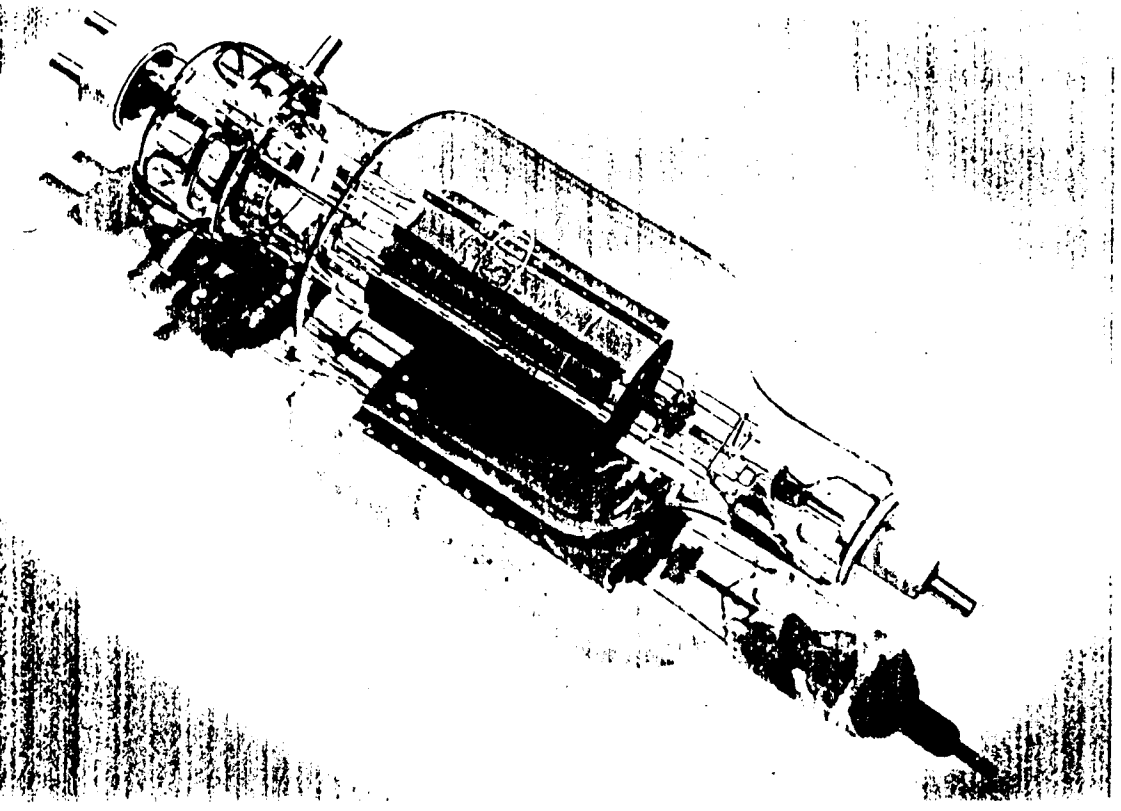


MACHLETT

# ML-279A
# ML-379A

DESCRIPTION AND RATINGS

## DESCRIPTION

The ML-279A and ML-379A are three-electrode tubes designed for use as modulators, amplifiers, or oscillators in radio-transmitting service. The cathode for each type is a thoriated-tungsten filament. Each tube is air cooled and its anode is capable of dissipating 1.2 kW. Maximum ratings of 3 kVdc and 800 milliamperes apply at frequencies up to 20 Mc; operation at 40 Mc is permissible with plate voltage reduced to 1.5 kVdc.

The ML-279A and ML-379A embody 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 | 10 volts |
| Filament Current at 10 Volts | 21.0 amperes |
| Amplification Factor | 10 |
| Grid-Plate Transconductance | 5000 uMhos |
| Interelectrode Capacitances | |
| Grid-Plate | 18 uuf |
| Grid-Filament | 15 uuf |
| Plate-Filament | 7 uuf |
| **Mechanical** | |
| Mounting Position | Vertical |
| Type of Cooling | Convection |

## MAXIMUM RATINGS

| | |
|---|---|
| Direct Plate Voltage | 3000 volts |
| Direct Plate Current | 800 milliamperes |
| Plate Dissipation | 1200 watts |
| Direct Grid Current | 100 milliamperes |
| R. F. Grid Current | 15 amperes |
| Frequency | 20 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 | 2500 | 2000 volts |
| Grid Bias | −170 | −110 volts |
| Direct Plate Current | 300 | 375 milliamperes |
| Plate Dissipation | 750 | 750 watts |
| Load Impedance | 4500 | 2000 ohms |
| Undistorted Output | 155 | 85 watts |

