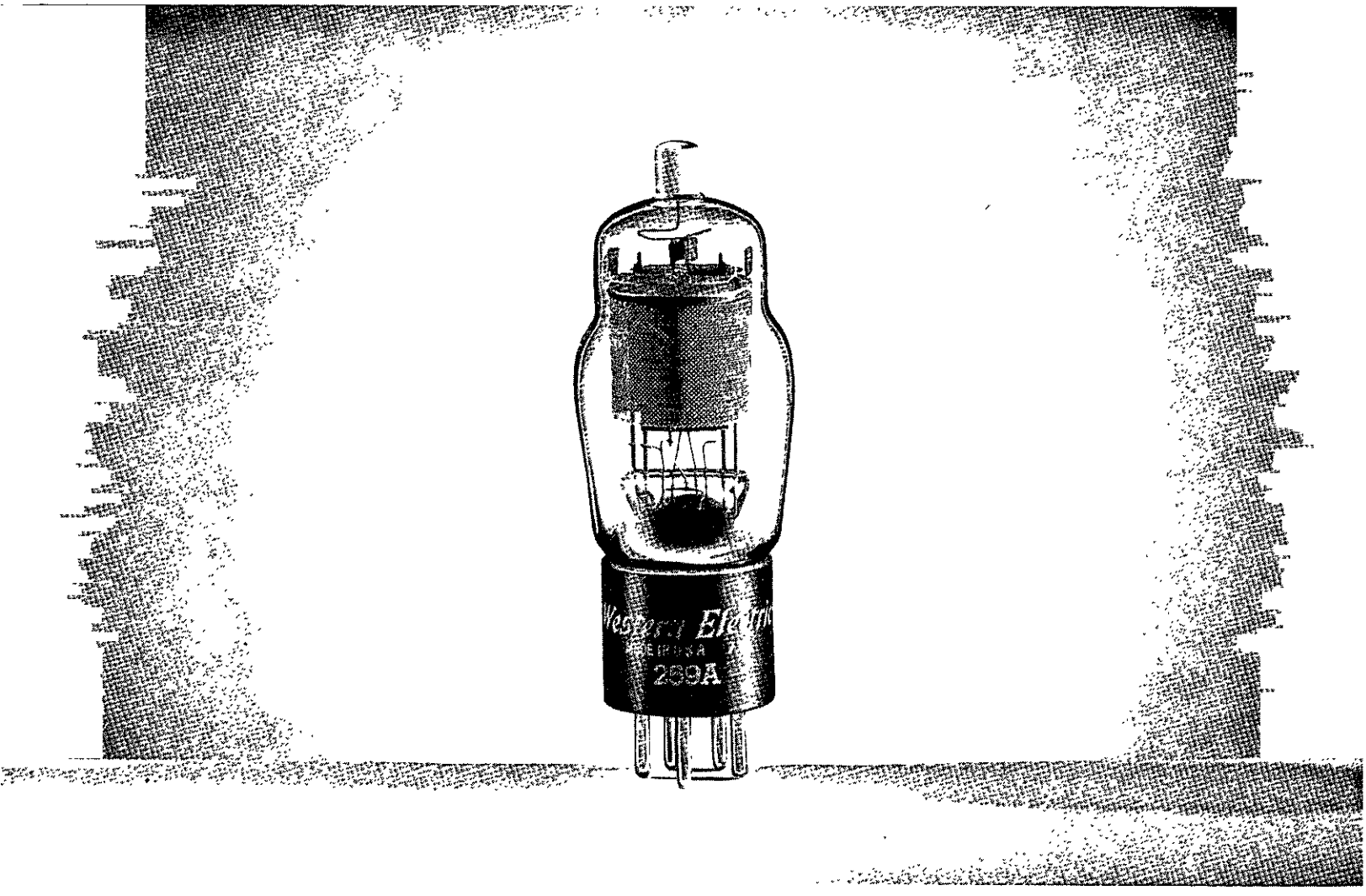


TETRODE

Western Electric

DESCRIPTION

The 259A is a tetrode having an indirectly heated cathode. It is designed for use as a radio-frequency voltage amplifier. It may also be used as a detector or audio-frequency voltage amplifier.

