**GL-7399****TETRODE**

**PULSED SERVICE
GROUNDED-GRID OPERATION**

**FORCED-AIR COOLED
METAL AND CERAMIC**

INTEGRAL RADIATOR

The GL-7399 is a small-size, four-electrode transmitting tube especially designed for pulsed-amplifier or -oscillator service at L-band frequencies. This tetrode is particularly well suited for use in airborne or ground-based radar equipment.

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

Features of the GL-7399 include long

life and reliability, long pulse width, high peak power and high gain, broad-banding capability, and resistance to shock and vibration.

These together with such design factors as an oxide-coated cathode, coaxial elements, and metal-ceramic construction make the tube well adapted to application in modern systems where performance and reliability are important.

Electrical				Thermal			
	Mini- mum	Bo- gey	Maxi- mum				
Heater Voltage (See Note 1).....	—	6.3	6.8	Volts	Cooling—Forced Air† Radiator§		
Heater Current.....		5.6		Amperes	Plate Dissipation.....	500 400 300	Watts
Amplification.....					Air Flow, 45 C incoming air temperature.....	17.0 12.0 6.5	Min Cubic Feet per Minute
Factor, G_2 to G_1		10.5			Static Pressure, approximate anode at room tempera- ture.....	0.9 0.5 0.2	Inches-Water Max C
$E_{g2} = 275$ Volts DC, $E_b = 1000$ Volts DC, $I_b = 200$ Milliampères DC					Anode Hub Temperature▲.....	250	
Cathode Heating Time.....	1			Minute	Seals		
Direct Interelectrode Capacitances*					Screen and Control Grid, approximate.....	1	Cubic Foot per Minute
Cathode to Plate†.....	0.012			μmf	Heater and Cathode, ap- proximate.....	1	Cubic Foot per Minute
Input.....	24.0			μmf	Ceramic Temperature at any Point.....	200	Max C
Output.....	9.3			μmf			
Mechanical							
Mounting Position—Any							
Net Weight.....	1.0			Pounds			

RADIO-FREQUENCY POWER AMPLIFIER—CLASS B**Maximum Ratings**

Plate- and Screen-Grid Pulsed, 500 Megacycles			
DC Plate Voltage, during pulse.....	10	Kilovolts	
DC Plate Current, during pulse.....	10	Amperes	
DC Grid-No. 2 Voltage, during pulse.....	2000	Volts	
DC Grid-No. 2 Input.....	15	Watts	
Plate Dissipation.....	500	Watts	
DC Grid-No. 1 Voltage, not pulsed.....	—175	Volts	
DC Grid-No. 1 Current, during pulse.....	2.5	Amperes	
Pulse Width.....	15	Microseconds	
Duty Factor.....	0.0012		

Typical Operation

Grounded-grid Circuit, 500 Megacycles			
DC Plate Voltage, during pulse.....	9	Kilovolts	
DC Grid-No. 2 Voltage, during pulse.....	1400	Volts	
DC Grid-No. 1 Voltage, not pulsed.....	—125	Volts	
Peak RF Plate Voltage.....	7000	Volts	
Peak RF Grid Voltage.....	300	Volts	
DC Plate Current, during pulse.....	9.2	Amperes	
DC Grid-No. 1 Current, during pulse.....	1.1	Amperes	
DC Grid-No. 2 Current, during pulse.....	0.47	Amperes	
Driving Power at Tube, during pulse.....	2.6	Kilowatts	
Power Output, during pulse (useful).....	52	Kilowatts	
Pulse Width.....	15	Microseconds	
Duty Factor.....	0.001		

Note 1: 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. However, this voltage should not be less than 5.5 volts.

GENERAL  ELECTRIC

Supersedes ET-T1598B dated 9-62

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
Plate Dissipation.....	500	Watts
Pulse Width ♥♦.....	15	Microseconds
Duty Factor ♥♦♦.....	0.01	

Typical Operation

Grounded-grid Circuit at 1100 Megacycles, $\frac{3}{4}\lambda$ 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.....	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.

§ Provision must be made for unobstructed passage of cooling air between radiator fins, and between the anode terminal and adjacent fins.

▲ Measured at the base of the fin adjacent to the plate terminal. See outline drawing on page 4.

♣ Maximum average value.

