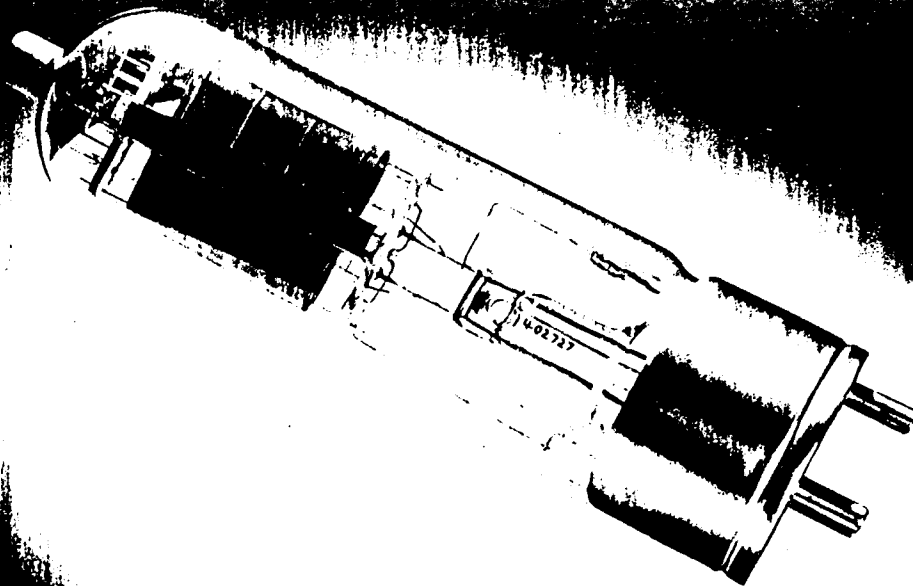




# ML-241B

DESCRIPTION AND RATINGS



## DESCRIPTION

The ML-241B is a three-electrode tube designed for use as a modulator, amplifier, or oscillator in radio-transmitting service. The cathode is a thoriated-tungsten filament. The tube is air cooled and the anode is capable of dissipating 275 watts. Maximum ratings of 3 kVdc and 350 milliamperes apply at frequencies up to 7.5 mc/sec; operation at 22.5 mc/sec is permissible with plate voltage reduced to 1 kVdc.

The ML-241B embodies all the techniques and skills that have been inherently a part of Machlett Laboratories, Inc., since 1897. All parts are thoroughly processed by special Machlett techniques, which prevent contamination and assure complete and permanent outgassing. The tube is exhausted by a straight-line, high-voltage process assuring the same high standards as characterize the Machlett line of high- and super-voltage x-ray tubes.

## GENERAL CHARACTERISTICS

### Electrical

Filament Voltage .....	14 volts
Filament Current at 14 volts .....	6 amperes
Amplification Factor .....	16
Grid-Plate Transconductance .....	8500 $\mu$ Mhos
Interelectrode Capacitances	
Grid-Plate .....	16.5 $\mu$ uf
Grid-Filament .....	14.5 $\mu$ uf
Plate-Filament .....	4.8 $\mu$ uf

### Mechanical

Mounting Position .....	Vertical or Horizontal*
Type of Cooling .....	Convection

\* If mounted horizontally, the plane of the filament should be vertical.

**MAXIMUM RATINGS**

Direct Plate Voltage .....	3000 volts
Direct Plate Current .....	350 milliamperes
Plate Dissipation .....	275 watts
Direct Grid Current .....	75 milliamperes
R.F. Grid Current .....	5 amperes
Frequency .....	7.5 megacycles

The above are maximum ratings which do not apply simultaneously but depend on the type of service specified below.

**TYPICAL OPERATING CONDITIONS**  
**Class A Audio Amplifier or Modulator**

Direct Plate Voltage .....	1500	1250 volts
Grid Bias .....	-58	-40 volts
Direct Plate Current .....	170	200 milliamperes
Plate Dissipation .....	250	250 watts
Load Impedance .....	5000	3000 ohms
Undistorted Output .....	50	40 watts

**Grid Bias Modulator**

Direct Plate Voltage .....	3000 volts
Grid Bias .....	-260 volts
Plate Dissipation .....	175 watts
Load Impedance .....	8000 ohms
Peak Power Output .....	200 watts