CHARACTERISTICS

Heater Voltage		2.0 volts
Plate Current	$E_b = 180$ volts; $E_{c2} = 75$ volts;	6.0 milliamperes
Transconductance	$E_{c1} = -1.5$ volts	1490 micromhos

GENERAL CHARACTERISTICS

ELECTRICAL DATA

Heater Voltage, A-C or D-C		2.0 volts
Heater Current		1.60 amperes
Direct Interelectrode Capacitances	without external shield	with external shield (RMA #312)
Grid to Plate (maximum)	0.017	*0.007 uuf
Input	6.0	*7.3 uuf
Output	12.5	*13.0 uuf

MECHANICAL DATA

Cathode	Coated unipotential
Bulb	ST14
Base	Medium 5-pin, with bayonet pin
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	90 volts
Plate Dissipation	2.0 watts
Screen Grid Dissipation	0.4 watt
Cathode Current	10 milliamperes
Heater-Cathode Voltage	100 volts

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

Plate Voltage	135	180	180 volts
Screen Grid Voltage	75	75	90 volts
Control Grid Voltage	−1.5	−1.5	−1.5 volts
Plate Current	5.8	6.0	8.3 milliamperes
Screen Grid Current	2.1	2.0	2.8 milliamperes
Plate Resistance	0.32	0.52	0.35 megohm
Transconductance	1440	1490	1670 micromhos
Control Grid Voltage, Approximate, for 10 Microamperes Plate Current	−9.5	−9.5	−12 volts

*With external shield (RMA #312) connected to cathode pin.

