Electronic TUBES

# 5687

# TWIN TRIODE

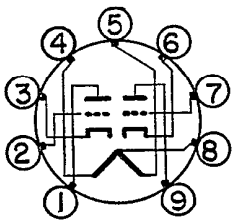
## FOR GENERAL-PURPOSE AMPLIFIER APPLICATIONS

MEDIUM-MU
9-PIN MINIATURE
HIGH PERVEANCE
SEPARATE CATHODES

## DESCRIPTION AND RATING

The 5687 is a miniature, medium-mu twin triode for use in general-purpose amplifier applications. The tube is characterized by high perveance and high emission capabilities. Except for the common heater connection, each section is electrically independent.

### BASING DIAGRAM




EIA 9H

## GENERAL

### ELECTRICAL

| | Series | Parallel | |
|---|---|---|---|
| Cathode—Coated Unipotential | | | |
| Heater Voltage, AC or DC | 12.6±10% | 6.3±10% | Volts |
| Heater Current | 0.45 | 0.9 | Amperes |
| Direct Interelectrode Capacitances* | | | |
| Grid to Plate, Each Section | | 4.0 | μμf |
| Input, Each Section | | 4.0 | μμf |
| Output, Section 1 | | 0.6 | μμf |
| Output, Section 2 | | 0.5 | μμf |
| Heater to Cathode, Each Section | | 7.0 | μμf |
| Grid to Grid, approximate | | 0.025 | μμf |
| Plate to Plate, approximate | | 0.75 | μμf |

* Without external shield.

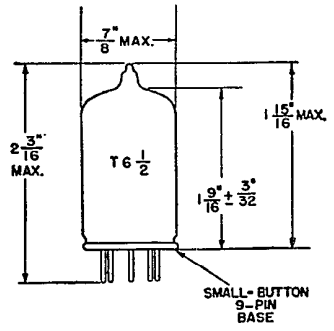
### TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—Grid (Section 2)
Pin 3—Cathode (Section 2)
Pin 4—Heater
Pin 5—Heater
Pin 6—Cathode (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Heater Center Tap
Pin 9—Plate (Section 1)

### MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

### PHYSICAL DIMENSIONS




EIA 6-2



GENERAL ELECTRIC

*Supersedes ET-T1018A dated 7-55*

## MAXIMUM RATINGS

### DESIGN-CENTER VALUES, Each Section

| | | |
|---|---|---|
| Plate Voltage | 300 | Volts |
| Inverse Plate Voltage | 1000 | Volts |
| Plate Dissipation, Each Plate | 4.2 | Watts |
| Total Plate Dissipation, Both Plates | 7.5 | Watts |
| DC Grid Current | 6.0 | Milliamperes |
| Heater-Cathode Voltage | | |
| Heater Positive with Respect to Cathode | 90 | Volts |
| Heater Negative with Respect to Cathode | 90 | Volts |
| Grid-Circuit Resistance | 1.0 | Megohms |
| Bulb Temperature at Hottest Point | 220 | C |

Design-Center ratings are limiting values of operating and environmental conditions applicable to a bogey tube of a specified type as defined by its published data, and should not be exceeded under normal conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube in average applications, taking responsibility for normal changes in operating conditions due to rated supply-voltage variation, equipment component variations, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in tube characteristics.

The equipment manufacturer should design so that initially no design-center value for the intended service is exceeded with a bogey tube in equipment operating at the stated normal supply-voltage.

