

# 6T8—5T8—19T8

## TRIPLE-DIODE TRIODE

### DESCRIPTION AND RATING

The 6T8 is a miniature triple-diode, high-mu triode intended primarily for use as a combined AM detector, FM detector, and audio-frequency voltage amplifier in radio and television receivers. For flexibility in circuit design, one of the three high-perveance diodes is provided with a separate cathode connection.

The 5T8, 6T8, and 19T8 are alike except for heater ratings and heater-cathode voltage ratings. The 19T8 is particularly suited for use in a-c/d-c radio receivers; while the 5T8, as a result of its controlled heater warm-up characteristic, is especially well suited for use in television receivers which employ series-connected heaters. When the 5T8 is used in conjunction with other 600-milliamper 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

	5T8	6T8	19T8
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* . . . . .	11.0	...	... Seconds
Direct Interelectrode Capacitances†			
⊕ Triode Grid to Plate . . . . .		1.8	μμf
Triode Input . . . . .		1.6	μμf
⊕ Triode Output . . . . .		1.1	μμf
Grid to Any Diode Plate, maximum . . . . .		0.035	μμf
Diode-Number 1 Input . . . . .		3.8	μμf
Diode-Number 2 Input . . . . .		4.5	μμf
Diode-Number 3 Input . . . . .		3.8	μμf
Diode-Number 2 Cathode to All . . . . .		8.5	μμf

#### MECHANICAL

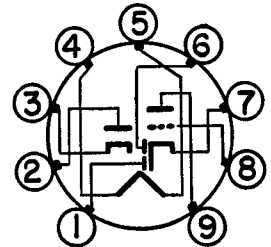
Mounting Position—Any  
Envelope—T-6½, Glass  
Base—E9-1, Small Button 9-Pin

### MAXIMUM RATINGS

#### DESIGN-CENTER VALUES

Plate Voltage . . . . .	300	Volts
Positive DC Grid Voltage . . . . .	0	Volts
Plate Dissipation . . . . .	1.0	Watts
Heater-Cathode Voltage	<b>5T8</b>	<b>6T8 19T8</b>
Heater Positive with Respect to Cathode		
DC Component . . . . .	100	— Volts
Total DC and Peak . . . . .	200	90 Volts
Heater Negative with Respect to Cathode		
Total DC and Peak . . . . .	200	90 Volts
Diode Current for Continuous Operation, Each Diode . . . . .	5.0	5.0 Milliamperes

### BASING DIAGRAM

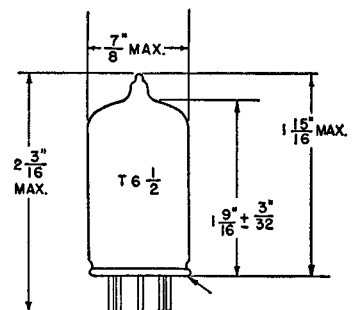


RETMA 9E

### TERMINAL CONNECTIONS

- Pin 1—Diode Number 3 Plate
- Pin 2—Diode Number 2 Plate
- Pin 3—Diode Number 2 Cathode and Shield
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Diode Number 1 Plate
- Pin 7—Cathode and Shield
- Pin 8—Triode Grid
- Pin 9—Triode Plate

### PHYSICAL DIMENSIONS



RETMA 6-2

**GENERAL ELECTRIC**

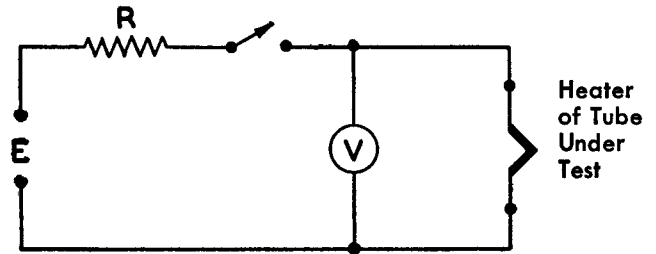
Supersedes ET-T471B dated 2-51 and ET-T472B dated 12-50

## CHARACTERISTICS AND TYPICAL OPERATION

### Class A<sub>1</sub> Amplifier

Plate Voltage .....	100	250 Volts
Grid Voltage .....	-1	-3 Volts
Amplification Factor .....	70	70
Plate Resistance, approximate .....	54000	58000 Ohms
Transconductance .....	1300	1200 Micromhos
Plate Current .....	0.8	1.0 Milliamperes
Average Diode Current, Each Diode With 5.0 Volts DC Applied .....		20 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.

