Electronic TUBES

50C5—12C5 17C5—25C5

BEAM PENTODE

FOR AF POWER AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 50C5 is a miniature beam pentode primarily designed for use in the audio-frequency power-output stage of radio receivers. The tube features high power sensitivity and high efficiency at relatively low plate and screen voltages normally available in this application.

The 25C5 differs from the 50C5 in heater ratings; the 12C5 and 17C5 differ from the 50C5 in heater and heater-cathode voltage ratings; in all other characteristics the four types are identical.

The controlled heater warm-up characteristic incorporated in the 12C5 and 17C5 make them especially suited for television receivers that employ series-connected heaters.

GENERAL

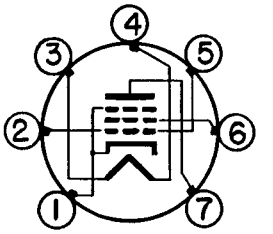
ELECTRICAL

Cathode—Coated Unipotential	12C5	17C5	25C5	50C5	
Heater Voltage, AC or DC	12.6	16.8	25.0	50.0	Volts
Heater Current	0.6	0.45	0.3	0.15	Amperes
Heater Warm-up Time*	11	11	....	....	Seconds
Direct Interelectrode Capacitances†					
Grid-Number 1 to Plate				0.55	μμf
Input				13	μμf
Output				9.0	μμf

MECHANICAL

Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

BASING DIAGRAM

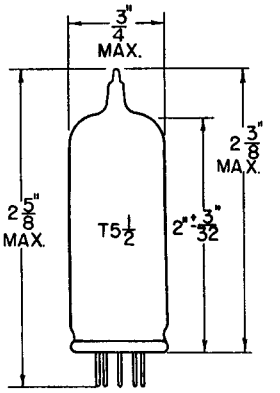


RETMA 7CV

TERMINAL CONNECTIONS

Pin 1—Cathode and Beam Plates
Pin 2—Grid Number 1
Pin 3—Heater
Pin 4—Heater
Pin 5—Grid Number 1
Pin 6—Grid Number 2 (Screen)
Pin 7—Plate

PHYSICAL DIMENSIONS



RETMA 5-3

GENERAL ELECTRIC

Supersedes ET-T990, dated 12-55

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage	135		Volts
Screen Voltage	117		Volts
Plate Dissipation	5.5		Watts
Screen Dissipation	1.25		Watts
Heater-Cathode Voltage	**12C5**	**25C5**	
Heater Positive with Respect to Cathode	**17C5**	**50C5**	
DC Component	100	100	Volts
Total DC and Peak	200	200	Volts
Heater Negative with Respect to Cathode			
DC Component	200	...	Volts
Total DC and Peak	300	200	Volts
Grid-Number 1 Circuit Resistance			
With Fixed Bias	0.1		Megohms
With Cathode Bias	0.5		Megohms
Bulb Temperature at Hottest Point	250		C