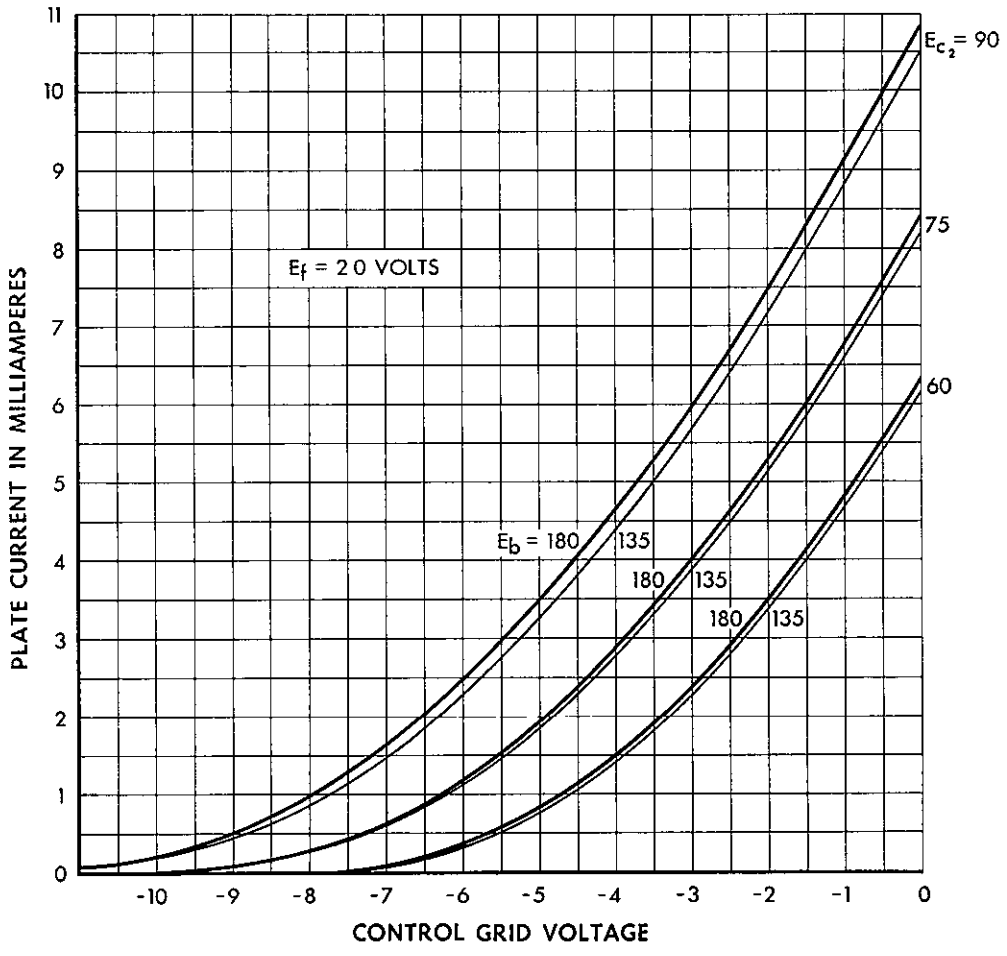
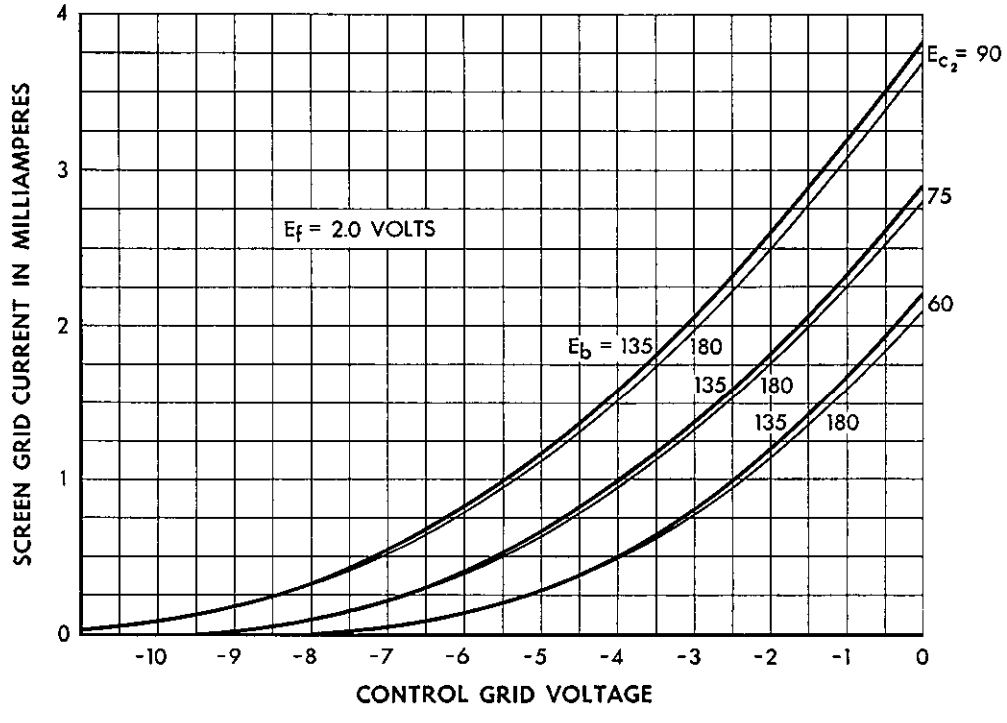
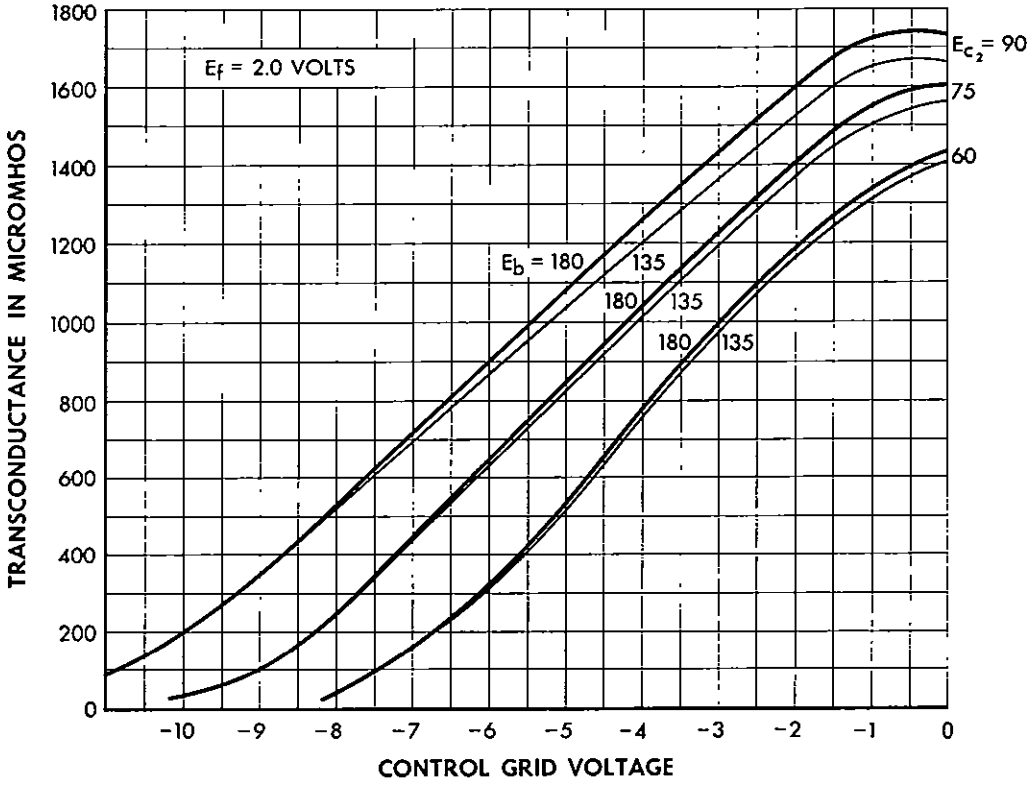


