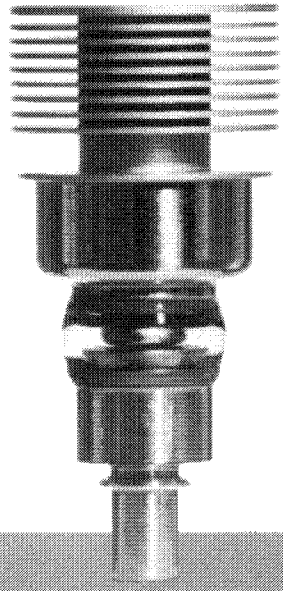


ML-2C41

Plate-pulsed oscillator service.

DESCRIPTION

The **ML-2C41** is a high-mu triode of the planar-electrode type designed for use as a plate-pulsed oscillator, or power amplifier in radio transmitting service from low frequency to 3000 Mc. Features include low interelectrode capacitances, high transconductance and great mechanical strength. Lead inductances and r.f. losses are minimized by a compact, rugged construction with ring-type seals, making the tube ideally suited to cavity type circuits as well as for parallel line operation. The cathode is an indirectly-heated, oxide-coated disc. The anode is forced-air cooled.

The **ML-2C41** embodies the highest standards of this tube type. All parts are thoroughly processed by special Machlett techniques to assure efficient operation and long life.

GENERAL CHARACTERISTICS

Electrical

Heater Voltage	6.3	volts†
Heater Current at 6.3 volts	1.03	amps
Heater Heating Time, minimum	60	secs
Amplification Factor	100	
Transconductance (I_b = 70 mA, E_b = 600 v)	25000	umhos
Interelectrode Capacitances		
Grid-Plate	2.01	uuf
Grid-Cathode	6.60	uuf
Plate-Cathode	0.035	uuf max.
Duty Cycle	0.0025	
Maximum Pulse Length	3	usecs

Mechanical

Mounting Position	Optional	
Type of Cooling	Forced Air*	
Maximum Anode Temperature	175	°C
Net Weight	2¼	oz.

†See Application Note, page 16, for optimum heater voltage.

*See Application Notes, page 16 and also air cooling curves, page 83.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Plate-Pulsed Oscillator and Amplifier—Class C

Maximum Ratings, Absolute Values		
For a pulse length of *	3	usec
Duty Factor *	0.0025	
Peak Plate Pulse Supply Voltage	3500	volts
Peak Grid Bias Voltage	-150	volts
Peak Plate Current from Pulse Supply	4	amps
Average Plate Current	10	mA
Average Grid Current	6	mA
Average Plate Dissipation	35	watts
Average Grid Dissipation	2	watts
Frequency	3000	Mc
Typical Operation: 2500 Mc Oscillator		
Pulse Length	3	usec
Duty Factor	0.0025	
Peak Plate Pulse Supply Voltage	3500	volts
Peak Grid Bias Voltage	-100	volts
Peak R-F Grid Voltage	340	volts
Peak R-F Plate Voltage	2500	volts
Peak Plate Current from Pulse Supply	3	amps
Average Plate Current	7.5	mA
Average Grid Current	4.5	mA
Driving Power During Pulse, Approximate	450	watts
Useful Power Output at Peak of Pulse, Approx.	2200	watts
Pulse Recurrence Rate	825	pps

*For applications above a duty factor of 0.0025 and a pulse width of 3 μsec, contact the Machlett Engineering Department for information.

Characteristic Range Values for Equipment Design

	Min.	Max.	
Filament Current at 6.3 volts (Note 1)	0.95	1.10	A
Plate Current (Note 2)	60	95	mAdc
Cut-off Bias (Note 3)	—	-15	Vdc
Transconductance	20,000	30,000	umhos
Grid-Plate Capacitance	1.86	2.16	uuf
Grid-Cathode Capacitance (Note 4)	5.60	7.60	uuf
Plate-Cathode Capacitance	—	.035	uuf
Plate Tuning Range (Note 5)	1960	2030	Mc