CHARACTERISTICS AND TYPICAL OPERATION

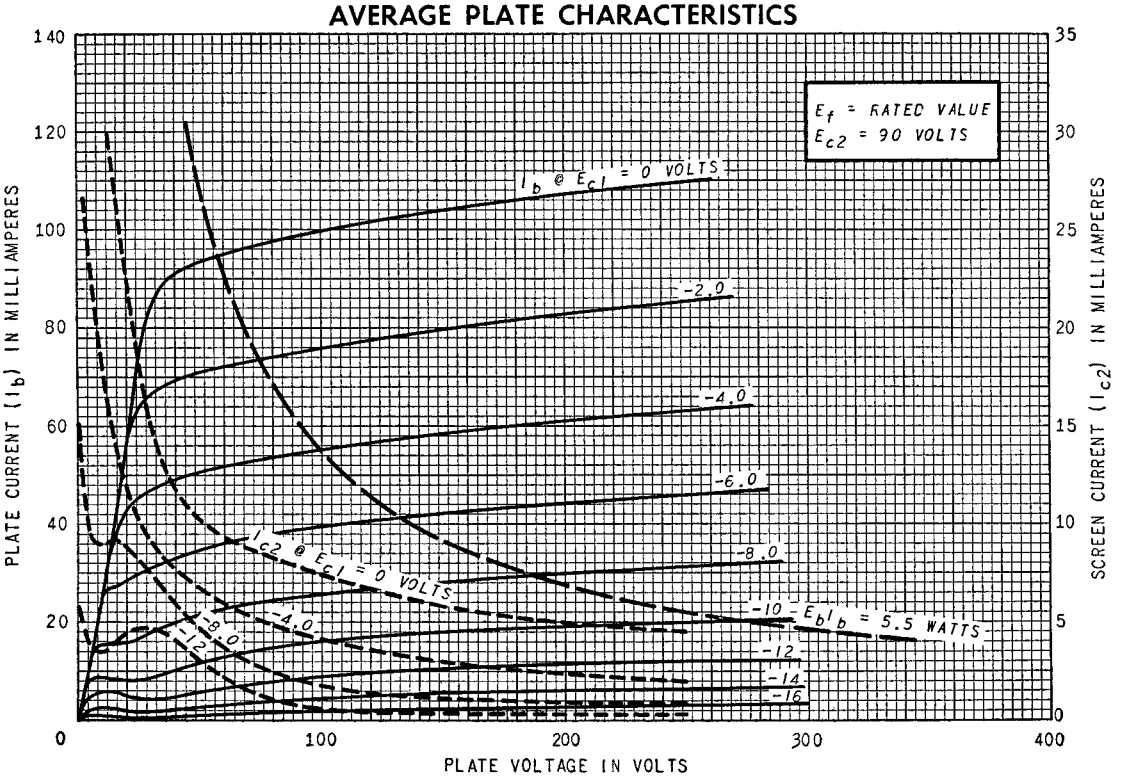
CLASS A_1 AMPLIFIER

Plate Voltage	110	Volts
Screen Voltage	110	Volts
Grid-Number 1 Voltage	−7.5	Volts
Peak AF Grid-Number 1 Voltage	7.5	Volts
Plate Resistance, approximate	10000	Ohms
Transconductance	7500	Micromhos
Zero-Signal Plate Current	49	Milliamperes
Maximum-Signal Plate Current	50	Milliamperes
Zero-Signal Screen Current	4.0	Milliamperes
Maximum-Signal Screen Current	8.5	Milliamperes
Load Resistance	2500	Ohms
Total Harmonic Distortion, approximate	9	Percent
Maximum-Signal Power Output	1.9	Watts

