from JEDEC release #3747, May 14, 1962

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

AMPEREX TUBE TYPE 8177

TENTATIVE DATA

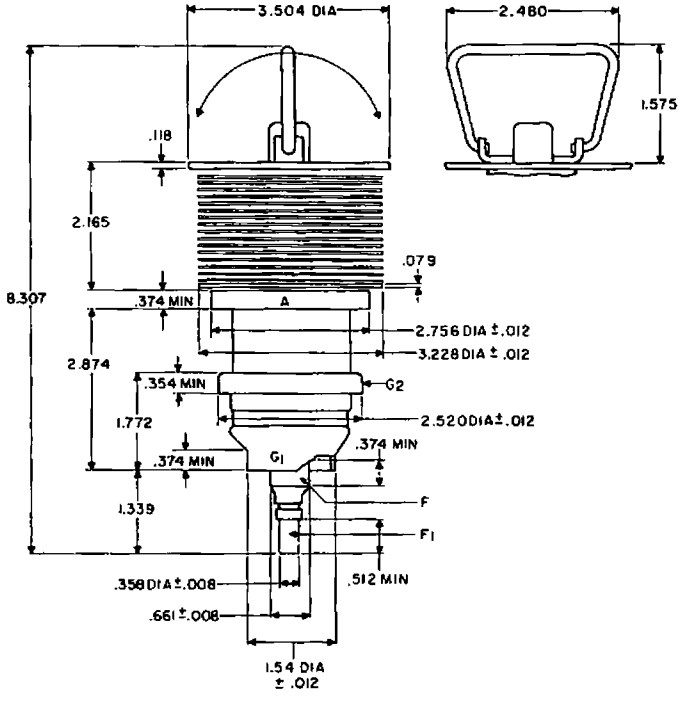
The Amperex 8177 is a ceramic coaxial power tetrode having an integral radiator and a plate dissipation of 1200 watts. It has a directly heated, thoriated tungsten filament. The coaxial terminal arrangement enables use as a "plug in" tube in coaxial circuits. The tube is designed for use as a UHF amplifier or oscillator at frequencies up to 1000 mc.

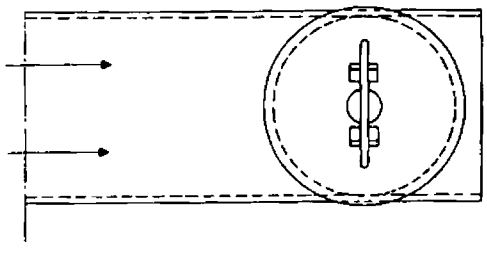
GENERAL CHARACTERISTICS

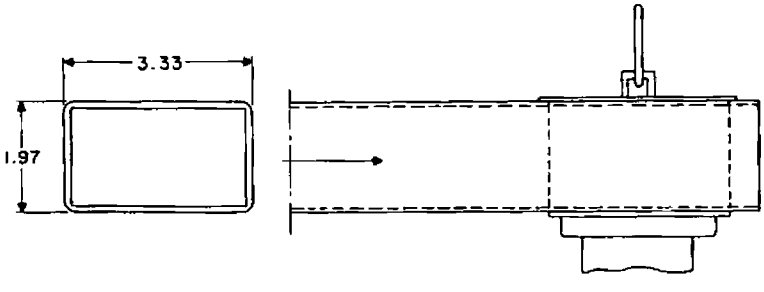
ELECTRICAL

Filament	
Voltage	4 volts[1]
Current	60 amps
Amplification Factor	
(E_b = 3000 v; E_{c2} = 500 v; I_b = 480 ma)	9
Transconductance (above values)	20,000 μmhos

1. The filament voltage must be reduced as a function of the operating conditions and frequency. After tube is placed in operation, the filament voltage should be reduced to a point where performance is affected. Maintain filament voltage slightly above this point. Connect filament so that RF voltages on it are suppressed. For further information contact the Amperex Applications Department.







ELECTRICAL (Continued)

Direct Interelectrode Capacitance

	Grounded Cathode	Grounded Grid No. 1 & No. 2	
Grid to Plate	0.15	7	pf
Output	6.0	-	pf
Plate to Filament	-	0.02	pf
Input	46	-	pf
Control Grid to Filament	-	20	pf

MECHANICAL

Maximum Overall Dimensions	
Length	See Outline Drawing
Diameter	See Outline Drawing
Mounting Position	Vertical
Cooling	Forced Air
Maximum Operating Temperature For All parts of envelope	200°C
Weight	4 lbs. 4 oz.

