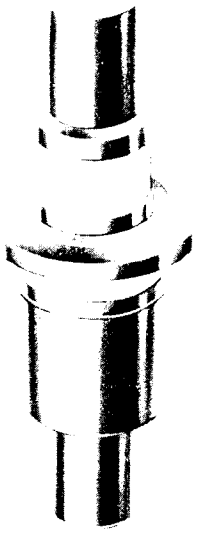


MACHLETT

ML-6771

DESCRIPTION & RATINGS

DESCRIPTION

The ML-6771 is a high-mu, planar triode of ceramic-and-metal construction, particularly designed for use in grounded-grid service as a radio-frequency amplifier, oscillator, or frequency multiplier for frequencies up to 4000 Mc. The tube features low interelectrode capacitances, low electrode lead inductance, short electron transit time and rugged, compact coaxial construction. These features make the tube well suited for efficient operation in line-type and lumped-constant circuits at the lower frequencies as well as in cavity resonators at higher frequencies. The tube employs an indirectly heated, oxide-coated disc as a cathode. The heater is electrically separated from the cathode, permitting the use of comparatively simple circuits. The anode is cooled by conduction and convection.

GENERAL CHARACTERISTICS

Electrical

Heater Voltage	6.3 Volts
Heater Current at 6.3 Volts (AC or DC)	.57 Amperes
Cathode Heating Time, minimum	60 Seconds
Amplification Factor	90
Transconductance	23,000 μmhos
Interelectrode Capacitances (without heater voltage)	
Grid-Plate	2.0 μμf
Grid-Cathode	4.05 μμf
Plate to Cathode	0.018 μμf
Frequency for Maximum Ratings	4000 Mc

Mechanical

Mounting Position	Optional
Type of Cooling	Conduction and Convection
Envelope Temperature, maximum	175 °C
Net Weight, approximate	1 Ounce

MAXIMUM RATINGS AND TYPICAL OPERATION

Radio-Frequency Amplifier — Class A

Maximum Ratings, Absolute Values	
Heater Voltage	5.7 ±5% Volts
DC Plate Voltage	300 Volts
DC Grid Voltage	−25 Volts
DC Plate Current	25 mA
Plate Dissipation	6.25 Watts
Peak Heater-Cathode Voltage	
Heater Negative	90 volts
Heater Positive	90 volts
Maximum Grid-Circuit Resistance	0.5 Megohms

Radio-Frequency Power Amplifier and Oscillator

Key-down conditions without amplitude modulation

Maximum Ratings, Absolute Values	
Heater Voltage	*
DC Plate Voltage	275 Volts
DC Plate Current	25 mA
DC Grid Voltage	−25 Volts
DC Grid Current	8 mA
Plate Power Input	7 Watts
Plate Dissipation	6.25 Watts
Peak Heater-Cathode Voltage	
Heater Negative	90 volts
Heater Positive	90 volts
Maximum Grid-Circuit Resistance	0.1 Megohms

Typical Operating Conditions C.W Radio-Frequency Oscillator, 4000 Mc	
Heater Voltage	5.0 Volts
DC Plate Voltage	250 Volts
DC Plate Current	25 mA
DC Grid Voltage	−1.7 Volts
DC Grid Current	0.6 mA
CW Power Input	300 Milliwatts

Radio-Frequency Power Amplifier and Oscillator Class C Telephony

Carrier conditions per tube for use with a maximum modulation factor of 1.0

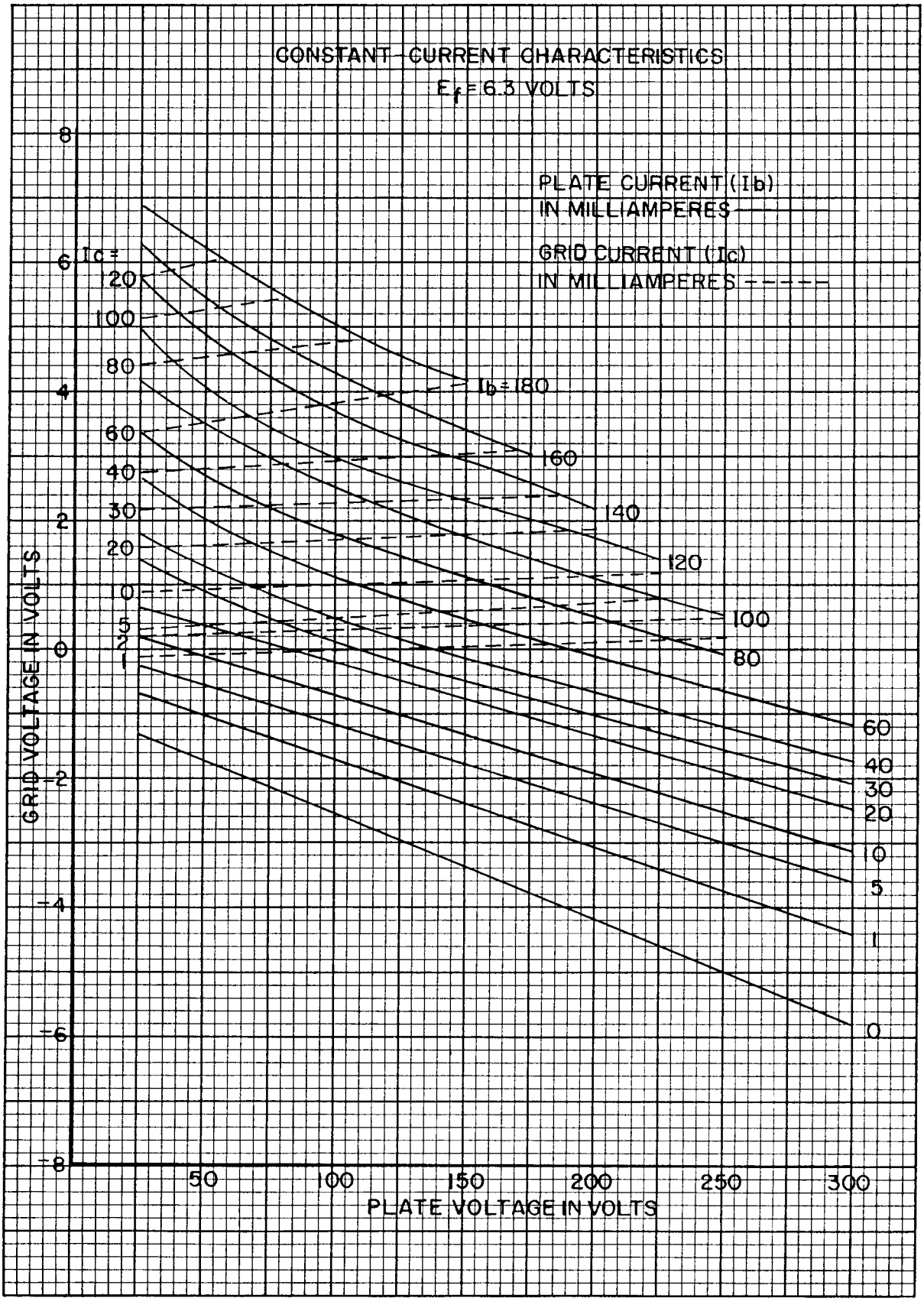
Maximum Ratings, Absolute Values	
Heater Voltage	*
DC Plate Voltage	250 Volts
DC Plate Current	22 mA
DC Grid Voltage	−25 Volts
DC Grid Current	8 mA
Plate Input	5.5 Watts
Plate Dissipation	5.0 Watts
Peak Heater-Cathode Voltage	
Heater Negative	90 volts
Heater Positive	90 volts
Maximum Grid-Circuit Resistance	0.1 Megohms