PLATE CURRENT IN MILLIAMPERES
CONTROL GRID VOLTAGE
E_f = 2.0 VOLTS
E_{c_2} = 90
75
60
E_b = 180
135
180
135
180
135
11
10
9
8
7
6
5
4
3
2
1
0
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0


SCREEN GRID CURRENT IN MILLIAMPERES
CONTROL GRID VOLTAGE
E_f = 2.0 VOLTS
E_{c_2} = 90
75
60
E_b = 135
180
135
180
135
180
4
3
2
1
0
-10
-9
-8
-7
-6
-5
-4
-3
-2
-1
0


TRANSCONDUCTANCE IN MICROMHOS
1800
1600
1400
1200
1000
800
600
400
200
0
Ef = 2.0 VOLTS
Ec2 = 90
75
60
Eb = 180
135
180
135
180
135
−10
−9
−8
−7
−6
−5
−4
−3
−2
−1
0
CONTROL GRID VOLTAGE

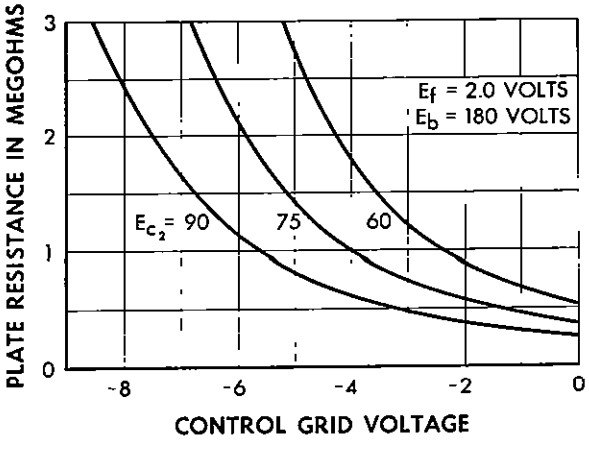


PLATE RESISTANCE IN MEGOHMS