COOLING CHARACTERISTICS

Plate Dissipation (W)	Altitude (feet)	Inlet Air Temp(°C)	Min Air Flow (cu ft/min)	Inlet Air Pressure (in. of water)
800	0	35	49	.63
	0	45	56	.8
	5000	35	58	.75
	10000	25	60	.7
1200	0	35	67	1.15
	0	45	77	1.5
	5000	35	79	1.4
	10000	25	82	1.35

MAXIMUM RATINGS
UHF Power Amplifier, Class C CW, Cathode Driven[2]
Maximum Ratings, Absolute Values
(Voltages Measured to Grid No. 1)

Frequency	Up to	900 mc
D.C. Plate Voltage		3500 volts (to G1)
D.C. Grid No. 2 Voltage		700 volts (to G1)
D.C. Cathode Voltage		300 volts (to G1)
D.C. Plate Current		950 ma
D.C. Grid No. 1 Current		100 ma
D.C. Grid No. 2 Current		75 ma
Grid No. 2 Dissipation		50 watts
Plate Dissipation		1200 watts

Typical Operation
(Voltages Measured to Grid No. 1)

Frequency	600	900	mc
D.C. Plate Voltage	3110	3110	volts
D.C. Grid No. 2 Voltage	610	610	volts
D.C. Cathode Voltage	110	110	volts
D.C. Plate Current	900	800	ma
D.C. Grid No. 1 Current	60	60	ma
D.C. Grid No. 2 Current	20	20	ma
Driver Output Power	170	200	watts
Plate Dissipation	770	1040	watts
Plate Output Power[3]	2070	1500	watts
Load Power Output[4]	1760	1280	watts
Power Gain	12	7.5	watts

2. In a cathode-driven UHF amplifier circuit a tunable coaxial circuit is placed between control grid and screen to introduce variable capacitive reactance. This results in better efficiency and negligible regeneration from plate to cathode.

3. Includes power transferred from driving stage.

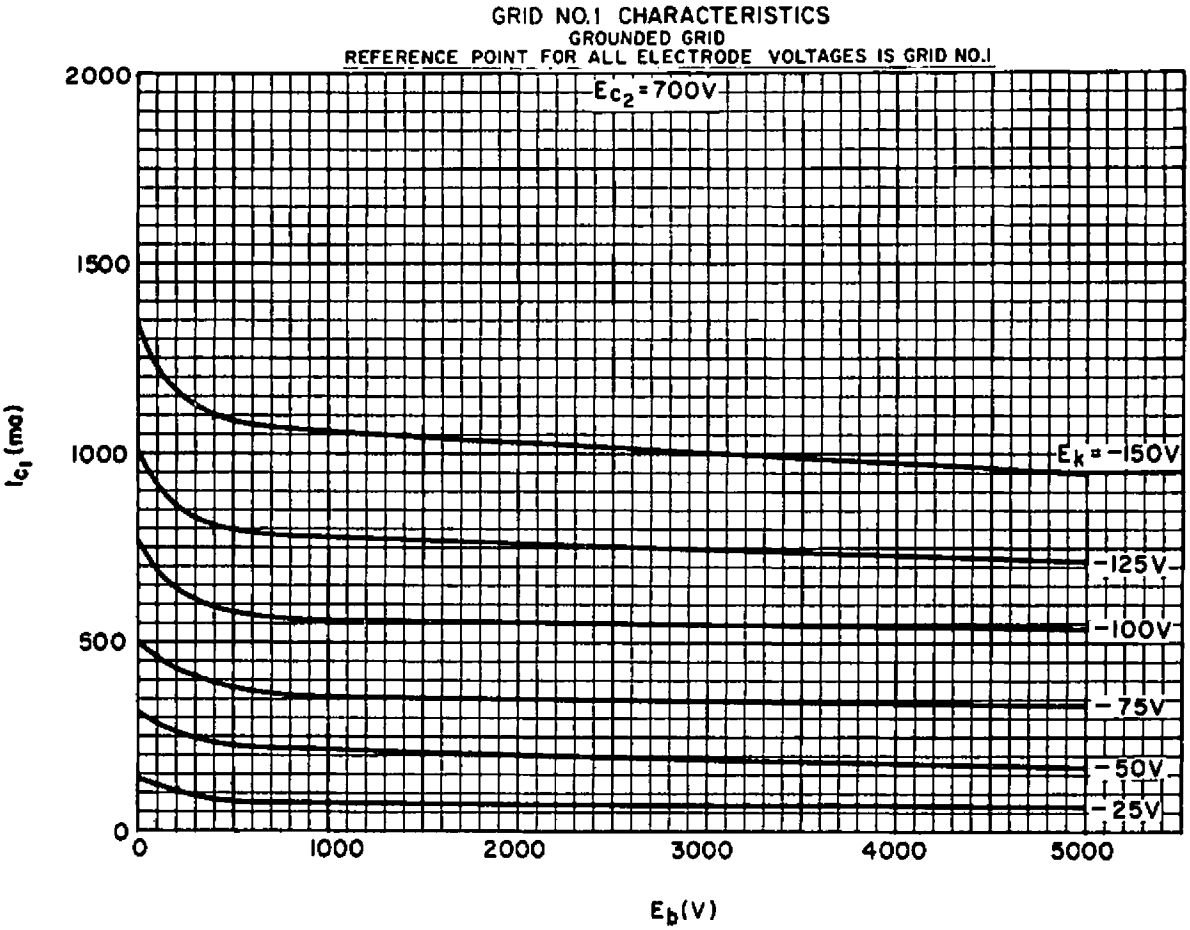
4. In a circuit of 85% efficiency.

