

ask **Amperex**®



Amperex® electronic corp. 230 Duffy Avenue, Hicksville, L. I., N. Y.

TENTATIVE DATA

AMPEREX TUBE TYPE 8116

The 8116 is a dual tetrode tube designed for use as a high efficiency linear amplifier in single sideband systems. Each anode is capable of dissipating 30 watts. The tube envelope is a calibrated bulb held to close tolerances. Anode pin dimensions are also held within narrow limits. Dimensionally, the tube is designed for an accurate fit into heat sink cooling equipment. Maximum ratings apply, as indicated below, up to 60 and 175 megacycles.

GENERAL CHARACTERISTICS

MECHANICAL

Mounting Position	Vertical, base up or down horizontal with anode pins in a horizontal plane.
Maximum Glass and seal temperatures ¹	250°C
Accessories Socket	Johnson 122-105 or equal
Net Weight, Approx.	2.5 ounces

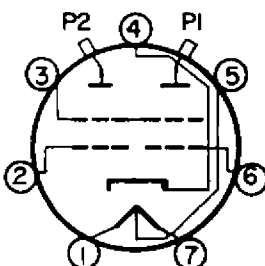
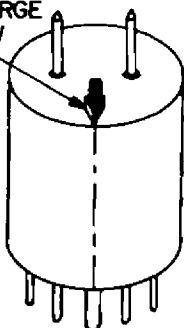
ELECTRICAL

Filament	Indirectly heated, oxide coated
Voltage Series	26.5 volts
Parallel	13.25 volts
Current Series	0.433 amps
Parallel	0.866 amps

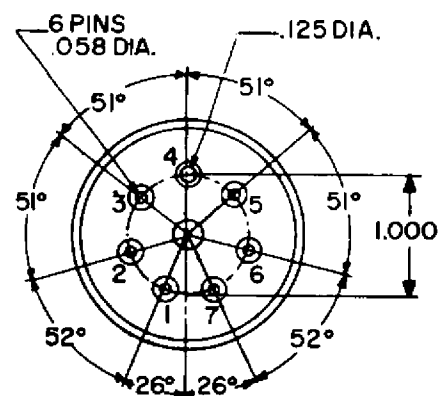
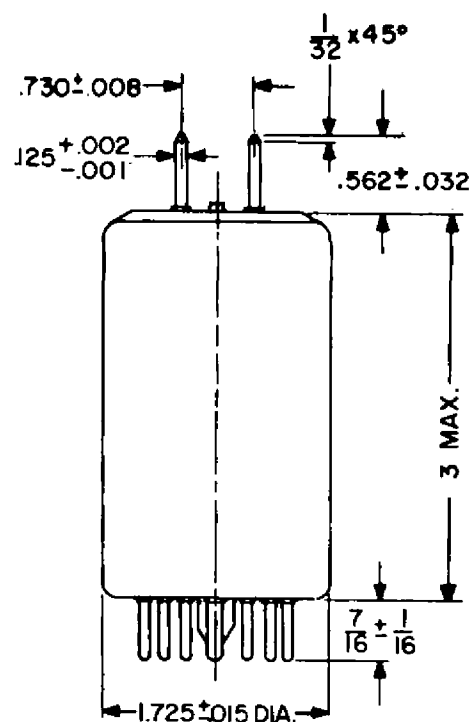
1. Either forced air cooling or heat sink cooling may be used when the tube is operating at or near the maximum ratings. With forced air cooling it is necessary to cool both the lateral bulb surfaces as well as the plate pin seals by directing the flow of air toward the top and sides of the bulb. In most cases approximately 20 cfm is sufficient. However, regardless of the type of cooling being used, the degree of cooling should be determined by direct temperature measurement of both the seals and the bulb.

The temperature may be measured by means of temperature sensitive compounds, such as Tempilaq made by the Tempil Corporation, 11 West 25th Street, New York, N.Y.

