



ELECTRONIC
INNOVATIONS
IN ACTION

TUBES

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-1074
PTI-170A
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This technical information is proprietary and is furnished only as a service to customers.

ZP-1074

TRIODE

Internal Feedback for Oscillator Service
Grounded-Grid Operation

Heat-Sink and Forced-Air Cooled
Metal and Ceramic

The ZP-1074 is a heat-sink-cooled triode that features internal feedback. It is especially designed for pulsed oscillator service in L-band. Applications for which it is particularly well suited include airborne or ground-based radar, and high level signal generators.

The ZP-1074 is a higher-voltage version of the ZP-1025. Ratings include a DC plate voltage of 3500 volts under grid-pulsed-oscillator service for 5 kilowatts of peak power output at 0.005 duty.

Other features include small size, high peak power as a plate-pulsed oscillator, long-pulse-width capability, long life and reliability.

Minimum Bogey Maximum

ELECTRICAL

Heater Voltage*	-	6.3	-	Volts
Heater Current	3.5	3.8	4.0	Amperes
Cathode Heating Time	1	-	-	Minute
Direct Interelectrode Capacitances				
Cathode to Plate	-	0.5	-	$\mu\mu$ f
Input	-	15.5	-	$\mu\mu$ f
Output	-	5.9	-	$\mu\mu$ f

MECHANICAL

Mounting Position - Any	
Net Weight, approximate	3 1/4 Ounces

THERMAL

Cooling - Heat-Sink and Forced Air

Anode Temperatures §	250	C
Ceramic Temperature at Any Point, maximum	200	C

PLATE-PULSED OSCILLATOR - CLASS C

Maximum Ratings

DC Plate Voltage, During Pulse	8.0	Kilovolts
DC Plate Current, During Pulse	10.0	Amperes
DC Grid Voltage, During Pulse	-400	Volts
DC Grid Current, During Pulse	5.0	Amperes
Plate Dissipation §	110	Watts
Grid Dissipation	3.5	Watts
Pulse Width ◇	10	Microseconds
Duty Factor ø	0.003	

TYPICAL OPERATION

Grounded-Grid Service at 1300 Megacycles, $3/4\lambda$ Output Circuit

DC Plate Voltage, During Pulse	8.0	6.0	Kilovolts
DC Plate Current, During Pulse	9.0	7.0	Amperes
DC Grid Current, During Pulse	4.0	4.3	Amperes
(Grid Resistor = 50 Ohms)			
Power Output, During Pulse (useful)	40.0	24.0	Kilowatts
Pulse Width	10	10	Microseconds
Duty Factor	0.003	0.001	

GRID-PULSED OSCILLATOR - CLASS C

Maximum Ratings

DC Plate Voltage	3.75	Kilovolts
DC Plate Current, During Pulse	3.7	Amperes
DC Grid Voltage	-200	Volts
Plate Dissipation	110	Watts
Pulse Width $\diamond$	15	Microseconds
Duty Factor $\phi\phi$	0.02	

Typical Operation

Grounded-Grid Circuit at 1100 Megacycles, $1/4\lambda$ Output

DC Plate Voltage	3500	2200	Volts
DC Plate Current, During Pulse	3.5	2.7	Amperes
DC Grid Voltage Supply**	-110	-104	Volts
DC Grid Current, During Pulse	1.7	1.25	Amperes
Power Output, During Pulse (useful)	5.0	2.4	Kilowatts
Pulse Width	10	10	Microseconds
Duty Factor	0.005	0.02	

* Because of back-heating due to transit-time effects, it may be necessary to reduce the heater voltage. For the 1100 mcs, 2 kw, 0.02 duty condition, the typical heater voltage is 5.5 volts. The optimum heater voltage for any application should be determined by RF performance testing.

