

## PRELIMINARY TECHNICAL INFORMATION

These ratings represent those of current samples of this type. Refer to the Objective Technical Information sheet for design-objective ratings.

DEVELOPMENTAL

TYPE

ZP-1044

PTI-149

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*This technical information is proprietary and is furnished only as a service to customers.*

ZP-1044

TETRODE

Internal Feedback for CW Oscillator Service  
Grounded-Grid Operation

Forced-Air Cooled  
Metal and Ceramic

The ZP-1044 is a forced-air cooled power tetrode especially designed for CW oscillator service through approximately 1250 megacycles. This tube is particularly well suited for use in special applications such as a high level RF power source operating over the range of 200 to 1000 megacycles.

The tube features internal feedback which eliminates the need for the complicated external circuit arrangements normally required in oscillator service. This special feature greatly simplifies cavity design, construction, and operation, particularly where very broad frequency coverage is required.

Other features include metal and ceramic construction, an integral radiator capable of dissipating 1500 watts and an indirectly heated thoriated tungsten cathode.

| ELECTRICAL                                          | Minimum | Bogey | Maximum |         |
|-----------------------------------------------------|---------|-------|---------|---------|
| Heater Voltage* .....                               | -       | 5.7   | 6.0     | Volts   |
| Heater Current at 5.7 Volts .....                   | 22      | 24    | 26      | Amperes |
| Heater Starting Current .....                       | -       | -     | 36      | Amperes |
| Heater Cold Resistance .....                        | -       | 0.02  | -       | Ohms    |
| Cathode Heating Time .....                          | 1       | -     | -       | Minutes |
| Direct Interelectrode Capacitances                  |         |       |         |         |
| Input, G <sub>2</sub> tied to G <sub>1</sub> .....  | -       | 17.0  | -       | μuf     |
| Output, G <sub>2</sub> tied to G <sub>1</sub> ..... | -       | 5.5   | -       | μuf     |

### MECHANICAL

Mounting Position - Vertical

Net Weight, approximate ..... 3.6 Pounds

### THERMAL

Air Flow †

Through Radiator, at Sea Level

|                                                        |        |                       |
|--------------------------------------------------------|--------|-----------------------|
| Plate Dissipation .....                                | 1.5    | Kilowatts             |
| Air Flow, 45 C Incoming Air Temperature, Minimum ..... | 60 Min | Cubic Feet per Minute |
| Static Pressure .....                                  | 1.5    | Inches-Water          |
| Heater-to-Cathode Seals .....                          | 8 Min  | Cubic Feet per Minute |

The specifications of this type are subject to change. Delivery of samples and the existence of these data do not imply continued availability of types with the same characteristics or dimensions. For the most recent information concerning the status of this device, please consult your local Power Tube Department Regional Sales Office.

THERMAL (CONTD.)

|                                                           |         |                          |
|-----------------------------------------------------------|---------|--------------------------|
| Screen-Grid to Control-Grid Seals .....                   | 4 Min   | Cubic Feet<br>per Minute |
| Anode to Screen-Grid Ceramic Insulator .....              | 6 Min   | Cubic Feet<br>per Minute |
| Radiator Hub Temperature at Fin Adjacent to Anode Seal .. | 180 Max | C                        |
| Ceramic Temperature at Any Point .....                    | 200 Max | C                        |

CW RADIO-FREQUENCY OSCILLATOR - CLASS C

Maximum Ratings, Absolute Values

|                             |          |           |
|-----------------------------|----------|-----------|
| DC Plate Voltage .....      | 4000 Max | Volts     |
| DC Grid-No. 2 Voltage ..... | 600 Max  | Volts     |
| DC Grid-No. 1 Voltage ..... | -150 Max | Volts     |
| DC Plate Current .....      | 0.7 Max  | Amperes   |
| DC Grid-No. 1 Current ..... | 0.10 Max | Amperes   |
| Plate Input .....           | 2.5 Max  | Kilowatts |
| Grid-No. 2 Input .....      | 25 Max   | Watts     |
| Plate Dissipation .....     | 1.5 Max  | Kilowatts |