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

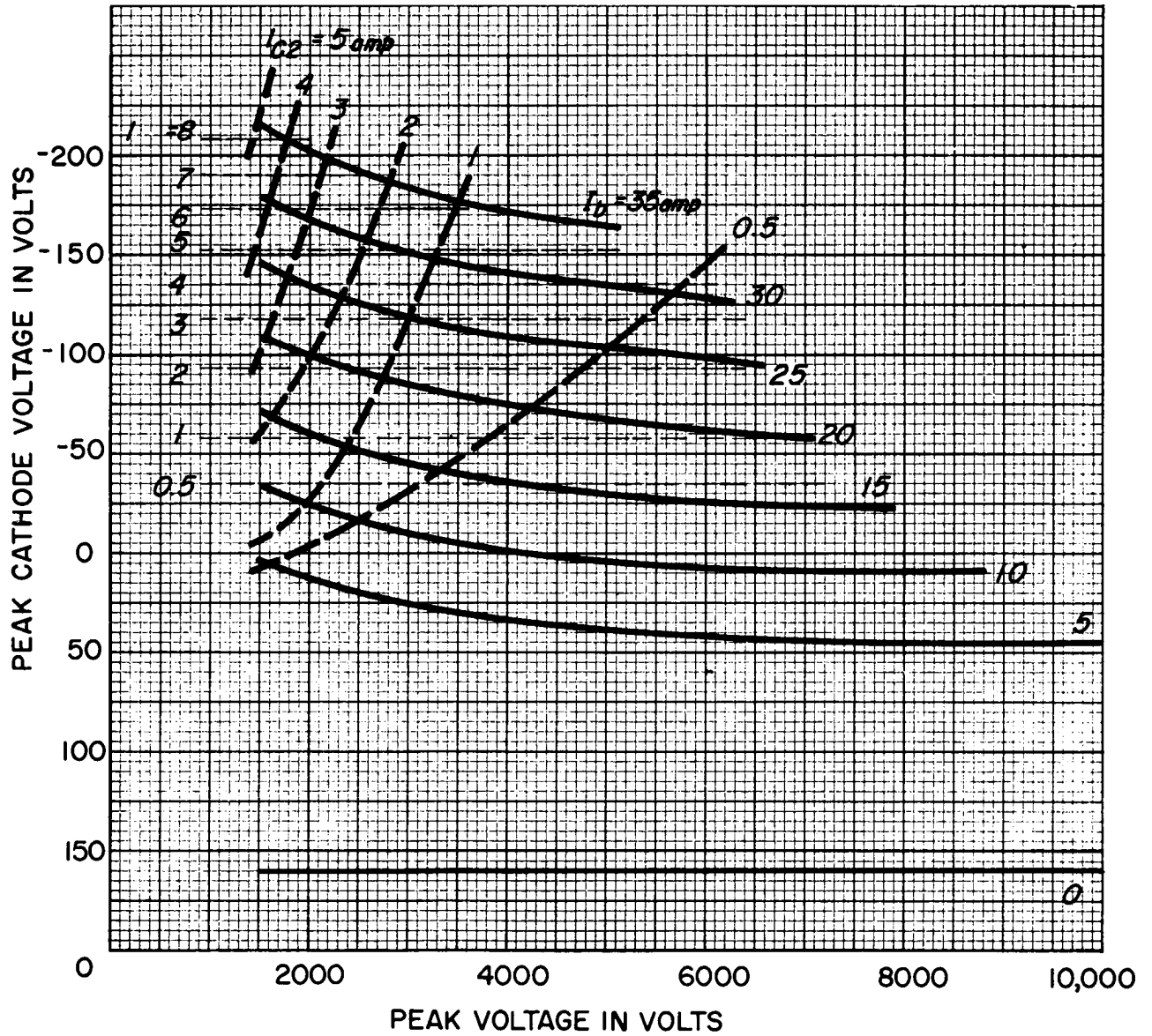
♦ Pulse duration measured between points at 70 percent of peak value. The peak value is defined as the maximum value of a smooth curve through the average of the fluctuations over the top portion of the pulse.