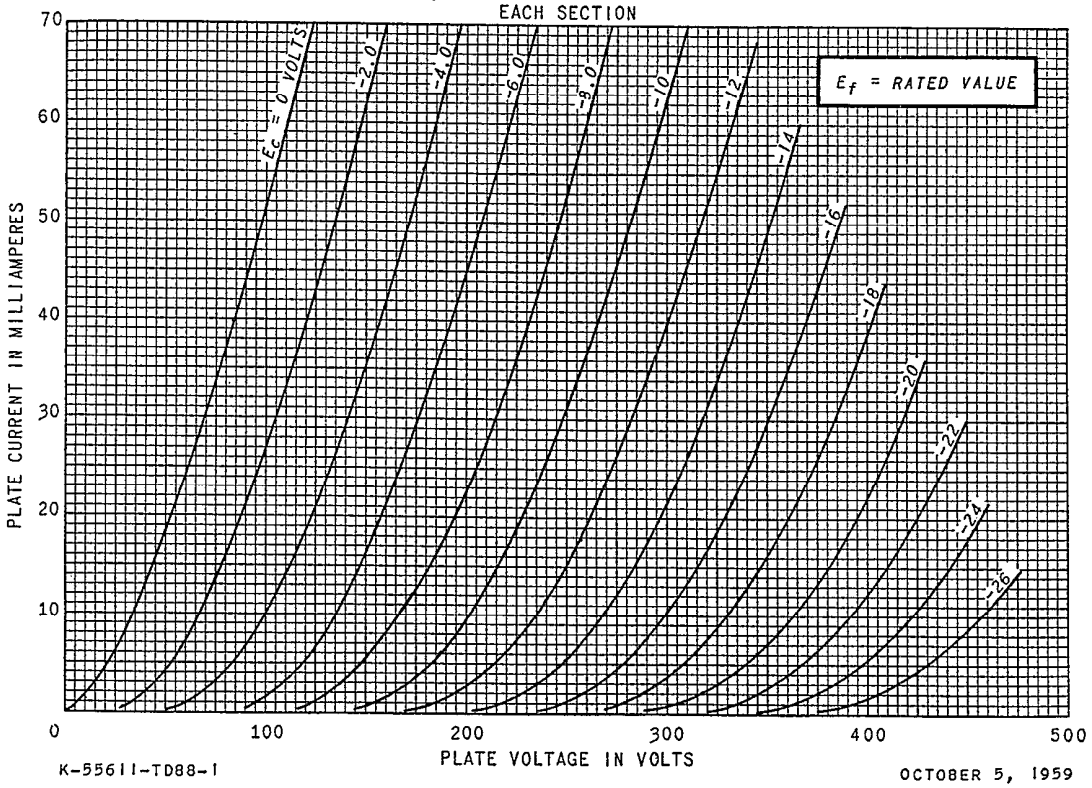
## CHARACTERISTICS AND TYPICAL OPERATION

### CLASS $A_1$ AMPLIFIER, Each Section

| | | | | |
|---|---|---|---|---|
| Plate Voltage | 120 | 180 | 250 | Volts |
| Grid Voltage | −2 | −7 | −12.5 | Volts |
| Amplification Factor | 18 | 17 | 16 | |
| Plate Resistance, approximate | 1560 | 2000 | 3000 | Ohms |
| Transconductance | 11,500 | 8500 | 5400 | Micromhos |
| Plate Current | 36 | 23 | 12 | Milliamperes |
| Grid Voltage, approximate | | | | |
| Ib = 100 Microamperes | −9 | −14 | −19 | Volts |

## AVERAGE PLATE CHARACTERISTICS

EACH SECTION




K-55611-TD88-1

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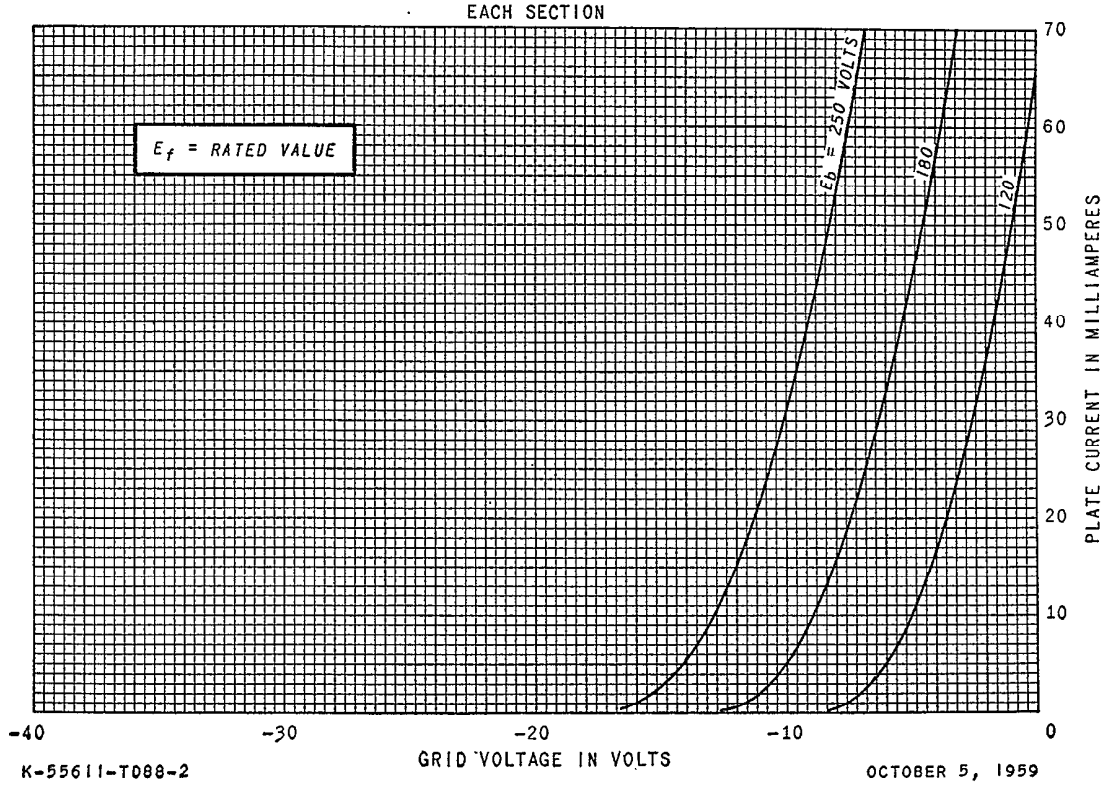
## AVERAGE TRANSFER CHARACTERISTICS

