



6BQ5-8BQ5

PENTODE

FOR AF POWER AMPLIFIER APPLICATIONS

6BQ5
8BQ5
ET-T1535
Page 1
3-59

DESCRIPTION AND RATING

The 6BQ5 is a power-amplifier pentode designed for use in the audio-frequency power-output stage of television and radio receivers and in high-fidelity amplifiers.

Except for heater ratings, the 8BQ5 is identical to the 6BQ5.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	6BQ5	8BQ5	
Heater Voltage, AC or DC	6.3	8.0	Volts
Heater Current	0.76	0.6	Amperes
Heater Warm-up Time*		11	Seconds
Direct Interelectrode Capacitances†			
Grid-Number 1 to Plate, maximum		0.5	$\mu\mu\text{f}$
Input		10.8	$\mu\mu\text{f}$
Output		6.5	$\mu\mu\text{f}$

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	300	Volts
Screen Voltage	300	Volts
Negative DC Grid-Number 1 Voltage	100	Volts
Plate Dissipation	12	Watts
Screen Dissipation (Continuous)	2.0	Watts
Screen Dissipation (Peaks of Speech and Music)	4.0	Watts
DC Cathode Current	65	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	100	Volts
Heater Negative with Respect to Cathode	100	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.3	Megohms
With Cathode Bias	1.0	Megohms

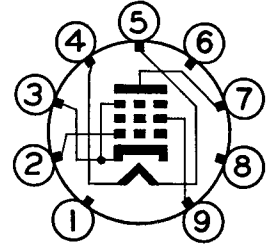
Design-center ratings are limiting values of operating conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under normal conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube in average applications, taking responsibility for normal changes in operating conditions due to rated supply voltage variation (For an AC power source, 117 volts plus or minus 10% is accepted USA practice.), equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in tube characteristics.

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

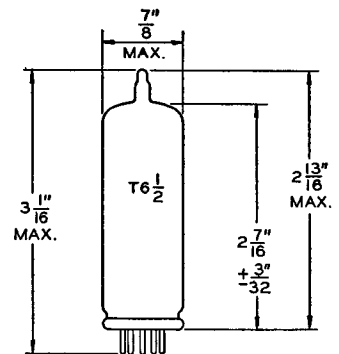


EIA 9CV

TERMINAL CONNECTIONS

- Pin 1—Internal Connection
- Pin 2—Grid Number 1
- Pin 3—Cathode and Grid Number 3 (Suppressor)
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Internal Connection
- Pin 7—Plate
- Pin 8—Internal Connection
- Pin 9—Grid Number 2 (Screen)

PHYSICAL DIMENSIONS



EIA 6-4

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	250	Volts
Screen Voltage	250	Volts
Grid-Number 1 Voltage	-7.3	Volts
Plate Resistance, approximate	40000	Ohms
Transconductance	11300	Micromhos
Plate Current . . . . .	.48	Milliamperes
Screen Current . . . . .	.55	Milliamperes
Amplification Factor (Grid-Number 1 to Grid-Number 2)	19.5	

CLASS A₁ AMPLIFIER

Plate Voltage	250	250	250	250	Volts
Screen Voltage	250	250	250	210	Volts
Grid-Number 1 Voltage	-7.3	-7.3	-8.4	-6.4	Volts
Peak AF Grid-Number 1 Voltage	6.1	6.2	4.95	4.8	Volts
Zero-Signal Plate Current . . . . .	.48	.48	.36	.36	Milliamperes
Maximum-Signal Plate Current . . . . .	.49.5	50.6	36.8	36.6	Milliamperes
Zero-Signal Screen Current . . . . .	.55	.55	4.1	3.9	Milliamperes
Maximum-Signal Screen Current	10.8	10	8.5	7.3	Milliamperes
Load Resistance	5200	4500	7000	7000	Ohms
Total Harmonic Distortion, approximate . . . . .	.10	.10	.10	.10	Percent
Maximum-Signal Power Output . . . . .	.57	.57	4.2	4.3	Watts

