8005
POWER TRIODE

GENERAL DATA

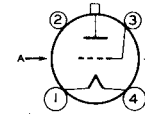
Electrical:

Filament, Thoriated Tungsten:		
Voltage (AC or DC)	10 ± 0.5	volts
Current, with 10 volts on filament	3.25	amp
Amplification Factor	20	
Direct Interelectrode Capacitances:		
Grid to Plate	5	μμf
Grid to Filament	6.4	μμf
Plate to Filament	1	μμf

Mechanical:

Mounting Position	Vertical, Base down; or Horizontal, with pins 2 and 3 in vertical plane
Overall Length	6-7/16" ± 1/4"
Seated Length	5-7/8" ± 1/4"
Diameter	2-7/16"
Bulb	ST-19
Cap	Medium, with Insulating Collar
Base	Medium-Metal-Shell Small 4-Pin, Bayonet
Basing Designation for BOTTOM VIEW	3G

Pin 1 - Filament
Pin 2 - No Connection



AA'=PLANE OF ELECTRODES

Pin 3 - Grid
Pin 4 - Filament
Cap - Plate

AF POWER AMPLIFIER & MODULATOR - Class B

Maximum Ratings, ***Absolute Values:***

	CCS●	*ICAS*●●	
DC PLATE VOLTAGE	1250 max.	1500 max.	volts
MAX.-SIGNAL DC PLATE CURRENT*	200 max.	200 max.	ma
MAX.-SIGNAL PLATE INPUT*	225 max.	250 max.	watts
PLATE DISSIPATION*	75 max.	85 max.	watts

Typical Operation:

Values are for 2 tubes

DC Plate Voltage	1250	1500	volts
DC Grid Voltage#	-55	-67.5	volts ←
Peak AF Grid-to-Grid Voltage	290	330	volts ←
Zero-Signal DC Plate Current	40	40	ma
Max.-Signal DC Plate Current	320	330	ma ←
Effective Load Resistance (plate-to-plate)	8000	9800	ohms
Max.-Signal Driving Power (Approx.)	4	5.5	watts ←
Max.-Signal Power Output (Approx.)	250	330	watts ←

* Averaged over any audio-frequency cycle of sine-wave form.
●, ●●, #: See next page. ← Indicates a change.

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POWER TRIODE

RF POWER AMPLIFIER – Class B Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum Ratings, *Absolute Values*:

	CCS●	*ICAS*●●	
DC PLATE VOLTAGE	1250 max.	1500 max.	volts
DC PLATE CURRENT	100 max.	100 max.	ma
PLATE INPUT	110 max.	125 max.	watts
PLATE DISSIPATION	75 max.	85 max.	watts

Typical Operation:

DC Plate Voltage	1250	1500	volts
DC Grid Voltage#	−65	−80	volts
Peak RF Grid Voltage	85	90	volts
DC Plate Current	85	83	ma
DC Grid Current (Approx.)	2	1	ma
Driving Power (Approx.)▲	5.5	5	watts
Power Output (Approx.)	40	45	watts

▲ At crest of audio-frequency cycle with modulation factor of 1.0.

PLATE-MODULATED RF POWER AMPLIFIER – Class C Telephony

Carrier conditions per tube for use with a max. modulation factor of 1.0

Maximum Ratings, *Absolute Values*:

	CCS●	*ICAS*●●	
DC PLATE VOLTAGE	1000 max.	1250 max.	volts
DC GRID VOLTAGE	−200 max.	−200 max.	volts
DC PLATE CURRENT	160 max.	200 max.	ma
DC GRID CURRENT	45 max.	45 max.	ma
PLATE INPUT	160 max.	240 max.	watts
PLATE DISSIPATION	50 max.	75 max.	watts

Typical Operation:

DC Plate Voltage	1000	1250	volts
DC Grid Voltage⊕	−195	−195	volts
	7000	7000	ohms
Peak RF Grid Voltage	350	350	volts
DC Plate Current	160	190	ma
DC Grid Current (Approx.)	28	28	ma
Driving Power (Approx.)	9	9	watts
Power Output (Approx.)	115	170	watts

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RF POWER AMPLIFIER & OSCILLATOR – Class C Telegraphy

Key-down conditions per tube without modulation□□

Maximum Ratings, *Absolute Values*:

	CCS●	ICAS●●	
DC PLATE VOLTAGE	1250 max.	1500 max.	volts
DC GRID VOLTAGE	-200 max.	-200 max.	volts
DC PLATE CURRENT	200 max.	200 max.	ma
DC GRID CURRENT	45 max.	45 max.	ma
PLATE INPUT	240 max.	300 max.	watts
PLATE DISSIPATION	75 max.	85 max.	watts

Typical Operation:

