Electronic TUBES

6BV8

DUPLEX-DIODE TRIODE

DESCRIPTION AND RATING

The 6BV8 is a miniature duplex-diode medium-mu triode in which separate cathode and plate connections are provided for each diode section. The tube is intended primarily for service as a combined synchronous detector and chrominance amplifier in color television receivers. The high perveance characteristic of the triode section adapts the tube particularly to this service. It is also suitable for use as a combined FM detector and audio-frequency voltage amplifier.

The 6BV8 is especially suited for use where series-connected heaters are employed since it has a 600-milliampere heater current and a controlled heater warm-up characteristic.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Voltage, AC or DC	6.3 ± 10% Volts
Heater Current	0.6 Amperes
Heater Warm-up Time*	11 Seconds
Direct Interelectrode Capacitances†	
Triode Grid to Plate	2.0 μμf
Triode Input	3.6 μμf
Triode Output	0.4 μμf
Grid to Diode-Number 1 Plate, maximum	0.03 μμf
Grid to Diode-Number 2 Plate, maximum	0.07 μμf
Diode-Number 1 Plate to Diode-Number 1 Cathode and Heater	2.4 μμf
Diode-Number 2 Plate to Diode-Number 2 Cathode and Heater	2.4 μμf

MECHANICAL

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

MAXIMUM RATINGS

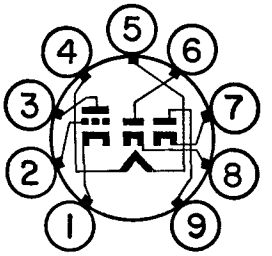
DESIGN-MAXIMUM VALUES

Plate Voltage	330 Volts
Positive DC Grid Voltage	0 Volts
Plate Dissipation	2.7 Watts
Heater-Cathode Voltage	
Heater Positive with Respect to Cathode	
DC Component	100 Volts
Total DC and Peak	200 Volts
Heater Negative with Respect to Cathode	
Total DC and Peak	200 Volts
Grid Circuit Resistance	
With Fixed Bias	0.1 Megohms
With Cathode Bias	0.5 Megohms
Diode Current for Continuous Operation, Each Diode	10 Milliamperes

Design-Maximum Ratings are the limiting values, expressed with respect to bogie tubes, at which satisfactory tube life can be expected to occur. To obtain satisfactory circuit performance, therefore, the equipment designer must establish the circuit design so that no design-maximum value is exceeded with a bogie tube under the worst probable operating conditions with respect to the combined effect of supply-voltage variation, equipment component variation, equipment control adjustment, load variation, and environmental conditions.

GENERAL ELECTRIC

BASING DIAGRAM

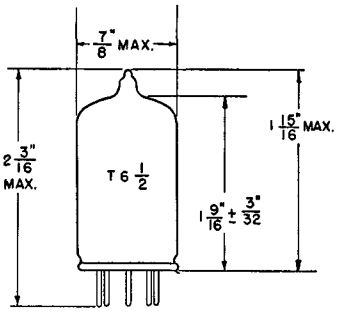


RETMA 9FJ

TERMINAL CONNECTIONS

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

PHYSICAL DIMENSIONS



RETMA 6-2

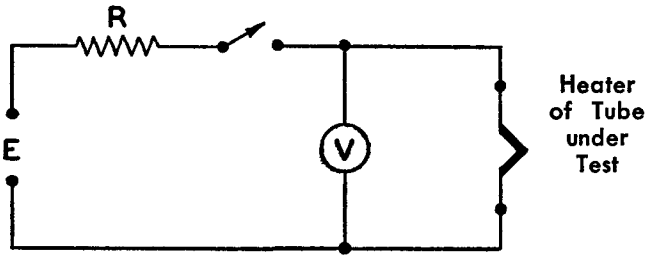
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	75	200 Volts
Grid Voltage	0	... Volts
Cathode-Bias Resistor	..	330 Ohms
Amplification Factor	..	33
Plate Resistance, approximate	..	5900 Ohms
Transconductance	..	5600 Micromhos
Plate Current	14	11 Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes	..	−11 Volts
Average Diode Current, Each Diode With 5.0 Volts DC Applied		23 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 (V) to increase from zero to the heater test voltage (V_1). For this type, E = 25.0 volts (RMS or DC), V_1 = 5.00 volts (RMS or DC), and R = 31.5 ohms.