PUSH-PULL CLASS AB₁ AMPLIFIER, VALUES FOR TWO TUBES

Plate Voltage	250	300	Volts
Screen Voltage	250	300	Volts
Cathode-Bias Resistor	130	130	Ohms
Peak AF Grid-to-Grid Voltage	22.6	28.2	Volts
Zero-Signal Plate Current . . . . .	.62	.72	Milliamperes
Maximum-Signal Plate Current . . . . .	.75	.92	Milliamperes
Zero-Signal Screen Current . . . . .	.70	8.0	Milliamperes
Maximum-Signal Screen Current . . . . .	.15	22	Milliamperes
Effective Load Resistance, Plate-to-Plate	8000	8000	Ohms
Total Harmonic Distortion . . . . .	.3	4	Percent
Maximum-Signal Power Output . . . . .	.11	17	Watts

PUSH-PULL CLASS B AMPLIFIER, VALUES FOR TWO TUBES

Plate Voltage	250	300	Volts
Screen Voltage	250	300	Volts
Grid-Number 1 Voltage	-11.6	-14.7	Volts
Peak AF Grid-to-Grid Voltage	22.6	28.2	Volts
Zero-Signal Plate Current . . . . .	.20	.15	Milliamperes
Maximum-Signal Plate Current . . . . .	.75	.92	Milliamperes
Zero-Signal Screen Current . . . . .	.22	1.6	Milliamperes
Maximum-Signal Screen Current . . . . .	.15	22	Milliamperes
Effective Load Resistance, Plate-to-Plate	8000	8000	Ohms
Total Harmonic Distortion . . . . .	.3	4	Percent
Maximum-Signal Power Output . . . . .	.11	17	Watts

CLASS A₁ AMPLIFIER, TRIODE CONNECTION‡

Plate Voltage	250	Volts
Cathode-Bias Resistor	270	Ohms
Peak AF Grid-Number 1 Voltage	9.5	Volts
Zero-Signal Plate Current . . . . .	.34	Milliamperes
Maximum-Signal Plate Current . . . . .	.36	Milliamperes
Load Resistance	3500	Ohms
Total Harmonic Distortion, approximate . . . . .	.9	Percent
Maximum-Signal Power Output	1.95	Watts

CHARACTERISTICS AND TYPICAL OPERATION (Continued)

PUSH-PULL CLASS AB₁ AMPLIFIER TRIODE CONNECTION, VALUES FOR TWO TUBES‡

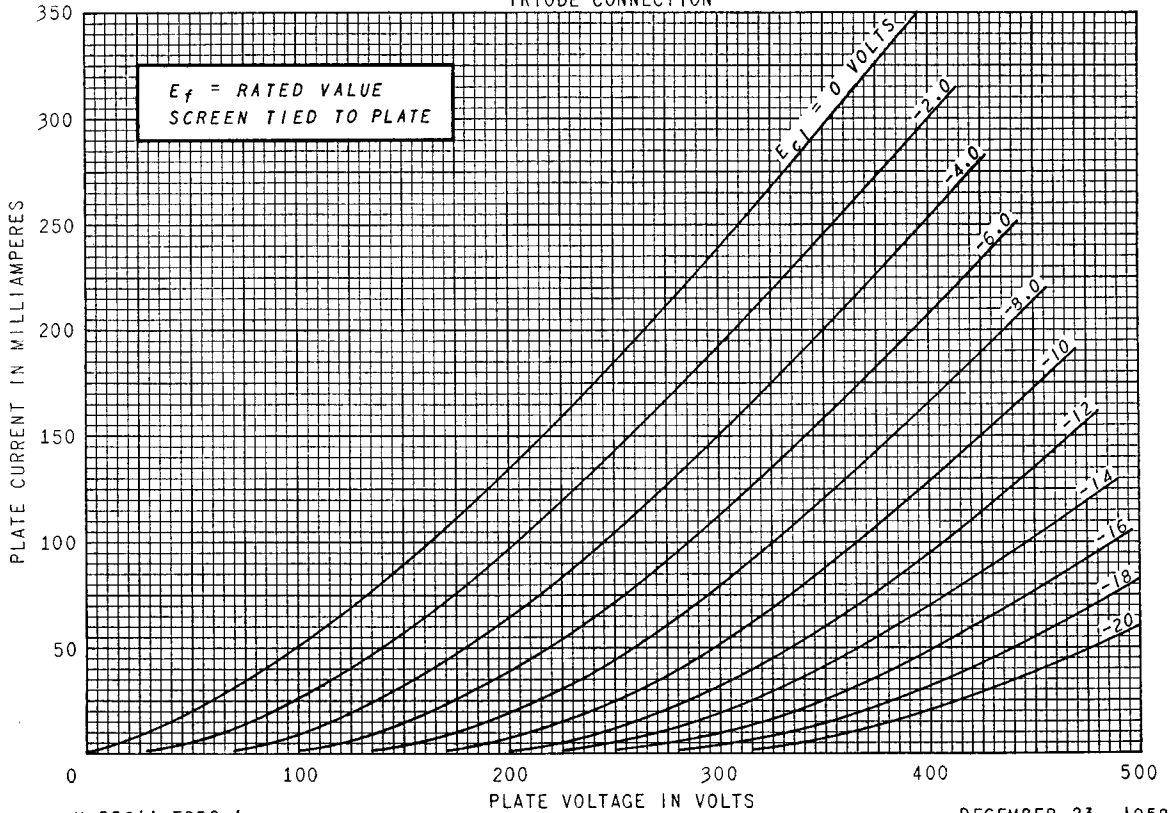
Plate Voltage	250	300	Volts
Cathode-Bias Resistor	270	270	Ohms
Peak AF Grid-to-Grid Voltage	23.4	28.2	Volts
Zero-Signal Plate Current . . . . .	.40	48	Milliamperes
Maximum-Signal Plate Current	43.4	52	Milliamperes
Effective Load Resistance, Plate-to-Plate	10000	10000	Ohms
Total Harmonic Distortion	2.5	2.5	Percent
Maximum-Signal Power Output	3.4	5.2	Watts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

