



**TYPE 812-H**  
**MODULATOR, A-F AND R-F POWER AMPLIFIER, OSCILLATOR**  
**ENGINEERING INFORMATION**

**GENERAL RATINGS**

Number of Electrodes .....	3
Filament Voltage .....	6.3 volts
Current .....	4 amperes
Type .....	Thoriated Tungsten
Amplification Factor .....	29
Average Direct Interelectrode Capacities:	
Grid to Plate .....	5.3 uuf
Grid to Filament .....	5.3 uuf
Plate to Filament .....	0.8 uuf
Maximum Overall Dimensions:	
Length .....	6 7/16 ± 1/4 inches
Diameter .....	2 1/16 inches
Bulb .....	T-16
Cap .....	Medium Metal
Base .....	Medium 4-Pin
Type of Cooling .....	Air
Net Weight .....	5 1/2 oz.

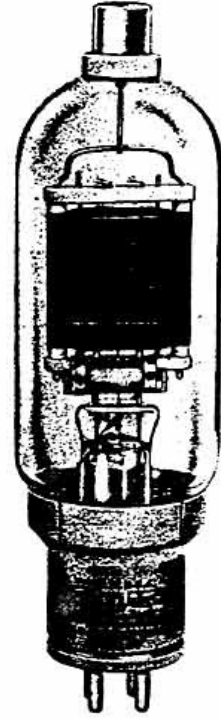
**MAXIMUM RATINGS**

	C.C.S.	I.C.A.S.	
Maximum Plate Input .....	250	300	watts
Maximum D-C Plate Voltage			
Unmodulated .....	1500	1750	volts
Maximum D-C Plate Current			
Unmodulated .....	170	200	ma.
Maximum Plate Dissipation .....	75	85	watts
Maximum D-C Grid Current .....	45	45	ma.
Maximum R-F Grid Current .....	6	6	amp.

Frequency Rating for Operating Conditions with Maximum Rated Power Input and Nominal Output:

Below .....	30 megacycles
Above .....	10 meters
*Maximum Frequency Rating with Reduced Power Input and Output:	
Below .....	*100 megacycles
Above .....	*3 meters

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



**UNITED TYPE 812-H**

This husky high power triode is proving a "natural" for amateurs desiring to go to high power. A pair of 812-H's will handle 500 watts phone input and 600 watts on c.w. The new "isolated getter trap" results in a crystal clear glass envelope and greatly increases input capability and efficiency at high frequencies.

**OPERATION**

The filament of the 812-H should be operated at the rated value of 6.3 volts. Operation at other than rated value may result in loss of filament emission and short life. Except in cases where freedom from hum is essential, the filament of the 812-H should be operated from an a-c source.

The plate dissipation of the 812-H should never exceed the values given under the Maximum Ratings and Typical Operation Conditions.

**ZIRCONIUM IMPREGNATED GRAPHITE ANODE**

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

Graphite, being infusible will not warp or twist. The exact form of graphite is maintained under all temperatures; hence constant inter-element relationships and uniform characteristics result. The inherent advantages of graphite over metal are of primary importance in designing tubes of this type for long and satisfactory service.

**ISOLATED GETTER TRAP**

The development of the isolated getter trap by UNITED ELECTRONICS has revolutionized graphite anode tube design. The resultant elimination of large metallic deposits on the bulb permits full utilization of the enormous heat dissipating qualities of the graphite anode and absolutely prevents any possible gaseous condition even on severe overloads.

**ANODE COLOR PERMISSIBLE**

Differing from old style graphite anode tubes the 812-H anode can safely run a dull red color, thus permitting visual balancing in Class C r-f amplifiers.

Additional data will be furnished upon request.

**A-F POWER AMPLIFIER AND MODULATOR—CLASS B**

	C.C.S.	I.C.A.S.	
Maximum D-C Plate Voltage	1250	1500	volts
Maximum D-C Plate Current*	165	165	ma.
Maximum Plate Dissipation*	75	85	watts

Typical Operation (2 tubes):

	C.C.S.	I.C.A.S.	
Filament Voltage	6.3	6.3 a-c	volts
D-C Plate Voltage	1250	1500	volts
Grid Voltage	-36	-46	volts
Zero.-Sig. Plate Cur.	48	42	ma.
Max.-Sig. Plate Cur.	200	200	ma.
Load Res. (plate to plate)	15000	18000	ohms
Power Output (2 tubes) approx.	175	225	watts

\*Averaged over any Audio-frequency Cycle

**R-F POWER AMPLIFIER—CLASS B TELEPHONY**

(Carrier Conditions—Modulation Factor = 1.0)

	C.C.S.	I.C.A.S.	
Maximum D-C Plate Voltage	1500	1750	volts
Maximum D-C Plate Current	120	120	ma.
Maximum Plate Input	115	130	watts
Maximum Plate Dissipation	75	85	watts
Maximum D-C Grid Current	45	45	ma.
Maximum R-F Grid Current	6	6	amp.

Typical Operation:

	C.C.S.	I.C.A.S.	
Filament Voltage	6.3	6.3 a-c	volts
D-C Plate Voltage	1250	1500	volts
Grid Voltage	-35	-45	volts
D-C Plate Current	48	50	ma.
Peak Power Output	80	100	watts
Nominal Carrier Power Output	20	25	watts

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

(Carrier Conditions—Modulation Factor = 1.0)

	C.C.S.	I.C.A.S.	
Maximum D-C Plate Voltage	1500	1500	volts
Maximum D-C Plate Current	135	170	ma.
Maximum Plate Dissipation	50	75	watts
Maximum Plate Input	200	250	watts
Maximum R-F Grid Current	6	6	amp.
Maximum D-C Grid Current	45	45	ma.

Typical Operation:

	C.C.S.	I.C.A.S.	
Filament Voltage	6.3	6.3 a-c	volts
D-C Plate Voltage	1000	1250	volts
Grid Voltage	-100	-125	volts
From Grid Leak of	4000	5000	ohms
D-C Plate Current	105	125	ma.
D-C Grid Current†	25	25	ma.
Driving Power†	4.5	6	watts
Power Output approx.	82	120	watts

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

	C.C.S.	I.C.A.S.	
Maximum D-C Plate Voltage	1500	1750	volts
Maximum D-C Plate Current	165	200	ma.
Maximum Plate Input	250	300	watts
Maximum Plate Dissipation	75	85	watts
Maximum R-F Grid Current	6	6	amp.
Maximum D-C Grid Current	45	45	ma.

Typical Operation:

	C.C.S.	I.C.A.S.	
Filament Voltage	6.3	6.3 a-c	volts
D-C Plate Voltage	1250	1500	volts
Grid Voltage	-125	-175	volts
From Grid Leak of	5000	7000	ohms
Or from Cathode Resistor	835	1000	ohms
D-C Plate Current	125	150	ma.
D-C Grid Current†	25	25	ma.
Driving Power†	5	6.5	watts
Power Output approx.	116	170	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.