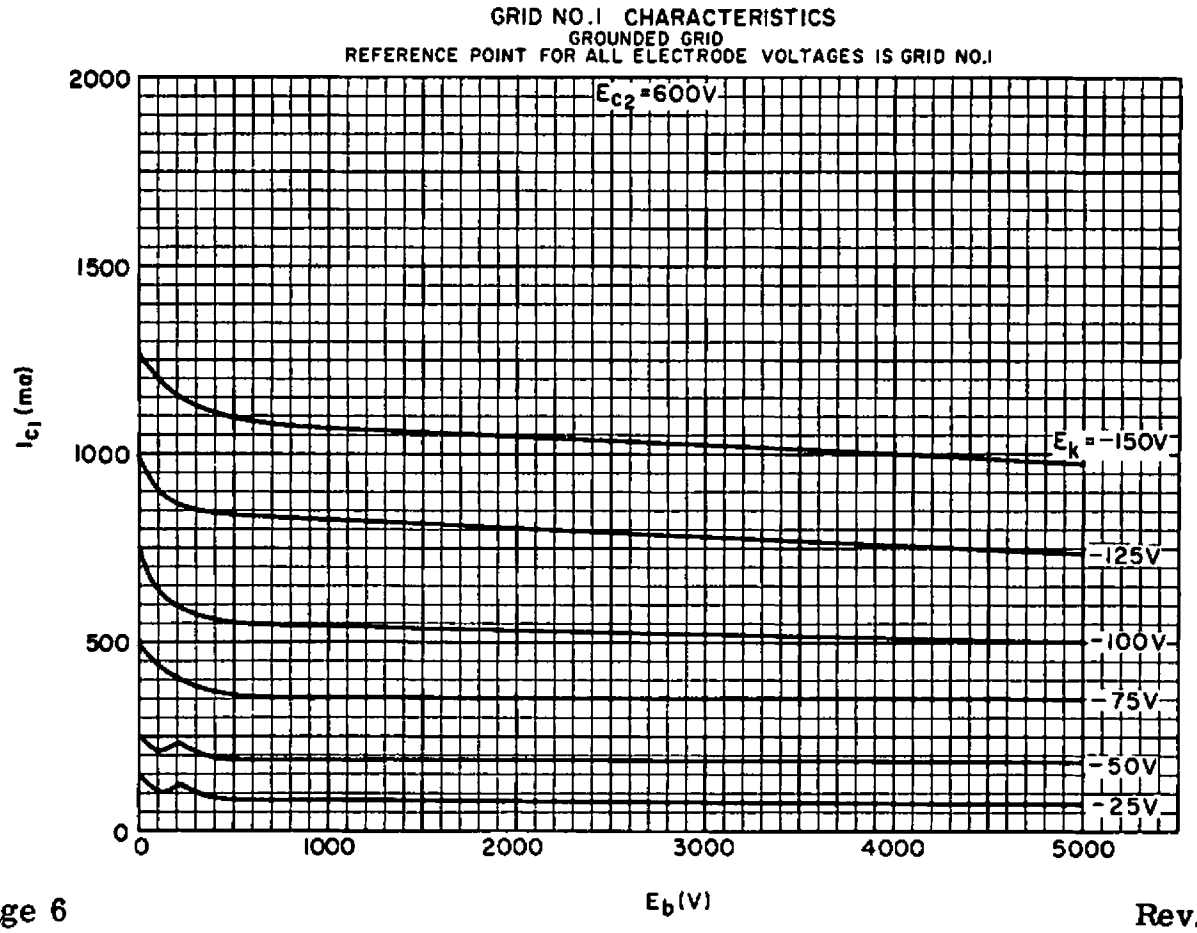
UHF Class C Amplifier for Television Service
Cathode Modulation, Cathode Driven; Negative Modulation
Positive Synchronization[2]
(Voltages Measured to Grid No. 1)
Maximum Ratings, Absolute Values

