



TRANSMITTING TUBE DATA



U-H-F TRANSMITTING TRIODE

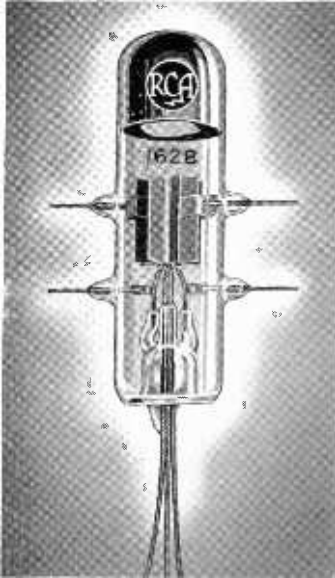
FULL POWER TO 500 Mc!

50 WATTS INPUT

List Price **\$32.00**

1628

- TANTALUM ANODE; TANTALUM GRID
Operates Gas-Free at Extremely High Temperatures
- 500 Mc AT MAXIMUM RATINGS
675 Mc at Reduced Ratings
- DOUBLE-HELICAL, CENTER-TAPPED FILAMENT
Minimizes Effect of Filament-Lead Inductance
- DOUBLE GRID AND PLATE LEADS
Make Neutralization at UHF Easy



RCA-1628 is designed specifically for use as an oscillator, r-f power amplifier, and frequency multiplier at the ultra high frequencies. *It will take its full rated input of 50 watts at frequencies up to 500 Mc—it will take 83% of its full ratings to 675 Mc!*

Outstanding engineering features make the 1628 unexcelled in its class. It is designed with a tantalum anode and grid to insure gas-free operation at extremely high tube temperatures. Grid and plate are closely spaced to increase plate efficiency at the higher frequencies by decreasing electron transit time between filament and plate. Moreover, the tube contains a thoriated-tungsten, double-helical filament having a center-tap lead that is brought out of the bulb through a separate seal. By connecting the three filament leads in parallel through r-f by-pass condensers, RCA-1628 *now* makes it practical to minimize the effect of filament lead inductance at ultra-high frequencies. Double grid and plate leads, also brought out through separate seals, simplify neutralization in r-f amplifier service at the ultra highs by eliminating common impedance between tank and neutralizing circuits *within* the tube.

In properly designed circuits, RCA-1628 performs as smoothly at a few meters as it does at several hundred.

RATINGS

FILAMENT VOLTAGE (A.C. or D.C.)	3.5	Volts
FILAMENT CURRENT	3.25	Amperes
AMPLIFICATION FACTOR	23	
DIRECT INTERELECTRODE CAPACITANCES:		
Grid-Plate	2	μmf
Grid-Filament	2	μmf
Plate-Filament	0.4	μmf
MAXIMUM HEIGHT	4 1/4"	
MAXIMUM DIAMETER	1 1/8"	

MAX. CCS RATINGS and TYPICAL OPERATING CONDITIONS As R-F Power Amplifier—Class C

	Plate Modulation	C.W. or Oscillator
D-C PLATE VOLTAGE	800 max.	1000 max. Volts
D-C GRID VOLTAGE	-200 max.	-200 max. Volts
D-C PLATE CURRENT	50 max.	60 max. Ma.
D-C GRID CURRENT	15 max.	15 max. Ma.