3
2
1
0
Ef = 2.0 VOLTS
Eb = 180 VOLTS
Ec2 = 90
75
60
-8
-6
-4
-2
0
CONTROL GRID VOLTAGE

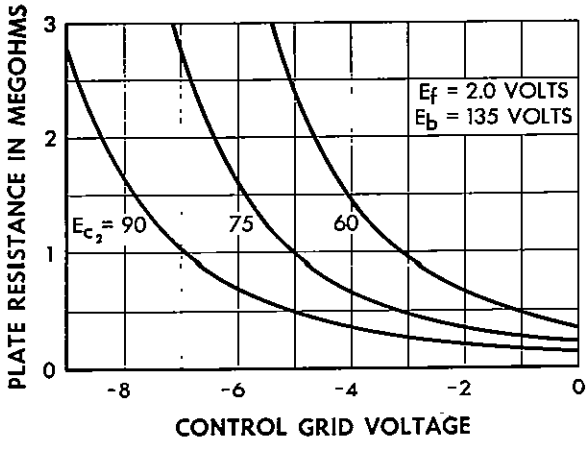
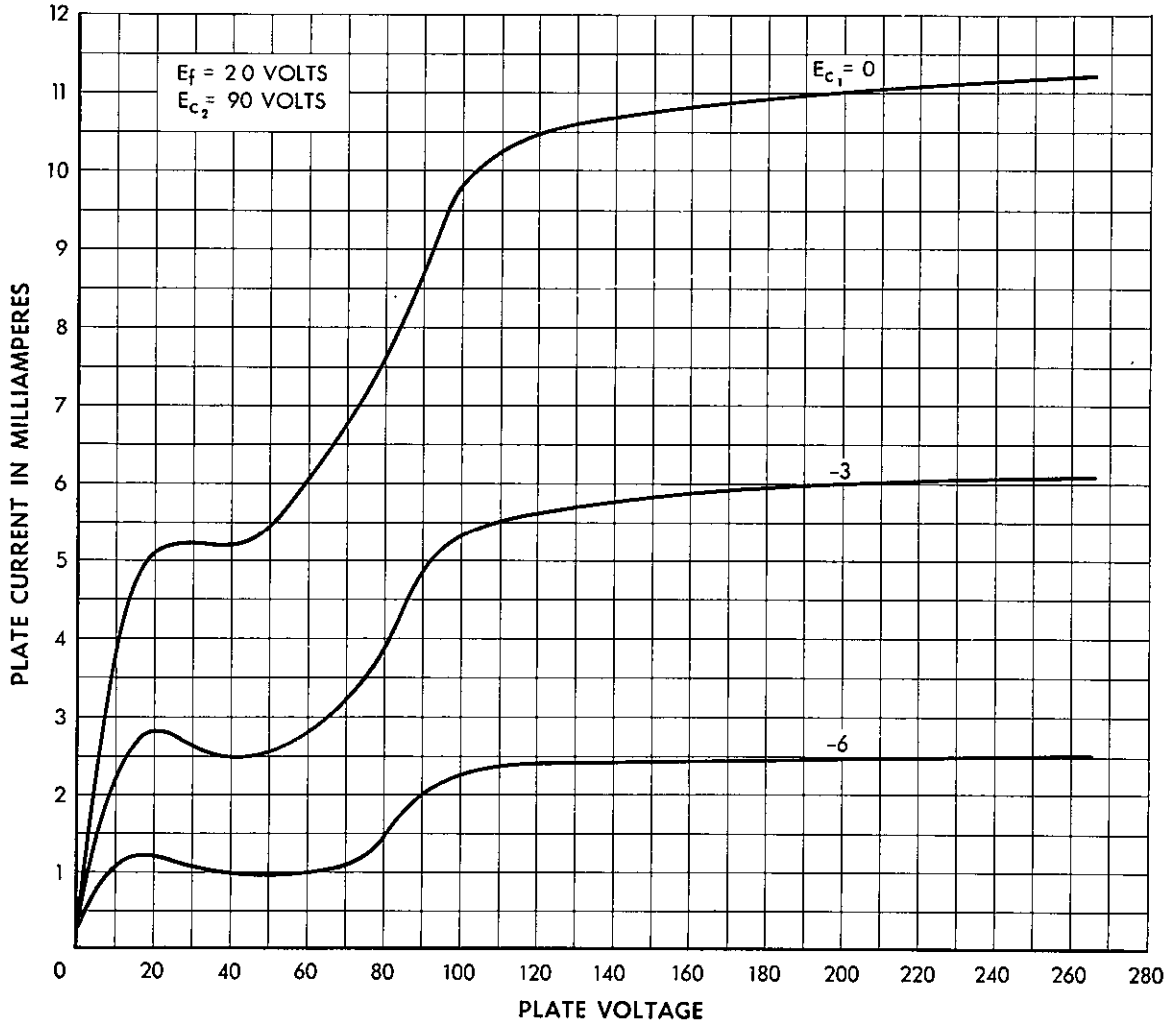
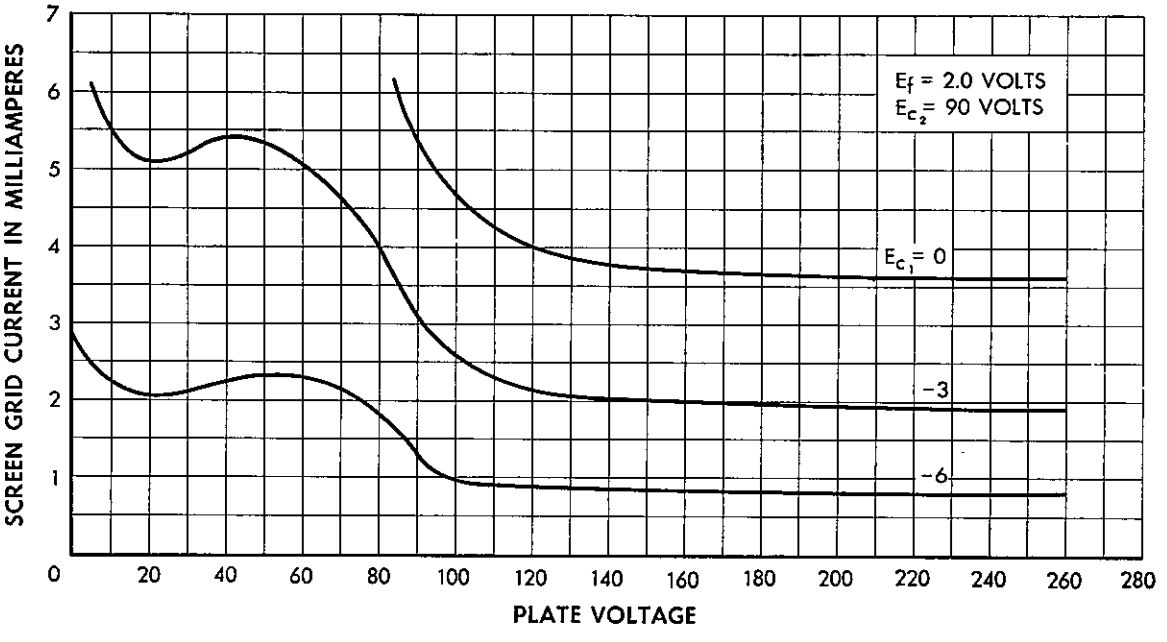
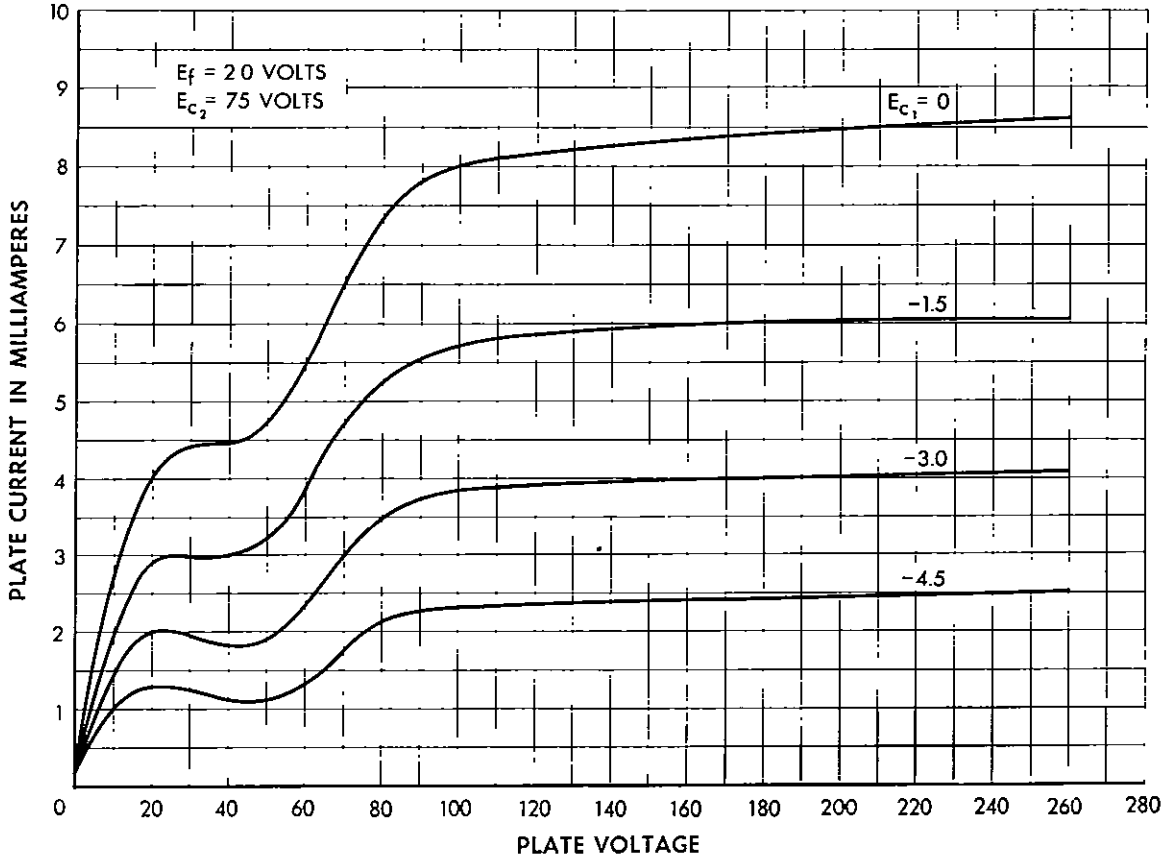
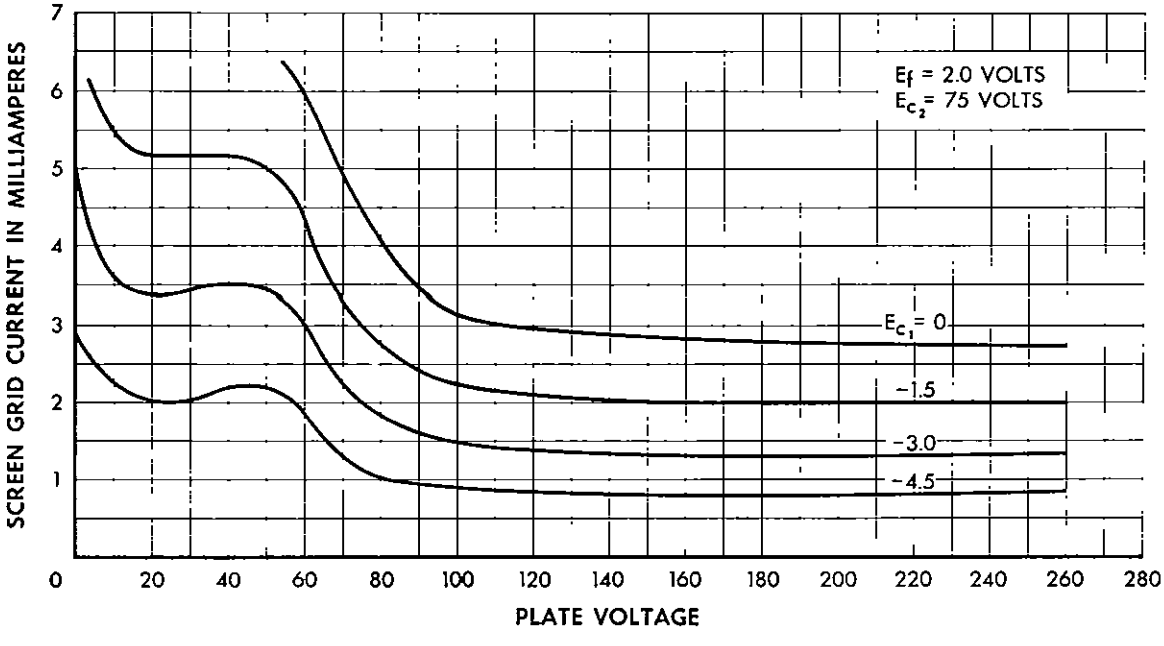


