

**TRIODE**

**DESCRIPTION AND RATING**

The 6C4 is a miniature, medium-mu triode suitable for use in a wide variety of general-purpose applications. It is especially useful as a local oscillator in high-frequency and very-high-frequency receiver circuits.

**GENERAL**

**ELECTRICAL**

Cathode—Coated Unipotential		
Heater Voltage, AC or DC	6.3	Volts
Heater Current	0.15	Amperes
Direct Interelectrode Capacitances		
	<b>With Shield*</b>	<b>Without Shield</b>
Grid to Plate: (g to p)	1.4	1.6 $\mu\text{f}$
Input: g to (h+k)	1.8	1.8 $\mu\text{f}$
Output: p to (h+k)	2.5	1.3 $\mu\text{f}$

**MECHANICAL**

Mounting Position—Any  
Envelope—T-5½, Glass  
Base—E7-1, Miniature Button 7-Pin

**MAXIMUM RATINGS**

<b>DESIGN-CENTER VALUES</b>	<b>Class A<sub>1</sub> Amplifier</b>	<b>Class C Telegraphy</b>
Plate Voltage	300	300 Volts
Negative DC Grid Voltage	—	50 Volts
Plate Dissipation	3.5	5.0 Watts
DC Plate Current	—	25 Milliamperes
DC Grid Current	—	8.0 Milliamperes
<b>Heater-Cathode Voltage</b>		
Heater Positive with Respect to Cathode		
DC Component	100	100 Volts
Total DC and Peak	200	200 Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	200 Volts
<b>Grid-Circuit Resistance</b>		
With Fixed Bias	0.25	0.25 Megohms
With Cathode Bias	1.0	1.0 Megohms

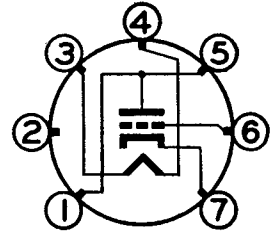
Design-Center ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under normal conditions.

These values are chosen by the tube manufacturer to provide acceptable serviceability of the tube in average applications, taking responsibility for normal changes in operating conditions due to rated supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all tubes.

The equipment manufacturer should design so that initially no design-center value for the intended service is exceeded with a bogey tube in equipment operating at the stated normal supply voltage.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

**BASING DIAGRAM**

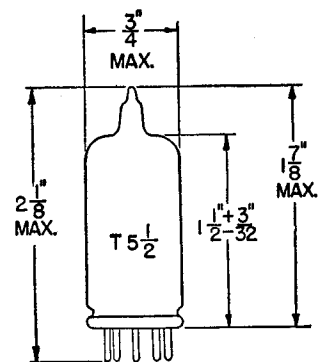


EIA 6BG

**TERMINAL CONNECTIONS**

- Pin 1—Plate
- Pin 2—Internal Connection
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Plate
- Pin 6—Grid
- Pin 7—Cathode

**PHYSICAL DIMENSIONS**



EIA 5-2

## CHARACTERISTICS AND TYPICAL OPERATION

### CLASS A<sub>1</sub> AMPLIFIER

Plate Voltage . . . . .	100	250	Volts
Grid Voltage . . . . .	0	-8.5	Volts
Amplification Factor . . . . .	19.5	17	
Plate Resistance, approximate . . . . .	6250	7700	Ohms
Transconductance . . . . .	3100	2200	Micromhos
Plate Current . . . . .	11.8	10.5	Milliamperes
Grid Voltage, approximate I <sub>b</sub> = 10 Microamperes . . . . .	-10	-25	Volts

### CLASS C TELEGRAPHY, RF POWER AMPLIFIER AND OSCILLATOR

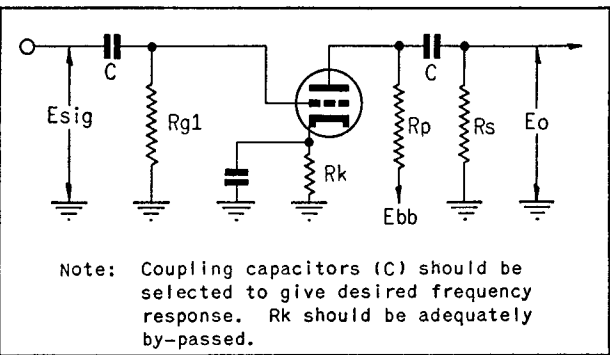
DC Plate Voltage . . . . .	300	Volts
DC Grid Voltage . . . . .	-27	Volts
DC Plate Current . . . . .	25	Milliamperes
DC Grid Current, approximate . . . . .	7	Milliamperes
Grid Driving Power, approximate . . . . .	0.35	Watts
Power Output, approximate† . . . . .	5.5	Watts

\* With external shield (EIA 316) connected to pin 7.

