



# 6J6-5J6-19J6

## TWIN TRIODE

**6J6**  
**5J6**  
**19J6**  
ET-T892  
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7-54

### DESCRIPTION AND RATING

The 6J6 is a miniature medium-mu twin triode designed for use as a radio-frequency amplifier, oscillator, or mixer. With the grids connected in push-pull and the plates connected in parallel, each type may be used as a mixer at frequencies as high as 600 megacycles.

The 5J6, 6J6, and 19J6 are alike except for heater ratings and heater-cathode ratings. The 5J6, in addition, exhibits a controlled heater warm-up characteristic which makes the tube especially suited for use in television receivers which employ series-connected heaters. When the 5J6 is used in conjunction with other 600-milliamperre types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

### GENERAL

#### ELECTRICAL

Cathode—Coated Unipotential

	5J6	6J6	19J6
Heater Voltage, AC or DC	4.7	6.3	18.9 Volts
Heater Current	0.6	0.45	0.15 Amperes
Heater Warm-up Time*	11	.....	..... Seconds

Direct Interelectrode Capacitances	With Shield †	Without Shield
Grid to Plate, Each Section	1.5	1.6 $\mu\mu\text{f}$
Input, Each Section	2.6	2.2 $\mu\mu\text{f}$
Output, Section 1	1.6	0.4 $\mu\mu\text{f}$
Output, Section 2	1.0	0.4 $\mu\mu\text{f}$

#### MECHANICAL

Mounting Position—Any

Envelope—T-5½, Glass

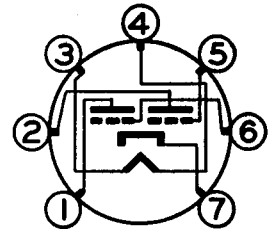
Base—E7-1, Miniature Button 7-Pin

### MAXIMUM RATINGS

DESIGN-CENTER VALUES, EACH SECTION	Class A <sub>1</sub> Amplifier	Class C Telegraphy
Plate Voltage	300	300 Volts
Positive DC Grid Voltage	0	0 Volts
Negative DC Grid Voltage	.....	40 Volts
Plate Input	.....	4.5 Watts
Plate Dissipation	1.5	1.5 Watts
DC Plate Current	.....	15 Milliamperes
DC Grid Current	.....	8.0 Milliamperes

Heater-Cathode Voltage	5J6	6J6	19J6	5J6	6J6	19J6
Heater Positive with Respect to Cathode	.....	.....	.....	.....	.....	.....
DC Component	100	.....	100	.....	100	..... Volts
Total DC and Peak	200	100	200	100	100	..... Volts
Heater Negative with Respect to Cathode	.....	.....	.....	.....	.....	.....
Total DC and Peak	200	100	200	100	100	..... Volts
Grid Circuit Resistance	.....	.....	.....	.....	.....	.....
With Cathode Bias †	0.5	0.5	.....	.....	.....	..... Megohms

### BASING DIAGRAM

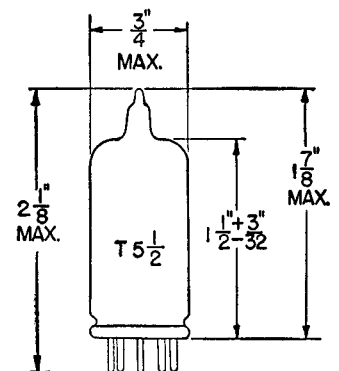


RETMA 78F

### TERMINAL CONNECTIONS

- Pin 1—Plate (Section 2)
- Pin 2—Plate (Section 1)
- Pin 3—Heater
- Pin 4—Heater
- Pin 5—Grid (Section 1)
- Pin 6—Grid (Section 2)
- Pin 7—Cathode

### PHYSICAL DIMENSIONS



RETMA 5-2

**GENERAL ELECTRIC**

Supersedes ET-T835 dated 2-54

## CHARACTERISTICS AND TYPICAL OPERATION

### CLASS A<sub>1</sub> AMPLIFIER, EACH SECTION§

Plate Voltage . . . . .	100 Volts
Cathode-Bias Resistor . . . . .	50 Ohms
Amplification Factor . . . . .	38
Plate Resistance, approximate . . . . .	7100 Ohms
Transconductance . . . . .	5300 Micromhos
Plate Current . . . . .	8.5 Milliamperes