**Class B Audio Amplifier or Modulator**  
 (for balanced 2 tube circuit)

Direct Plate Voltage .....	2000	1500 volts
Grid Bias .....	-110	-75 volts
Direct Plate Current per tube		
No drive .....	40	50 milliamperes
Maximum drive .....	300	300 milliamperes
Plate Dissipation .....	250	200 watts
Load Resistance (plate-to-plate) .....	8000	5900 ohms
Load Resistance (per tube) .....	2000	1475 ohms
Approximate Maximum Output .....	650	500 watts
Recommended Power for driving stage .....	50	50 watts

**Class B Radio-Frequency Amplifier**

Direct Plate Voltage .....	2000	1300 volts
Direct Plate Current .....	300	270 milliamperes
Plate Dissipation .....	275	275 watts
Grid Bias .....	-120	-90 volts
Approximate Carrier Watts for use with 100% modulation .....	150	130 watts

**Class C Radio-Frequency Oscillator or Power Amplifier—Unmodulated**

Direct Plate Voltage .....	2000	1500 volts
Direct Plate Current .....	300	300 milliamperes
Grid Bias .....	-185 to -250	-150 to -200 volts
Nominal Power Output .....	400	300 watts

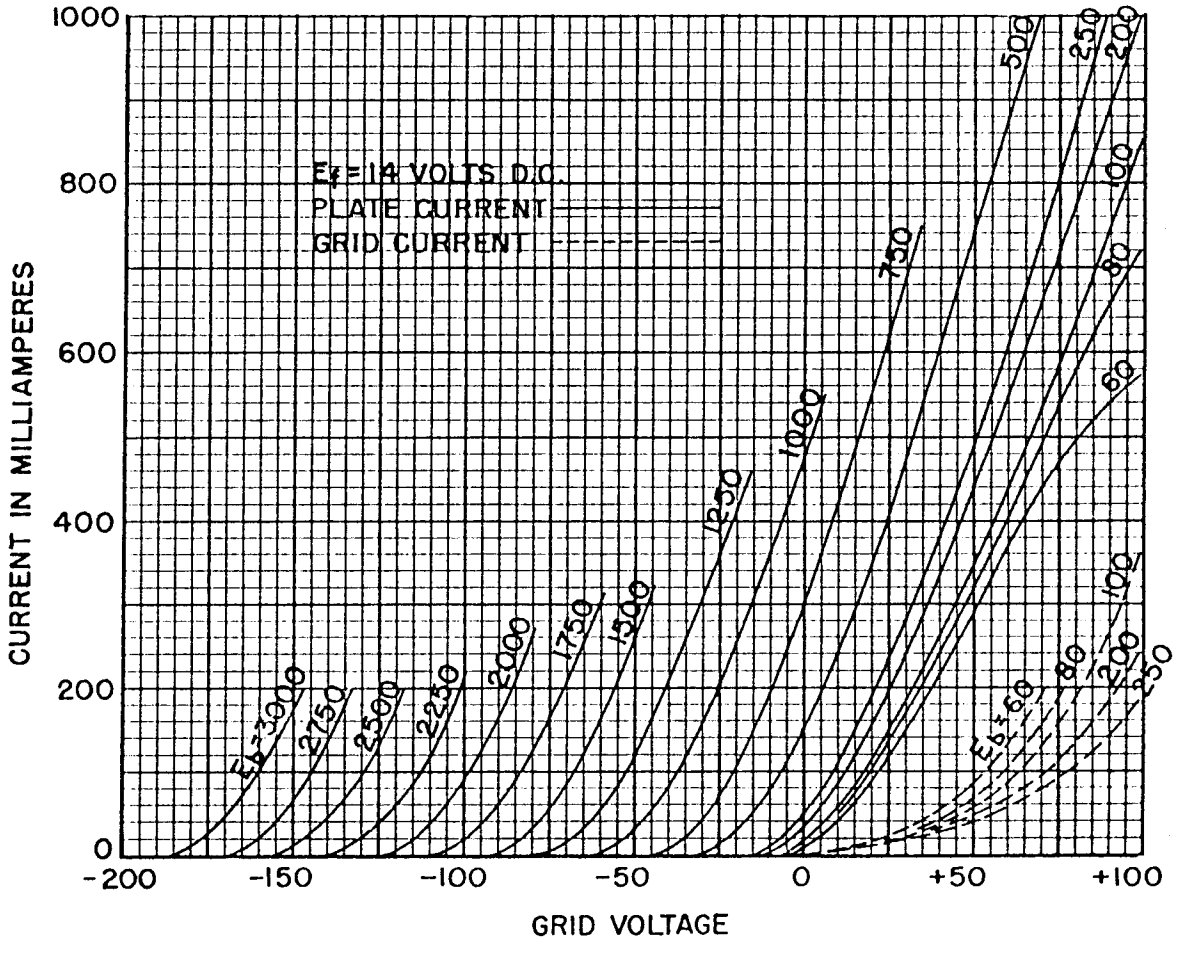
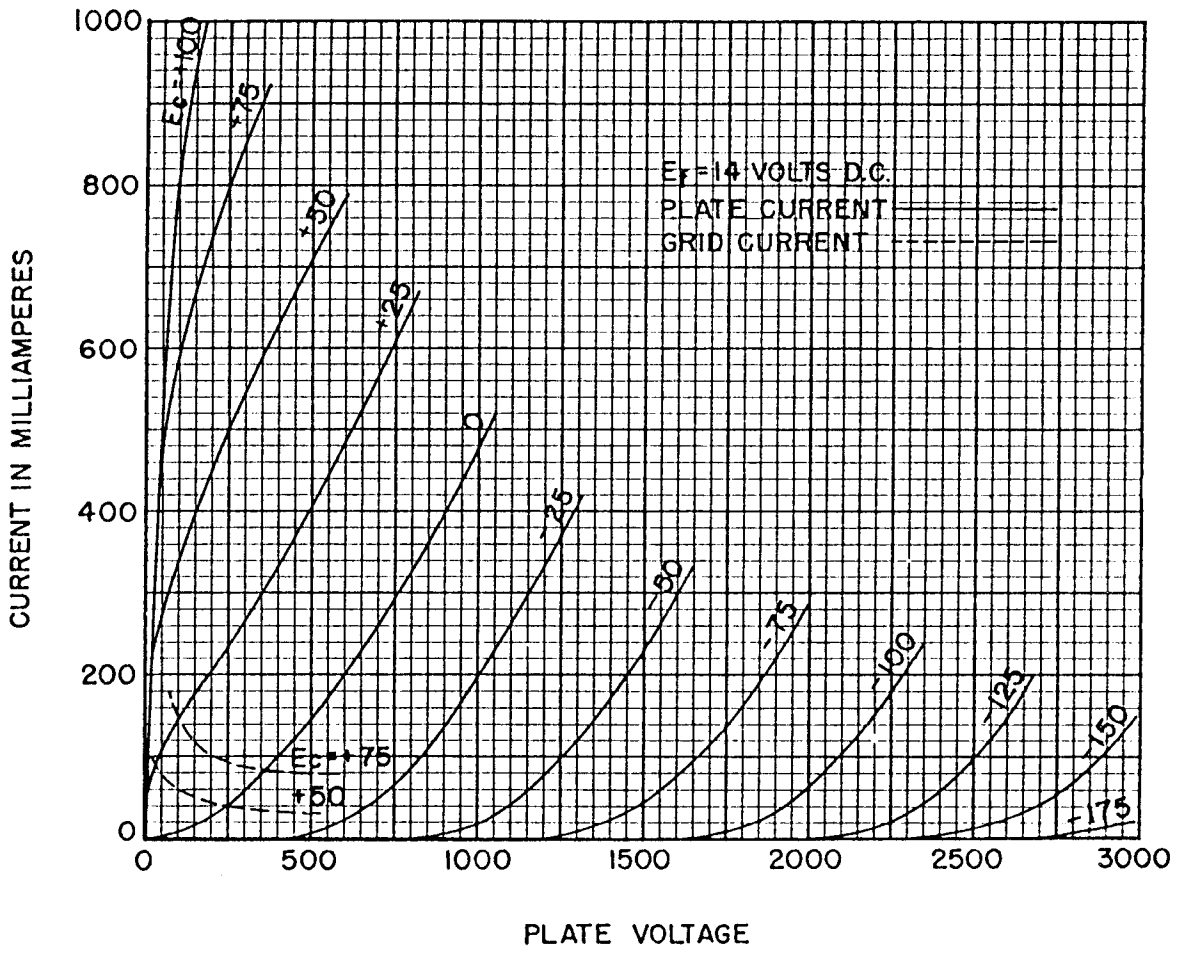
**Class C Radio-Frequency Amplifier—Plate Modulated**

