

42
Description and Rating
POWER-AMPLIFIER PENTODE

GENERAL DESCRIPTION

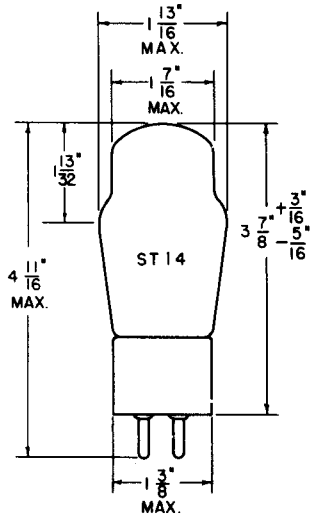
Principal Application: The 42 is a heater-cathode type pentode amplifier tube designed for use as a power-amplifier in the audio-output stage of a-c or

Cathode: Coated Unipotential
Heater Voltage (A-C or D-C) 6.3 Volts
Heater Current 0.7 Ampere

battery-operated equipment. Electrically the 42, 6F6 and 6F6-GT are identical and the 42 and 2A5 are the same except for heater rating.

Envelope: ST-14 Glass
Base: A6-12 Medium 6-Pin Phenolic
Mounting Position: Any

PHYSICAL DIMENSIONS

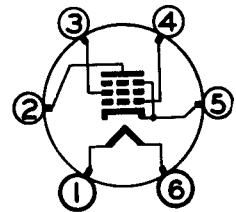


RMA 14-1

TERMINAL CONNECTIONS

- Pin 1 - Heater
- Pin 2 - Plate
- Pin 3 - Grid No. 2 (Screen)
- Pin 4 - Grid Number 1
- Pin 5 - Cathode and Grid No. 3
- Pin 6 - Heater

BASING DIAGRAM



RMA 6B
BOTTOM VIEW

MAXIMUM RATINGS

| | Pentode | | Triode § | | |
|---------------------------------------|---------------|----------|---------------|----------|-------|
| | Design Center | Absolute | Design Center | Absolute | |
| Plate Voltage | 375 | 415 | 350 | 385 | Volts |
| Screen (Grid No. 2) Voltage | 285 | 315 | --- | --- | Volts |
| Screen Supply Voltage | 375 | 415 | --- | --- | Volts |
| Plate Dissipation | 11.0 | 12.1 | 10 | 11 | Watts |
| Screen Dissipation | 3.75 | 4.13 | --- | --- | Watts |
| D-C Heater-Cathode Voltage | 90 | 100 | 90 | 100 | Volts |

§ With grid number 2 (screen) connected to plate.

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A AMPLIFIER - PENTODE CONNECTION

| | Fixed Bias | | Cathode Bias | | |
|---|------------|-------|--------------|------|--------------|
| Heater Voltage | 6.3 | 6.3 | 6.3 | 6.3 | Volts |
| Plate Voltage | 250 | 285 | 250 | 285 | Volts |
| Screen Voltage | 250 | 285 | 250 | 285 | Volts |
| Grid Bias Voltage ** | -16.5 | -20 | --- | --- | Volts |
| Cathode Bias Resistor | --- | --- | 410 | 440 | Ohms |
| Peak A-F Grid Voltage | 16.5 | 20 | 16.5 | 20 | Volts |
| Plate Resistance (Approx) | 80000 | 78000 | --- | --- | Ohms |
| Transconductance | 2500 | 2550 | --- | --- | Micromhos |
| Zero-Signal Plate Current | 34 | 38 | 34 | 38 | Milliamperes |
| Zero-Signal Screen Current | 6.5 | 7.0 | 6.5 | 7.0 | Milliamperes |
| Maximum-Signal Plate Current | 36 | 40 | 35 | 38 | Milliamperes |
| Maximum-Signal Screen Current | 10.5 | 13 | 9.7 | 12 | Milliamperes |
| Load Resistance | 7000 | 7000 | 7000 | 7000 | Ohms |
| Total Harmonic Distortion | 8 | 9 | 8.5 | 9 | Per Cent |
| Maximum-Signal Power Output | 3.2 | 4.8 | 3.1 | 4.5 | Watts |

CLASS A AMPLIFIER - TRIODE CONNECTION §

| | Fixed Bias | Cathode Bias | |
|--|------------|--------------|--------------|
| Heater Voltage | 6.3 | 6.3 | Volts |
| Plate Voltage | 250 | 250 | Volts |
| Grid Bias Voltage ** | -20 | --- | Volts |
| Cathode Bias Resistor | --- | 650 | Ohms |
| Peak A-F Grid Voltage | 20 | 20 | Volts |
| Plate Resistance (Approx) | 2600 | --- | Ohms |
| Transconductance | 2600 | --- | Micromhos |
| Zero-Signal Plate Current | 31 | 31 | Milliamperes |
| Maximum-Signal Plate Current | 34 | 32 | Milliamperes |
| Load Resistance | 4000 | 4000 | Ohms |
| Total Harmonic Distortion | 6.5 | 6.5 | Per Cent |
| Maximum-Signal Power Output | 0.85 | 0.80 | Watt |

