



809

809

# TRANSMITTING TRIODE

## GENERAL DATA

### Electrical:

Filament, Thoriated Tungsten:

Voltage. . . . . 6.3 . . . . . ac or dc volts

Current. . . . . 2.5 . . . . . amp

Amplification Factor . . . . . 50

Direct Interelectrode Capacitances:

Grid to Plate. . . . . 6.7 . . . . .  $\mu\mu\text{f}$

Grid to Filament . . . . . 5.7 . . . . .  $\mu\mu\text{f}$

Plate to Filament. . . . . 0.9 . . . . .  $\mu\mu\text{f}$

### Mechanical:

Mounting Position. . . . Vertical, base down; or Horizontal,  
pins 1 & 4 in vertical plane

Overall Length . . . . . 6-13/32"  $\pm$  5/32"

Seated Length. . . . . 5-25/32"  $\pm$  5/32"

Maximum Diameter . . . . . 2-7/16"

Bulb . . . . . ST-19

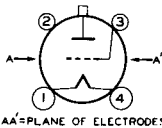
Cap. . . . . Medium

Base . . . . . Medium-Shell Small 4-Pin Micanol, Bayonet

Basing Designation for BOTTOM VIEW . . . . . 3G

Pin 1 - Filament

Pin 2 - No  
Connection



Pin 3 - Grid

Pin 4 - Filament

Cap - Plate

AA'=PLANE OF ELECTRODES

## AF POWER AMPLIFIER & MODULATOR - Class B

### Maximum Ratings, Absolute Values:

	CCS <sup>•</sup>	ICAS <sup>••</sup>	
DC PLATE VOLTAGE . . . . .	750 max.	1000 max.	volts
MAX.-SIGNAL DC PLATE CUR.* . . . .	125 max.	125 max.	ma. ←
MAX.-SIGNAL PLATE INPUT* . . . . .	75 max.	100 max.	watts
PLATE DISSIPATION* . . . . .	25 max.	30 max.	watts

### Typical Operation:

Unless otherwise specified, values are for 2 tubes

DC Plate Voltage . . . . .	750 . .	700 1000	volts
DC Grid Voltage# . . . . .	-4.5 . .	0 -9	volts
Peak AF Grid-to-Grid Voltage	145 . .	160 155	volts
Zero-Signal DC Plate Current	40 . .	70 40	ma.
Max.-Signal DC Plate Current	200 . .	250 200	ma.
Effective Load Resistance (plate-to-plate) . . . . .	8400 . .	6200 11600	ohms

\* , • , •• , # : See next page.

← Indicates a change.



## TRANSMITTING TRIODE

Max.—Signal Driving Power (Approx.) . . .	2.5 . .	3.4	2.7	watts
Max.—Signal Power Output (Approx.) . . .	105 . .	120	145	watts

### 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 <sup>•</sup>	ICAS <sup>••</sup>	
DC PLATE VOLTAGE . . . . .	750 max.	1000 max.	volts
DC PLATE CURRENT . . . . .	50 max.	60 max.	ma.
PLATE INPUT . . . . .	37.5 max.	45 max.	watts
PLATE DISSIPATION . . . . .	25 max.	30 max.	watts

#### Typical Operation:

DC Plate Voltage . . . . .	500	750	1000 . .	volts
DC Grid Voltage <sup>#</sup> . . . . .	-5	-10	-30 . .	volts
Peak RF Grid Voltage . . . . .	35	40	60 . .	volts
DC Plate Current . . . . .	50	50	45 . .	ma.
DC Grid Current (Approx.) <sup>□</sup>	6	5	4 . .	ma.
Driving Power (Approx.) <sup>□▲</sup>	1.4	1.4	1.5 . .	watts
Power Output (Approx.) . . . . .	7.5	12.5	15 . .	watts

### 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 <sup>•</sup>	ICAS <sup>••</sup>	
DC PLATE VOLTAGE . . . . .	600 max.	750 max.	volts
DC GRID VOLTAGE . . . . .	-200 max.	-200 max.	volts
DC PLATE CURRENT . . . . .	83 max.	100 max.	ma.
DC GRID CURRENT . . . . .	35 max.	35 max.	ma.
PLATE INPUT . . . . .	50 max.	75 max.	watts
PLATE DISSIPATION . . . . .	17.5 max.	25 max.	watts

#### Typical Operation:

DC Plate Voltage . . . . .	500	600	750 . .	volts
DC Grid Voltage <sup>#</sup> . . . . .	-60	-60	-60 . .	volts
	2000	2000	2000 . .	ohms
Peak RF Grid Voltage . . . . .	135	135	150 . .	volts
DC Plate Current . . . . .	83	83	100 . .	ma.
DC Grid Current (Approx.) <sup>□</sup>	32	32	32 . .	ma.
Driving Power (Approx.) <sup>□</sup>	3.2	3.2	4.3 . .	watts
Power Output (Approx.) . . . . .	30	38	55 . .	watts

\* Averaged over any audio-frequency cycle of sine-wave form.

<sup>#</sup> For ac filament supply.

<sup>□</sup> Obtained by grid resistor of value shown or by partial self-bias methods.