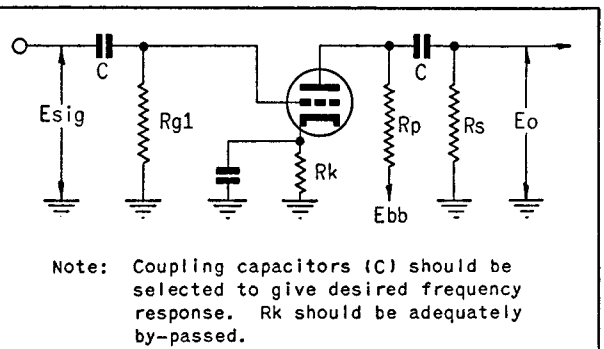


† Without external shield.

⊕ Indicates a change in ratings on the 6T8 and 19T8.

## CLASS A RESISTANCE-COUPLED AMPLIFIER

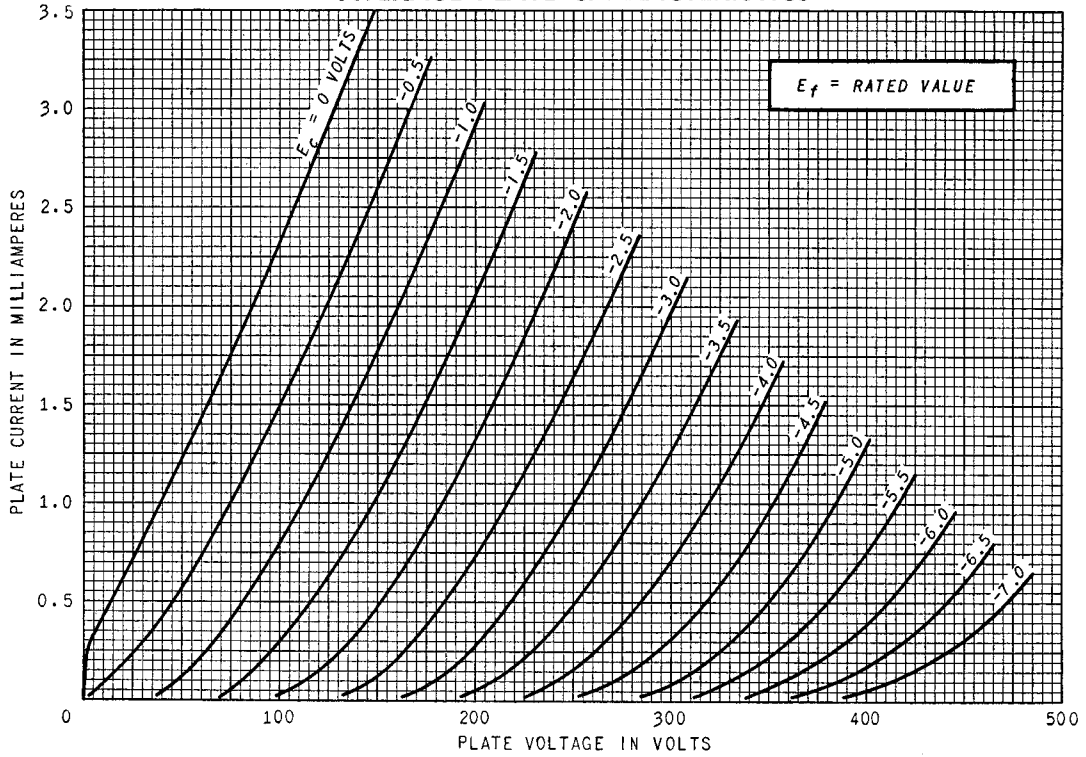
R <sub>p</sub> Meg.	R <sub>s</sub> Meg.	R <sub>g1</sub> Meg.	E <sub>bb</sub> = 90 Volts			E <sub>bb</sub> = 180 Volts			E <sub>bb</sub> = 300 Volts		
			R <sub>k</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	Gain	E <sub>o</sub>	R <sub>k</sub>	Gain	E <sub>o</sub>
0.10	0.10	0.10	5700	21	7.0	2400	29	18	1800	33	35
0.10	0.24	0.10	6100	26	9.0	2700	34	23	2000	38	42
0.24	0.24	0.10	9100	30	10	4300	40	24	3000	44	43
0.24	0.51	0.10	10000	34	13	4700	45	31	3300	49	52
0.51	0.51	0.10	15000	37	14	7500	47	28	5600	51	50
0.51	1.0	0.10	16000	40	16	8200	50	35	6200	55	60
0.24	0.24	10	0	31	5.0	0	44	19	0	48	40
0.24	0.51	10	0	37	7.0	0	49	25	0	52	52
0.51	0.51	10	0	39	7.5	0	51	22	0	54	44
0.51	1.0	10	0	42	10	0	54	28	0	58	56