Radio-Frequency Multiplier

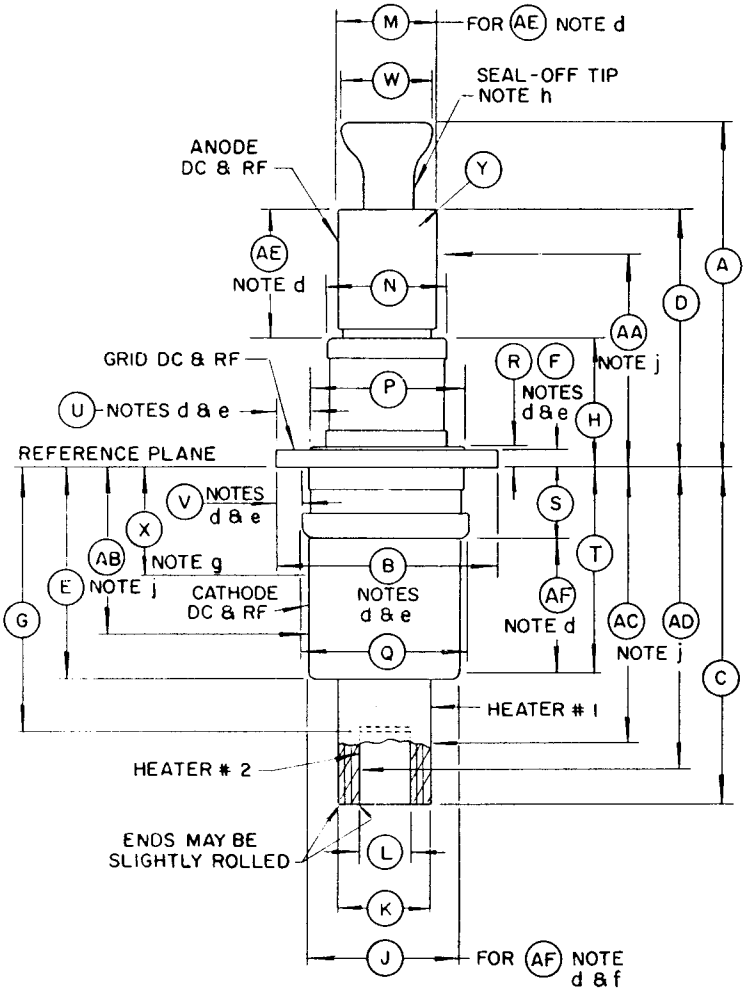
Maximum Ratings, Absolute Values	
Heater Voltage	*
DC Plate Voltage	250 Volts
DC Plate Current	20 mA
DC Grid Voltage	−50 Volts
DC Grid Current	5 mA
Plate Input	5.0 Watts
Plate Dissipation	5.0 Watts
Peak Heater-Cathode Voltage	
Heater Negative	90 volts
Heater Positive	90 volts
Maximum Grid-Circuit Resistance	0.1 Megohoms

Typical Operating Conditions Radio-Frequency Doubler, 500-1000 Mc	
Heater Voltage	5.7 Volts
DC Plate Voltage	250 Volts
DC Plate Current	20 mA
DC Grid Voltage	10 Volts
DC Grid Current	5 mA
RF Power Input	300 Milliwatts
RF Power Output	2.0 Watts

* The correct value of heater voltage is dependent upon the particular operating conditions and frequency. For particular applications consult the Machlett Engineering Department.



CONSTANT CURRENT CHARACTERISTICS



DIMENSIONS IN INCHES

Dim.	Limits		Nominal
	Minimum	Maximum	
A	—	1.328	—
B	0.810 dia.	0.818 dia.	—
C	1.219	1.281	—
D	0.953	0.984	—
E	0.750	0.813	—
F	0.070	0.078	—
G	—	1.016	—
H	—	0.515	—
J	0.539 dia.	0.549 dia.	—
K	0.318 dia.	0.328 dia.	—
L	0.180 dia.	0.190 dia.	—
M	0.365 dia.	0.371 dia.	—
N	—	0.453 dia.	—
P	0.560 dia.	0.570 dia.	—
Q	—	0.609 dia.	—
R	0.077	0.097	—
S	—	0.266	—
T	0.719	—	—
U	—	—	0.094
V	—	—	0.094
W	—	0.313	—
X	—	0.375	—
Y	—	—	0.016 rad.
AA	—	—	0.750
AB	—	—	0.547
AC	—	—	1.000
AD	—	—	1.109
AE	—	—	0.438
AF	—	—	0.453

NOTES

d. Contact surfaces shall be confined to this area.

e. Only these surfaces shall be used for tube stops or clamping.

f. Maximum diameter is not increased by solder.

g. Tube marking is confined to this area.

h. Exhaust tubulation must not be subjected to any mechanical stress.

j. Eccentricity is gaged at points designated and falls within the following limits:

Contact	Eccentricity*	Reference
Anode	0.010 max.	Grid Contact
Cathode	0.010 max.	Grid Contact
Heater No. 1	0.015 max.	Grid Contact
Heater No. 2	0.015 max.	Grid Contact

*Eccentricity is one-half total indicated runout.

DIMENSIONS — ML-6771

THE MACHLETT LABORATORIES, INC.
Subsidiary of Raytheon Company

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