† Without external shield.



CLASS A RESISTANCE-COUPLED AMPLIFIER

TRIODE SECTION

LOW IMPEDANCE DRIVE (APPROXIMATELY 200 OHMS)

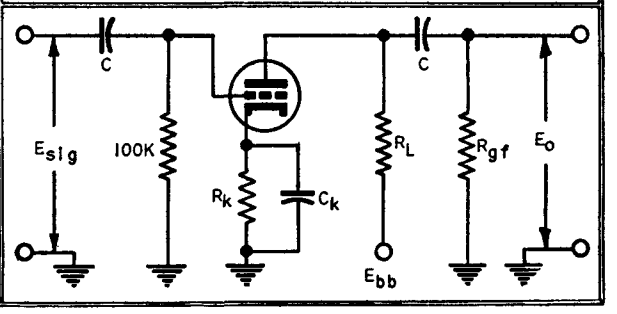
R_L	R_{gf}	Ebb = 90 Volts			Ebb = 180 Volts			Ebb = 300 Volts		
		R_k	E_o	Gain	R_k	E_o	Gain	R_k	E_o	Gain
0.10	0.10	1600	7.5	18	1500	16	20	1500	28	21
0.10	0.24	1900	7.8	19	1900	22	21	1900	38	21
0.24	0.24	4200	9.4	18	3600	19	19	3600	33	20
0.24	0.51	5100	12	19	4300	26	20	4200	42	22
0.51	0.51	9200	10	18	7800	22	19	7500	36	20
0.51	1.0	11000	13	18	10000	28	19	9400	46	20

HIGH IMPEDANCE DRIVE (APPROXIMATELY 100K OHMS)

R_L	R_{gf}	Ebb = 90 Volts			Ebb = 180 Volts			Ebb = 300 Volts		
		R_k	E_o	Gain	R_k	E_o	Gain	R_k	E_o	Gain
0.10	0.10	2000	11	17	1400	24	20	1100	39	22
0.10	0.24	2500	15	18	1800	31	21	1600	53	22
0.24	0.24	5300	13	18	3700	28	20	3200	45	21
0.24	0.51	6100	16	18	4700	33	20	4100	57	21
0.51	0.51	8100	14	17	8000	28	19	7100	48	20
0.51	1.0	13000	17	18	10000	34	19	9300	59	20

