Pencil Tube Oscillator

L-Band Cavity Oscillator

ELECTRICAL

Heater, for Unipotential Cathode:		
Voltage (AC or DC)	6.3 ± 10%	V
Current at 6.3 volts	0.33 max.	A
Frequency	1090	MHz
Tuning Range	±15	MHz
RF Coaxial Output Terminal	Mates with female snap-on-type connector Sealectro No.51-007-0000, or equivalent	
Characteristic Impedance (Approx.)	50	Ω
Maximum Output VSWR (All phase angles)	1.3:1	

MECHANICAL

Operating Position	Any
Dimensions and Terminal Connections	See Dimensional Outline
Weight (Approx.)	4 oz

ENVIRONMENTAL

The units will remain stable within ± 3 MHz in frequency and − 2 dB in peak power output (from nominal conditions) under any combination of the following conditions:

Operating Temperature	-46 to +71 °C
Altitude	Up to 55,000 ft
Output VSWR (All phase angles)	1.1:1
Plate and Heater Voltage Variation	±10 %
Duty Factor	Up to 0.01

GRID-PULSED OSCILLATOR – CLASS C

MAXIMUM RATINGS, Absolute-Maximum Values

For a maximum duty factor[b] of 0.01[c]	
DC Plate Voltage	1540 max. V
DC Grid Voltage:	
Negative-bias value	100 max. V
Positive value during gating pulse	0 max. V

Peak Plate Current	1.2 max. A
Peak Grid Current	0.7 max. A
Plate Dissipation	15 max. W
Grid Dissipation	1.0 max. W
Peak Heater-Cathode Voltage:	
Heater negative with respect to cathode	60 max. V
Heater positive with respect to cathode	60 max. V

TYPICAL OPERATION WITH RECTANGULAR WAVE SHAPE IN GRID-DRIVE CIRCUIT AT 1090 MHz

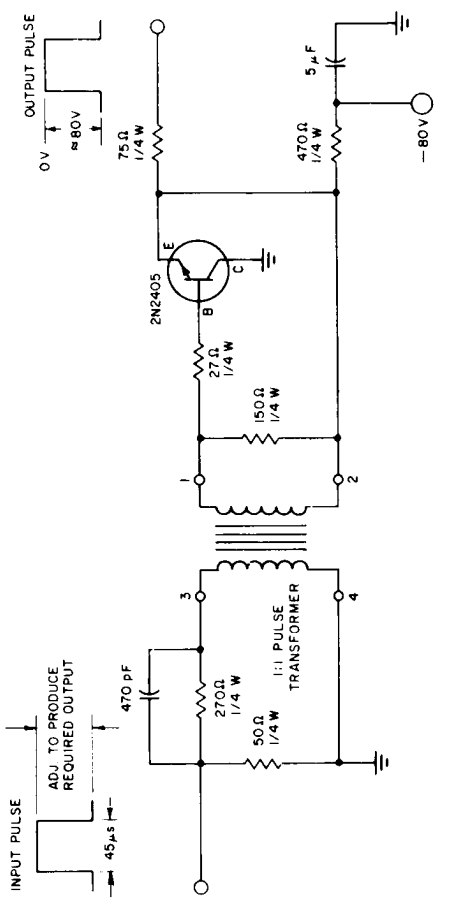
With duty factor of 0.005 and pulse duration of 0.45 microsecond

DC Plate Voltage	1400 V
Grid-Bias Voltage	-80 V
DC Plate Current	1 mA
Useful Power Output at Peak of Pulse	500 W

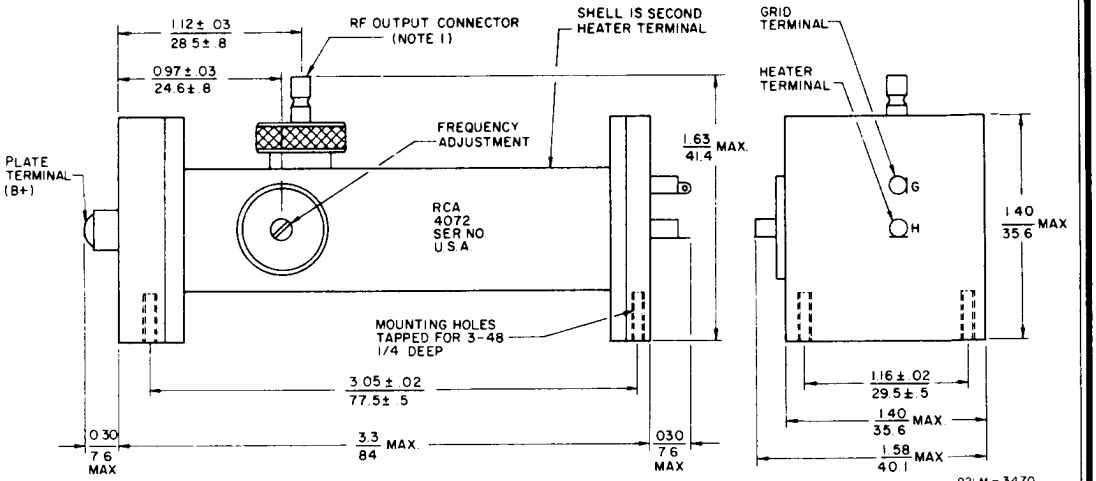
[b] Duty factor is defined as the product of the pulse duration and repetition rate. For variable pulse durations and pulse repetition rates, the duty factor is defined as the ratio of the "ON" time to total elapsed time in any 2500-microsecond interval. "ON" time is defined as the sum of the durations of all individual pulses which occur during the indicated interval. Pulse duration is defined as the time interval between the two points on the pulse at which the instantaneous value is 70% of the peak power value. Peak value is defined as the maximum value as a smooth curve through the average of the fluctuations over the top portion of the pulse.

[c] When operated for 10 minutes per hour. For continuous pulsing, the maximum duty factor is 0.005.

RECOMMENDED GRID-PULSE AMPLIFIER (Modulator)



DIMENSIONAL OUTLINE



Note 1: Mates with female snap-on-type connector Sealectro No.51-007-0000, or equivalent

Dimensions in $\frac{\text{Inches}}{\text{mm}}$ **unless otherwise noted**