EMBOSSED ARROW
TO POINT TO LARGE
BASE PIN BELOW



BASE-BOTTOM VIEW



- PIN 1 - HEATER
- PIN 2 - GRID NO. 1 OF UNIT NO. 2
- PIN 3 - GRID NO. 2
- PIN 4 - CATHODE & INTERNAL SHIELD
- PIN 5 - HEATER CENTER TAP
- PIN 6 - GRID NO. 1 OF UNIT NO. 1
- PIN 7 - HEATER
- P1 - PLATE OF UNIT NO. 1
- P2 - PLATE OF UNIT NO. 2

ELECTRICAL (Continued)

Amplification Factor

$G_1 - G_2 \mu$ at $E_b = 600$ volts

$E_{c2} = 250$ V, $I_b = 40$ ma 7.0

Peak Cathode Current 700 ma

Direct Interelectrode Capacitances (Grounded Cathode)

	Per Unit	
	Min.	Max.
Grid to Plate		0.09 pf
Input	9.4	11.8 pf
Output	2.6	3.7 pf

RF Power Amplifier and Oscillator

Class C Telegraphy

Maximum Ratings, Absolute Values

Frequency	60 mc max.
D.C. Plate Voltage	850 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Grid No. 1 Voltage	-175 volts max.
D.C. Plate Current	2x110 ma max.
D.C. Grid No. 1 Current	2x5 ma max.
Plate Input	2x90 watts max.
Grid No. 2 Input	7 watts max.
Plate Dissipation	2x30 watts max.
Heater-Cathode Voltage	100 volts max.

RF Power Amplifier and Oscillator

Class C Telegraphy

Maximum Ratings, Absolute Values

Frequency	175 mc max.
D.C. Plate Voltage	750 volts max.
D.C. Grid No. 2 Voltage	300 volts max.
D.C. Grid No. 1 Voltage	-175 volts max.
D.C. Plate Current	2x110 ma max.
D.C. Grid No. 1 Current	2x5 ma max.
Plate Input	2x75 watts max.
Grid No. 2 Input	7 watts max.
Plate Dissipation	2x30 watts max.
Heater-Cathode Voltage	100 volts max.

CLASS AB LINEAR RF AMPLIFIER SINGLE SIDEBAND SUPPRESSED CARRIER OPERATION

Both Sections in Parallel

Maximum Ratings, Absolute Values
(Frequencies up to 60 mc)

	CCS	
D.C. Plate Voltage	1000	volts
D.C. Grid No. 2 Voltage	360	volts
D.C. Grid No. 1 Voltage	-175	volts
D.C. Plate Current	220	ma
D.C. Grid No. 1 Current	10	ma
Plate Input	200	watts
Grid No. 2 Input	7	watts
Plate Dissipation	2x30	watts