† At 150 megacycles a power output of 2.5 watts may be obtained when the 6C4 is used as an oscillator with a grid resistor of 10,000 ohms and maximum rated input.

## CLASS A RESISTANCE-COUPLED AMPLIFIER

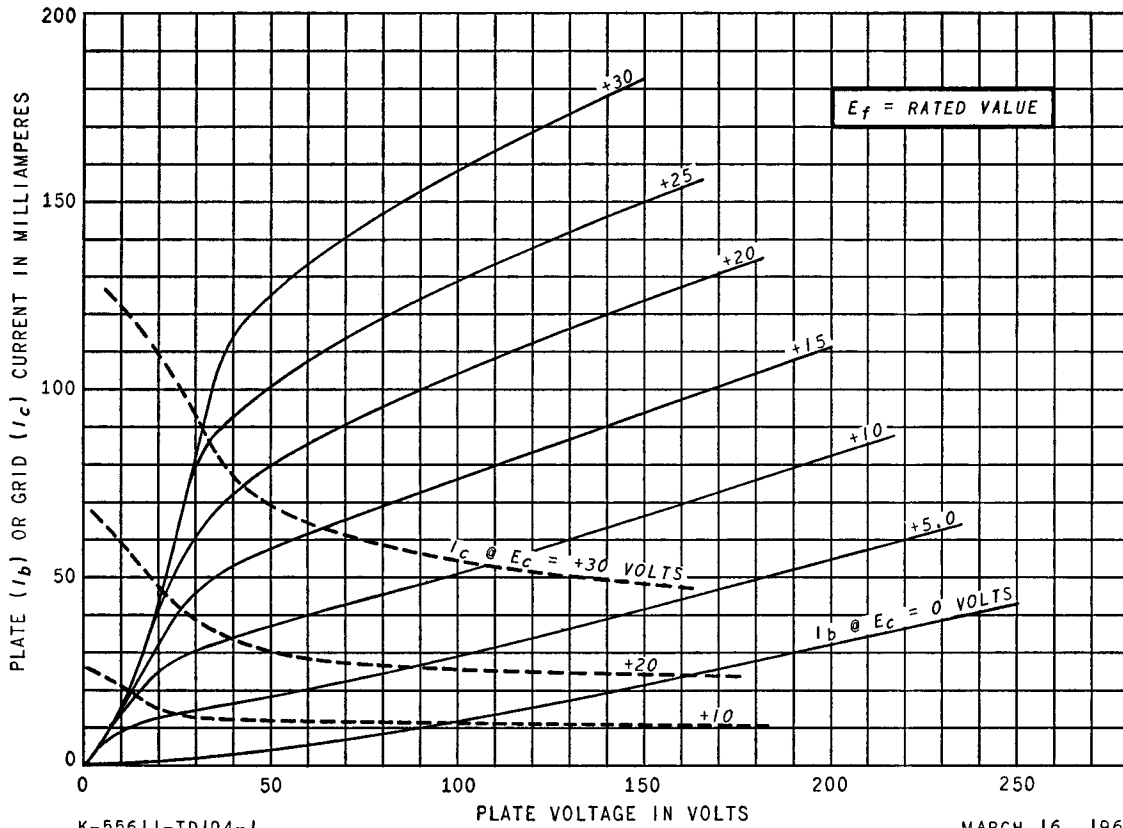
R <sub>p</sub> Meg.	R <sub>s</sub> Meg.	R <sub>g1</sub> Meg.	E <sub>bb</sub> = 90 Volts			E <sub>bb</sub> = 180 Volts			E <sub>bb</sub> = 300 Volts		
			R <sub>k</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	Gain	E <sub>o</sub>
0.10	0.10	0.10	3900	10	10	3600	11	20	3500	11	30
0.10	0.24	0.10	5000	11	14	4700	12	27	4400	12	41
0.24	0.24	0.10	9400	11	13	8700	11	25	8700	12	38
0.24	0.51	0.10	11000	11	17	11000	12	32	11000	12	48
0.51	0.51	0.10	19000	11	15	18000	12	29	18000	12	43
0.51	1.0	0.10	24000	11	19	23000	12	37	23000	12	54
0.24	0.24	10	0	14	12	0	16	20	0	17	28
0.24	0.51	10	0	14	16	0	16	28	0	17	40
0.51	0.51	10	0	14	15	0	15	26	0	16	38
0.51	1.0	10	0	14	19	0	16	35	0	16	52



Note: Coupling capacitors (C) should be selected to give desired frequency response. R<sub>k</sub> should be adequately by-passed.