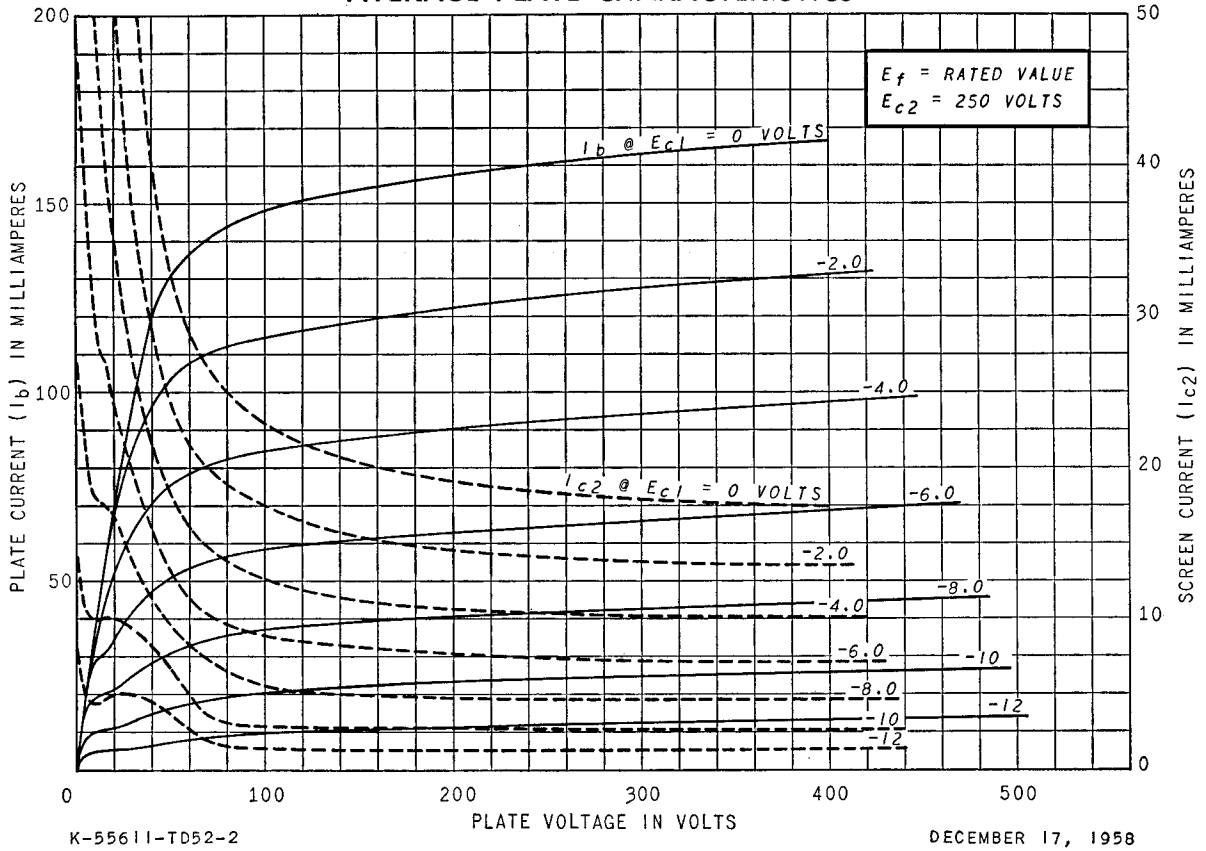
† Without external shield.