Typical Operation
Single Tone and/or Two Tone Operation

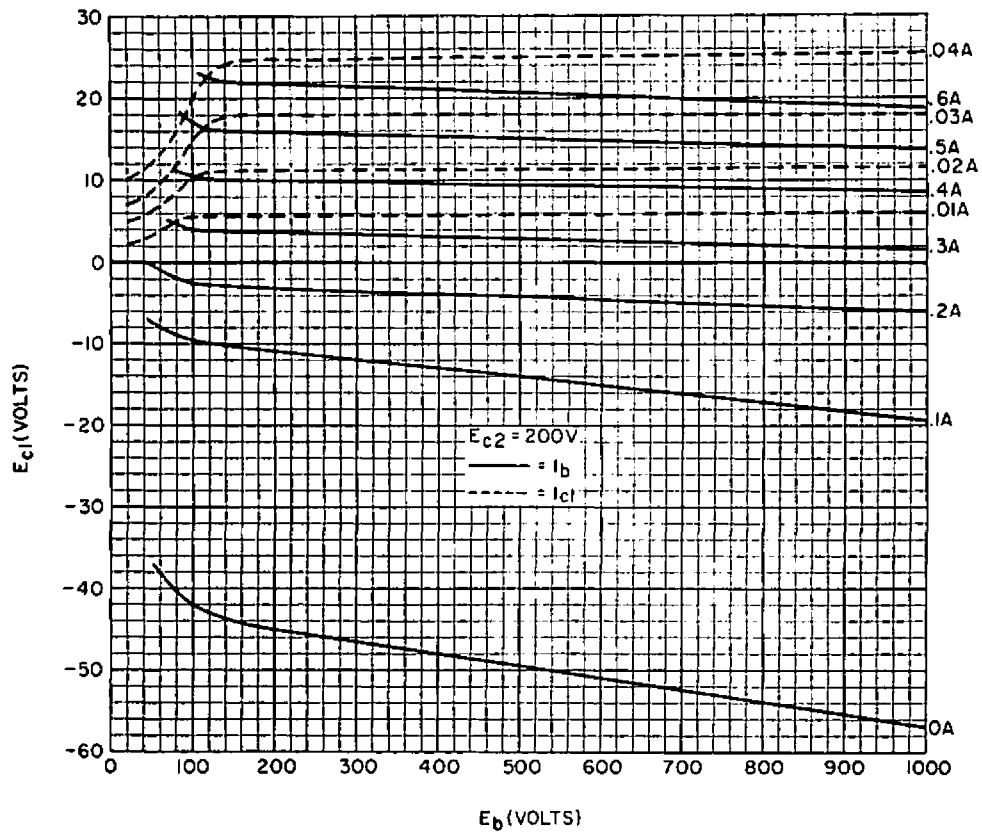
Frequency	7	7	7 mc
D.C. Plate Voltage	1000	800	600 volts
D.C. Grid No. 2 Voltage	250	250	250 volts
D.C. Grid No. 1 Voltage	-34	-34	-32.5 volts
Zero Signal D.C. Plate Current	50	50	60 ma
Zero Signal D.C. Grid No. 2 Current	1.2	1.2	1.9 ma
Effective RF Load Resistance	3100	2300	1410 ohms

Single Tone Modulation

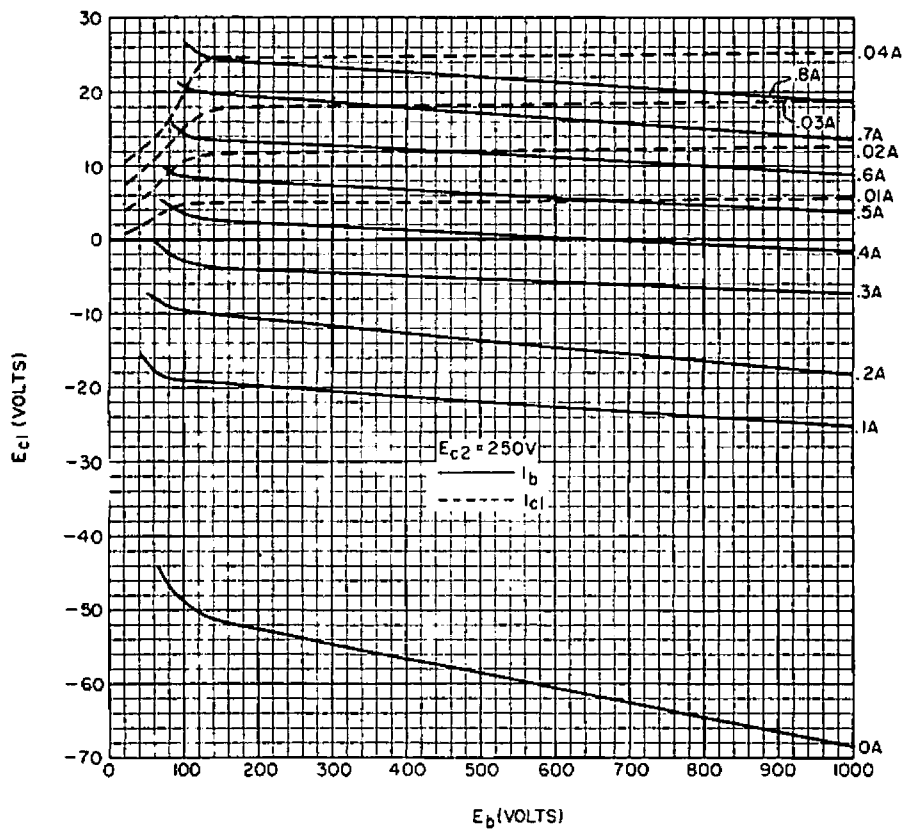
Frequency	7	7	7 mc
Max. Signal D.C. Plate Current	195	197	212 ma
Max. Signal D.C. Grid No. 2 Current	26	26	25 ma
Max. Signal D.C. Grid No. 1 Current	.01	.01	.008 ma
Max. Signal Peak RF Grid Voltage	34	34	32.5 volts
Max. Signal Plate Power Output	141	112	76 watts