PUSH-PULL CLASS A AMPLIFIER - PENTODE CONNECTION

| | Fixed Bias | Cathode Bias | |
|--|------------|--------------|--------------|
| Heater Voltage | 6.3 | 6.3 | Volts |
| Plate Voltage | 315 | 315 | Volts |
| Screen Voltage | 285 | 285 | Volts |
| Grid Bias Voltage ** | -24 | --- | Volts |
| Cathode Bias Resistor | --- | 320 | Ohms |
| Peak A-F Grid to Grid Voltage | 48 | 58 | Volts |
| Zero-Signal Plate Current | 62 | 62 | Milliamperes |
| Zero-Signal Screen Current | 12 | 12 | Milliamperes |
| Maximum-Signal Plate Current | 80 | 73 | Milliamperes |
| Maximum-Signal Screen Current | 19.5 | 18 | Milliamperes |
| Effective Load Resistance (Plate to Plate) | 10000 | 10000 | Ohms |
| Total Harmonic Distortion | 4 | 3 | Per Cent |
| Maximum-Signal Power Output | 11 | 10.5 | Watts |

§ With grid number 2 (screen) connected to plate.

** The d-c resistance in the grid circuit, under maximum rated conditions, should not exceed 0.1 megohm for fixed bias operation and 0.5 megohm for cathode bias operation.

Unless otherwise specified the values given are for two tubes.

PUSH-PULL CLASS AB₂ AMPLIFIER ##

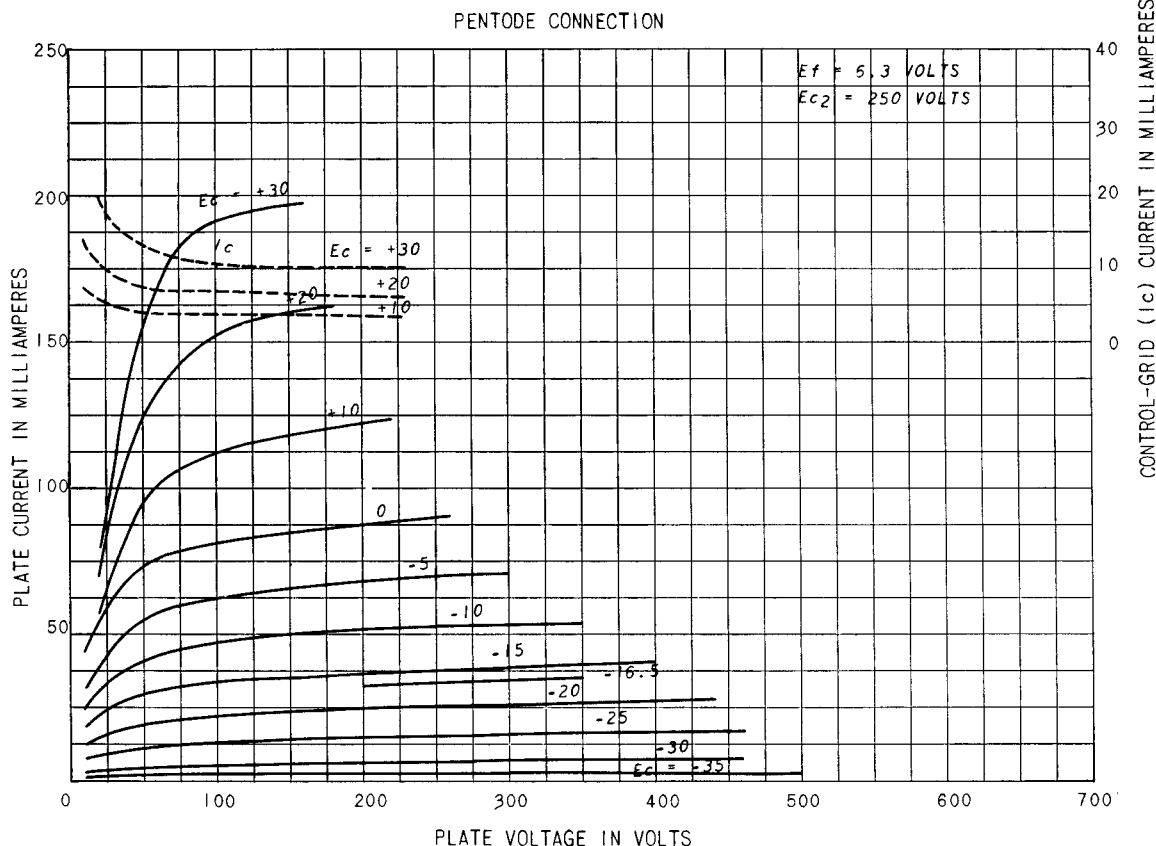
| | Pentode Connection | | Triode Connection § | | |
|---|--------------------|-----------------|---------------------|-----------------|--------------|
| | Fixed Bias | Cathode Bias | Fixed Bias | Cathode Bias | |
| Heater Voltage | 6.3 | 6.3 | 6.3 | 6.3 | Volts |
| Plate Voltage | 375 | 375 | 350 | 350 | Volts |
| Screen Voltage | 250 | 250 | --- | --- | Volts |
| Grid Bias Voltage ** | -26 | --- | -39 | --- | Volts |
| Cathode Bias Resistor | --- | 340 | --- | 730 | Ohms |
| Peak A-F Grid to Grid Voltage | 82 | 94 | 123 | 132 | Volts |
| Zero-Signal Plate Current | 34 | 54 | 48 | 50 | Milliamperes |
| Zero-Signal Screen Current | 5 | 8 | --- | --- | Milliamperes |
| Maximum-Signal Plate Current | 82 | 77 | 92 | 60 | Milliamperes |
| Maximum-Signal Screen Current | 19.5 | 18 | --- | --- | Milliamperes |
| Effective Load Resistance (Plate to Plate) | 10000 | 10000 | 6000 | 10000 | Ohms |
| Total Harmonic Distortion | 3.5 | 5 | 2 | 3 | Per Cent |
| Maximum-Signal Power Output | 18.5 | 19 | 13 | 9 | Watts |