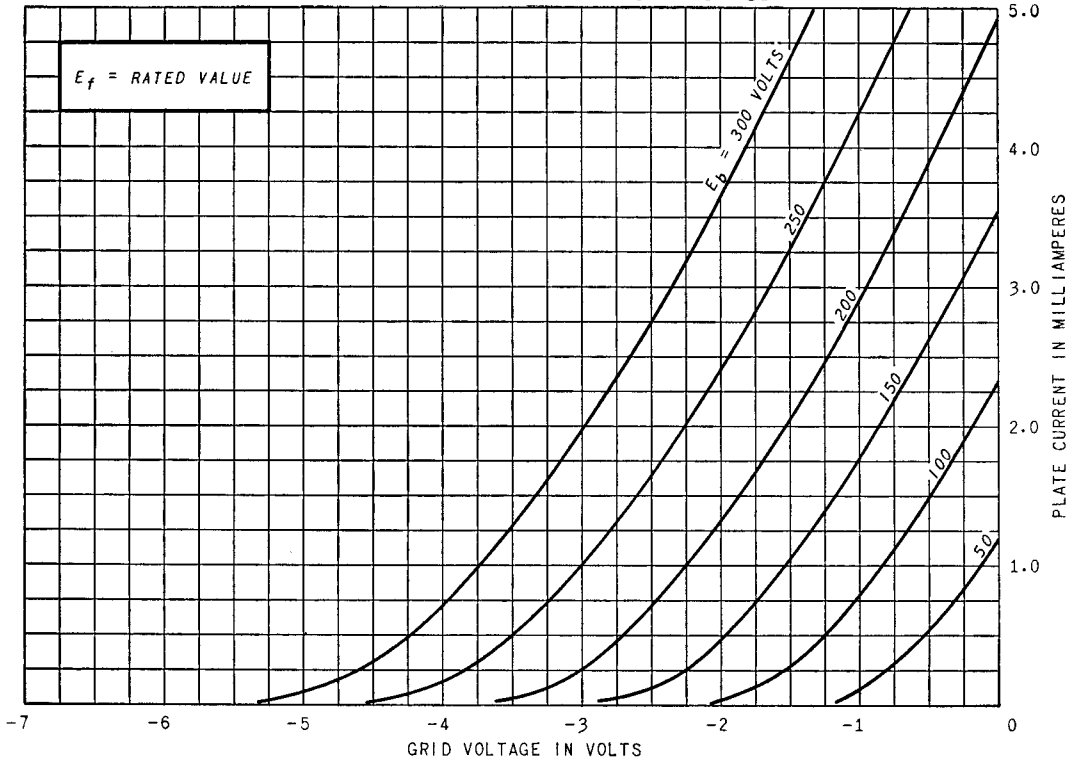
Note: Coupling capacitors (C) should be selected to give desired frequency response. R<sub>k</sub> should be adequately by-passed.

Notes: 1. E<sub>o</sub> is maximum RMS voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts RMS output. 3. For zero-bias data, generator impedance is negligible.