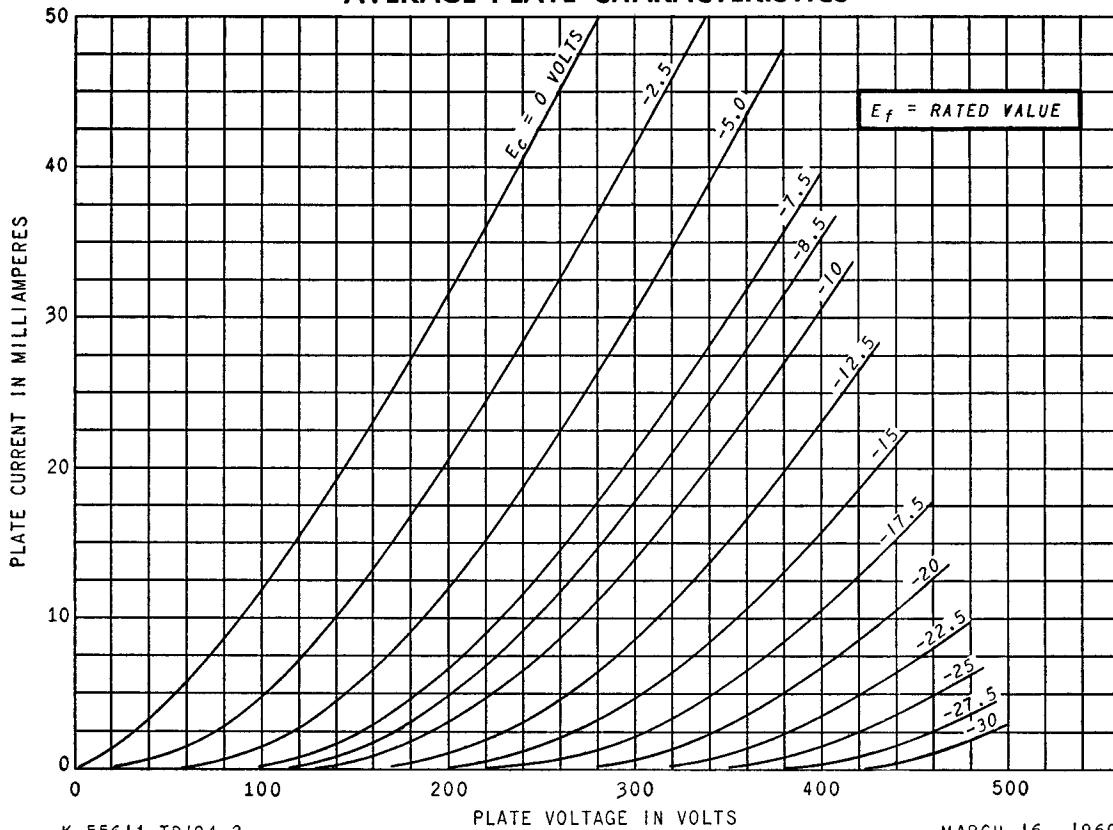
Notes: 1. E<sub>o</sub> is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