‡ With screen tied to plate.

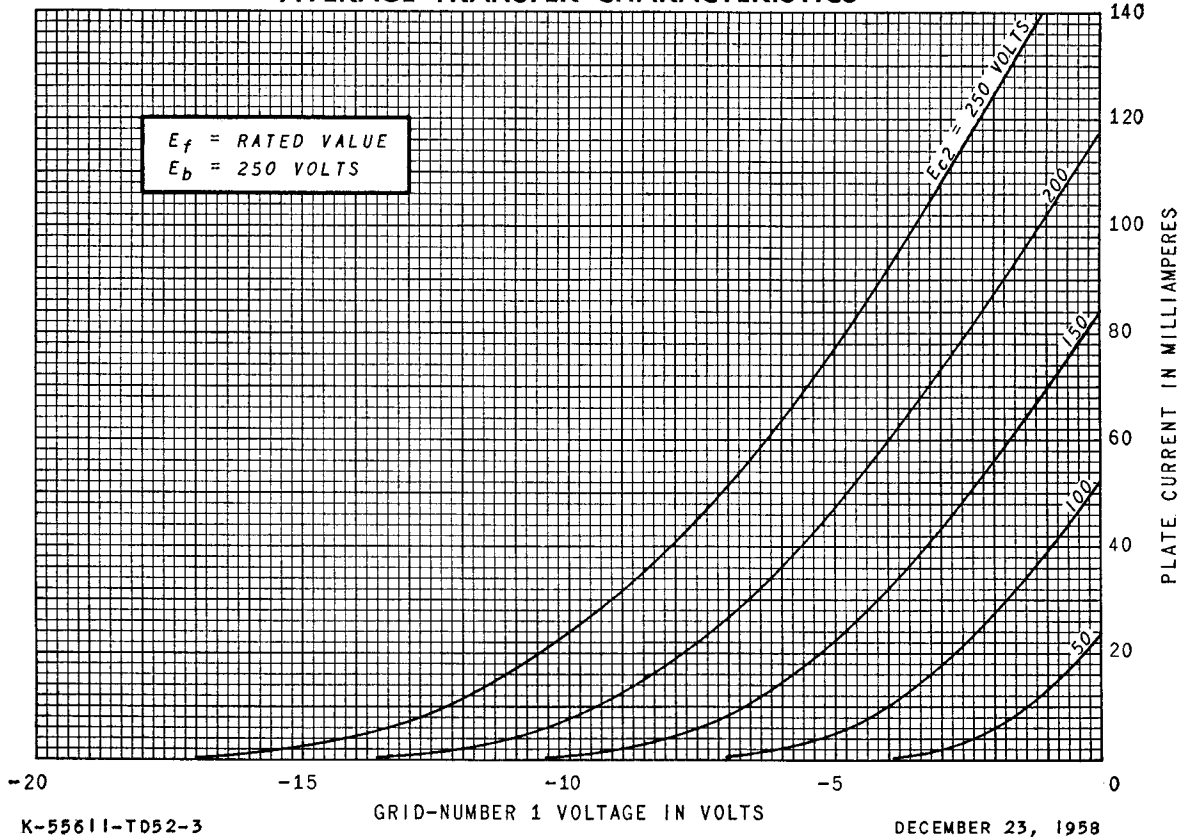
AVERAGE PLATE CHARACTERISTICS
 TRIODE CONNECTION