### Class B Audio Amplifier or Modulator

(for balanced 2 tube circuit)

| | | |
|---|---|---|
| Direct Plate Voltage | 2500 | 2000 volts |
| Grid Bias | −200 | −150 volts |
| Direct Plate Current, per tube | | |
| No drive | 150 | 110 milliamperes |
| Maximum drive | 800 | 800 milliamperes |
| Plate Dissipation | 900 | 720 watts |
| Load Resistance, plate-to-plate | 2800 | 2240 ohms |
| Load Resistance, per tube | 700 | 560 ohms |
| Approximate Maximum Output—2 tubes | 2200 | 1760 watts |
| Recommended Power for Driving Stage | 100 | 100 watts |

### Class B R-F Amplifier

| | | |
|---|---|---|
| Direct Plate Voltage | 3000 | 2500 volts |
| Direct Plate Current | 600 | 720 milliamperes |
| Grid Bias | −325 | −275 volts |
| Approximate Carrier Watts for use with 100% modulation | 600 | 600 watts |

### Class C R-F Oscillator or Power Amplifier—Unmodulated

| | | |
|---|---|---|
| Direct Plate Voltage | 3000 | 2500 volts |
| Direct Plate Current | 800 | 800 milliamperes |
| Grid Bias | −500 to −650 | −400 to −550 volts |
| Direct Grid Current | 150 | 100 milliamperes |
| Nominal Power Output | 1600 | 1300 watts |
| Plate Dissipation | 800 | 700 watts |

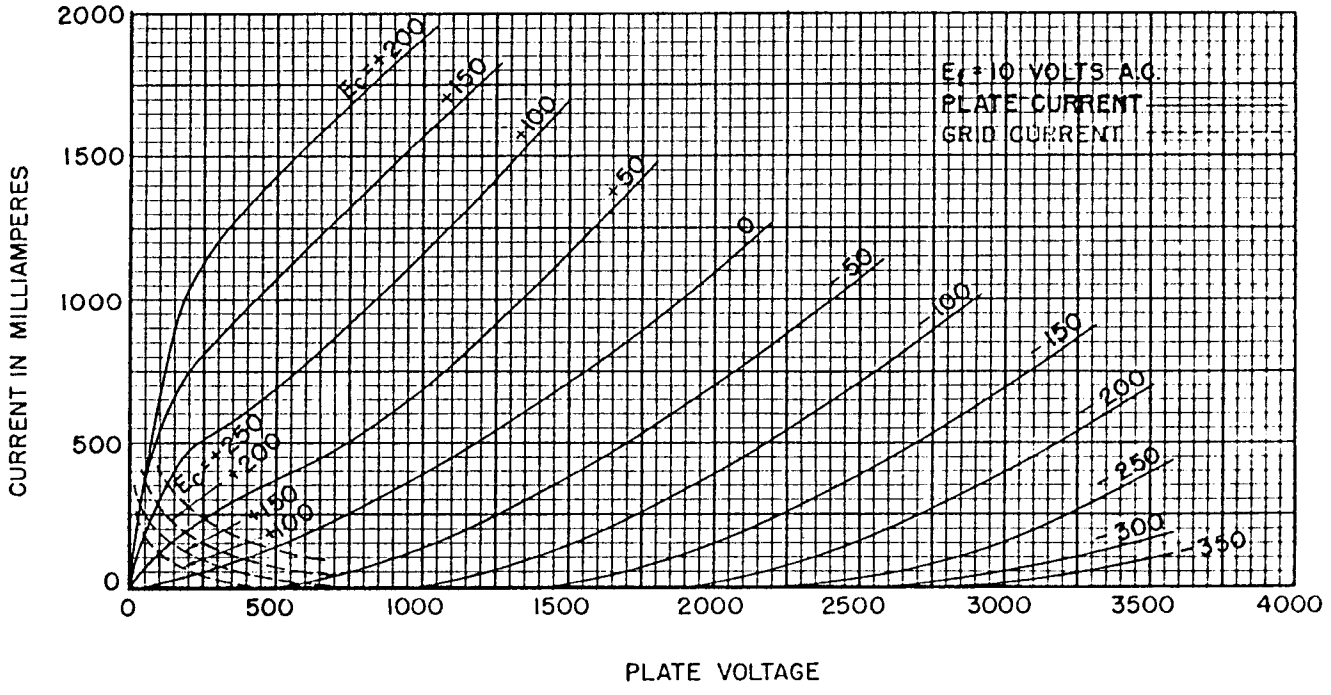
### Class C R-F Amplifier—Plate Modulated