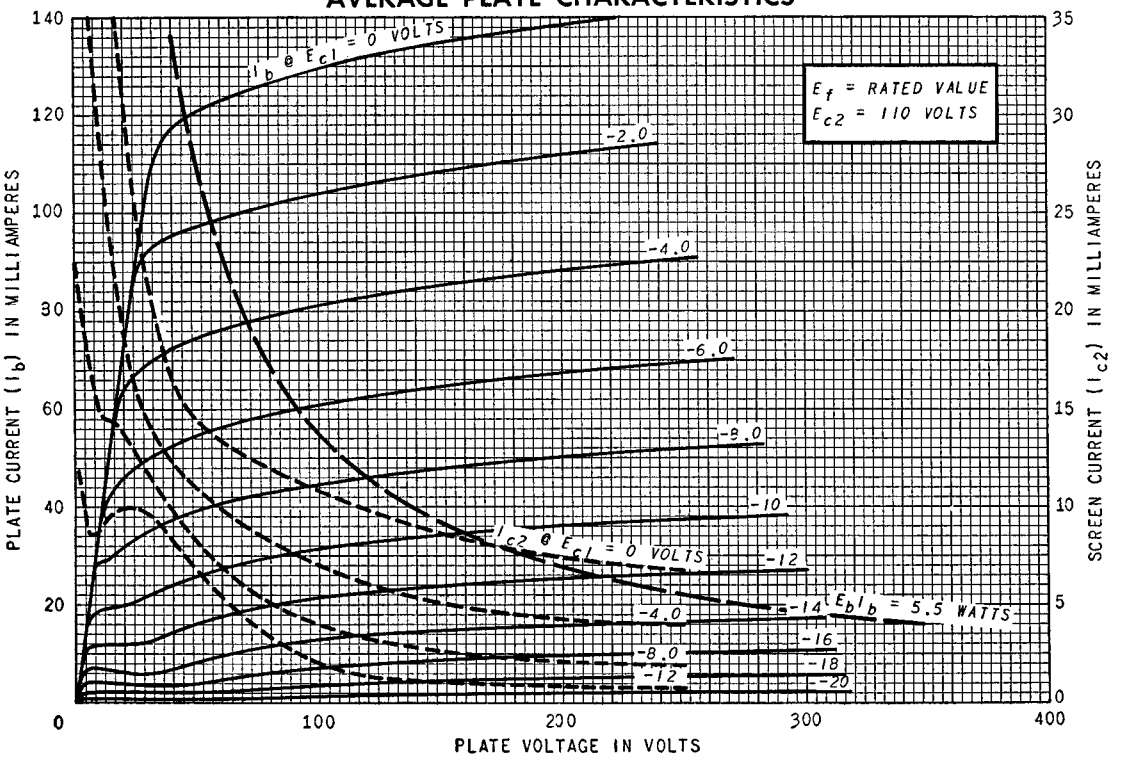
* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† Without external shield.