Frequency	Up to 900 mc
D.C. Plate Voltage	3700 volts
D.C. Grid No. 2 Voltage Sync.	700 volts
D.C. Cathode Voltage	500 volts
D.C. Plate Current Sync.	950 ma
Grid No. 1 Current Sync.	100 ma
Grid No. 2 Current Sync.	75 ma
Grid No. 2 Dissipation	50 watts
Plate Dissipation	1200 watts

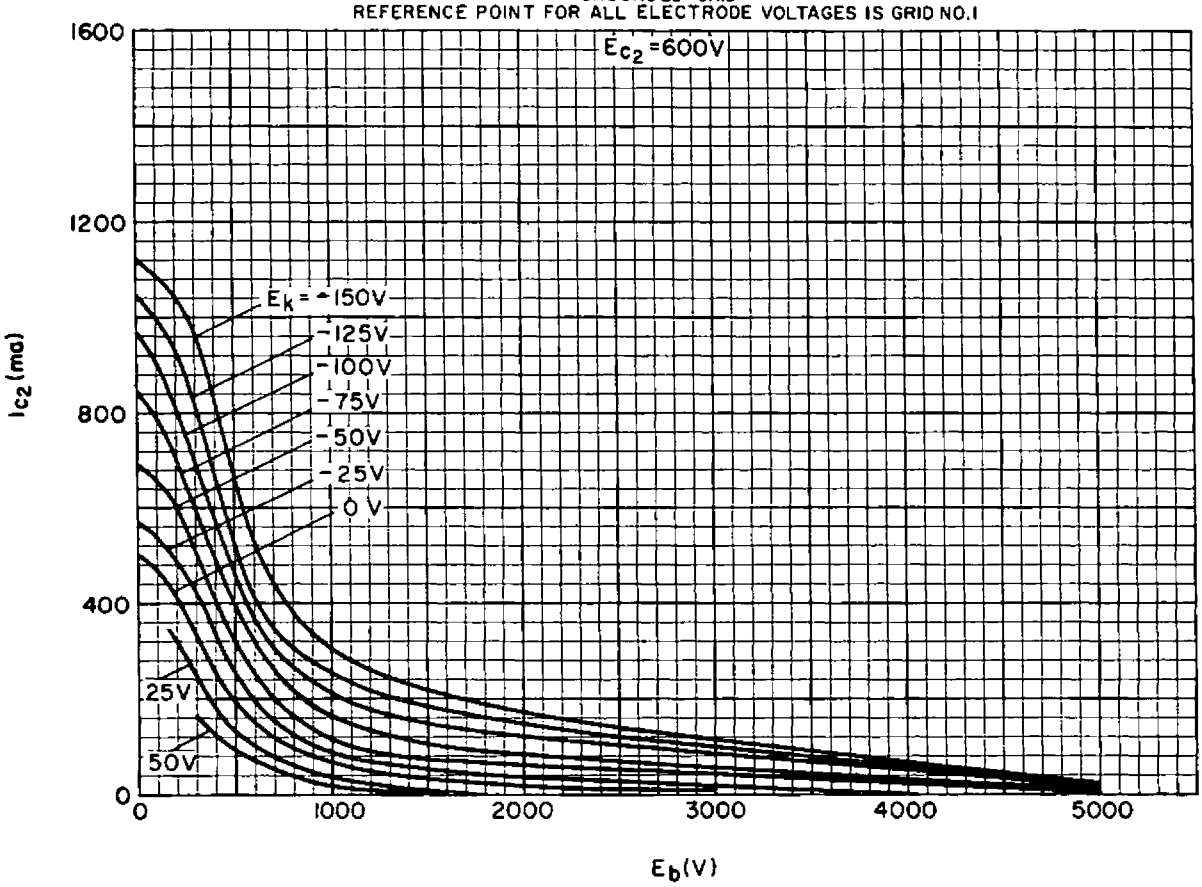
Typical Operation
(Voltages Measured to Grid No. 1)

Frequency	800 mc
Bandwidth to -3 db points	6 mc
D.C. Plate Voltage	3610 volts
D.C. Grid No. 2 Voltage	610 volts
Sync Level	110 volts
D.C. Cathode Voltage, Black Level	210 volts
White	380 volts
D.C. Plate Current, Sync Level	900 ma
Black Level	600 ma
D.C. Grid No. 2 Current, Sync Level	15 ma
Black Level	6 ma
D.C. Grid No. 1 Current, Sync Level	50 ma
Black Level	20 ma
Driver Output Power Sync Level	180 watts
Load Power Output, Sync Level	2000 watts
Black Level	1120 watts

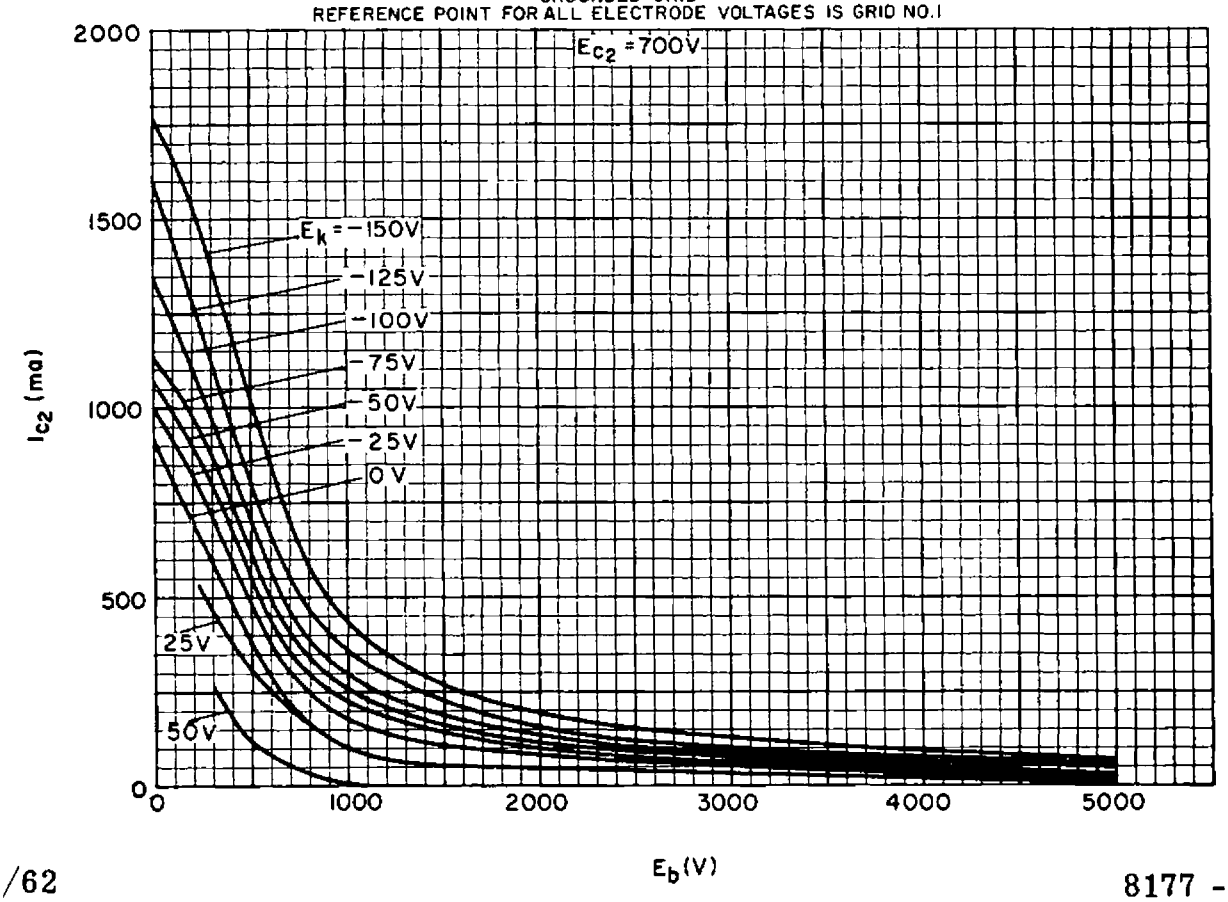

GRID NO.1 CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1
E_{c_2}=700V
E_k=-150V
-125V
-100V
-75V
-50V
-25V
2000
1500
1000
500
0
0
1000
2000
3000
4000
5000
I_{c_1} (ma)
E_b(V)

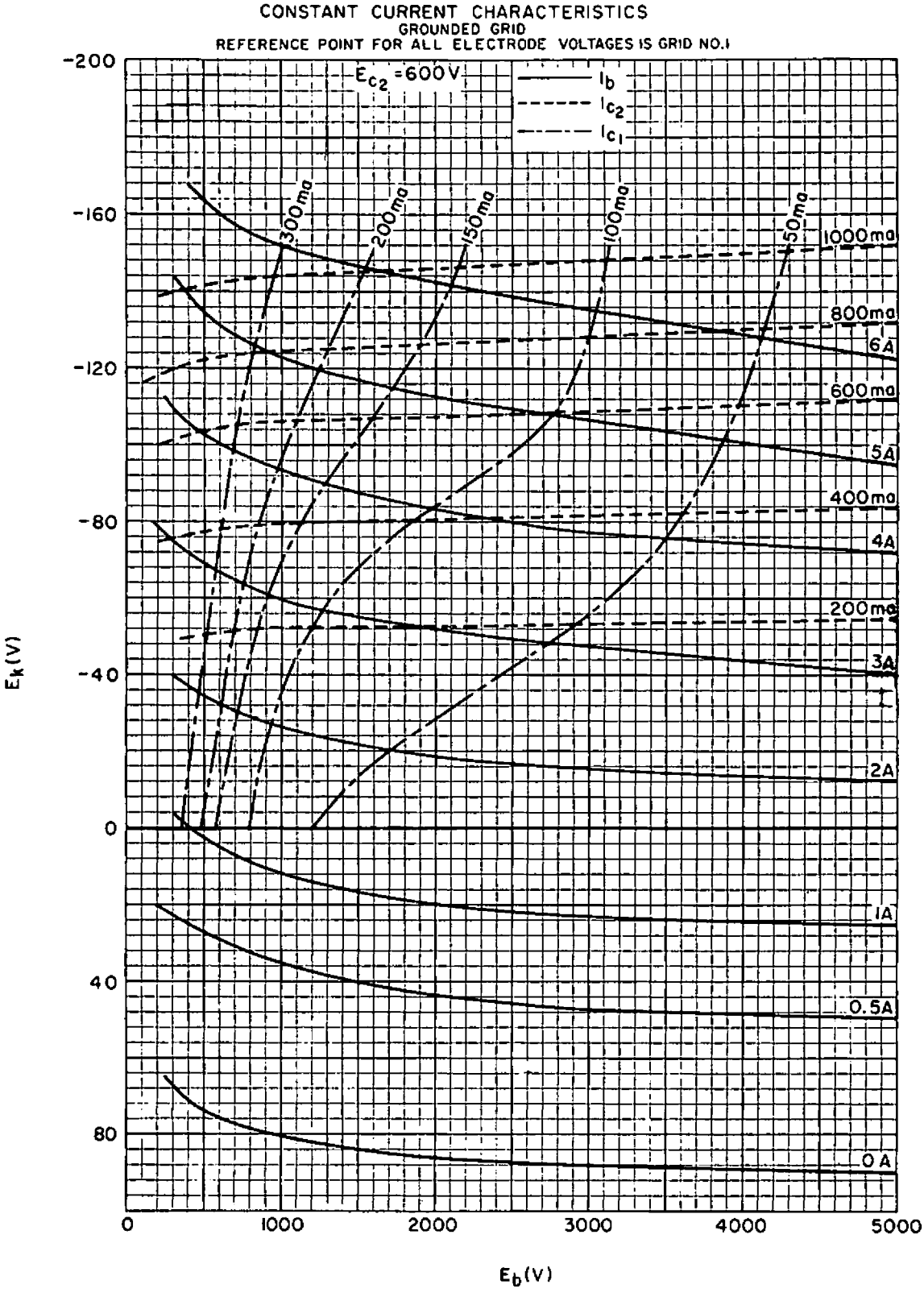

GRID NO.1 CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1
E_{c_2}=600V
E_k=-150V
-125V
-100V
-75V
-50V
-25V
2000
1500
1000
500
0
0
1000
2000
3000
4000
5000
I_{c_1} (ma)
E_b(V)

GRID NO. 2 CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1



GRID NO. 2 CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1




CONSTANT CURRENT CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1
E_{c_2} =600V
I_b
I_{c_2}
I_{c_1}
300ma
200ma
150ma
100ma
50ma
1000ma
800ma
6A
600ma
5A
400ma
4A
200ma
3A
2A
1A
0.5A
0A
-200
-160
-120
-80
-40
0
40
80
0
1000
2000
3000
4000
5000
E_k(V)
E_b(V)

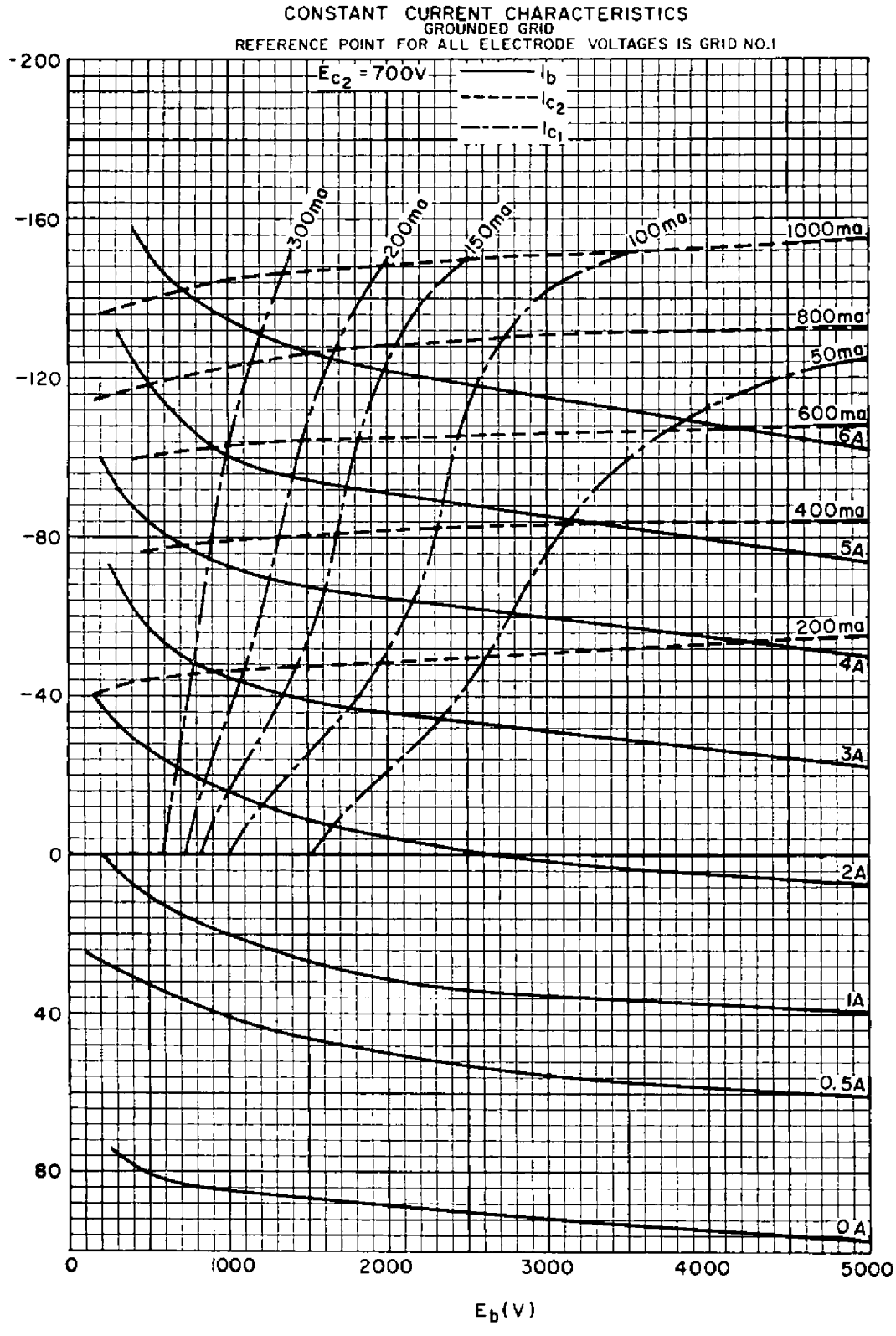