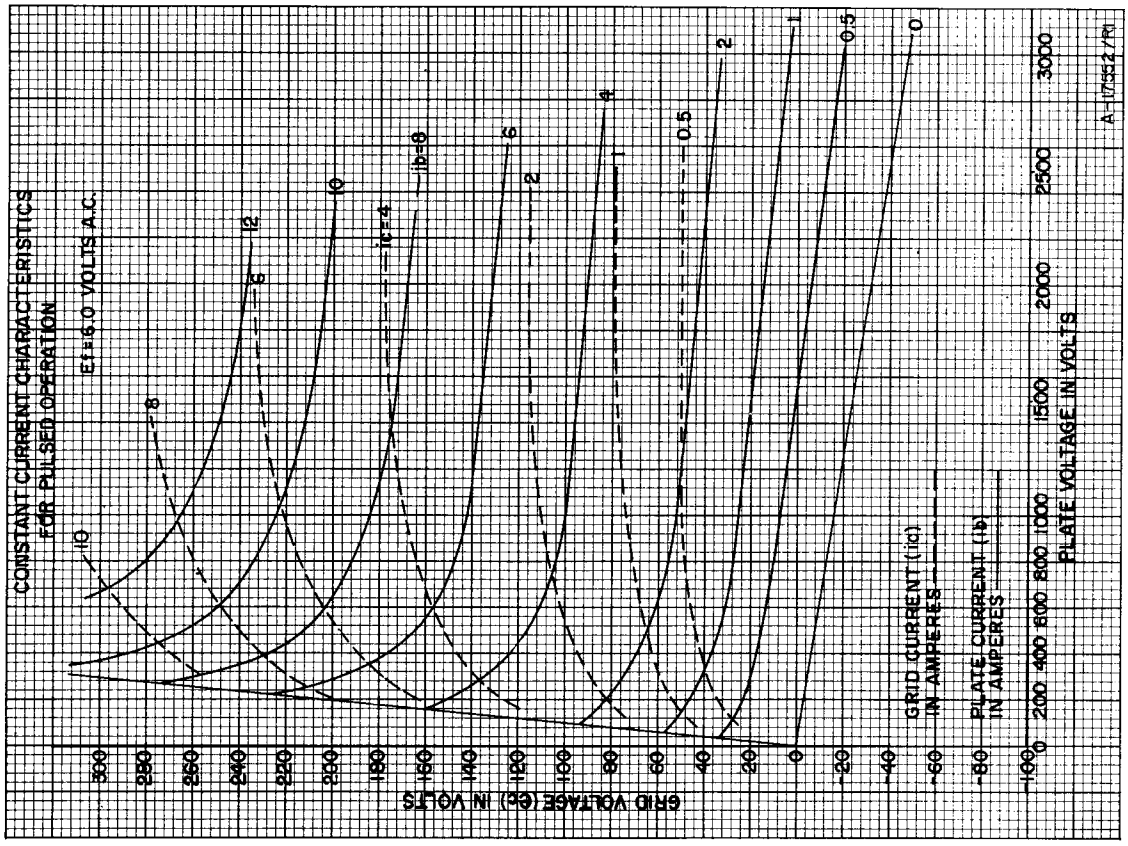
Note 1 — For reduced filament voltage see "Heater Voltage" section under "Application Notes".