Two Tone Modulation

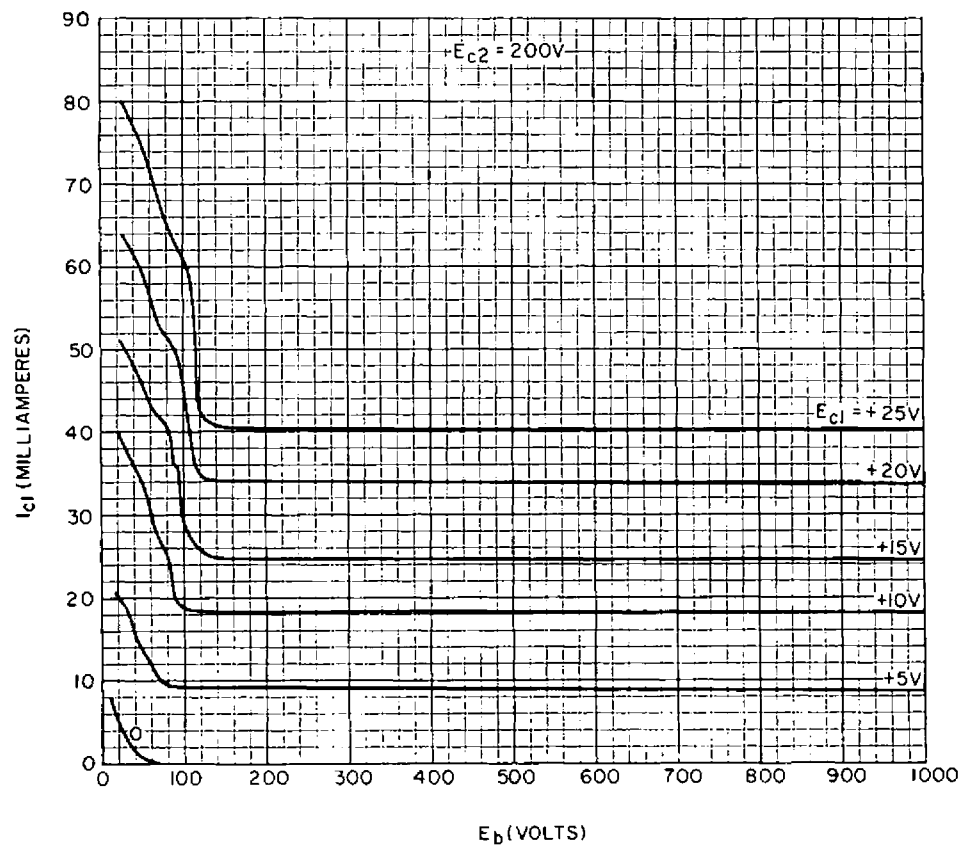
Frequency	7	7	7 mc
Average D.C. Plate Current	131	130	144 ma
Average D.C. Grid No. 2 Current	11.5	12.5	13.5 ma
Average D.C. Grid No. 1 Current	0	0	0 ma
Max. Resultant Peak RF Grid Voltage	34	34	32.5 volts
Average Plate Power Output	70.5	56	38 watts
Peak Envelope Plate Power Output	141	112	76 watts
3rd Order Intermodulation Distortion	30	30	30 db



