

**TYPE 805****R. F. POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR****ENGINEERING INFORMATION****GENERAL RATINGS**

Number of Electrodes	3
Filament Voltage	10 volts
Current	3.25 amperes
Type	Thoriated Tungsten
Average Characteristic Values Calculated at:	
$E_p = 1250$, $E_c = 0$, $E_f = 10$ D-C	
Plate Current	0.060 amperes
Amplification Factor	100
Plate Resistance	12500 ohms
Mutual Conductance	.8000 micromhos
Average Direct Interelectrode Capacities:	
Grid to Plate	6.5 uuf
Grid to Filament	8.5 uuf
Plate to Filament	10.5 uuf
Maximum Overall Dimensions:	
Length	8 1/2 inches
Diameter	2 5/16 inches
Bulb	T-18
Cap	Medium Metal
Base	Jumbo 4-Large Pin
Type of Cooling	Air
Net Weight	.8 oz.

MAXIMUM RATINGS

Maximum D-C Plate Voltage Modulated	1250	volts
Maximum D-C Plate Voltage Unmodulated	1500	volts
Maximum A-C Voltage R. M. S.	1800	volts
Maximum D-C Plate Current Modulated	175	ma.
Maximum D-C Plate Current Unmodulated	210	ma.
Maximum Plate Dissipation	125	watts
Maximum D-C Grid Current	70	ma.
Maximum R-F Grid Current	7.5	amp.
Frequency Rating for Operating Conditions with Maximum Rated Power Input and Nominal Output:		
Above	10	meters
Below	30	megacycles
*Maximum Frequency Rating with Reduced Power Input and Output:		
Above	*3.5	meters
Below	*85	megacycles

* For operation at the higher frequencies, the plate voltage, and plate input should not exceed 50% of the Maximum Ratings. The R-F grid current should never exceed the maximum rated value.

INSTALLATION

The base of the UNITED 805 is designed for mounting in a standard "50 watt" socket of the four-pin, bayonet type. The tube should always be mounted vertically with ample air space provided for ventilation.

The filament of the 805 should be operated at the rated value of 10 volts. Operation at other than rated value may result in loss of filament emission and short life.

The plate dissipation of the 805 should never exceed the values given under Maximum Ratings and Typical Operation Conditions.

Extra ruggedness of the 805 is accomplished through the use of a plate support at the top in addition to the conventional cathode collar support. An improved insulator is used to give added insulation protection and maintain perfect element alignment.

The Maximum Ratings should not be exceeded for satisfactory operation and full service life.

GRAPHITE ANODE

A graphite anode is used in this type tube because of several specific advantages over metals such as tantalum, molybdenum and nickel. The radiating area of graphite is approximately twice the projected area due to its surface porosity. Moreover, due to the black body principle, it will dissipate four times more heat than metal.

Graphite, being infusible, will not warp or twist. Therefore, it maintains its exact form under all temperatures, the result being constant inter-element relationship. The low operating temperature of the graphite anode tends to keep the grid cool, reduces overload hazards, and prevents gas current. The inherent qualities of graphite over metal as outlined above, are advantages of primary importance in designing tubes of this type for long and satisfactory service life.

All ratings given are for continuous service. Higher ratings are permissible for intermittent operation. Additional data will be furnished upon request.

**Replaces UNITED Type 905**

A zero bias amplifier under certain conditions shown in tables of following page, type 805 has attained great favor in new transmitter design.

Typical UNITED design and processing enhances performance and service life expectancy.

A-F POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum D-C Plate Voltage	1500	volts
Maximum D-C Plate Current	Averaged over 210	ma.
Maximum Plate Input	any audio 315	watts
Maximum Plate Dissipation	freq. cycle 125	watts
Typical Operation (2 tubes):		
Filament Voltage	10 10	a-c volts
D-C Plate Voltage	1250 1500	volts
D-C Grid Voltage	—0 —16	volts
Peak A-F Grid to Grid Voltage	235 280	volts
Zero-Sig. D-C Plate Cur. (per tube)	74 42	ma.
Max-Sig. D-C Plate Cur. (per tube)	200 200	ma.
Load Resistance (per tube)	1675 2050	ohms
Effective Load Res. (plate to plate)	6700 8200	ohms
Max-Signal Driving Power	6 7 approx.	watts
Power Output	300 370 approx.	watts

R-F POWER AMPLIFIER—CLASS B TELEPHONY

(Carrier Conditions—Modulation Factor = 1.0)

Maximum D-C Plate Voltage	1500	volts
Maximum D-C Plate Current	150	ma.
Maximum Plate Input	185	watts
Maximum Plate Dissipation	125	watts
Maximum R-F Grid Current	6	amp.
Typical Operation:		
Filament Voltage	10 10	a-c volts
D-C Plate Voltage	1250 1500	volts
D-C Grid Voltage	0 —10	volts
Peak R-F Grid Voltage	75 70	volts
D-C Plate Current	135 115	ma.
D-C Grid Current†	15 15 approx.	ma.
Driving Power†	11 7.5 approx.	watts
Power Output	55 57.5 approx.	watts

**PLATE MODULATED R-F POWER AMPLIFIER
CLASS C TELEPHONY**

(Carrier Conditions—Modulation Factor = 1.0)

Maximum D-C Plate Voltage	1250	volts
Maximum D-C Plate Current	175	ma.
Maximum Plate Input	220	watts
Maximum Plate Dissipation	85	watts
Maximum D-C Grid Voltage	—500	volts
Maximum D-C Grid Current	70	ma.
Maximum R-F Grid Current	6	amp.
Typical Operation:		
Filament Voltage	10 10	a-c volts
D-C Plate Voltage	1000 1250	volts
D-C Grid Voltage	—155 —160	volts
Peak R-F Grid Voltage	295 300	volts
D-C Plate Current	160 160	ma.
D-C Grid Current†	60 60 approx.	ma.
Driving Power†	16 16 approx.	watts
Power Output	110 140 approx.	watts

**R-F POWER AMPLIFIER AND OSCILLATOR
CLASS C TELEGRAPHY**

(Key Down Conditions)

Maximum D-C Plate Voltage	1500	volts
Maximum D-C Plate Current	210	ma.
Maximum Plate Input	315	watts
Maximum Plate Dissipation	125	watts
Maximum D-C Grid Voltage	—500	volts
Maximum D-C Grid Current	70	ma.
Maximum R-F Grid Current	7.5	amp.
Typical Operation:		
Filament Voltage	10 10 10	a-c volts
D-C Plate Voltage	1000 1250 1500	volts
D-C Grid Voltage	—95 —100 —105	volts
Peak R-F Grid Voltage	225 230 235	volts
D-C Plate Current	200 200 200	ma.
D-C Grid Current	40 40 40 approx.	ma.
Driving Power†	8.5 8.5 8.5 approx.	watts
Power Output†	130 170 215 approx.	watts

† Subject to wide variations depending on the impedance of the load circuit. The driver stage should have a tank circuit of good regulation and should be capable of delivering considerably more than the required driving power.