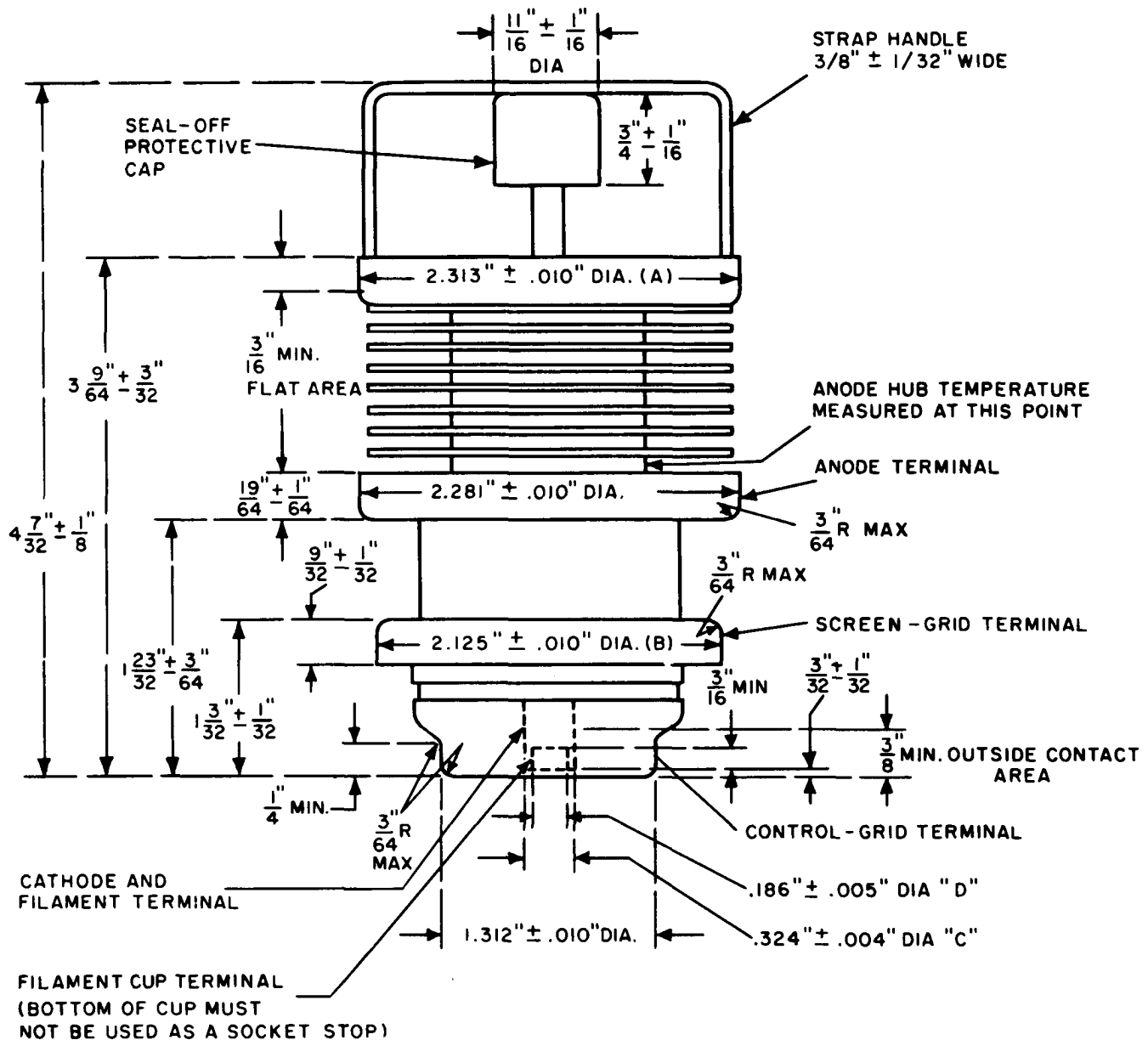
φ Maximum ratio of on-time to elapsed time during any 12.5-millisecond period.

φφ Maximum ratio of on-time to elapsed time during any 1.5-millisecond period.

** 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.

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





CONCENTRICITIES

THE FOLLOWING TOTAL INDICATOR READINGS ARE MEASURED WITH RESPECT TO A CENTERLINE DETERMINED BY THE CENTERS OF THE ANODE TERMINAL AND CONTROL GRID TERMINAL

DIAMETER A - 0.030 INCHES
 DIAMETER B - 0.016 INCHES
 DIAMETER C - 0.036 INCHES
 DIAMETER D - 0.042 INCHES

TOTAL INDICATOR READING OF FILAMENT CUP TERMINAL DIAMETER (D) MEASURED WITH RESPECT TO CENTER OF CATHODE AND FILAMENT TERMINAL
 DIAMETER (C) - 0.016 INCHES

K-69087-72A578

TUBE DEPARTMENT

8-1-62

GENERAL  ELECTRIC

Owensboro, Kentucky

PRINTED
IN
U.S.A.