

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-milliamperre heater current and a controlled heater warm-up characteristic.

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 μmf
Triode Input	3.6 μmf
Triode Output	0.4 μmf
Grid to Diode-Number 1 Plate, maximum	0.03 μmf
Grid to Diode-Number 2 Plate, maximum	0.07 μmf
Diode-Number 1 Plate to Diode-Number 1 Cathode and Heater	2.4 μmf
Diode-Number 2 Plate to Diode-Number 2 Cathode and Heater	2.4 μmf

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
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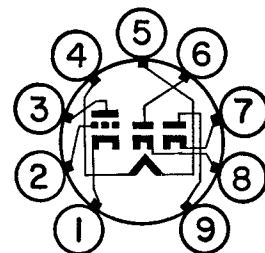
Grid Circuit Resistance

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.

BASING DIAGRAM

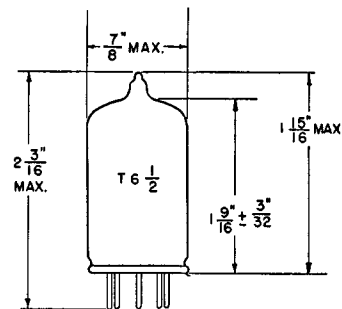


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TERMINAL CONNECTIONS

- 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



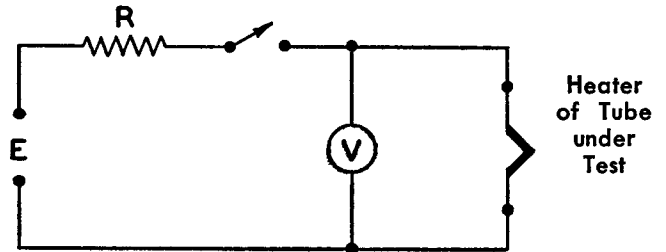
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CHARACTERISTICS AND TYPICAL OPERATION

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 I _b = 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 (V₁). For this type, E=25.0 volts (RMS or DC), V₁=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}	E _{bb} = 90 Volts			E _{bb} = 180 Volts			E _{bb} = 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	7.3	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	

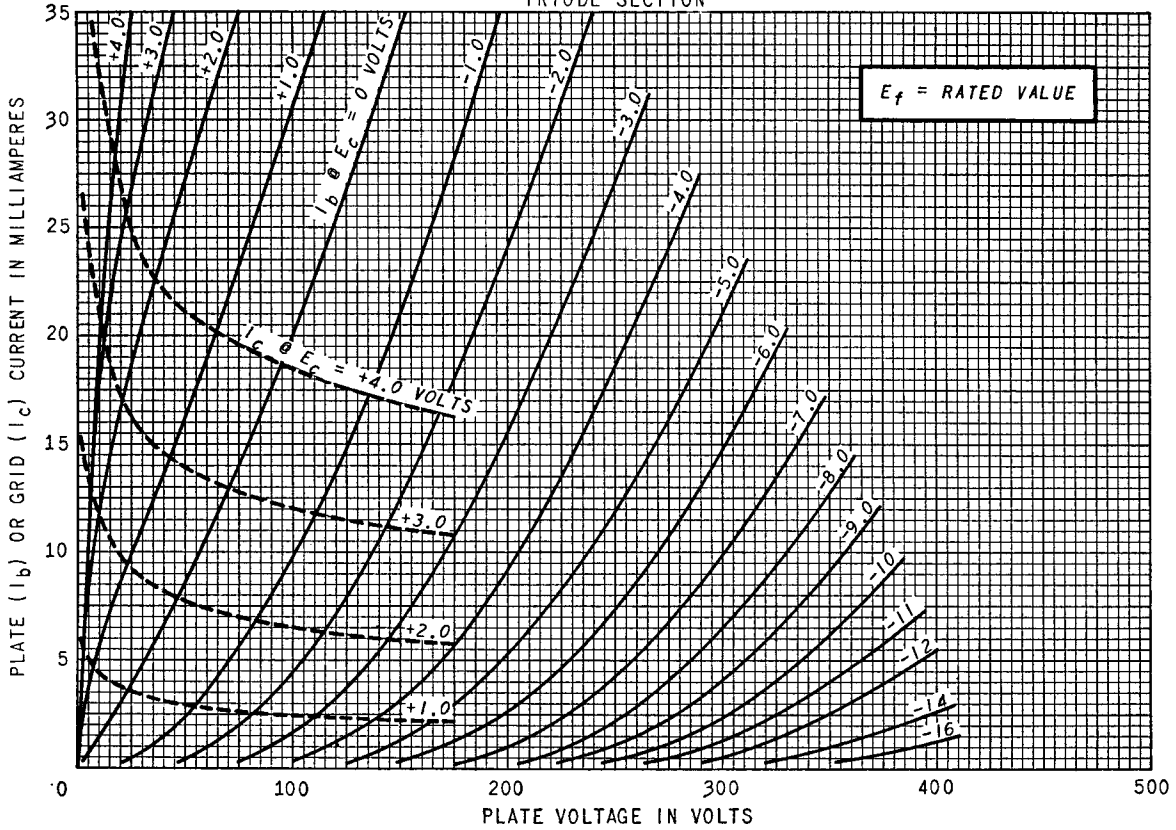
HIGH IMPEDANCE DRIVE (APPROXIMATELY 100K OHMS)											
R _L	R _{gf}	E _{bb} = 90 Volts			E _{bb} = 180 Volts			E _{bb} = 300 Volts			
		R _k	E _o	Gain	R _k	E _o	Gain	R _k	E _o	Gain	
0.10	0.10	2000	11	17	1400	24	20	1100	39	22	
0.10	0.24	2500	15	18	1800	31	21	1600	53	22	
0.24	0.24	5300	13	18	3700	28	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.