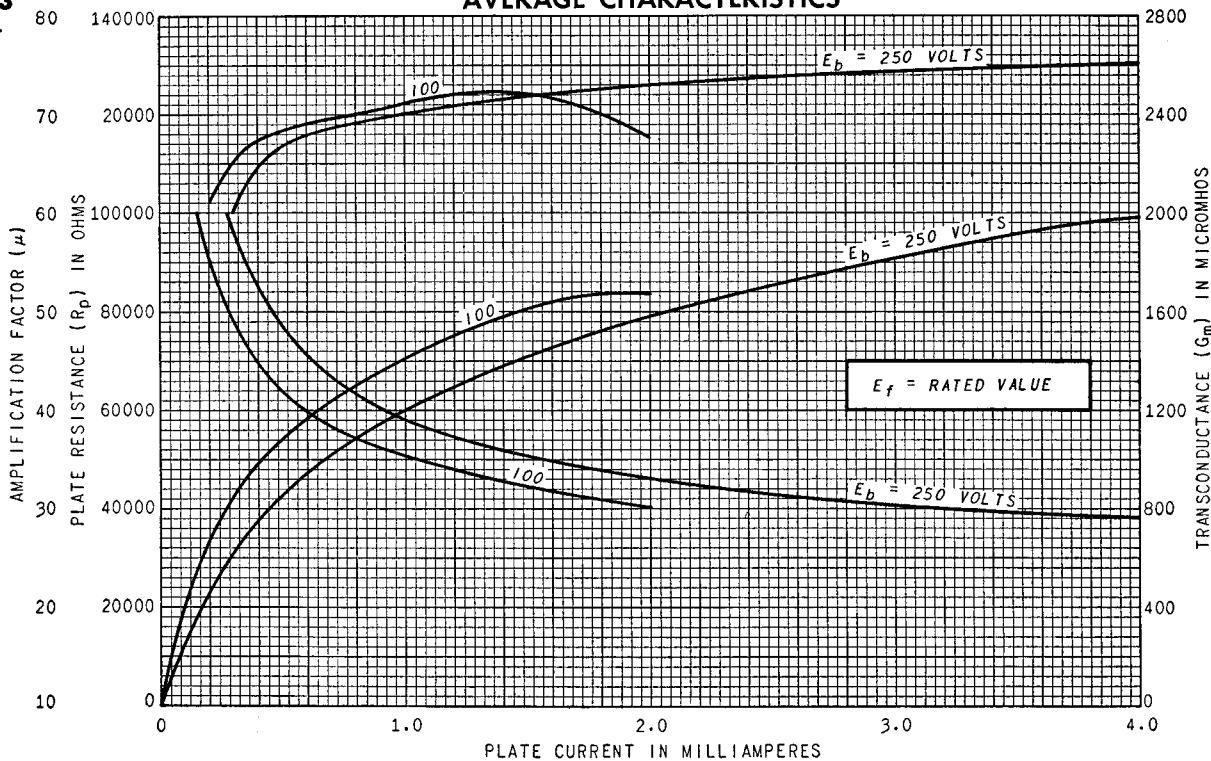
**AVERAGE PLATE CHARACTERISTICS**



**AVERAGE TRANSFER CHARACTERISTICS**

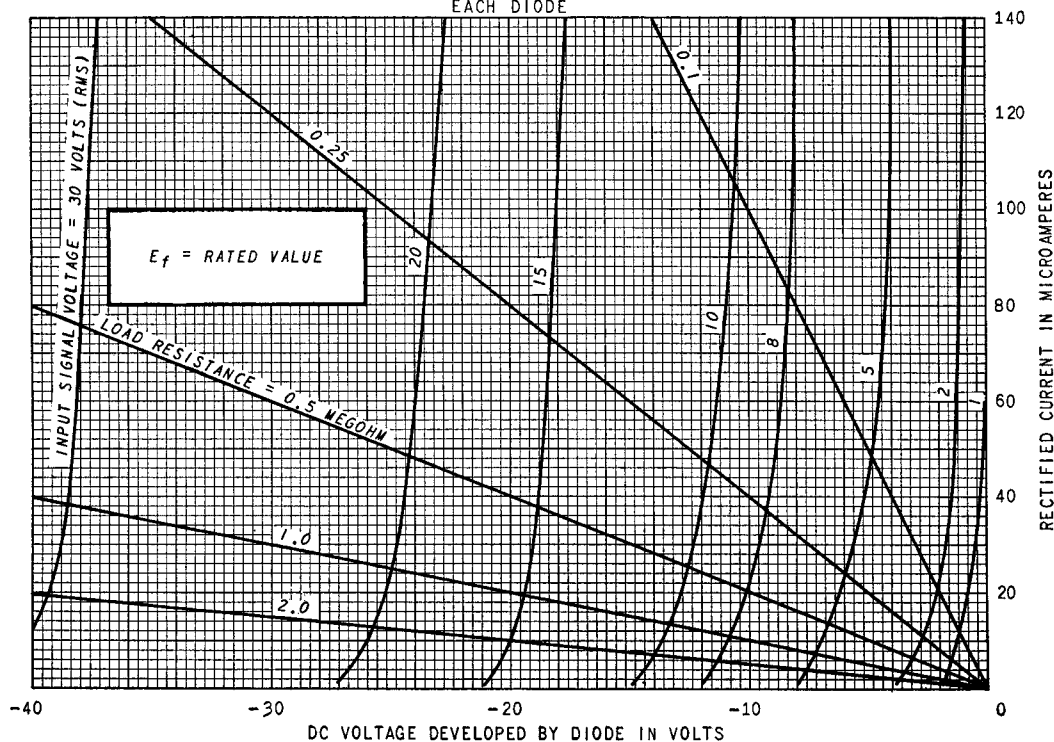


### AVERAGE CHARACTERISTICS



### OPERATION CHARACTERISTICS

EACH DIODE



TUBE DEPARTMENT