

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-1015
PTI-69A
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This technical information is proprietary and is furnished only as a service to customers.

ZP-1015

Tetrode

Grid-Pulsed Service
Grounded-Grid Operation

Heat-Sink and Forced-Air Cooled
Metal and Ceramic

The ZP-1015 is a heat-sink-cooled version of the GL-7399 especially designed for pulsed-amplifier or oscillator service at L-band frequencies. This tetrode is particularly well suited for use in airborne IFF radar equipment.

The tube is capable of providing useful output at frequencies up to approximately 1500 megacycles.

Features of the ZP-1015 include long life and reliability, long pulse width and high gain.

ELECTRICAL	Minimum	Bogey	Maximum	
Heater Voltage	6.0	6.3	6.8	Volts
Heater Current	—	5.6	—	Amperes
Amplification				
Factor, G ₂ to G ₁	—	10.5	—	
E _{g2} =275 Volts DC, E _b =1000 Volts DC, I _b = 200 Milliamperes DC				
Cathode Heating Time	1	—	—	Minute
Direct Interelectrode Capacitances*				
Cathode to Plate †	—	0.012	—	μμf
Input	—	24	—	μμf
Output	—	9.3	—	μμf

MECHANICAL

Mounting Position — Any
Net Weight, approximately 11 Ounces

THERMAL

Cooling — Heat-sink and Forced-Air †
Anode Temperature Δ, maximum 250 C
Seals
Screen and Control Grid, approximate 1 Cubic Foot per Minute
Heater and Cathode, approximate 1 Cubic Foot per Minute
Ceramic Temperature at Any Point, maximum 200 C

RADIO-FREQUENCY POWER AMPLIFIER — CLASS C

Maximum Ratings

Pulsed Drive, 1250 Megacycles

DC Plate Voltage**	5	Kilovolts
DC Plate Current, during pulse	6	Amperes
DC Grid-No. 2 Voltage	1.1	Kilovolts
DC Grid-No. 2 Input	5	Watts
DC Grid-No. 1 Voltage	-225	Volts
DC Grid-No. 1 Current	1.5	Amperes

RADIO-FREQUENCY POWER AMPLIFIER - CLASS C (CONT'D)

Maximum Ratings (Cont'd)

Pulsed Drive, 1250 Megacycles (Cont'd)

Plate Dissipation	150	Watts
Pulse Width ♥ ◇	15	Microseconds
Duty Factor ♥ φ	0.01	

Typical Operation

Grounded-grid Service at 1100 Megacycles,	3/4λ	Output Circuit
DC Plate Voltage	4.8	Kilovolts
DC Plate Current, during pulse	4.2	Amperes
DC Grid-No. 2 Voltage	1	Kilovolt
DC Grid-No. 2 Current, during pulse	100	Milliamperes
DC Grid-No. 1 Voltage	-200	Volts
DC Grid-No. 1 Current, during pulse	200	Milliamperes
Driving Power at Tube, during pulse	1.5	Kilowatts
Power Output, during pulse (useful)	11	Kilowatts
Pulse Width ◇	15	Microseconds
Duty Factor φ	0.01	

* Control grid connected directly to screen grid.

† Complete external shielding between cathode and plate.

‡ Forced-air cooling should be applied during the application of any voltages.

Δ A suitable heat-sink clamping arrangement must be provided to limit the anode hub temperature to the value specified; the temperature is measured at the point indicated on the outline drawing.