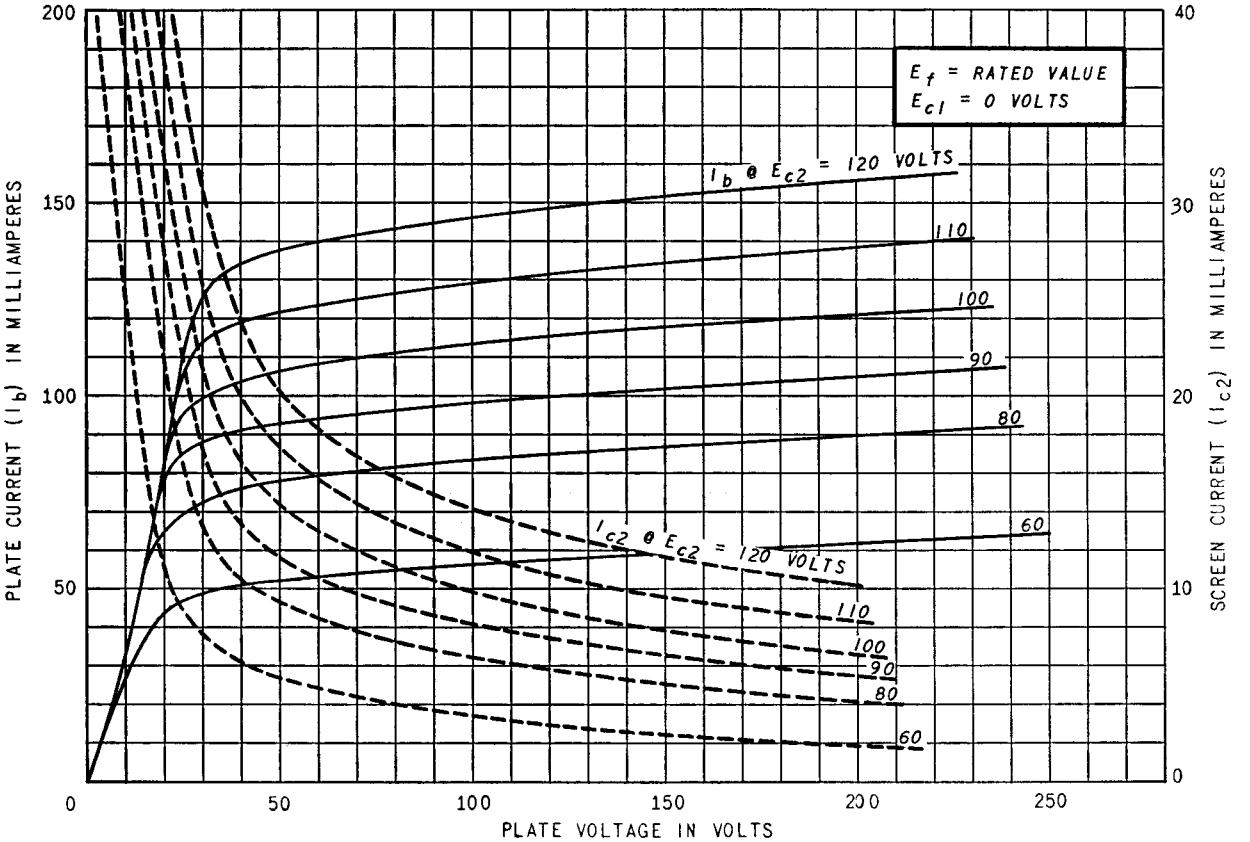
AVERAGE PLATE CHARACTERISTICS



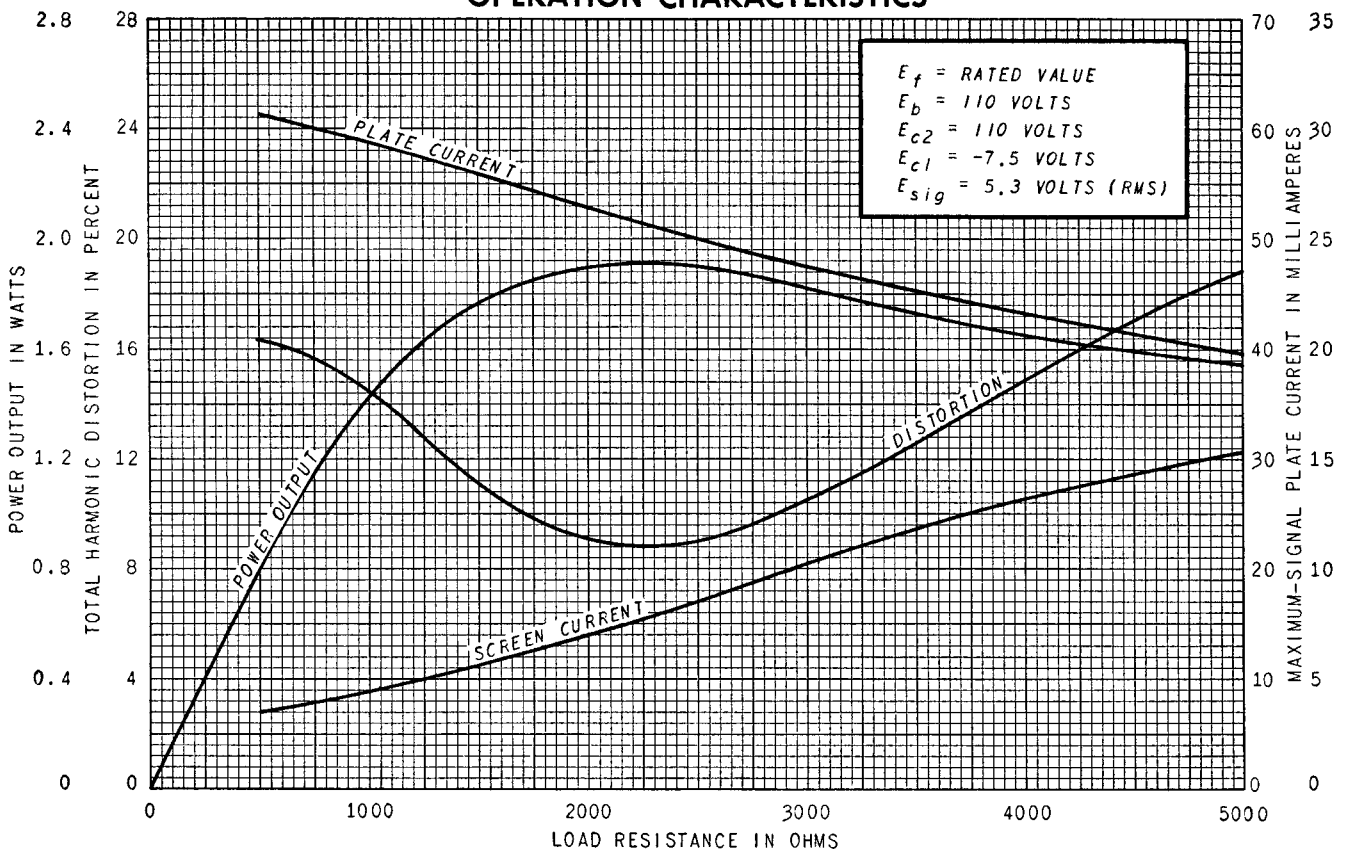