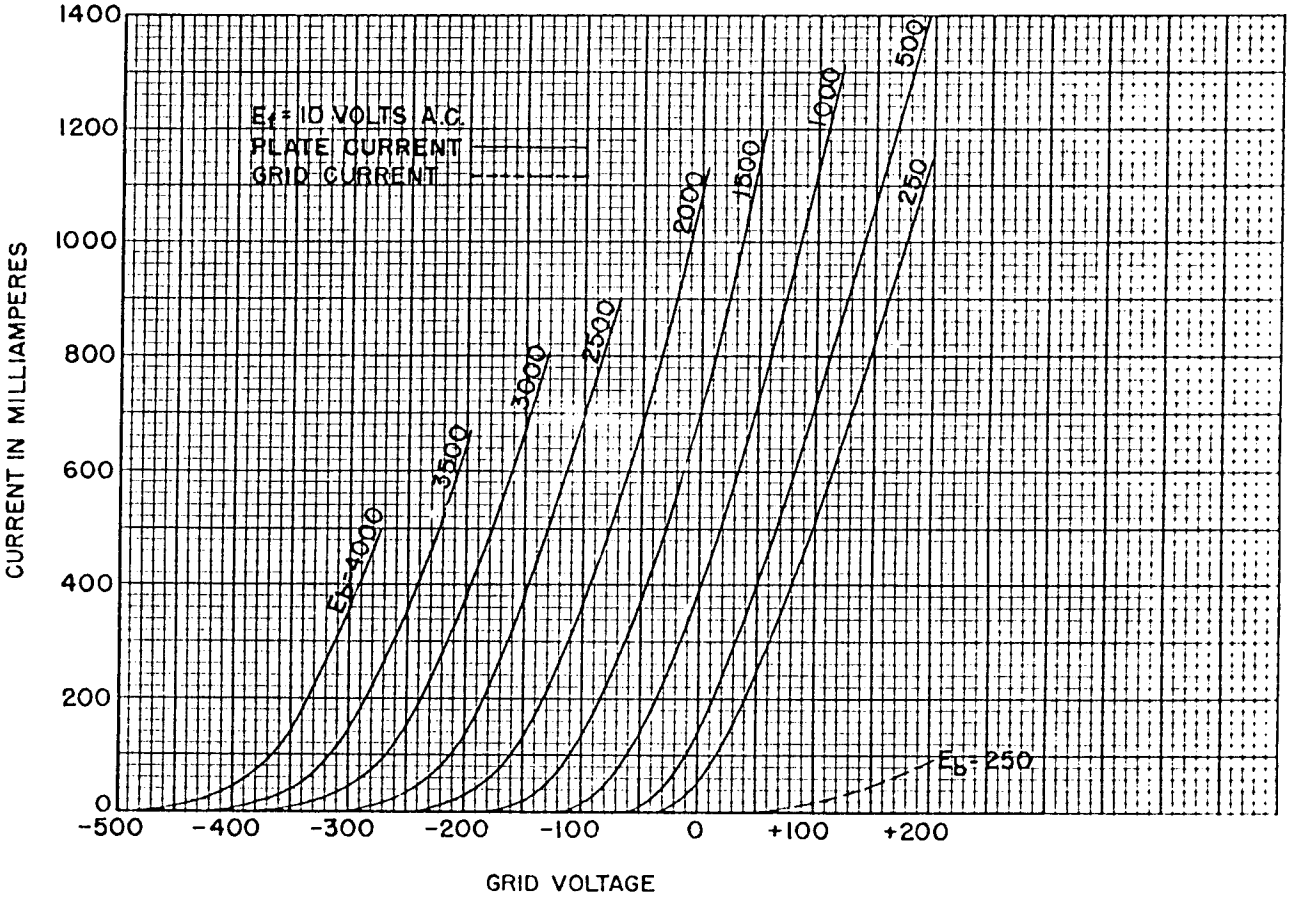
| | | |
|---|---|---|
| Direct Plate Voltage | 2250 | 1750 volts |
| Direct Plate Current | 600 | 700 milliamperes |
| Grid Bias | −450 | −360 volts |
| Direct Grid Current | 100 | 100 milliamperes |
| Nominal Carrier Power Output for use with 100% modulation | 900 | 830 watts |