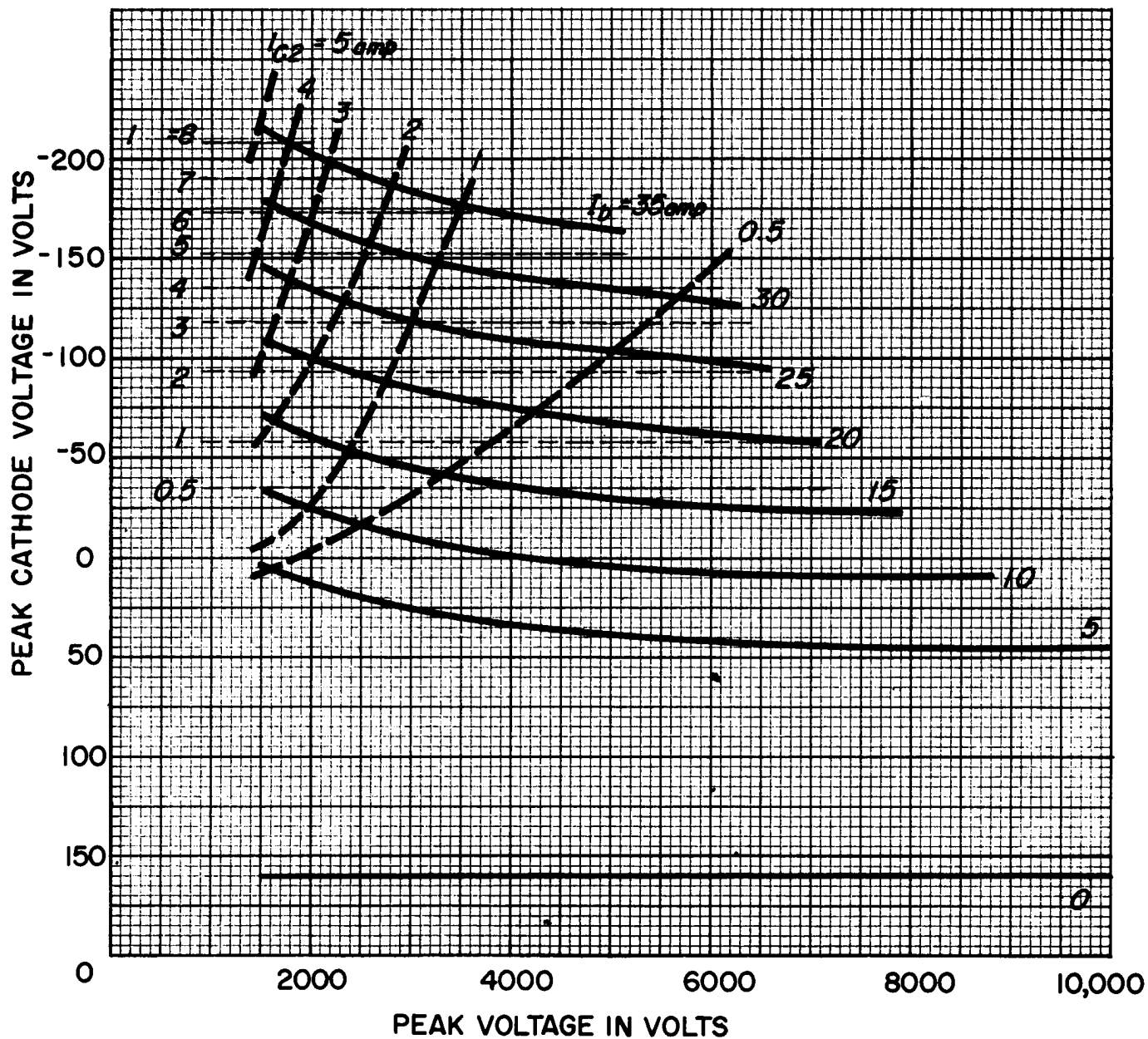
** A minimum surge-limiting resistance of 50 ohms must be placed between the plate of the tube and the B+ power supply at steady-state voltages greater than 3.5 kilovolts.

♥ For applications that require longer pulses or higher duty refer to the tube manufacturer for recommendations.

◇ Pulse duration measured between points at 70 percent of peak value. The peak value is defined as the maximum value of a smooth curve through the average of the fluctuations over the top portion of the pulse.

φ Maximum ratio of on-time to elapsed time during any 15 millisecond period.

CONSTANT CURRENT CHARACTERISTIC
GROUNDED-GRID OPERATION
VOLTAGES MEASURED TO GROUND
SCREEN VOLTAGE = 1400 VOLTS



NOTES:

1. BOTTOM OF CUP MUST NOT BE USED AS A SOCKET STOP.
 2. MAX. ECCENTRICITY 0.015"
 3. MAX. ECCENTRICITY 0.008"
 4. MAX. ECCENTRICITY 0.018"
 5. MAX. ECCENTRICITY 0.021"
- WITH RESPECT TO CENTERLINE DETERMINED BY CENTERS OF ANODE & CONTROL-GRID TERMINALS
6. MAX. ECCENTRICITY 0.008"
- WITH RESPECT TO CATHODE TERMINAL.