CONSTANT CURRENT CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1
E_{c_2} = 700V
I_b
I_{c_2}
I_{c_1}
300ma
200ma
150ma
100ma
1000ma
800ma
50ma
600ma
6A
400ma
5A
200ma
4A
3A
2A
1A
0.5A
0A
-200
-160
-120
-80
-40
0
40
80
0
1000
2000
3000
4000
5000
E_b(V)

PLATE CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1

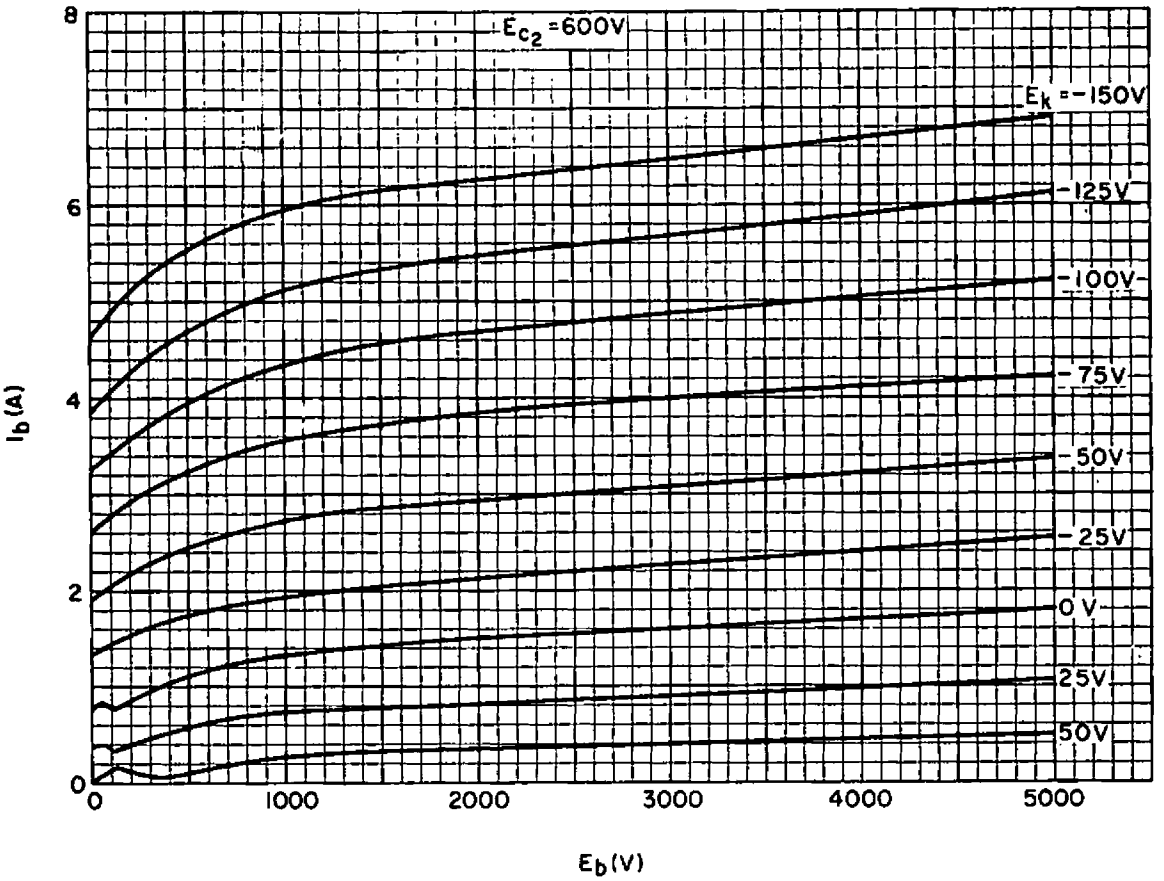


PLATE CHARACTERISTICS
GROUNDED GRID
REFERENCE POINT FOR ALL ELECTRODE VOLTAGES IS GRID NO.1