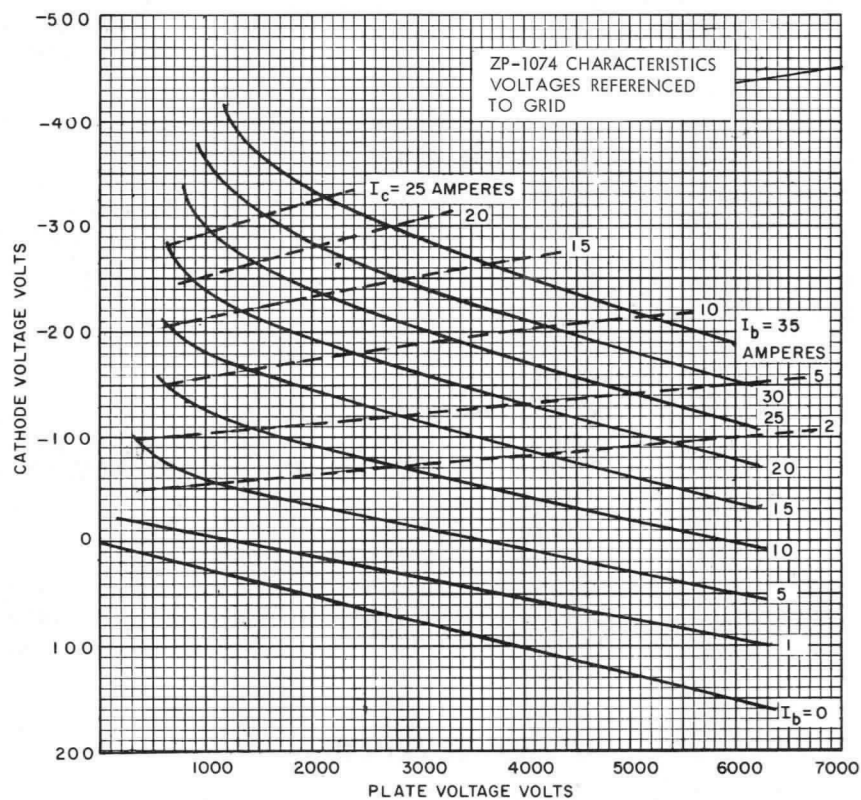
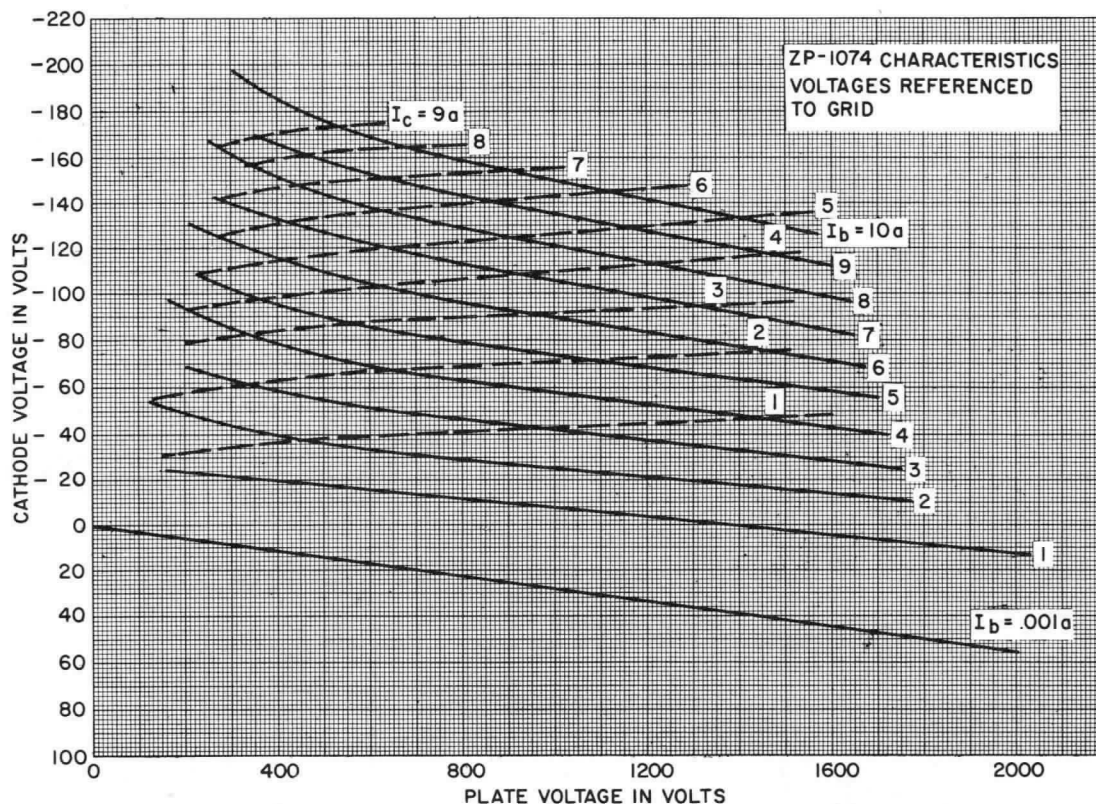
§ A suitable clamp-on radiator or heat-sink clamping arrangement must be provided to limit the anode hub temperature to the value specified. Higher plate dissipation is allowable with provision for proper cooling.

