UNITED ELECTRONICS

TYPE HV-27

R-F POWER AMPLIFIER, OSCILLATOR, CLASS B MODULATOR

ENGINEERING INFORMATION

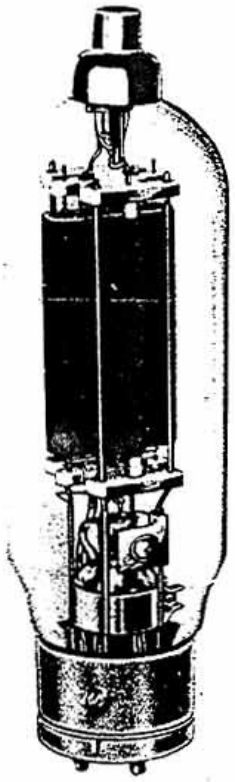
GENERAL RATINGS

Number of Electrodes	3
Filament Voltage	10 volts
Current	4.0 amperes
Type	Thoriated Tungsten
Average Characteristic Values Calculated at:	
150 ma.	Plate Current
Amplification Factor	26
Plate Resistance	4000 ohms
Mutual Conductance	6500 micromhos
Average Direct Interelectrode Capacities:	
Grid to Plate	14.5 uuf
Grid to Filament	7.5 uuf
Plate to Filament	2.9 uuf
Maximum Overall Dimensions:	
Length	9 1/2 inches
Diameter	2 5/8 inches
Bulb	T-21
Cap	Medium Skirted
Base	Jumbo 4-Large Pin
Type of Cooling	Air
Net Weight	9 oz.

MAXIMUM RATINGS

Maximum D-C Plate Voltage Modulated	2000	volts
Maximum D-C Plate Voltage Unmodulated	2500	volts
Maximum D-C Plate Current Modulated	175	ma.
Maximum D-C Plate Current Unmodulated	210	ma.
Maximum Plate Dissipation	200	watts
Maximum D-C Grid Current	60	ma.
Maximum R-F Grid Current	7.5	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	*85	megacycles
Above	3.5	meters

* 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.



INTERCHANGES WITH TYPE 822

High frequency triode for heavy duty industrial and communications uses.

INSTALLATION

The base of the UNITED HV-27 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 HV-27 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 filament of the HV-27 should be operated preferably from an a-c source.

A heavy ribbon grid lead, which is brought out through the side wall of the cathode stem, is used to reduce r-f losses at the high frequencies.

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.

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

United

A-F POWER AMPLIFIER AND MODULATOR—CLASS B

Maximum D-C Plate Voltage		2000	volts
Maximum D-C Plate Current	Average over	210	ma.
Maximum Plate Input	any audio	315	watts
Maximum Plate Dissipation	freq. cycle	200	watts
Typical Operation (2 tubes):			
A-C Filament Voltage	10	10	volts
D-C Plate Voltage	1750	2000	volts
D-C Grid Voltage	—50	—60	volts
Peak A-F Grid to Grid Voltage	405	430	volts
Zero-Signal D-C Plate Current (per tbue)	60	60	ma.
Max.-Signal D-C Plate Current (per tube)	360	325	ma.
Load Resistance (per tube)	2500	3100	ohms
Effective Load Resistance plate to plate)	10000	12400	ohms
Maximum-Signal Driving Power—approx.	10	9	watts
Power Output —approx.	400	400	watts

R-F POWER AMPLIFIER AND OSCILLATOR
CLASS C TELEGRAPHY
(Key Down Conditions)

Maximum D-C Plate Voltage		2500	volts
Maximum D-C Plate Current		210	ma.
Maximum Plate Input		400	watts
Maximum Plate Dissipation		200	watts
Maximum D-C Grid Voltage		—400	volts
Maximum D-C Grid Current		60	ma.
Maximum R-F Grid Current		7.5	amp.
Typical Operation:			
A-C Filament Voltage	10	10	volts
D-C Plate Voltage	1750	2000	volts
D-C Grid Voltage	—200	—300	volts
Peak R-F Grid Voltage	400	425	volts
D-C Plate Current	200	200	ma.
D-C Grid Current —approx.	15	12	ma.
Driving Power† —approx.	10	9	watts
Power Output† —approx.	260	300	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.