§ With grid number 2 (screen) connected to plate.

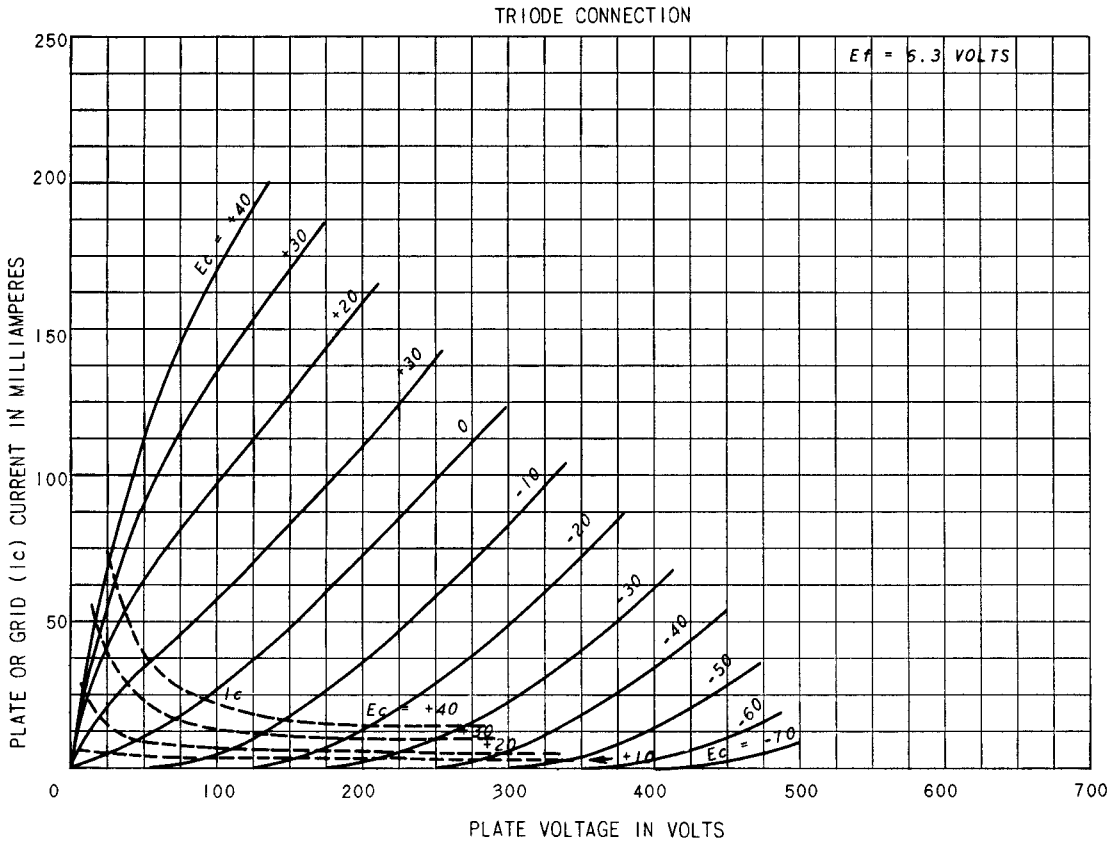
** The d-c resistance in the grid circuit, under maximum rated conditions, should not exceed 0.1 megohm for fixed bias operation and 0.5 megohm for cathode bias operation.

Unless otherwise specified the values given are for two tubes.

AVERAGE PLATE CHARACTERISTICS



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Electronics Department



Schenectady, N. Y.