EACH SECTION




K-55611-TD88-2

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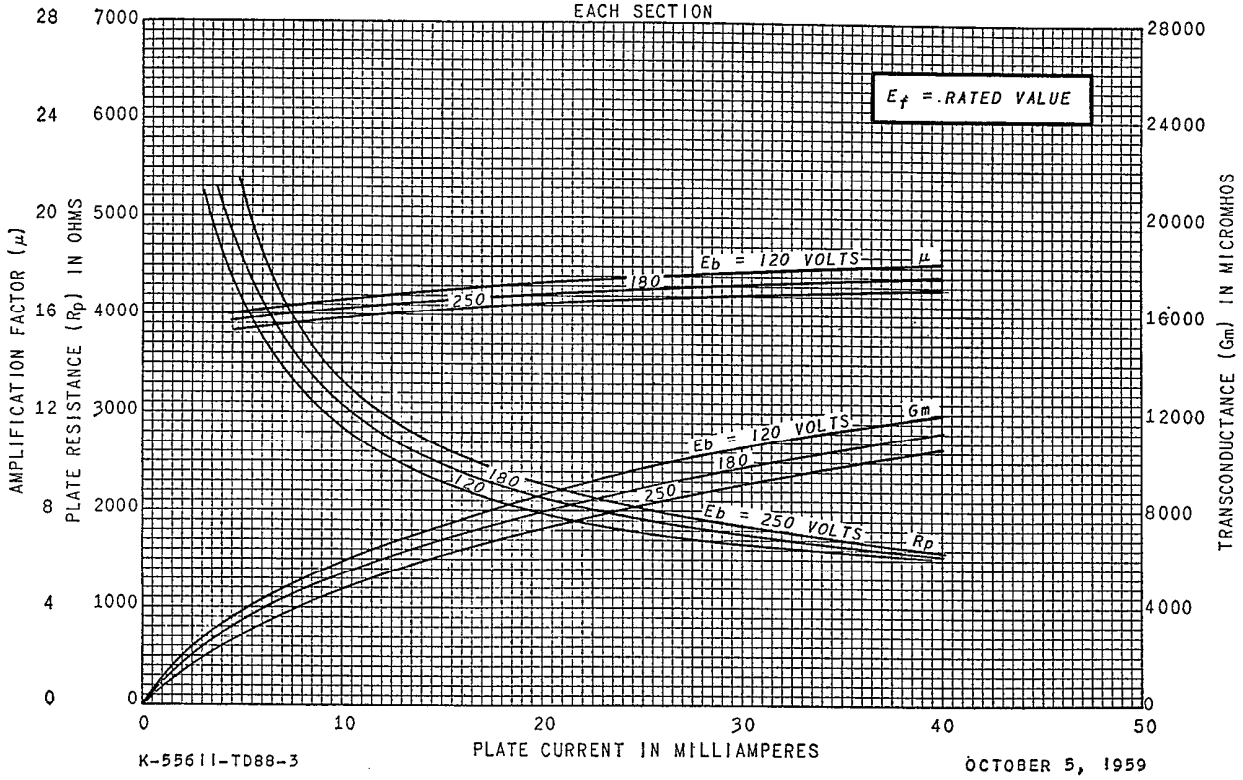
## AVERAGE CHARACTERISTICS

EACH SECTION

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