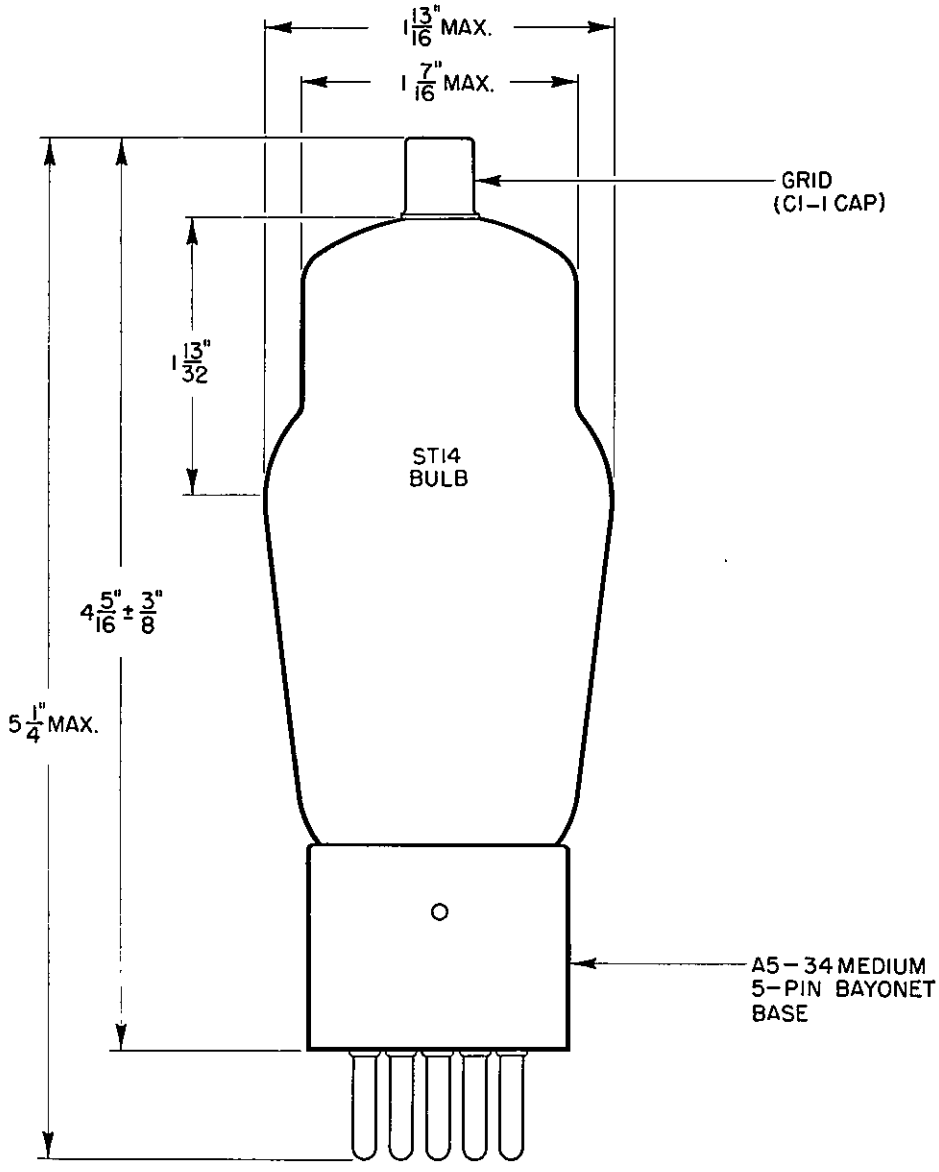
PLATE RESISTANCE IN MEGOHMS
3
2
1
0
Ef = 2.0 VOLTS
Eb = 135 VOLTS
Ec2 = 90
75
60
-8
-6
-4
-2
0
CONTROL GRID VOLTAGE

