



**TYPE UE-100**  
**MODULATOR, A-F AND R-F AMPLIFIER, OSCILLATOR**  
**ENGINEERING INFORMATION**

**GENERAL RATINGS**

Number of Electrodes.....	3
Filament Voltage.....	10 volts
Current.....	2.5 amperes
Type.....	Thoriated Tungsten
Amplification Factor.....	23
Mutual Conductance.....	4200 micromhos
Average Direct Interelectrode Capacities:	
Grid to Plate.....	4.5 uuf
Grid to Filament.....	3.5 uuf
Plate to Filament.....	1.4 uuf
Maximum Overall Dimensions:	
Length .....	7 5/8 inches
Diameter .....	2 1/16 inches
Bulb.....	T-16
Base .....	Wafer or 4 Pin UX
Type of Cooling.....	Air
Net Weight.....	4 oz.

**MAXIMUM RATINGS**

Maximum D-C Plate Voltage Modulated.....	1500	volts
Maximum D-C Plate Voltage Unmodulated.....	1750	volts
Maximum D-C Plate Current Modulated.....	120	ma.
Maximum D-C Plate Current Unmodulated.....	150	ma.
Maximum Plate Dissipation.....	75	watts
Maximum D-C Grid Current.....	30	ma.
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, plate current, plate dissipation, and d-c grid current 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 UE-100 is designed for mounting in a standard 4 Prong UX socket of the bayonet type or standard 4 Prong wafer. The tube should always be mounted vertically with ample air space provided for ventilation.

The filament of the UE-100 should be operated at the rated value of 10 volts. Operation at other than the rated value may result in loss of filament emission and short life.

While the ratings printed herein are conservative, it is important to observe the requirements of good engineering practice as to transmitter design and operation. Adequate cabinet ventilation should be provided to carry off the heat dissipated during operation. Tube sockets should be inspected to avoid high resistance contacts to the base-pin terminals.

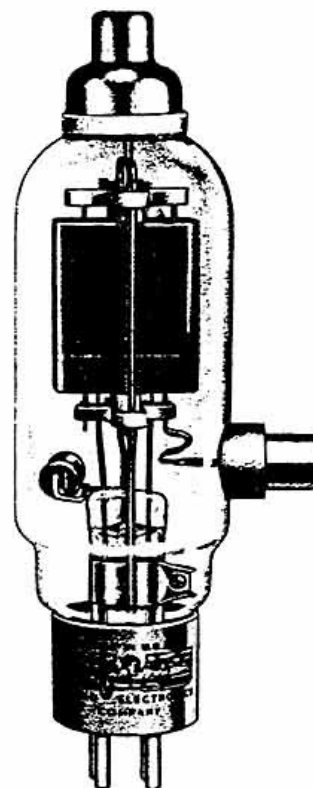
**GRAPHITE ANODE AND ISOLATED GETTER TRAP**

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.

Type UE-100 employs the new UNITED isolated getter trap which keeps tube free from gas and preserves filament emission.

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



**UNITED TYPE UE-100**

Type UE-100 is widely used in diathermy equipment as well as in many radio transmitter applications. It interchanges with type HF-100, R-100, TF-100, C-101, P-150 and 4C22.

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

Maximum D-C Plate Voltage.....	1750	volts
Maximum Sig. Plate Current.....	150	ma.
Maximum Sig. Plate Input.....	240	watts
Maximum Plate Dissipation.....	75	watts
Typical Operation (2 tubes):		
Filament Voltage.....	10	10 a-c volts
D-C Plate Voltage.....	1500	1750 volts
D-C Grid Voltage.....	-52	-62 volts
Zero-Sig. Plate Cur. (per tube).....	30	40 ma.
Max.-Sig. Plate Cur. (per tube).....	270	270 ma.
Load Res. (plate to plate).....	12000	16000 ohms.
Max. Sig. Driving Power.....	2	9 watts
Power Output.....	260	350 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.....	100	ma.
Maximum Plate Input.....	115	watts
Maximum Plate Input.....	115	watts
Typical Operation:		
Filament Voltage.....	10	a-c volts
D-C Plate Voltage.....	1500	volts
D-C Grid Voltage.....	-55	volts
D-C Plate Current.....	75	ma.
Grid Driving Power at Modulation Peak.....	3	watts
Power Output, approx.....	42	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.....	120	ma.
Maximum Plate Input.....	140	watts
Maximum Plate Dissipation.....	50	watts
Maximum D-C Grid Voltage.....	-300	volts
Maximum D-C Grid Current.....	30	ma.
Typical Operation:		
Filament Voltage.....	10	10 a-c volts
D-C Plate Voltage.....	1000	1250 volts
D-C Grid Voltage.....	-200	-250 volts
Fixed Bias, approx.....	-30	-40 volts
From Grid Resistor of, approx.....	8500	10000 ohms
Peak R-F Grid Voltage.....	330	380 volts
D-C Plate Current.....	120	120 ma.
D-C Grid Current.....	20	21 ma.
Driving Power.....	6.5	8 watts
Power Output, approx.....	90	105 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.....	150	ma.
Maximum Plate Input.....	225	watts
Maximum Plate Dissipation.....	75	watts
Maximum D-C Grid Voltage.....	-300	volts
Maximum D-C Grid Current.....	30	ma.
Typical Operation:		
Filament Voltage.....	10	10 a-c volts
D-C Plate Voltage.....	1000	1250 1500 volts
D-C Grid Voltage.....	-120	-200 -300 volts
Peak R-F Grid Voltage.....	250	330 340 volts
D-C Plate Current.....	150	130 150 ma.
D-C Grid Current.....	28	18 18 ma.
Plate Dissipation.....	44	42 55 watts
Driving Power.....	5	6 6 watts
Power Output, approx.....	106	120 170 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.

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

(Carrier Conditions—Modulation Factor = 1.0)

Maximum D-C Plate Voltage.....	1500	volts
Maximum D-C Plate Current.....	100	ma.
Maximum Plate Input.....	110	watts
Maximum Plate Dissipation.....	75	watts
Maximum D-C Grid Voltage.....	-300	volts
Typical Operation:		
Filament Voltage.....	10	a-c volts
D-C Plate Voltage.....	1500	volts
D-C Plate Current.....	72	ma.
D-C Grid Voltage.....	-280	volts
Peak R-F Grid Voltage.....	340	volts
D-C Grid Current, approx.....	1.5	ma.
Grid Driving Power at Modu. Peak, approx.....	6	watts
Plate Dissipation.....	66	watts
Power Output, approx.....	42	watts