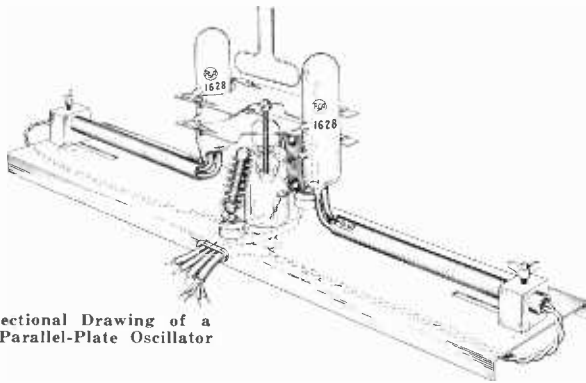
PLATE INPUT	33 max.	50 max. Watts
PLATE DISSIPATION	27 max.	40 max. Watts
TYPICAL OPERATION:		
D-C Plate Voltage	800	1000 Volts
D-C Grid Voltage:		
<i>from a fixed supply of</i>	-100	-65 Volts
<i>or from a grid resistor of</i>	9000	4400 Ohms
<i>or from a cathode resistor of</i>	—	1000 Ohms
Peak R-F Grid Voltage	160	123 Volts
D-C Plate Current	40	50 Ma.
D-C Grid Current (Approx.)	11	15 Ma.
Driving Power (Approx.)	1.6	1.7 Watts
Power Output (Approx.)	22	35 Watts

Max. Permissible Percentage of Max. Rated Voltage and Plate Input for High-Frequency Operation

CLASS C {	FREQUENCY	500	675	Mc
		Telegraphy Plate-Modulation	100	83

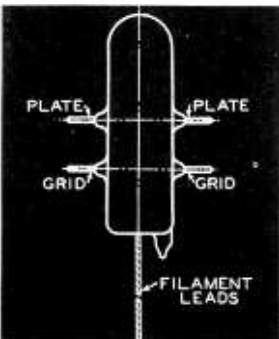
In operation of the 1628 at the higher frequencies, it is recommended that the grid- and plate-return circuits of the tube be by-passed for r-f to the center lead of the filament. The returns should be made to this common connection in order to avoid r-f interaction through common return circuits. In some applications it may also be advisable to connect r-f chokes in these returns to form a filter network. All three filament leads should be connected in parallel through r-f by-pass condensers. The center lead of this parallel connection should be by-passed to the center-tap of the filament transformer or to ground. It should not be returned to these points directly.

A cutaway drawing and circuit for a 650-Mc oscillator employing two RCA-1628's in push-pull are shown on this page. This oscillator makes use of two parallel plates, L_3 and L_4 , as main frequency-determining elements. Filaments of the tubes are maintained close to ground potential for r-f by means of the tuned filament lines, L_1 and L_6 . The sliding shorting bars, S_1 and S_2 , can be used to control excitation to the grids of the tubes. The slots in L_3 and L_4 are primarily for mechanical alignment of the tubes, although they can also be used to make minor tuning adjustments. The parallel plates, L_3 and L_4 , are supported at their geometric centers, and d-c plate and grid connections are made to the plates at these points. This structural arrangement permits unusual symmetry of construction.



Sectional Drawing of a 650-Mc Parallel-Plate Oscillator

- $C_1 = 0.001 \mu\text{f}$ mica
 - $L_1, L_6 =$ Filament Lines; each $\frac{5}{8}$ " cop- per tubing, $6\frac{1}{2}$ " long, approx.
 - $L_2 =$ Pickup Loop; 1" high, 2" long, approx.
 - $L_3 =$ Plate Line; $\frac{3}{8}$ -inch sheet copper, 4" by $2\frac{1}{8}$ ", with cut-outs to fit tube bulbs
 - $L_4 =$ Grid Line; similar to L_3 and spaced approx. $\frac{3}{4}$ " from it
 - $L_5 = 8$ turns of No. 12 copper wire $\frac{5}{8}$ " diameter wound around R_1
 - $R_1 = 200$ ohms, 2 watts
 - $R_2 = 2200$ ohms, 2 watts
 - $S_1, S_2 =$ Shorting blocks
- Typical Operating Conditions of Oscillator (values are given for both tubes):
- Filament Voltage=3.5 volts
 - Filament Current=6.5 amperes
 - Plate Voltage=800 v. max. (for 650 Mc.)
 - Plate Current=120 ma. max.
 - Grid Current=22 ma. (approx.)



650-Mc PARALLEL PLATE OSCILLATOR Useful Power Output, 10 to 15 Watts (Approx.)