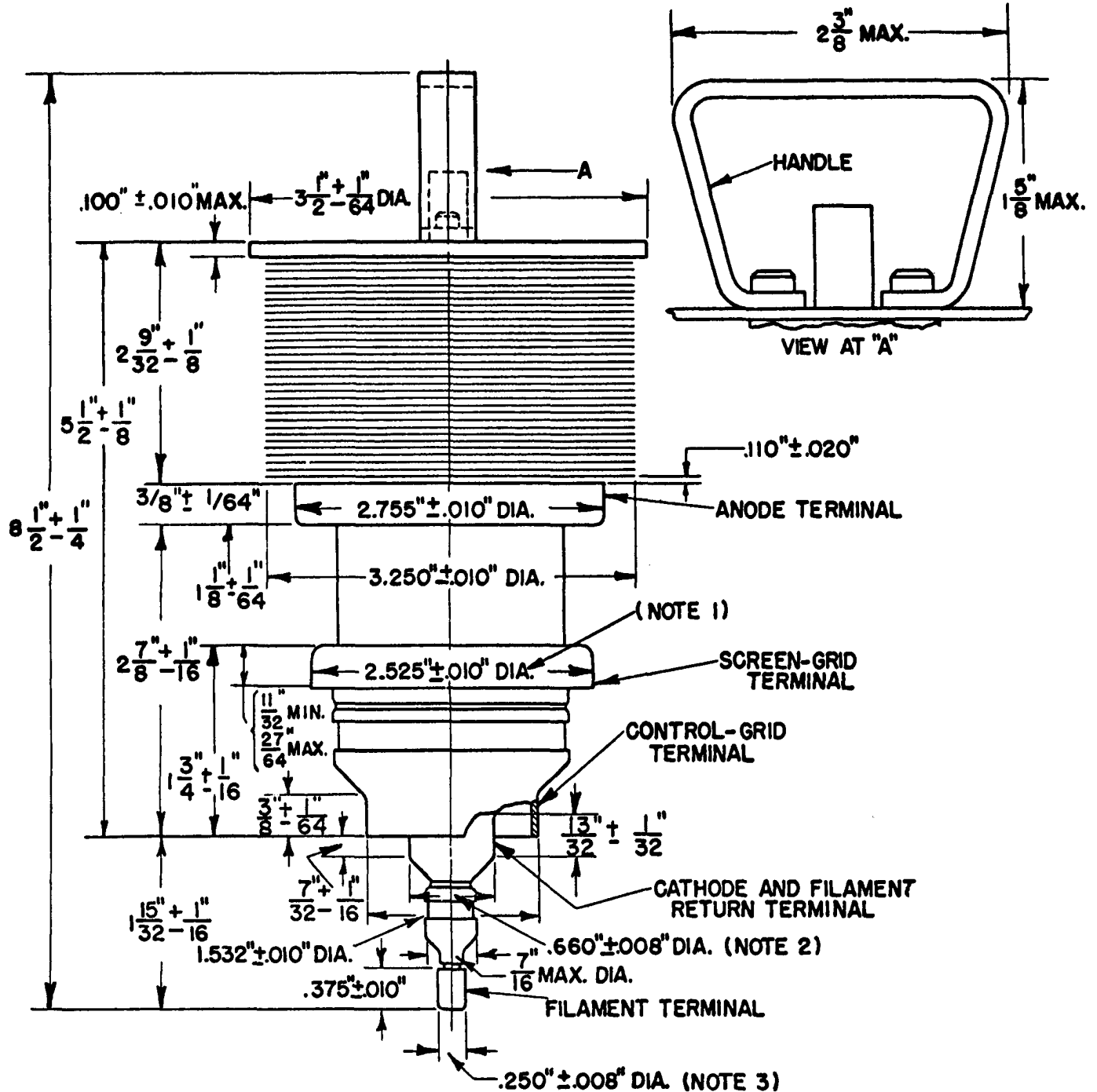
Typical Operation - Grounded-Grid Circuit up to 1000 Megacycles

|                                          |       |         |
|------------------------------------------|-------|---------|
| DC Plate Voltage .....                   | 3800  | Volts   |
| DC Grid-No. 2 Voltage .....              | 500   | Volts   |
| DC Grid-No. 1 Voltage .....              | -120  | Volts   |
| DC Plate Current .....                   | 0.500 | Amperes |
| DC Grid-No. 2 Current .....              | 0.022 | Amperes |
| DC Grid-No. 1 Current, approximate ..... | 0.075 | Amperes |
| Power Output, approximate (useful) ..... | 1100  | Watts   |

\* Because the temperature of the cathode is increased by back bombardment of electrons at UHF, required heater voltage for optimum life decreases with increasing frequency. The amount of heater voltage reduction is dependent on operating conditions.

§ Output capacitance measured between anode and screen grid. Control grid connected directly to screen grid.

¶ The volume of cooling air indicated for the various seals is approximate only. Distribution of cooling air will vary with the cavity configuration about the tube. For most satisfactory operation the maximum temperature of any point on the tube should be below 200 C. Cooling is to be provided before and during the application of any voltages.



## TOTAL INDICATOR READINGS

NOTE 1.  $0.020"$ NOTE 2.  $0.030"$ NOTE 3.  $0.060"$ 

THE ABOVE READINGS ARE MEASURED WITH RESPECT TO A CENTERLINE DETERMINED BY THE CENTERS OF THE ANODE TERMINAL AND CONTROL-GRID TERMINAL

TUBE DEPARTMENT  
**GENERAL**  **ELECTRIC**  
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