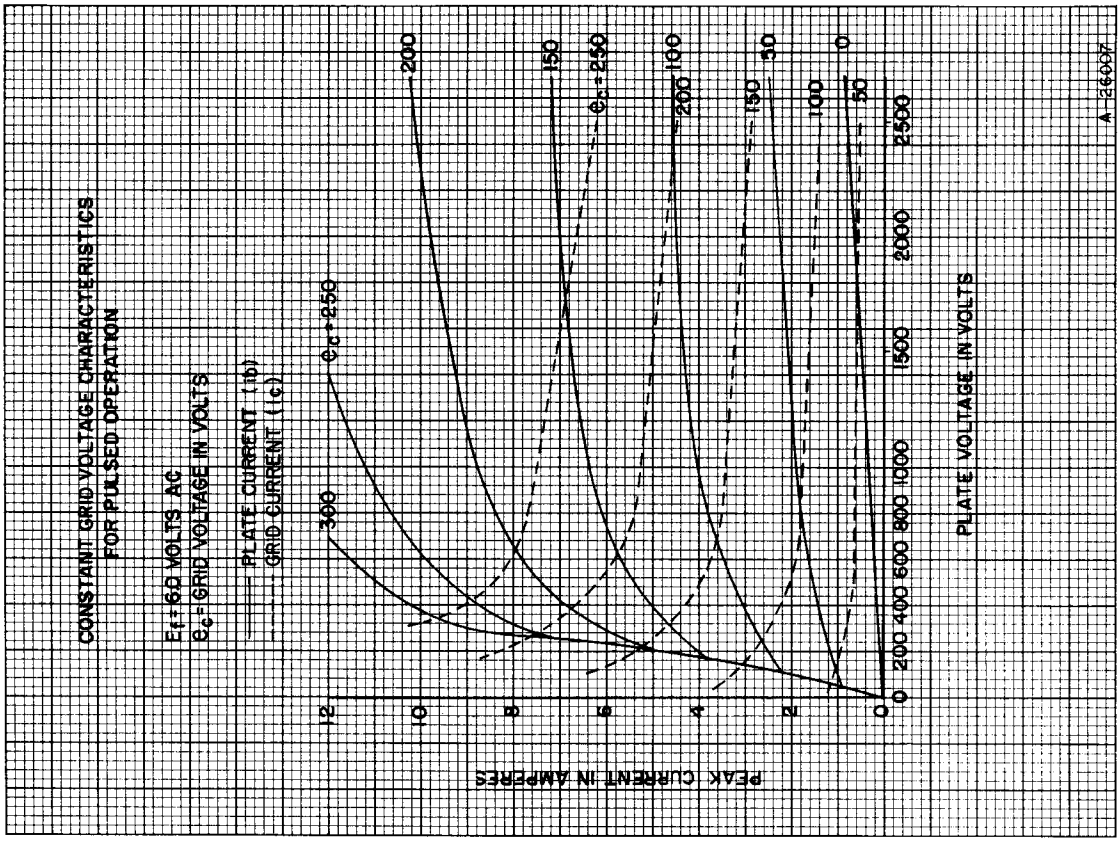
Note 2 — Measured at a plate voltage of 600 volts and a cathode-bias resistor of 30 ohms.

Note 3 — Measured at 1 mA of plate current and a plate voltage of 600 volts.

Note 4 — Capacitance measurements are with the tube cold. When the filament is heated to proper operating temperature the grid-cathode capacitance will increase by about 1 uuf due to thermal expansion of the cathode.

Note 5 — With a plate-grid coaxial cavity of fixed dimensions, all tubes will resonate within the specified frequency range.