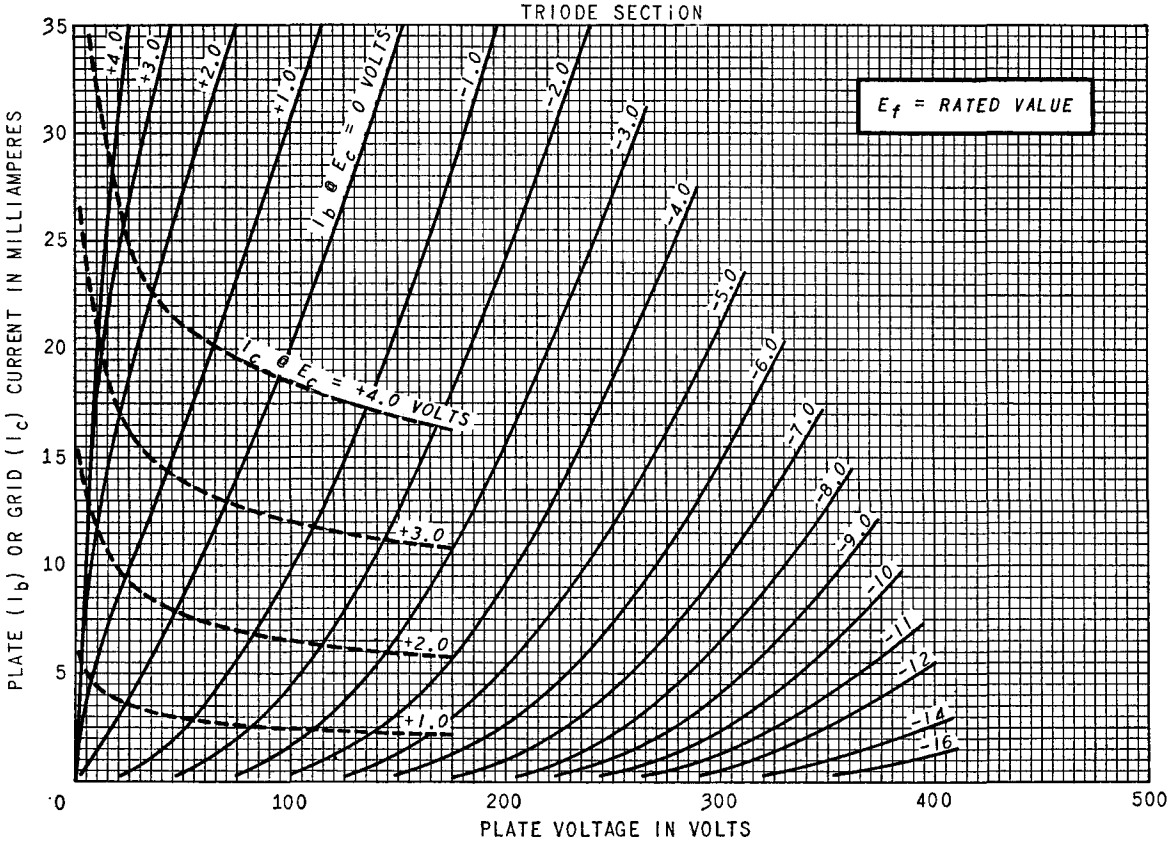
Notes:

1. E_o is maximum RMS voltage output for approximately five percent total harmonic distortion.
2. Gain is measured for an output voltage of two volts RMS.
3. R_k is in ohms; R_L and R_{gf} are in megohms.
4. Coupling capacitors (C) should be selected to give desired frequency response. R_k should be adequately by-passed.