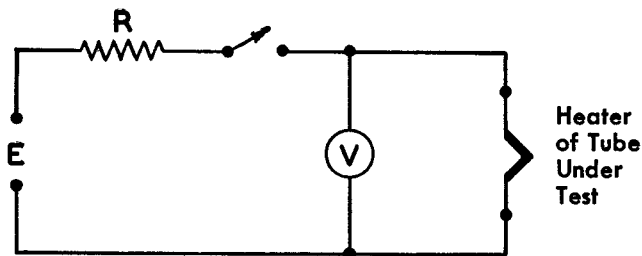
### CLASS C TELEGRAPHY, RF POWER AMPLIFIER AND OSCILLATOR—BOTH SECTIONS IN PUSH-PULL

DC Plate Voltage . . . . .	150 Volts
DC Grid Voltage $\pi$ . . . . .	-10 Volts
DC Plate Current . . . . .	30 Milliamperes
DC Grid Current, approximate . . . . .	16 Milliamperes
Grid Driving Power, approximate . . . . .	0.35 Watts
Power Output, approximate . . . . .	3.5 Watts

### MIXER SERVICE, EACH SECTION△

Plate Voltage . . . . .	150 Volts
Cathode-Bias Resistor . . . . .	810 Ohms
Oscillator Peak Voltage . . . . .	3.0 Volts
Plate Resistance, approximate . . . . .	10200 Ohms
Conversion Transconductance . . . . .	1900 Micromhos
Plate Current . . . . .	4.8 Milliamperes

\* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage ( $V_1$ ). For this type,  $E=18.7$  volts (RMS or DC),  $V_1=3.73$  volts (RMS or DC), and  $R=23.5$  ohms.



† With external shield (RETMA 316) connected to pin 7.

‡ Operation with fixed bias is not recommended.

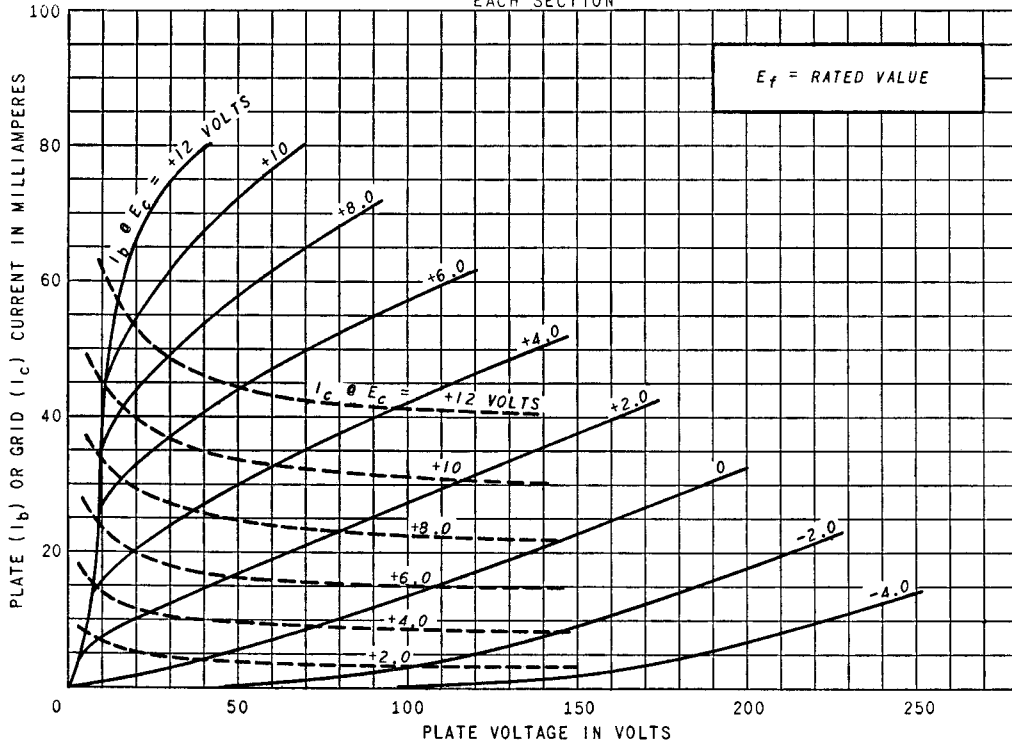
§ Each section separately with specified voltages applied to both sections.

$\pi$  Obtained by a 625-ohm grid resistor, a 220-ohm cathode resistor, or a fixed-voltage supply.