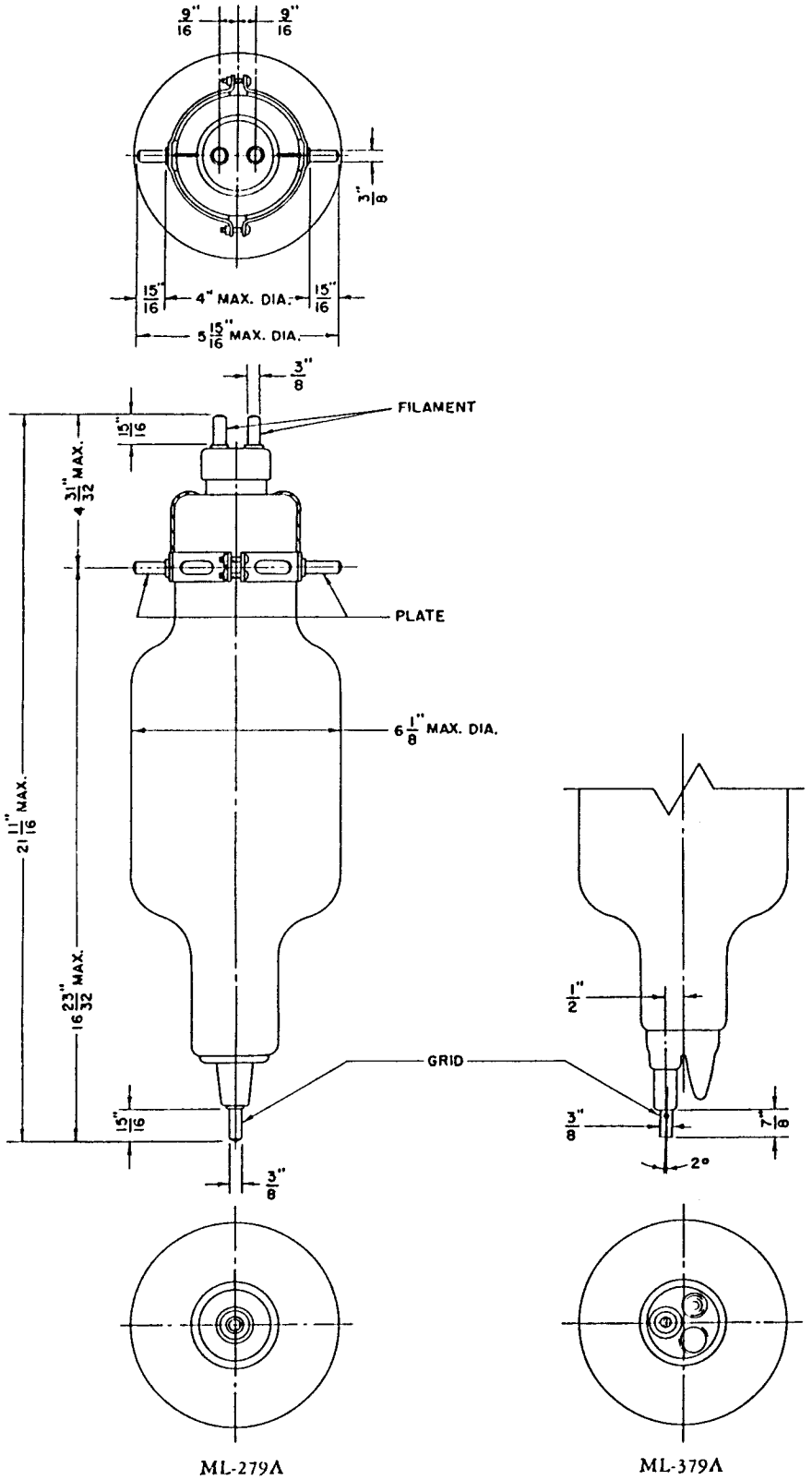
## APPLICATION NOTES

Maximum ratings apply at frequencies of 20 megacycles and less. The maximum plate voltage for the upper frequency limit of 40 megacycles is 1500 volts. The maximum plate voltage for frequencies between 20 and 40 megacycles should be proportionately reduced.

A free circulation of air must be provided to insure adequate cooling of the glass during operation.


CURRENT IN MILLIAMPERES
PLATE VOLTAGE
Ef = 10 VOLTS A.C.
PLATE CURRENT
GRID CURRENT
Ec=+200
+150
+100
+50
0
-50
-100
-150
-200
-250
-300
-350
2000
1500
1000
500
0
0
500
1000
1500
2000
2500
3000
3500
4000


CURRENT IN MILLIAMPERES
GRID VOLTAGE
Ef = 10 VOLTS A.C.
PLATE CURRENT
GRID CURRENT
Ec=4000
3500
3000
2500
2000
1500
1000
500
250
Eb=250
1400
1200
1000
800
600
400
200
0
-500
-400
-300
-200
-100
0
+100
+200




ML-279A ML-379A

Dimensions—ML-279A and ML-379A

**MACHLETT LABORATORIES, INC.**

SPRINGDALE MACHLETT CONNECTICUT

U. S. A.