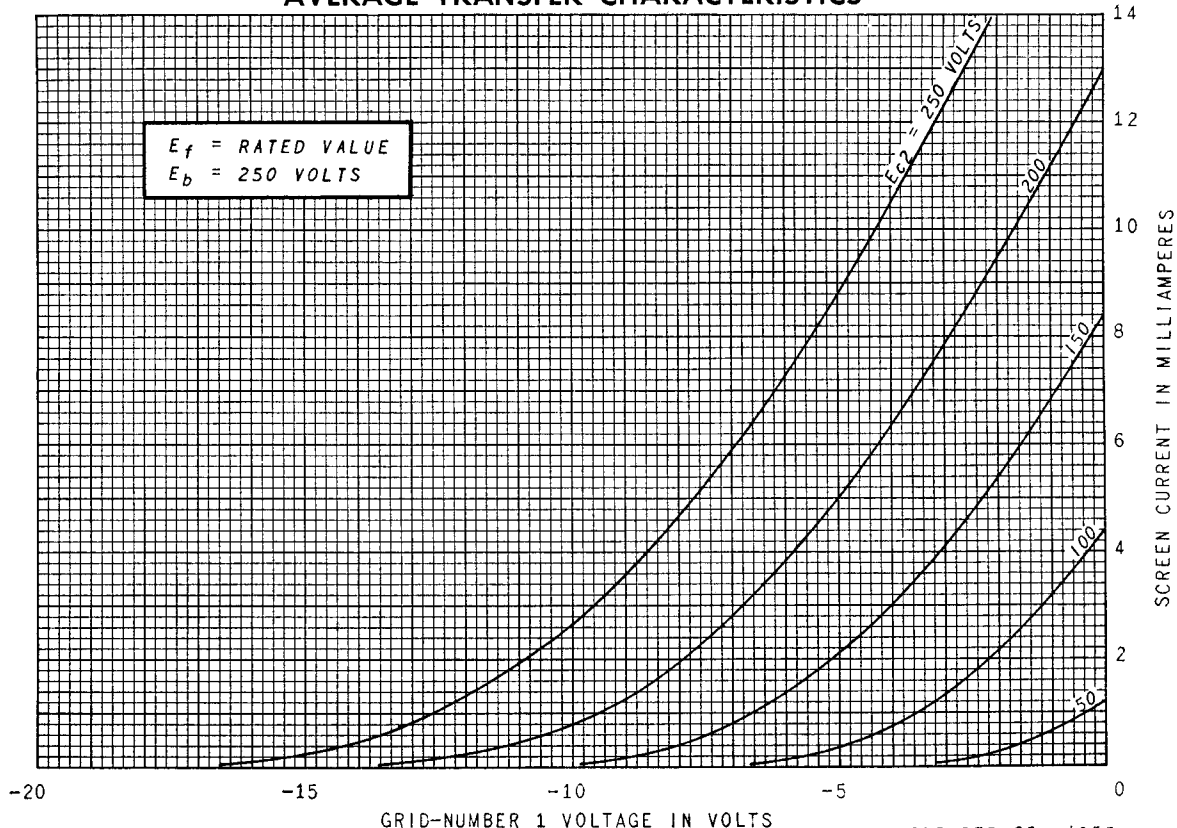
AVERAGE PLATE CHARACTERISTICS



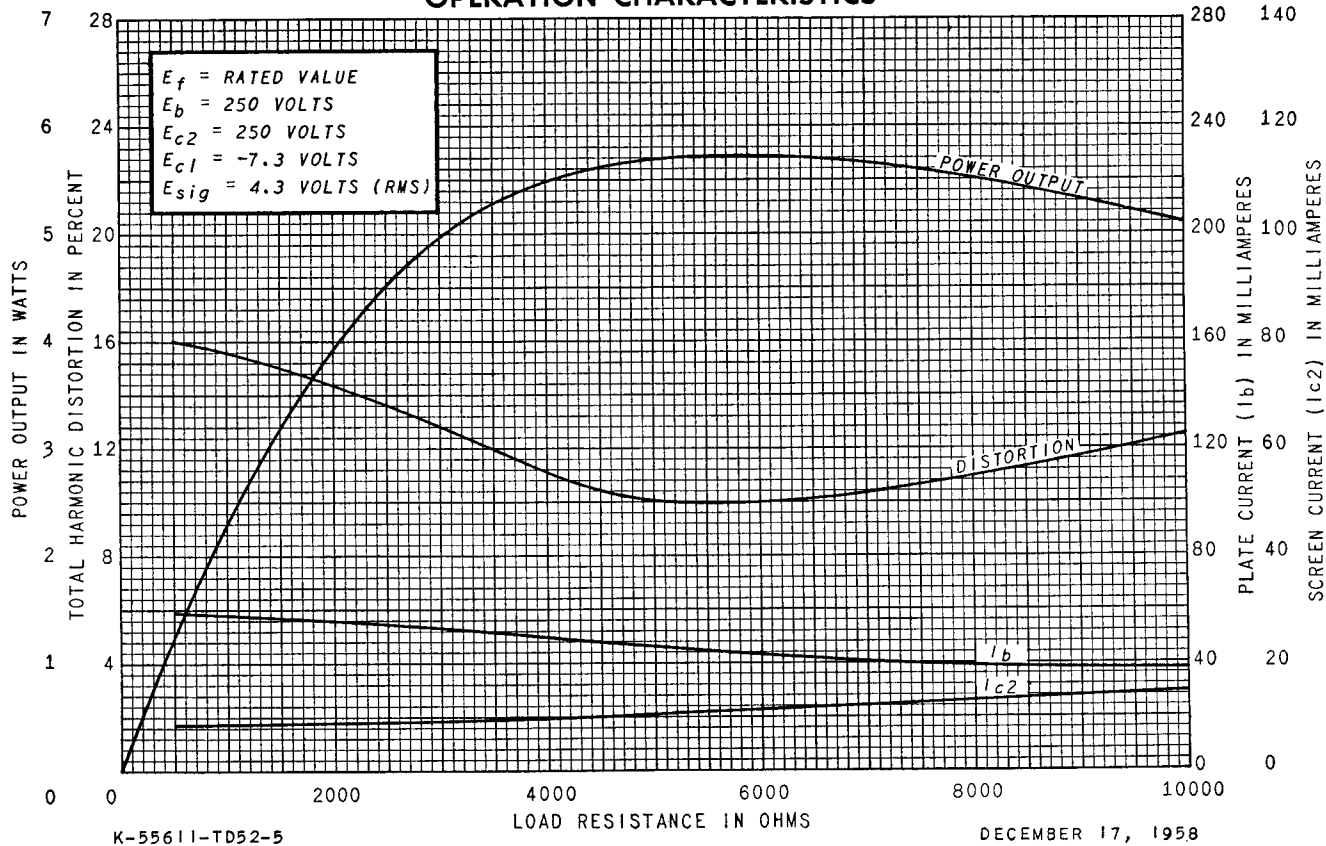
AVERAGE TRANSFER CHARACTERISTICS