DC Plate Voltage	1250	1500	volts
DC Grid Voltage▲▲	-115	-130	volts
	3800	4000	ohms
	520	560	ohms
Peak RF Grid Voltage	240	255	volts
DC Plate Current	190	200	ma
DC Grid Current (Approx.)	30	32	ma
Driving Power (Approx.)	6.5	7.5	watts
Power Output (Approx.)	170	220	watts

SELF-RECTIFYING OSCILLATOR or AMPLIFIER – Class C

Maximum Ratings, *Absolute Values*:

	CCS●	
AC PLATE VOLTAGE (RMS)	1750 max.	volts
DC GRID VOLTAGE	-125 max.	volts
DC PLATE CURRENT	125 max.	ma
DC GRID CURRENT	25 max.	ma
PLATE INPUT	240 max.	watts
PLATE DISSIPATION	75 max.	watts

Typical Operation in Push-Pull Circuit at 50 Mc:

Values are for 2 tubes

AC Plate Voltage (RMS)	1750	volts
Grid Resistor✱	2000	ohms
DC Plate Current	250	ma
DC Grid Current (at full load)	35	ma
Power Output (Approx.)	330	watts
Useful Power Output (Approx.)– 75% circuit efficiency	250	watts

●, ●●, ✱, ⊕, □□, ▲▲, ♣: See next page.

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POWER TRIODE

AMPLIFIER or OSCILLATOR - Class C

With Separate, Rectified, Unfiltered, Single-Phase, Full-Wave Plate Supply

Maximum Ratings, ***Absolute Values*****:**

	CCS●	
DC PLATE VOLTAGE	1125 max.	volts
DC GRID VOLTAGE	-125 max.	volts
DC PLATE CURRENT	180 max.	ma
DC GRID CURRENT	40 max.	ma
PLATE INPUT	240 max.	watts
PLATE DISSIPATION	75 max.	watts

Typical Operation in Push-Pull Circuit at 27 Mc:

Values are for 2 tubes

DC Plate Voltage	1100	volts
Grid Resistor●	2000	ohms
DC Plate Current	360	ma
DC Grid Current	40	ma
Power Output (Approx.)	330	watts
Circuit Power Output (Approx.)- 85% circuit efficiency	280	watts

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	*Min.*	*Max.*	
Filament Current	1	3.1	3.4	amp
Amplification Factor	1,2	18	22	
Grid-Plate Capacitance	-	4.3	5.7	μμf
Grid-Filament Capacitance	-	5.3	7.5	μμf
Plate-Filament Capacitance	-	0.75	1.25	μμf
Grid Current	1,3	-	98	ma
Plate Current	1,4	30	70	ma
→ Useful Power Output	1,5	195	-	watts

Note 1: DC filament voltage = 10 volts.

Note 2: With dc grid voltage of -50 volts and plate voltage adjusted to give plate current of 50 ma.

Note 3: With dc plate voltage of 200 volts and dc grid voltage of +100 volts.

Note 4: With dc plate voltage of 1500 volts and dc grid voltage of -55 volts.

Note 5: With dc plate voltage of 1500 volts, plate current of 200 ma., grid current of 32 to 48 ma., grid resistor of 5000 ohms and frequency of 15 Mc.

● Continuous Commercial Service. → Indicates a change.

●● Intermittent Commercial and Amateur Service.

For ac filament supply.

⊕ Obtained by grid resistor of value shown or by partial self-bias methods.

□□ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

▲▲ Obtained from fixed supply, by grid resistor (3800, 4000) or by cathode resistor (520, 560).

● See next page.

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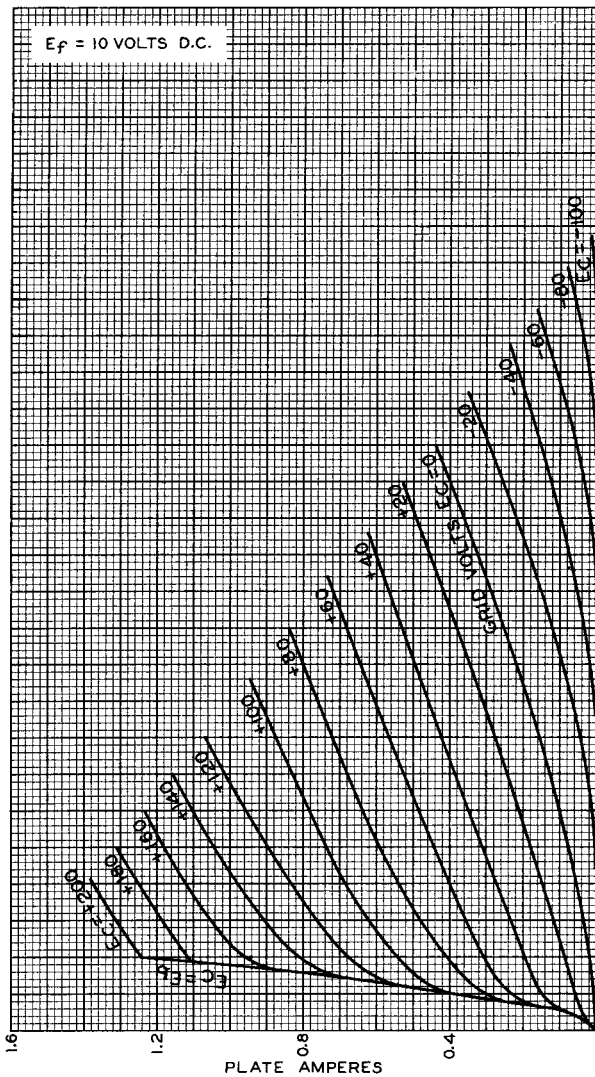
AVERAGE PLATE CHARACTERISTICS