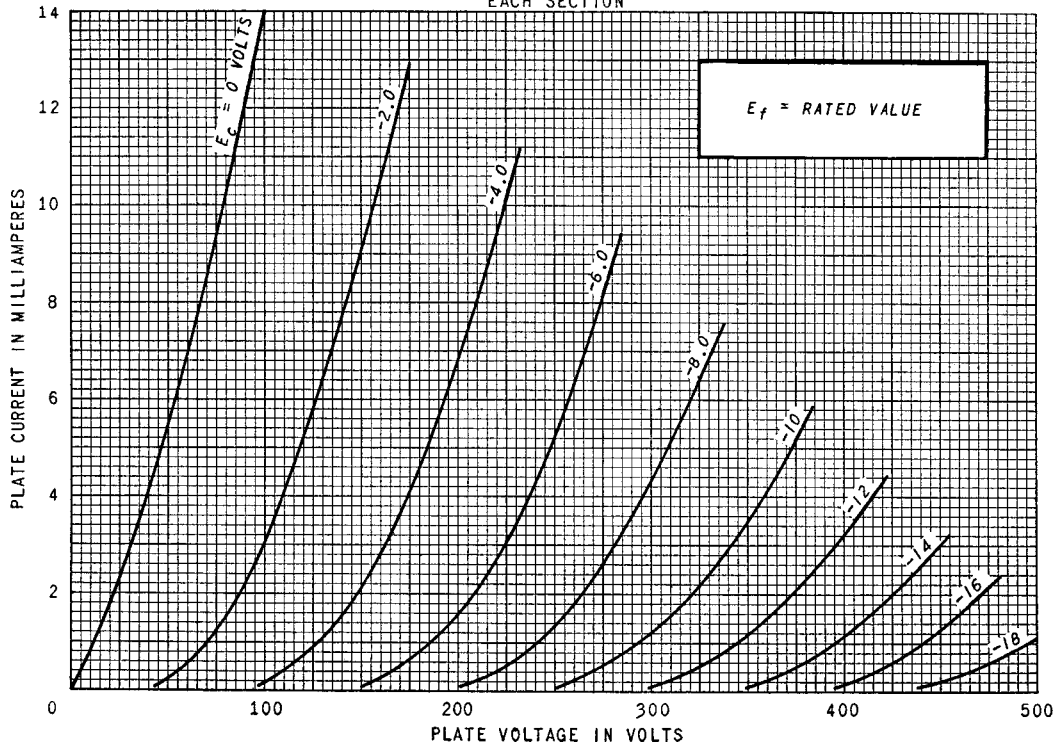
△ Each section separately with grid and plate of opposite section grounded. In actual service, the value of the cathode-bias resistor is determined by the total cathode current of both sections.

Note: Approximately 1.0 watt can be obtained when the tube is operated as a push-pull oscillator at 250 megacycles with a plate voltage of 150 volts, with maximum rated plate dissipation, and with a grid resistor of 2000 ohms common to both sections.