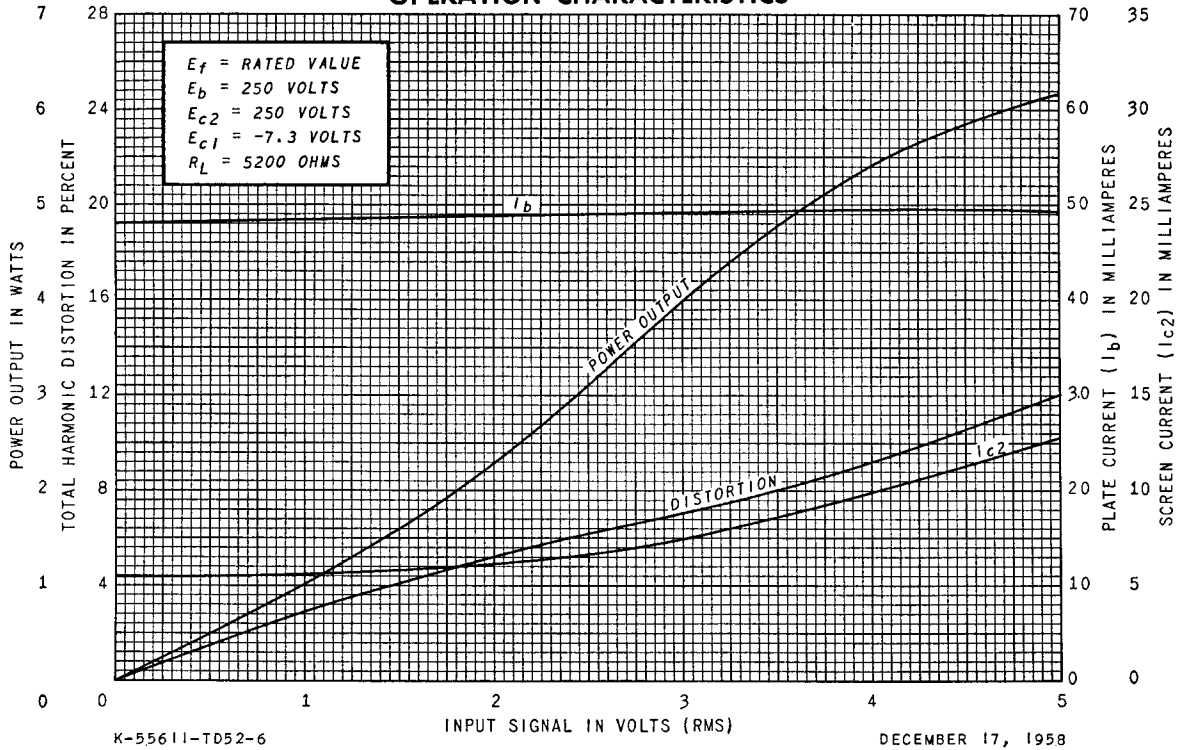
AVERAGE TRANSFER CHARACTERISTICS



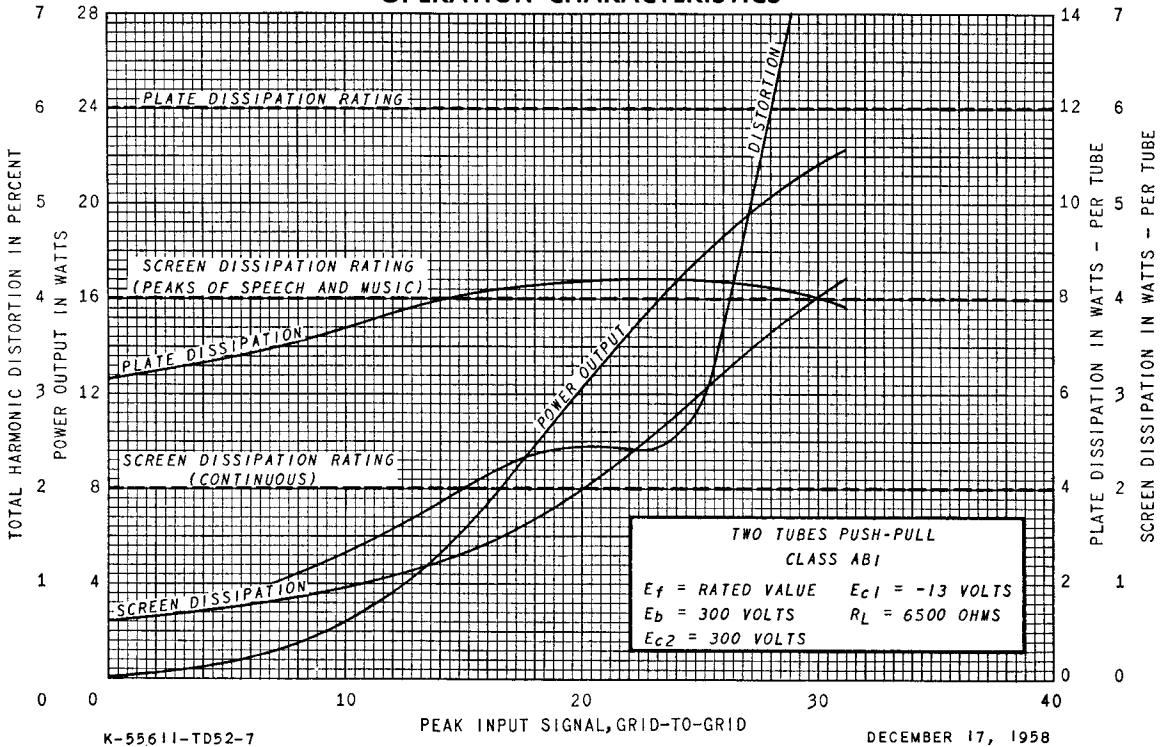
OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS



OPERATION CHARACTERISTICS



ELECTRONIC COMPONENTS DIVISION



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