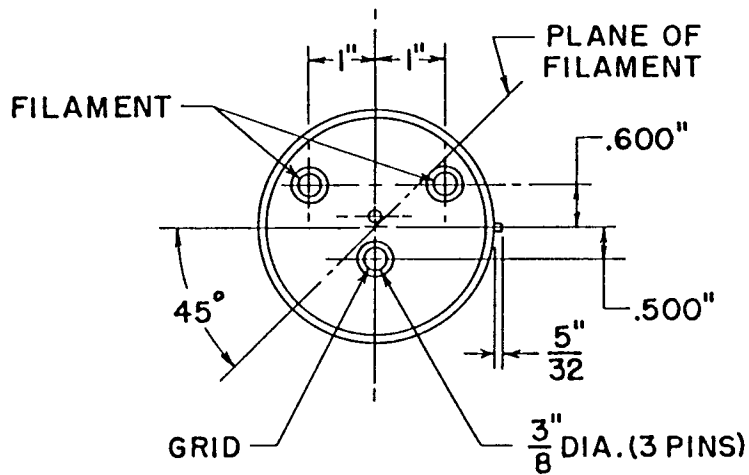
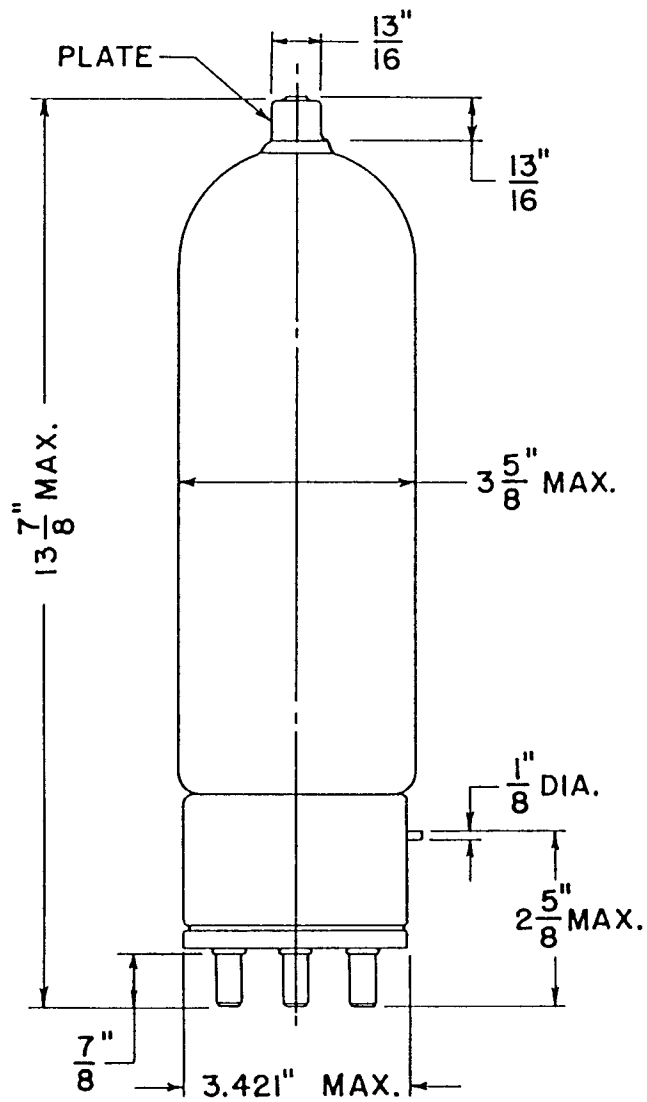
Direct Plate Voltage .....	1500	1000 volts
Direct Plate Current .....	300	300 milliamperes
Grid Bias .....	-200	-125 volts
Direct Grid Current .....	75	75 milliamperes
Nominal Carrier Power Output for use with 100% modulation .....	300	200 watts

**APPLICATION NOTES**

Maximum ratings apply at frequencies of 7.5 megacycles and less. The maximum plate voltage for the upper frequency limit of 22.5 megacycles is 1000 volts. The maximum plate voltage for frequencies between 7.5 and 22.5 megacycles

should be proportionately reduced. At high frequencies special attention should be given to adequate ventilation of the bulb.





DIMENSIONS—ML-241B

**MACHLETT LABORATORIES, INC.**

SPRINGDALE



CONNECTICUT

U. S. A.