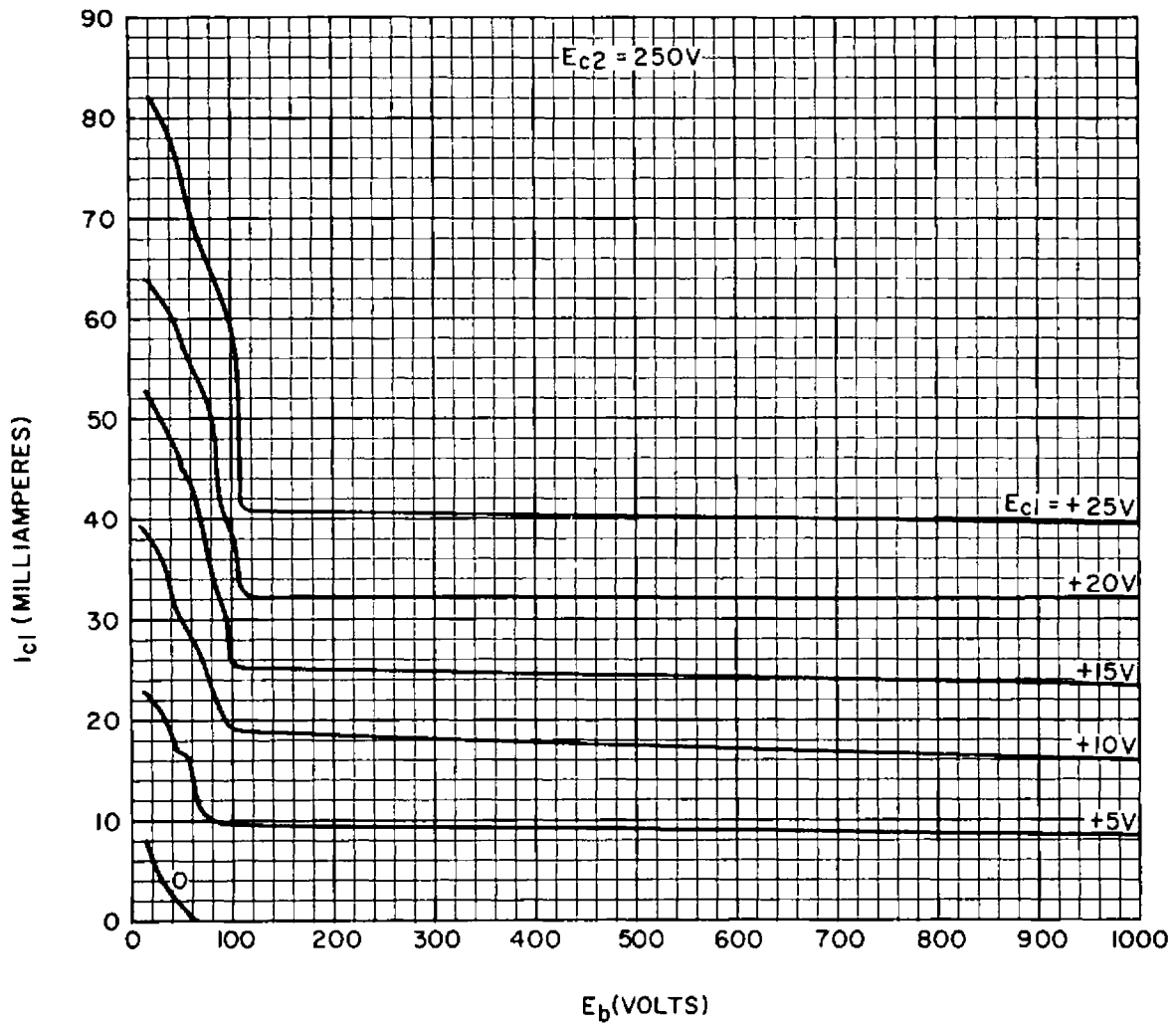
CONSTANT CURRENT CHARACTERISTICS



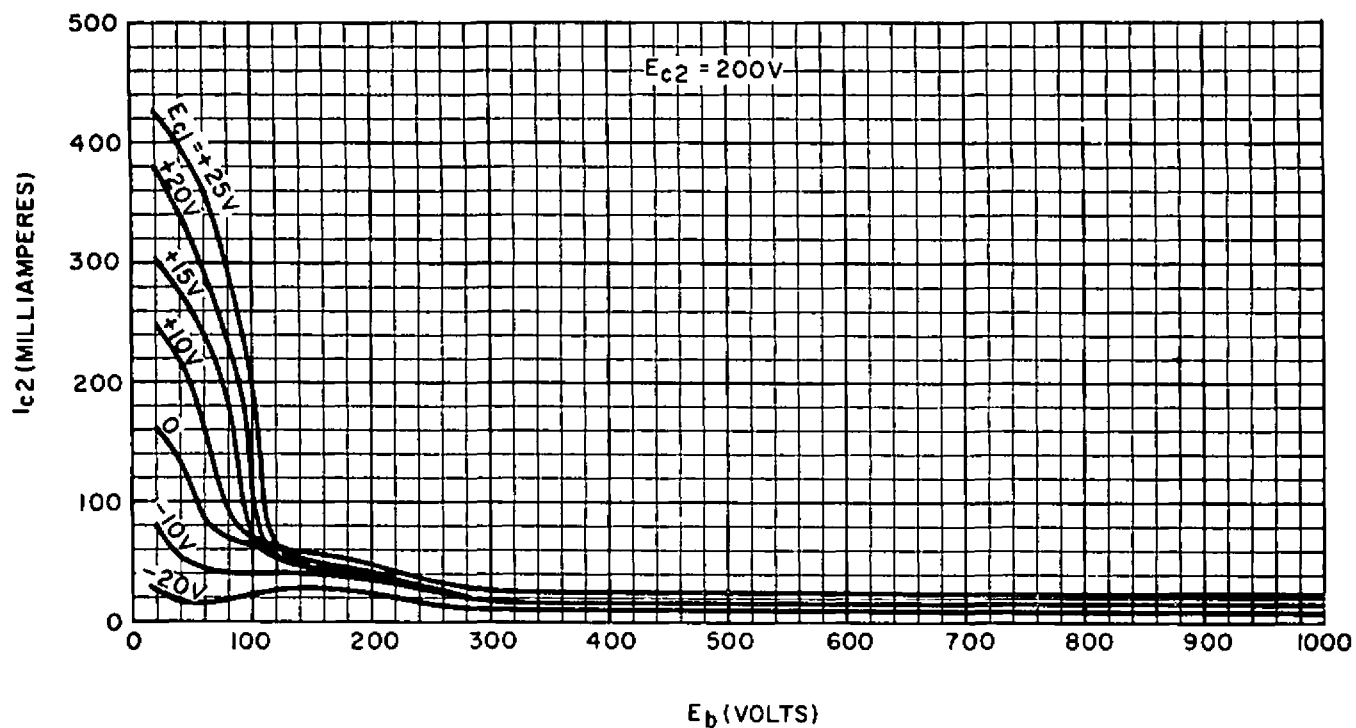