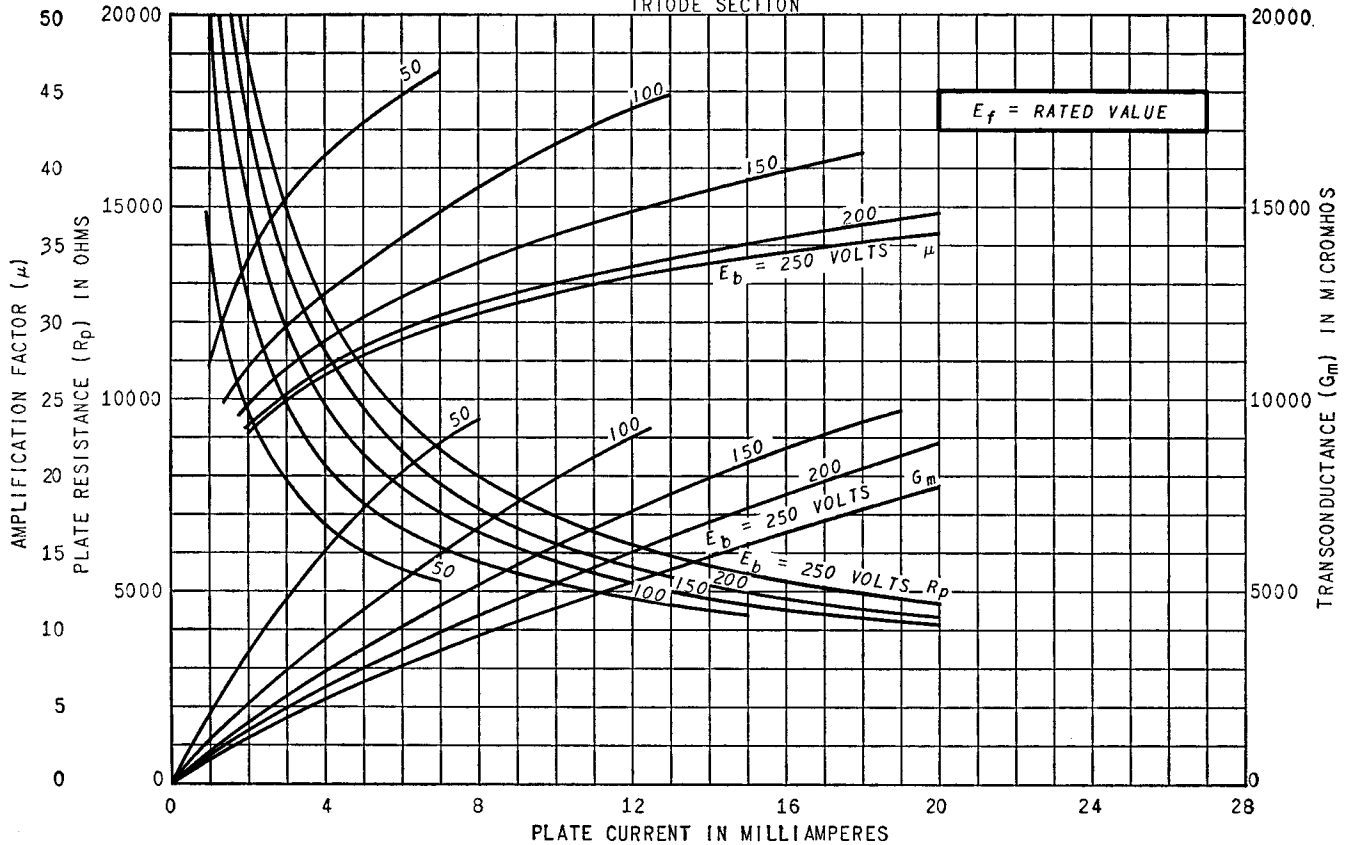
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION



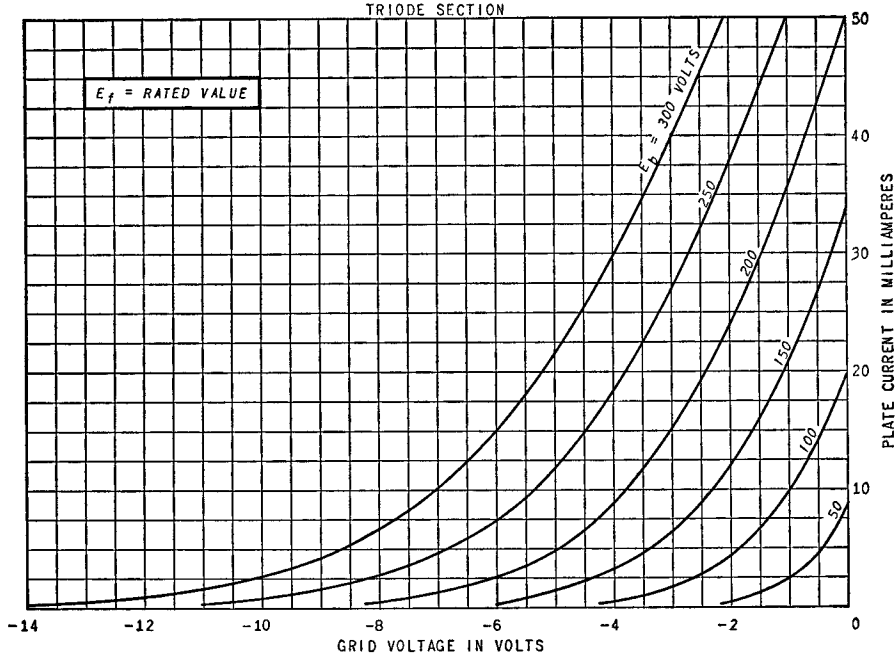
AVERAGE CHARACTERISTICS

TRIODE SECTION



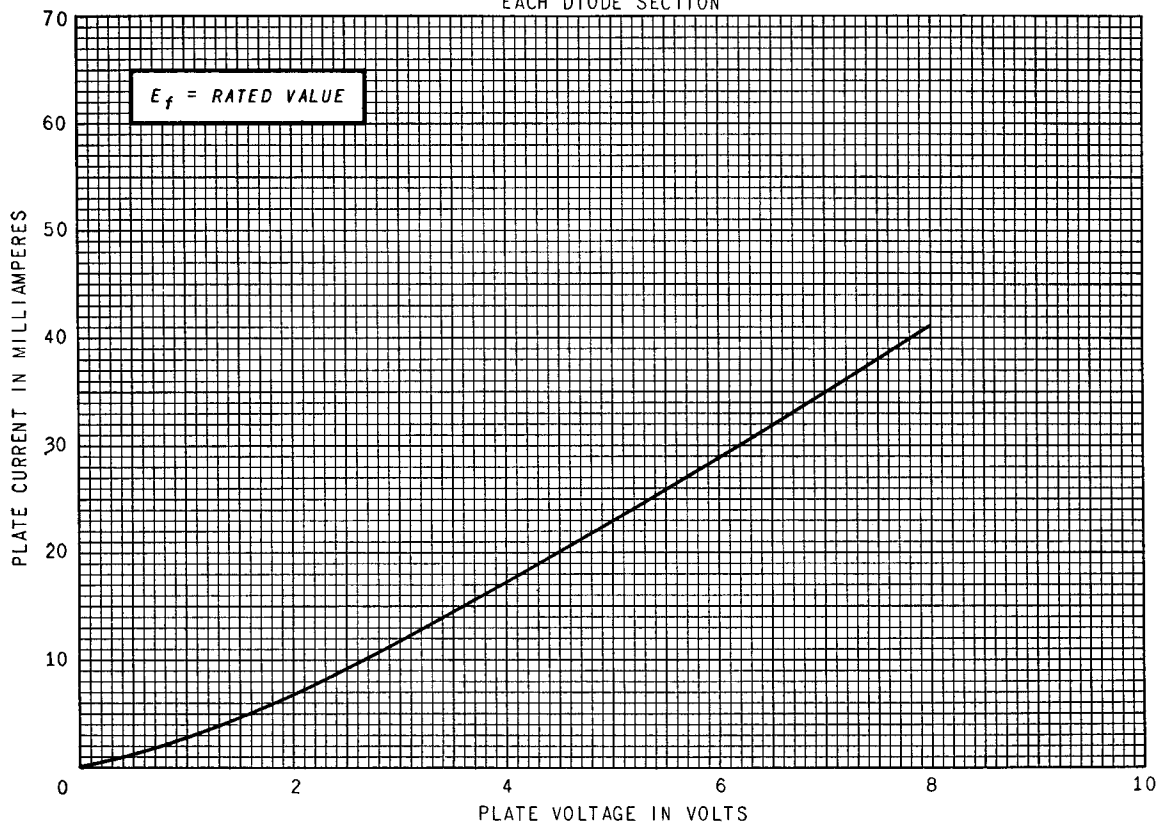
AVERAGE TRANSFER CHARACTERISTICS

TRIODE SECTION



AVERAGE PLATE CHARACTERISTICS

EACH DIODE SECTION



TUBE DEPARTMENT



Schenectady 5, N. Y.