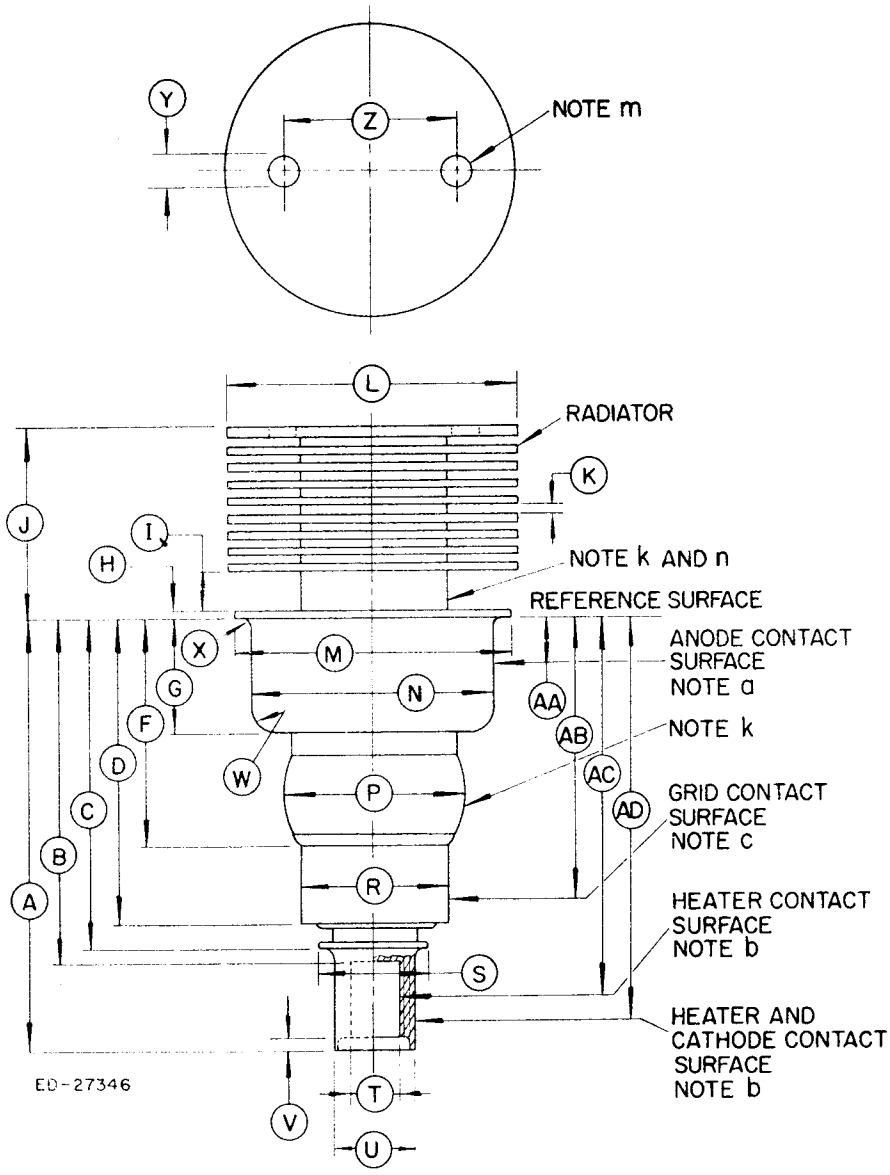

CONSTANT CURRENT CHARACTERISTICS
FOR PULSED OPERATION
Ef = 6.0 VOLTS A.C.
GRID VOLTAGE (Ec) IN VOLTS
PLATE VOLTAGE IN VOLTS
GRID CURRENT (Ic)
IN AMPERES
PLATE CURRENT (Ib)
IN AMPERES
A-17552 PM


CONSTANT GRID-VOLTAGE CHARACTERISTICS
FOR PULSED OPERATION
Ef = 6.0 VOLTS AC
Ec = GRID VOLTAGE IN VOLTS
PLATE CURRENT (Ib)
GRID CURRENT (Ic)
PEAK CURRENT IN AMPERES
PLATE VOLTAGE IN VOLTS
A-26007

OUTLINE AND DIMENSIONS

DIMENSIONS A ML-2C39A, ML-2C39WA, ML-2C41, ML-322, ML-7209, and ML-7210

DIMENSIONS B ML-322



DIMENSIONS FOR OUTLINE (INCHES)

	DIMENSIONS A		DIMENSIONS B	
Ref.	Min.	Max.	Min.	Max.
A	1.815	1.875	1.788	1.858
B	—	1.534	—	1.517
C	—	1.475	—	1.458
D	1.289	1.329	1.252	1.292
F	—	0.980	—	1.000
G	0.462	.477	.459	.479
H	—	.040	—	.040
I	.125	.185	.125	—
J	.766	.826	.736	.826
K	.025	.046	.015	—
L	1.234	1.264	1.235	1.265
M	1.180	1.195	1.788	1.199
N	1.025	1.035	1.021	1.039
P	—	0.812	—	.812
R	0.655	0.665	.652	.668
S	—	.545	—	.545
T	0.213	.223	.213	.223
U	.315	.325	.312	.328
V	—	.086	—	.086
W	—	.100	—	.100
X	—	.035	.105	.145
Y	.105	.145	.650	.850
Z	.650	.850		

DIMENSIONS FOR ELECTRODE CONTACT AREA (INCHES)

DIMENSIONS A

Ref.	Dimensions	Contact
AA	0.198 ± 0.163	Anode
AB	1.225 ± .040	Grid
AC	1.631 ± .097	Heater
AD	1.645 ± .170	Cathode

DIMENSIONS B

Ref.	Dimension	Contact
AA	0.195 ± .163	Anode
AB	1.210 ± .040	Cathode & Heater
AC	1.610 ± .092	Heater
AD	1.623 ± .165	Cathode & Heater

NOTES

a. The total indicated runout of the anode contact surface with respect to the cathode contact surface will not exceed 0.020 inch, except ML-322; 0.030 inch, ML-322.

b. The total indicated runout of the cathode contact surface with respect to the heater contact surface will not exceed 0.012 inch, except ML-322; 0.018 inch, ML-322.

c. The total indicated runout of the grid contact surface with respect to the cathode contact surface will not exceed 0.020 inch. Does not apply to ML-322.

k. Do not clamp or locate on this surface.

m. Hole provided for tube extractor through top fin only.

n. Measure anode shank temperature here.