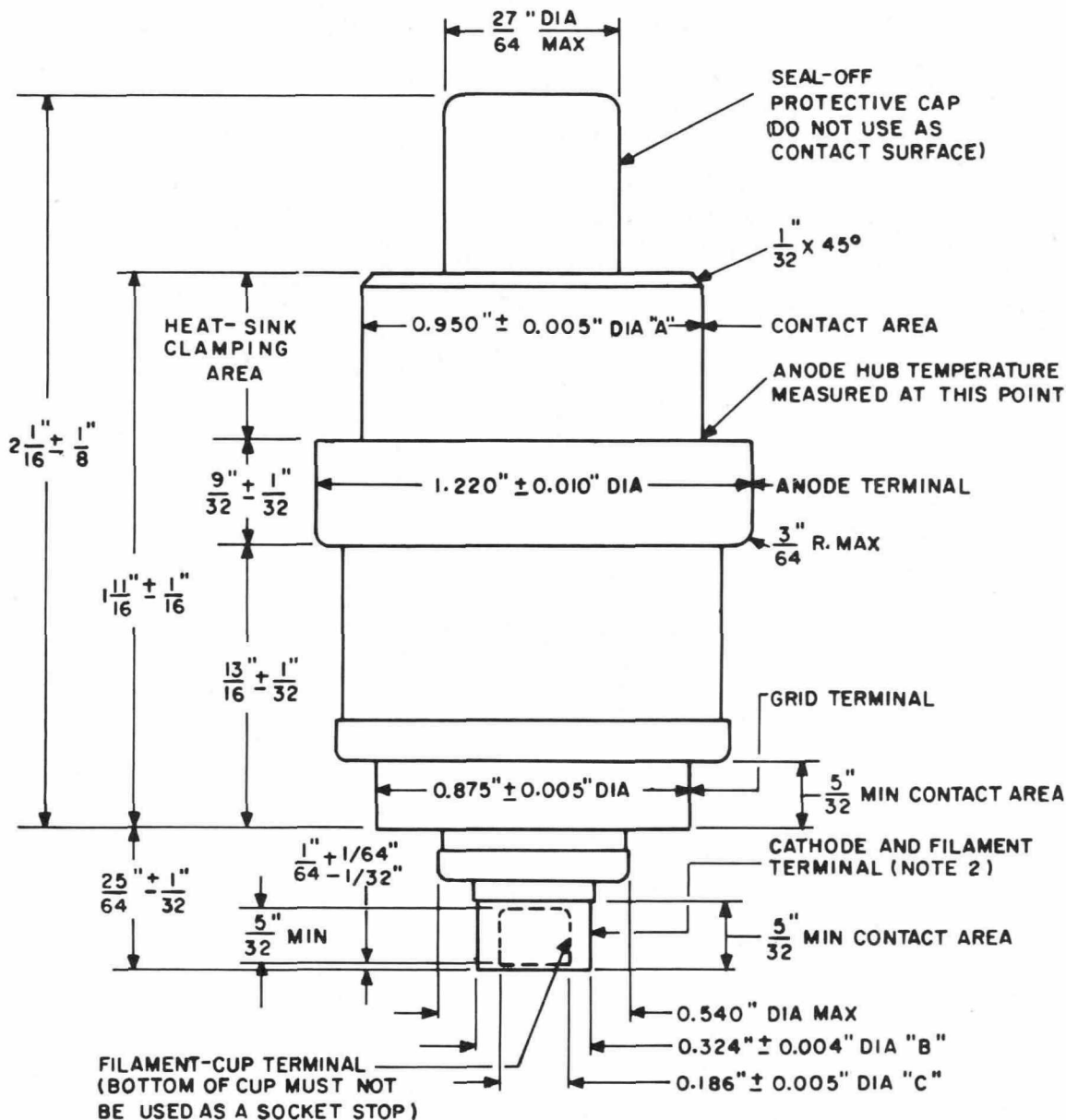
$\diamond$ Pulse duration is measured between points at 70 percent of the peak value. The peak value is defined as the maximum value of a smooth curve through the average of the fluctuations over the top portion of the pulse. For applications requiring longer pulses, refer to the tube manufacturer.

ϕ Maximum ratio of on-time to elapsed time during any 3.3-millisecond period.

$\phi\phi$ Maximum ratio of on-time to elapsed time during any 75-millisecond period.

** With a series grid resistance of 50 ohms.





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 - 0.036 INCHES
DIAMETER C - 0.042 INCHES

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

TUBE DEPARTMENT

GENERAL ELECTRIC

Schenectady, N. Y. 12305