CONSTANT CURRENT CHARACTERISTICS



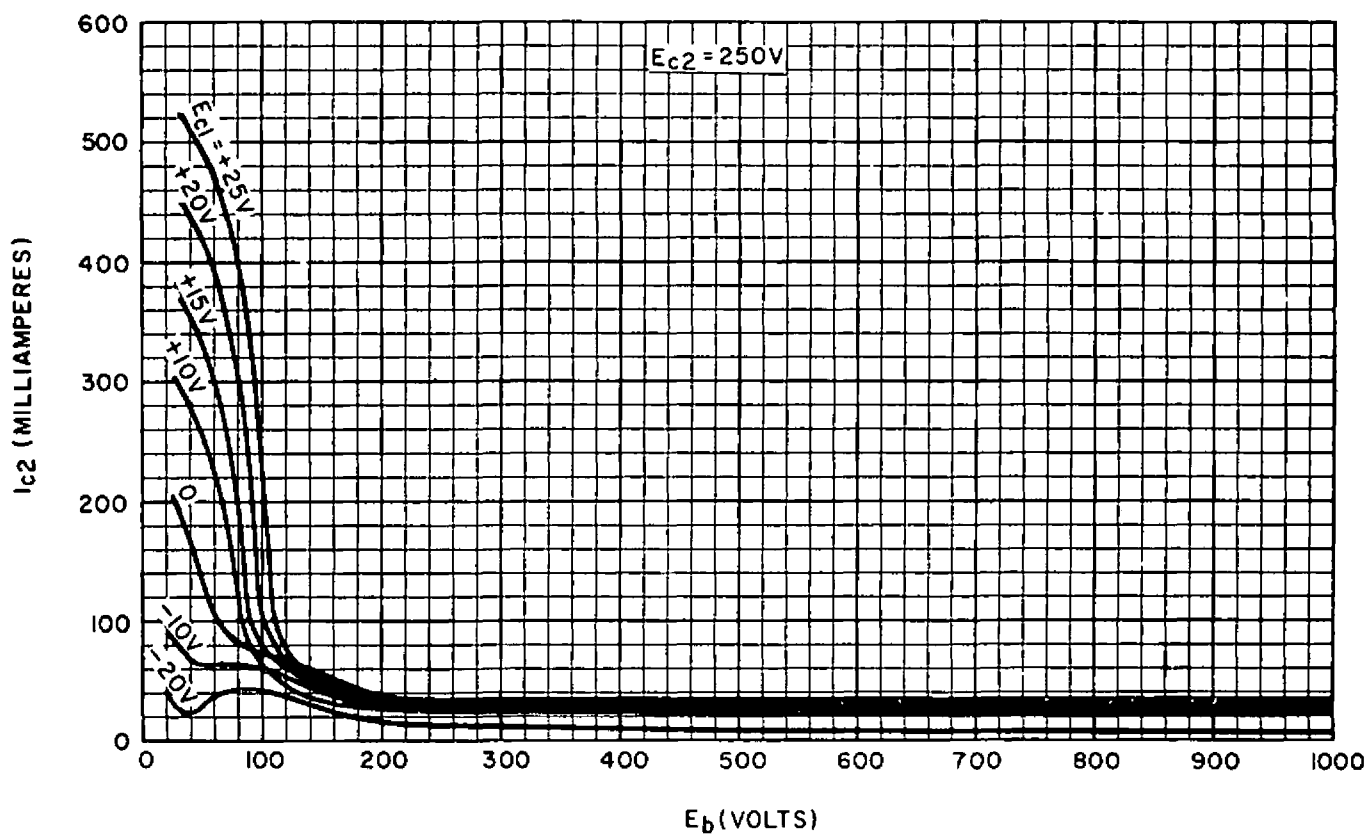
CONTROL GRID CHARACTERISTICS



CONTROL GRID CHARACTERISTICS



SCREEN GRID CHARACTERISTICS



SCREEN GRID CHARACTERISTICS