AVERAGE PLATE CHARACTERISTICS



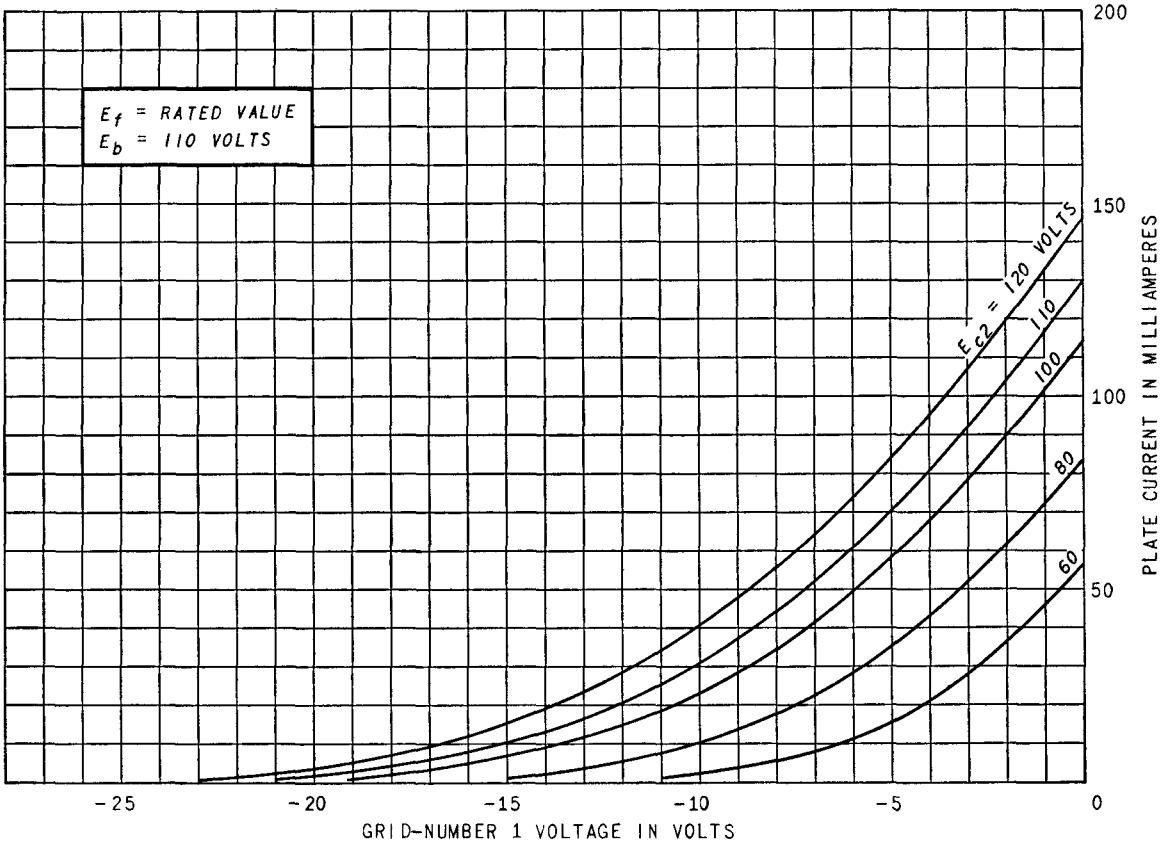
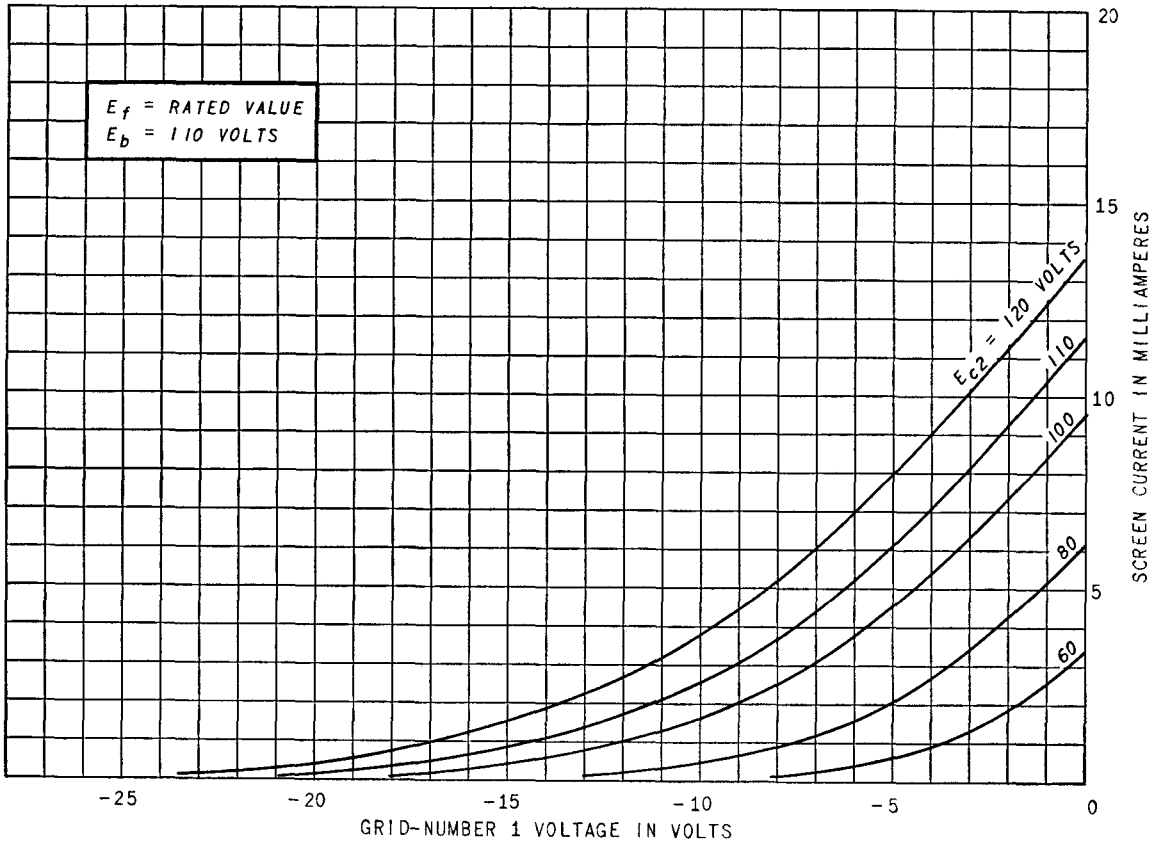
AVERAGE PLATE CHARACTERISTICS



OPERATION CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS