

DESCRIPTION AND RATING

The 2C40-A is a triode of lighthouse construction designed for use as a CW oscillator, radio-frequency amplifier, or plate-pulsed oscillator at frequencies as high as 3370 megacycles.

The radio-frequency cathode connection is made through a disk-type capacitor which is incorporated in the tube. This results in a low-impedance radio-frequency path from the cathode to the external circuit.

The envelope construction results in low losses, provides convenient electrode contact surfaces, and enables the tube to fit easily into coaxial circuits.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	
Heater Characteristics and Ratings	
Heater Voltage, AC or DC*	6.3 ± 0.3 Volts
Heater Current†	0.75 Amperes
Direct Interelectrode Capacitances‡	
Grid to Plate: (g to p)	1.3 pf
Grid to Cathode: (g to k)	2.15 pf
Plate to Cathode	0.03 pf
Cathode RF Connection to Cathode	100 pf

MECHANICAL

Mounting Position—Any	
Net Weight, approximate	1.2 Ounces
Cooling—Convection and Conduction	

MAXIMUM RATINGS

ABSOLUTE-MAXIMUM VALUES

Radio-Frequency Power Amplifier or Oscillator—Class C	
Frequency	3370 Megacycles
DC Plate Voltage	500 Volts
DC Grid Voltage	-50 Volts
DC Plate Current	25 Milliampères
DC Grid Current	8.0 Milliampères
Plate Dissipation	6.5 Watts
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	90 Volts

Heater Negative with Respect to Cathode		90 Volts
Cathode-Cathode RF Connection Voltage		
Cathode RF Connection Positive with Respect to Cathode	90 Volts	
Cathode RF Connection Negative with Respect to Cathode	90 Volts	
Envelope Temperature at Hottest Point	175 C	

PLATE-PULSED OSCILLATOR

Cathode Heating Time, minimum	60 Seconds
Frequency	3370 Megacycles
Peak Positive-Pulse Plate Supply	
Voltage	1400 Volts
Duty Factor of Plate Pulse§	0.002
Pulse Duration	1.5 Microseconds
Plate Current	
Average§	3.0 Milliampères
Average During Plate Pulse	2.0 Amperes
Negative Grid Voltage	
Average During Plate Pulse	100 Volts
Grid Current	
Average§	1.5 Milliampères

Average During Plate Pulse	1.0 Amperes
Plate Dissipation§	4.0 Watts
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	90 Volts
Heater Negative with Respect to Cathode	90 Volts
Cathode-Cathode RF Connection Voltage	
Cathode RF Connection Positive with Respect to Cathode	90 Volts
Cathode RF Connection Negative with Respect to Cathode	90 Volts
Envelope Temperature at Hottest Point	175 C

CHARACTERISTICS AND TYPICAL OPERATION**AVERAGE CHARACTERISTICS**

Heater Voltage	6.3 Volts	Amplification Factor	35
Plate Voltage	250 Volts	Transconductance	5100 Micromhos
Cathode-Bias Resistor	200 Ohms	Plate Current	17 Milliamperes

RADIO-FREQUENCY OSCILLATOR

Frequency	3370 Megacycles	DC Grid Current, approximate	0.5 Milliamperes
DC Plate Voltage	250 Volts	DC Plate Current	20 Milliamperes
Grid Resistor	10000 Ohms	Power Output	75 Milliwatts
DC Grid Voltage	-5.0 Volts		

PLATE-PULSED OSCILLATOR

Frequency	3000 Megacycles	Plate Current	
Duty Factor	0.001	Average During Plate Pulse	1.0 Amperes
Pulse Duration	1.0 Microseconds	Useful Power Output	
Peak Positive-Pulse Plate Supply		Average	0.3 Watts
Voltage	1400 Volts	Average During Plate Pulse	300 Watts

* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

† Heater current of a bogey tube at $E_f = 6.3$ volts.
‡ Without external shield.
§ In any 500 microsecond interval.

Absolute-Maximum ratings are limiting values of operating and environmental conditions applicable to any electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making no allowance for equipment variations, environmental variations, and the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration and of

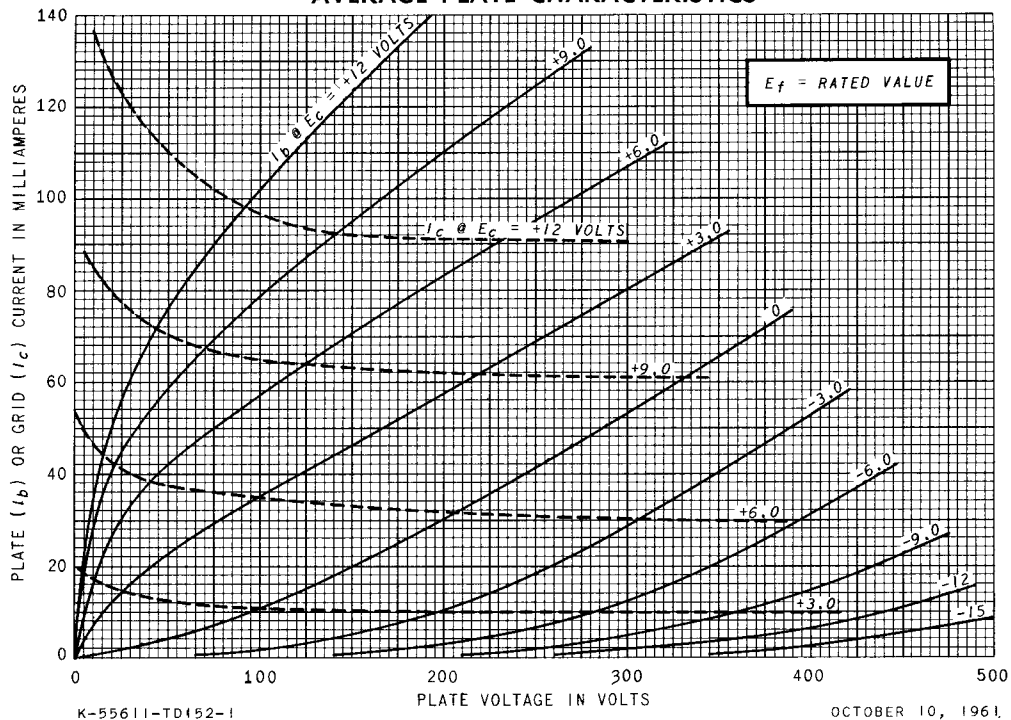
all other electron devices in the equipment.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of the tube under consideration and of all other electron devices in the equipment.

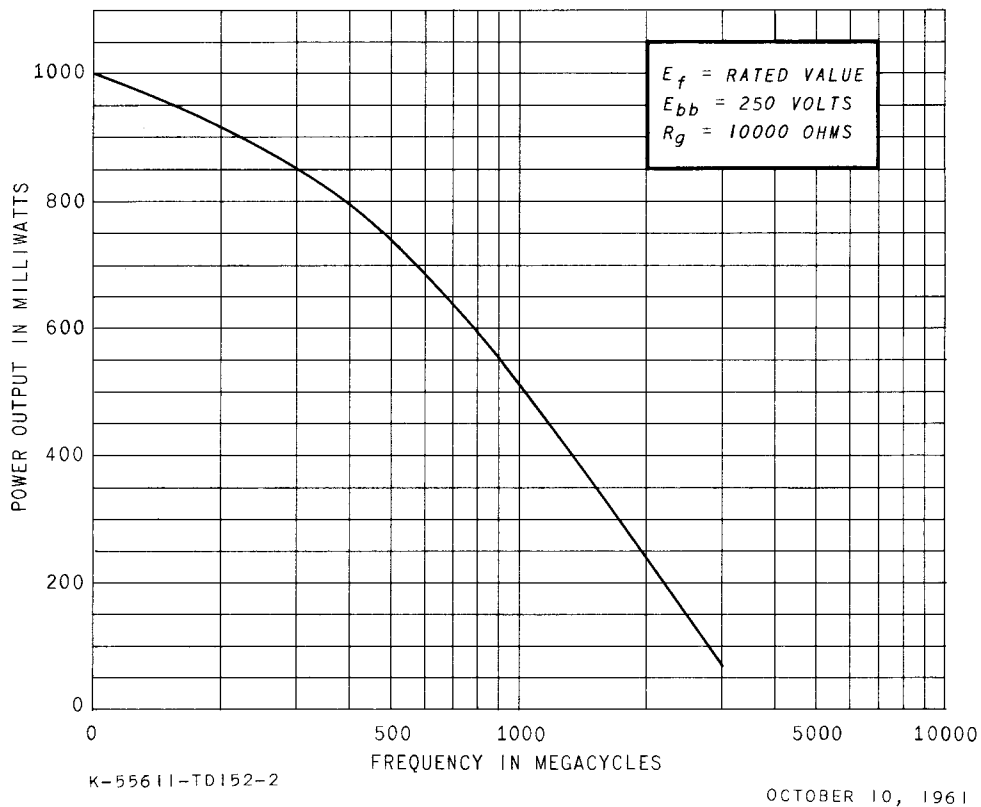
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AVERAGE PLATE CHARACTERISTICS



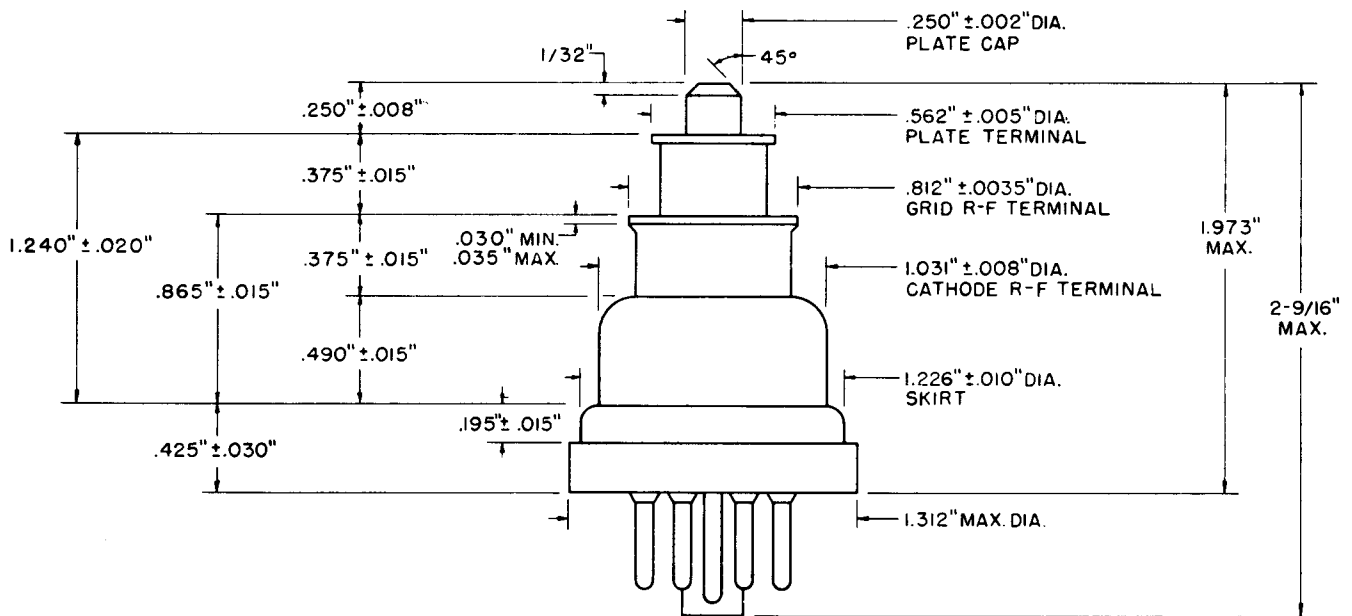
POWER OUTPUT VS. FREQUENCY



NOTES:

1. Glass shall not protrude beyond edge of anode RF terminal or grid RF terminal.
2. Plate cap and grid RF terminal to be concentric with respect to the cathode RF terminal within 1/64 inch (run-out of 1/32 inch maximum).

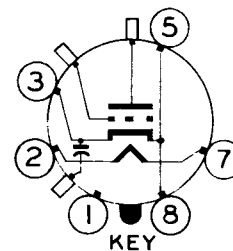
PHYSICAL DIMENSIONS



TERMINAL CONNECTIONS

- Pin 1—Internal Connection—Do Not Use
- Pin 2—Heater
- Pin 3—Cathode
- Pin 5—Cathode
- Pin 7—Heater
- Pin 8—Cathode
- Top Cap—Plate
- Disk Terminal—Grid
- Shell—Cathode RF Terminal

BASING DIAGRAM



RECEIVING TUBE DEPARTMENT



Owensboro, Kentucky