**AVERAGE PLATE CHARACTERISTICS**  
 EACH SECTION

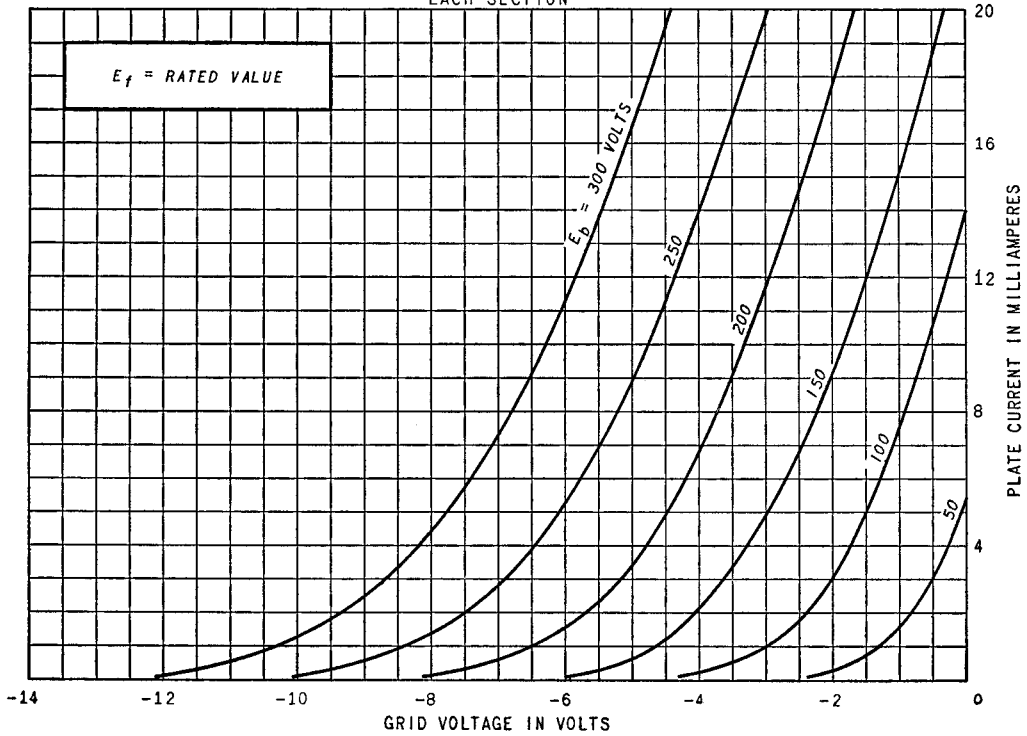


**AVERAGE PLATE CHARACTERISTICS**  
 EACH SECTION



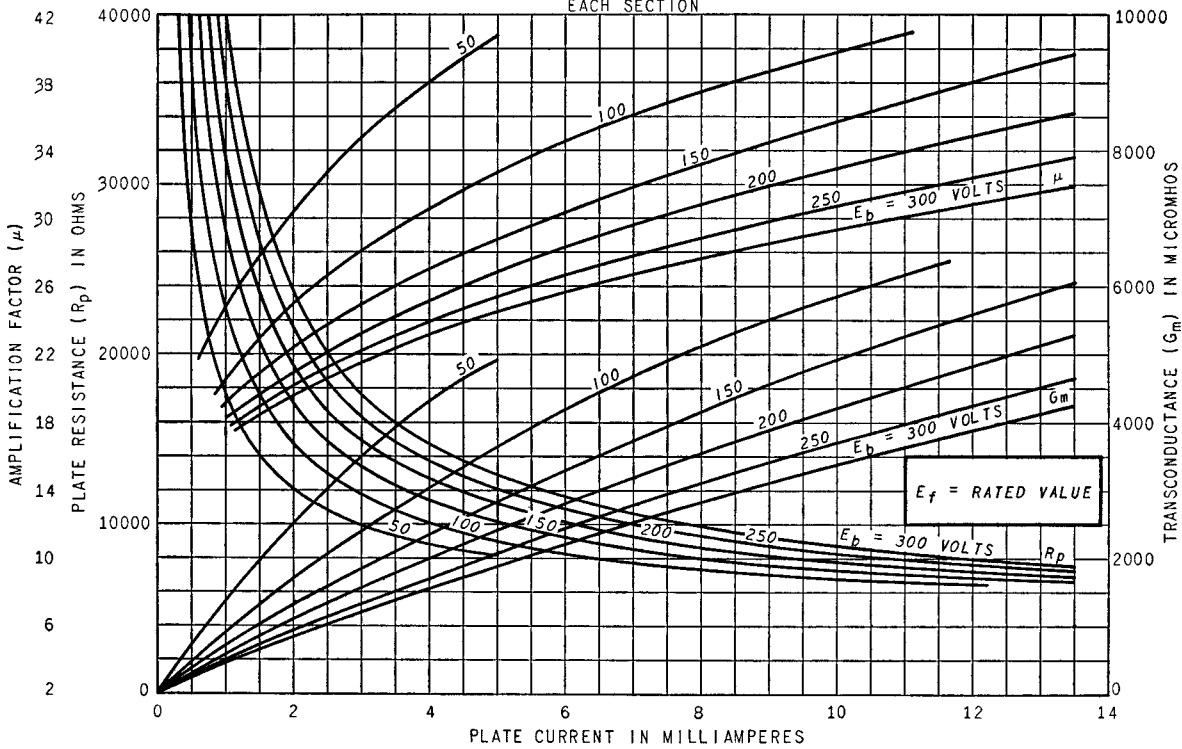
AVERAGE TRANSFER CHARACTERISTICS

EACH SECTION



AVERAGE CHARACTERISTICS

EACH SECTION



TUBE DEPARTMENT



Schenectady 5, N. Y.