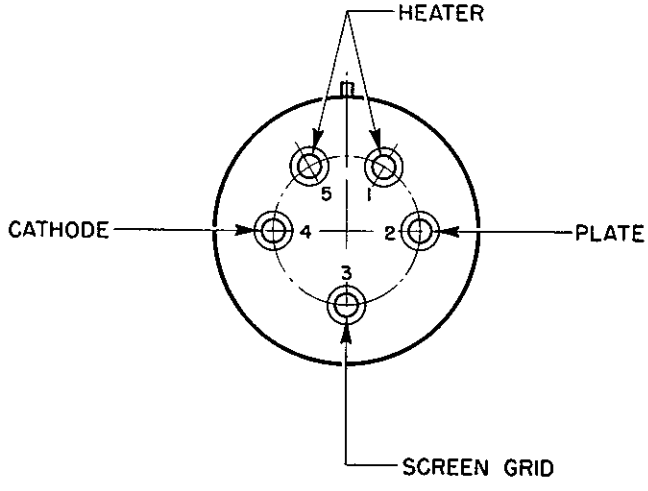

E_f = 2.0 VOLTS
E_{c_2} = 90 VOLTS
E_{c_1} = 0
-3
-6
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTAGE
0
1
2
3
4
5
6
7
8
9
10
11
12
20
40
60
80
100
120
140
160
180
200
220
240
260
280


E_f = 2.0 VOLTS
E_{c_2} = 90 VOLTS
E_{c_1} = 0
-3
-6
SCREEN GRID CURRENT IN MILLIAMPERES
PLATE VOLTAGE
0
1
2
3
4
5
6
7
20
40
60
80
100
120
140
160
180
200
220
240
260
280


Ef = 2.0 VOLTS
Ec2 = 75 VOLTS
Ec1 = 0
-1.5
-3.0
-4.5
PLATE CURRENT IN MILLIAMPERES
PLATE VOLTAGE
0
1
2
3
4
5
6
7
8
9
10
20
40
60
80
100
120
140
160
180
200
220
240
260
280


Ef = 2.0 VOLTS
Ec2 = 75 VOLTS
Ec1 = 0
-1.5
-3.0
-4.5
SCREEN GRID CURRENT IN MILLIAMPERES
PLATE VOLTAGE
0
1
2
3
4
5
6
7
20
40
60
80
100
120
140
160
180
200
220
240
260
280


1 13/16" MAX.
1 7/16" MAX.
GRID
(C1–1 CAP)
1 13/32"
ST14
BULB
4 5/16" ± 3/8"
5 1/4" MAX.
A5–34 MEDIUM
5–PIN BAYONET
BASE


HEATER
5
1
CATHODE
4
2
PLATE
3
SCREEN GRID

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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

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