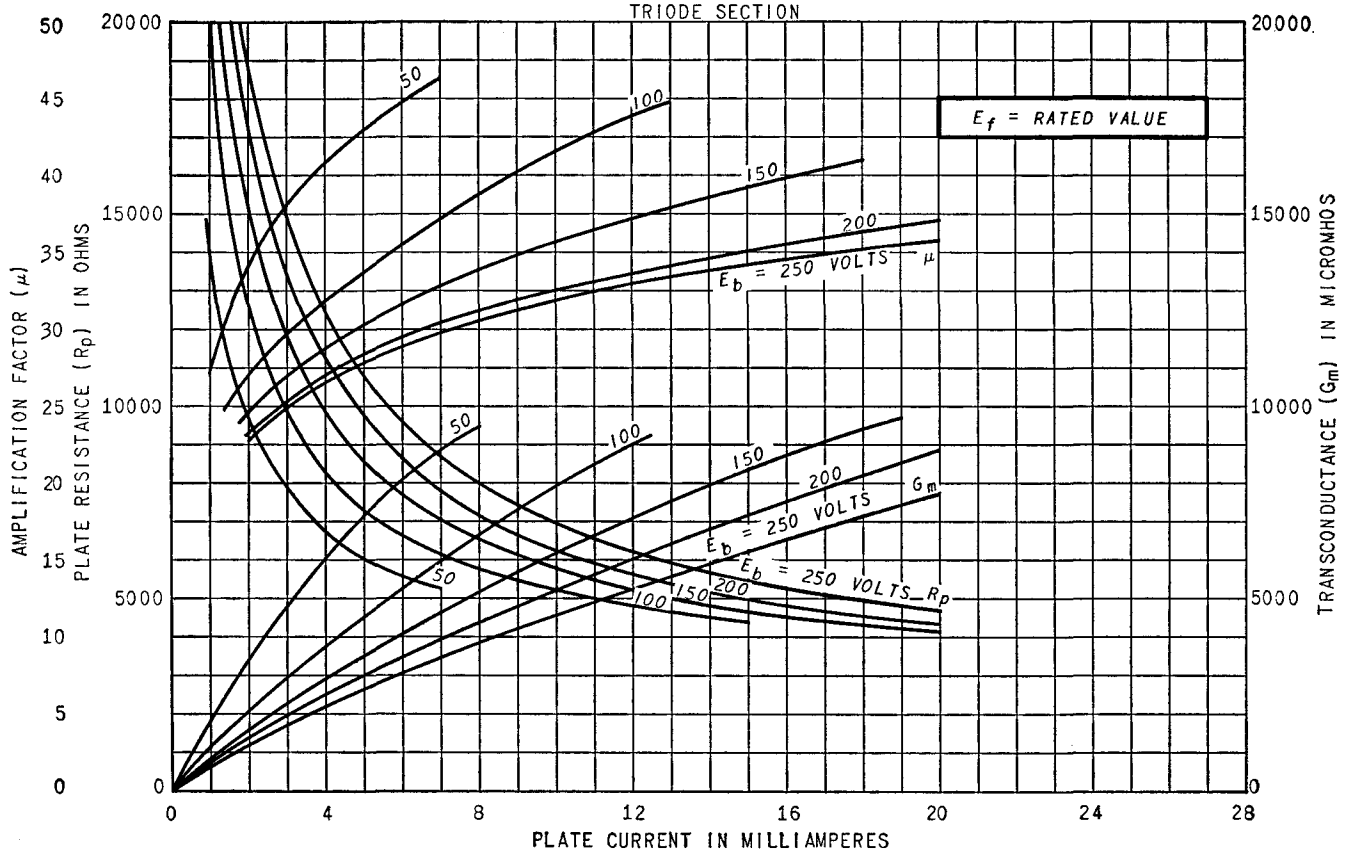
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION



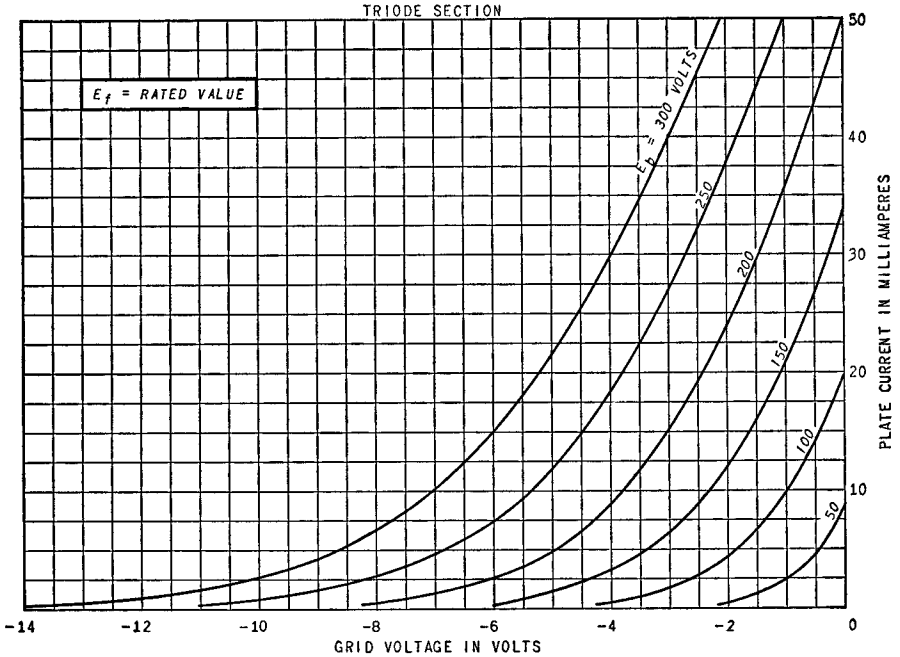
AVERAGE CHARACTERISTICS

TRIODE SECTION



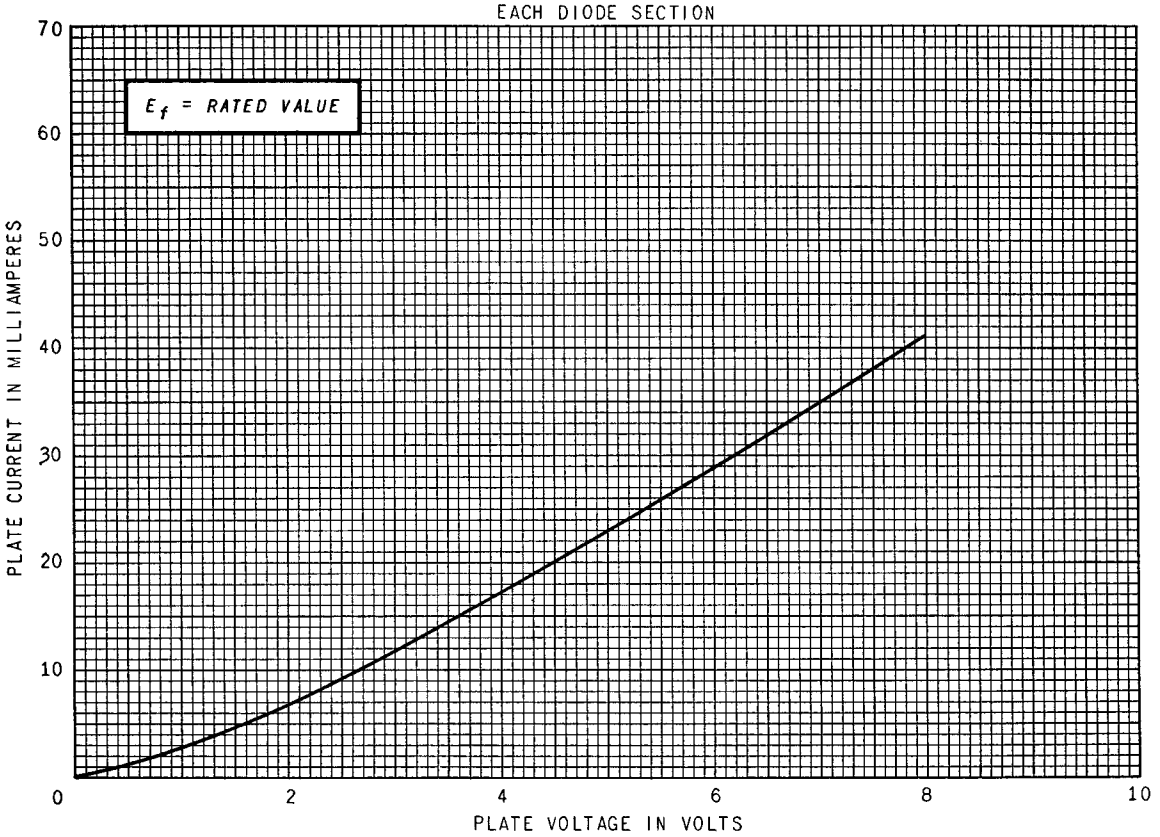
AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION



AVERAGE PLATE CHARACTERISTICS

EACH DIODE SECTION



TUBE DEPARTMENT

GENERAL ELECTRIC

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