# AVERAGE PLATE CHARACTERISTICS



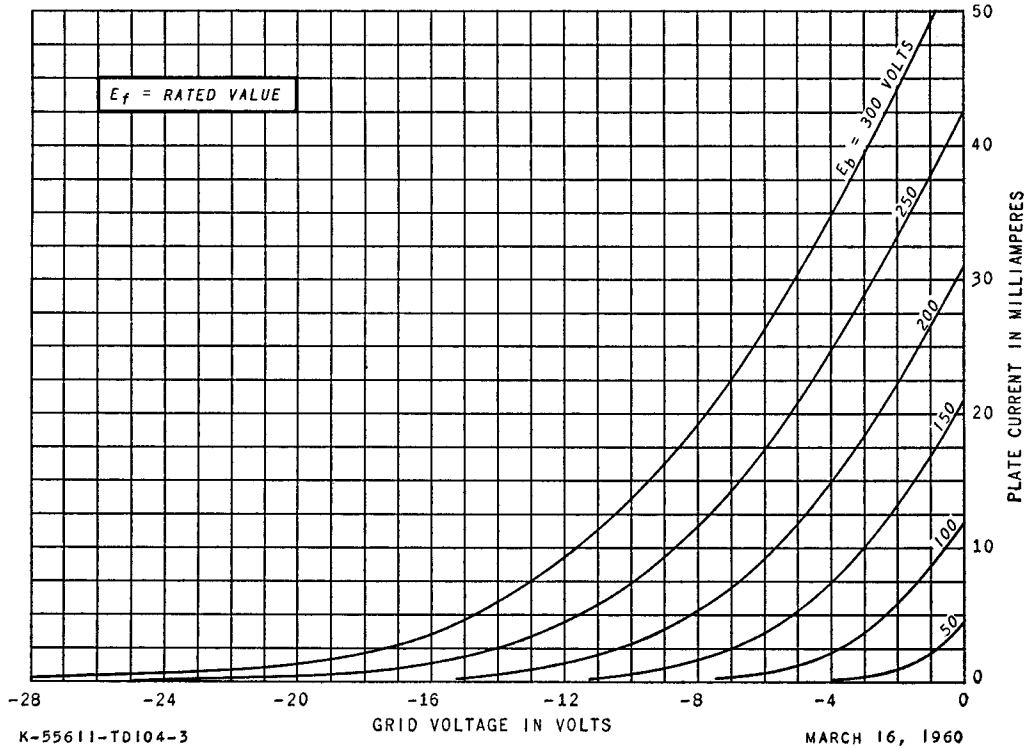
MARCH 16, 1960

# AVERAGE PLATE CHARACTERISTICS



MARCH 16, 1960

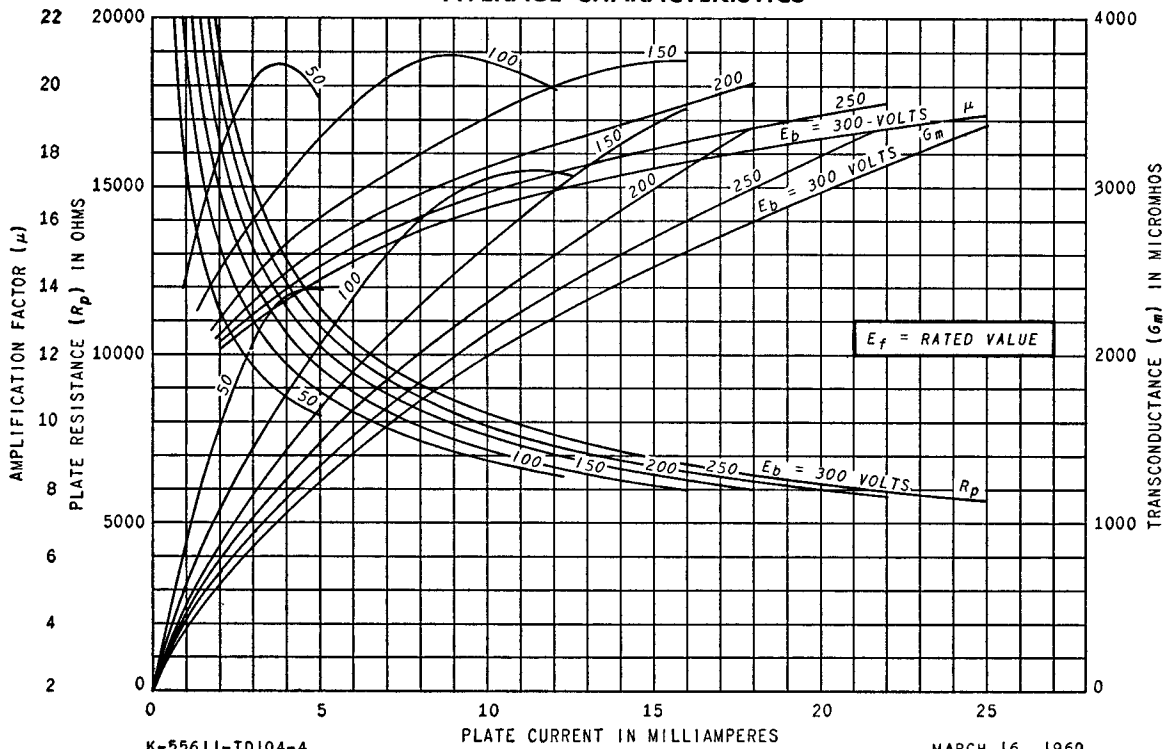
**AVERAGE TRANSFER CHARACTERISTICS**



K-55611-TD104-3

MARCH 16, 1960

**AVERAGE CHARACTERISTICS**



K-55611-TD104-4

MARCH 16, 1960

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