<sup>•</sup>, <sup>••</sup>, <sup>□</sup>, <sup>▲</sup>: See next page.



809

809

# TRANSMITTING TRIODE

## RF POWER AMPLIFIER & OSCILLATOR - Class C Telegraphy

Key-down conditions per tube without modulation<sup>□□</sup>

### Maximum Ratings, Absolute Values:

	CCS <sup>●</sup>	ICAS <sup>●●</sup>	
DC PLATE VOLTAGE . . . . .	750 max.	1000 max.	volts
DC GRID VOLTAGE . . . . .	-200 max.	-200 max.	volts
DC PLATE CURRENT . . . . .	100 max.	100 max.	ma.
DC GRID CURRENT . . . . .	35 max.	35 max.	ma.
PLATE INPUT . . . . .	75 max.	100 max.	watts
PLATE DISSIPATION . . . . .	25 max.	30 max.	watts

### Typical Operation:

DC Plate Voltage . . . . .	500	750	1000 . .	volts
DC Grid Voltage <sup>▲▲</sup> . . . . .	{ -50    -60 2500   3000 420    500		-75 . .	volts
			3000 . .	ohms
			600 . .	ohms
Peak RF Grid Voltage . . . . .	135	140	160 . .	volts
DC Plate Current . . . . .	100	100	100 . .	ma.
DC Grid Current (Approx.) <sup>□</sup>	20	20	25 . .	ma.
Driving Power (Approx.) <sup>□</sup>	2.5	2.5	3.8 . .	watts
Power Output (Approx.) . . . . .	35	55	75 . .	watts

- Continuous Commercial Service.
- Intermittent Commercial and Amateur Service.
- Subject to wide variations as explained on sheet TUBE RATINGS in General Section.
- ▲ At crest of audio-frequency cycle of sine-wave form.
- 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 (2500, 3000, 3000) or by cathode resistor (420, 500, 600).

NOTE: When the 809 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 1000 volts, a fixed bias of at least -10 volts should be used.

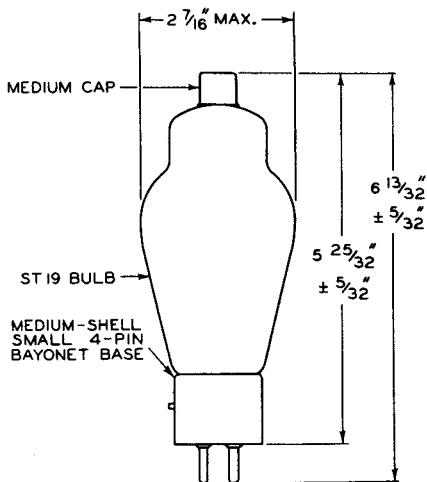
Data on operating frequencies for the 809 are given on the sheet TRANS. TUBE RATINGS vs FREQUENCY

809



809

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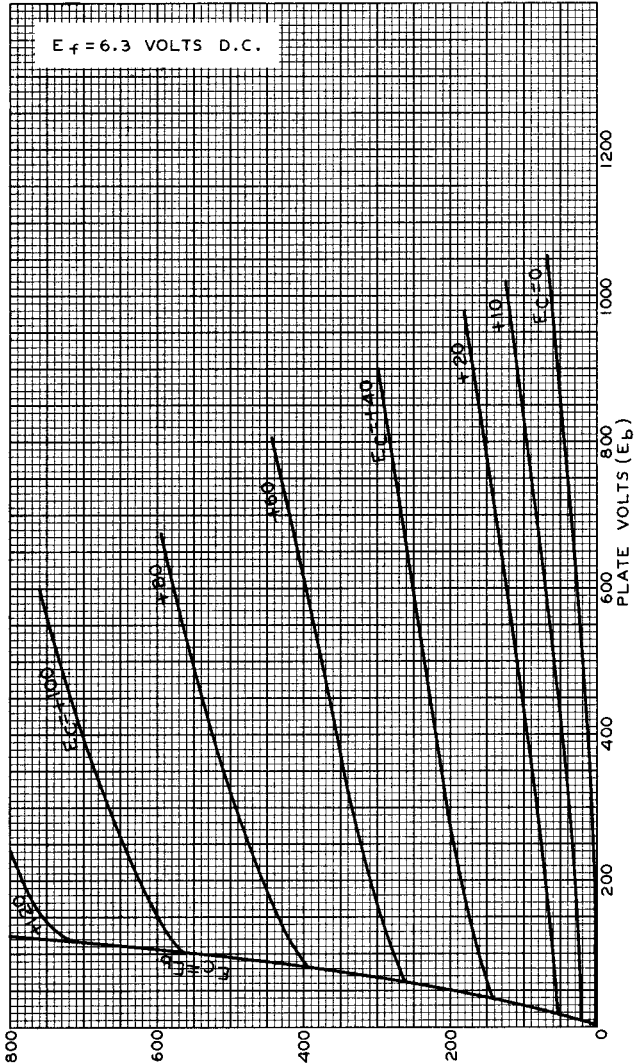
92CM-4835R1



809

809

### AVERAGE PLATE CHARACTERISTICS



OCT. 11. 1937

PLATE MILLIAMPERES  
TUBE DEPARTMENT

92CM - 4836

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

809



809

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