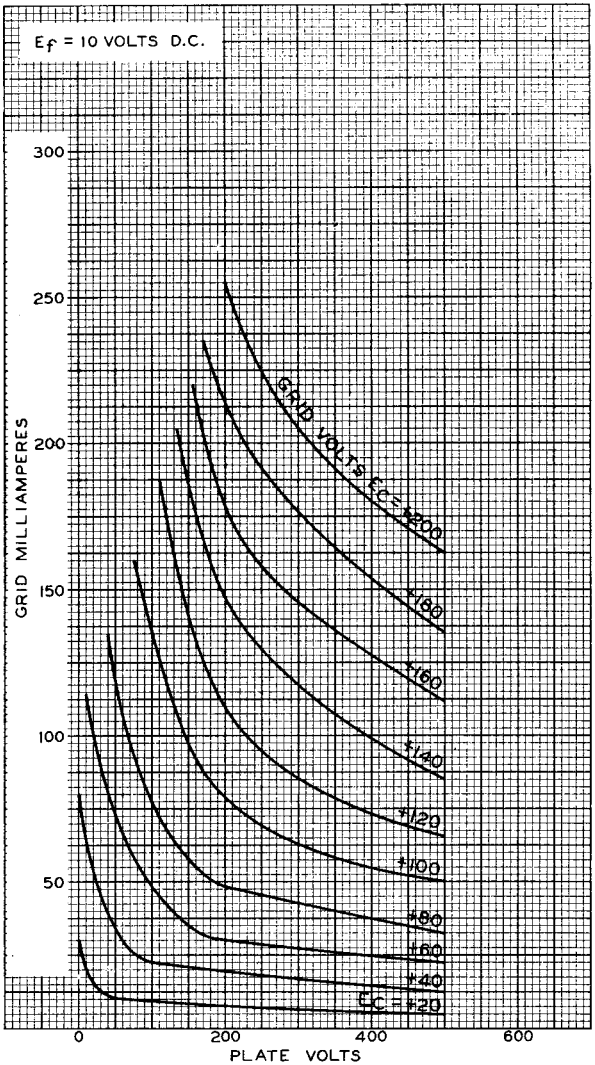
APRIL 30, 1941

RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

92C-6279

8005

TYPICAL CHARACTERISTICS



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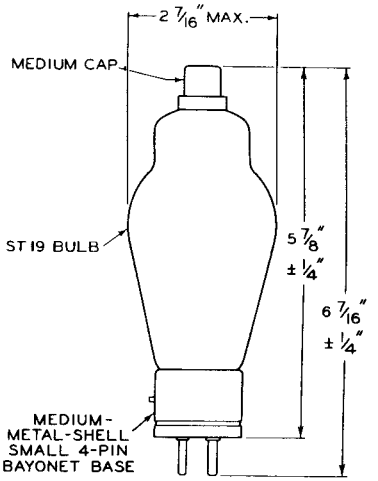
POWER TRIODE

* The 8005 can be biased by any convenient method, but the use of a grid resistor is preferred because the bias is automatically varied as the load on the circuit varies. In those applications where grid current and grid voltage may vary widely because of fluctuating loads, it is important to design equipment so that the maximum grid-current and grid-voltage ratings are never exceeded for any load. An approximate rule is to adjust the grid-current and grid-voltage values at full-load to one-half of the corresponding maximum values. This operating condition permits grid-current and grid-voltage values to rise from zero load to twice their full-load values, and usually provides adequate leeway.

NOTE: When the 8005 is used in the final amplifier or a preceding stage of a transmitter designed for break-in operation and oscillator keying, a small amount of fixed-bias must be used to maintain the plate current at a safe value. With a plate voltage of 1500 volts, a fixed bias of at least -50 volts should be used.

Data on operating frequencies for the 8005 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY.



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