Electronic TUBES

6FM8

DUPLEX-DIODE TRIODE

FOR DETECTOR AND AF VOLTAGE-AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6FM8 is a duplex-diode, high-mu triode with separate cathodes for each of the diode sections and the triode section. The tube is designed primarily for use as an FM detector and AF voltage amplifier.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential
Heater Voltage, AC or DC . . . . . 6.3 Volts
Heater Current . . . . . 0.45 Amperes
Direct Interelectrode Capacitances*
- Triode Grid to Plate . . . . . 1.8 μμf
- Triode Input . . . . . 1.5 μμf
- Triode Output . . . . . 0.16 μμf
- Grid to Diode-Number 1 Plate . . . . . 0.05 μμf
- Grid to Diode-Number 2 Plate . . . . . 0.04 μμf
- Diode-Number 1 Input . . . . . 2.4 μμf
- Diode-Number 2 Input . . . . . 2.2 μμf
- Diode-Number 1 Cathode to All . . . . . 4.6 μμf
- Diode-Number 2 Cathode to All . . . . . 4.8 μμf

MECHANICAL

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

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Allowable Heater Voltage . . . . . 5.7 to 6.9 Volts
Plate Voltage . . . . . 330 Volts
Positive DC Grid Voltage . . . . . 0 Volts
Plate Dissipation . . . . . 1.1 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

Diode Current for Continuous Operation, Each Diode . . . . . 5.0 Milliamperes

Design-Maximum 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 the worst probable conditions.

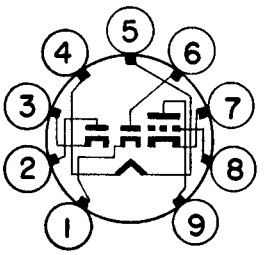
The tube manufacturer chooses these values to provide acceptable serviceability of the tube, taking responsibility for the effects of changes in operating conditions due to variations in tube characteristics.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply voltage variation, equipment, component variation, equipment control adjustment, load variation, signal variation, and environmental conditions.

The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

GENERAL ELECTRIC

BASING DIAGRAM



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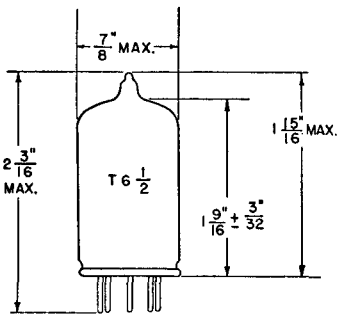
TERMINAL CONNECTIONS

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

PHYSICAL DIMENSIONS



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CHARACTERISTICS AND TYPICAL OPERATION

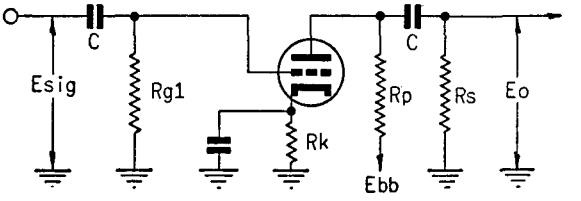
CLASS A_1 AMPLIFIER

Plate Voltage	250	Volts
Grid Voltage	−3.0	Volts
Amplification Factor	70	
Plate Resistance, approximate	58000	Ohms
Transconductance	1200	Micromhos
Plate Current	1.0	Milliamperes
Average Diode Current, Each Diode With 5.0 Volts DC Applied	20	Milliamperes

*Without external shield.

CLASS A RESISTANCE-COUPLED AMPLIFIER

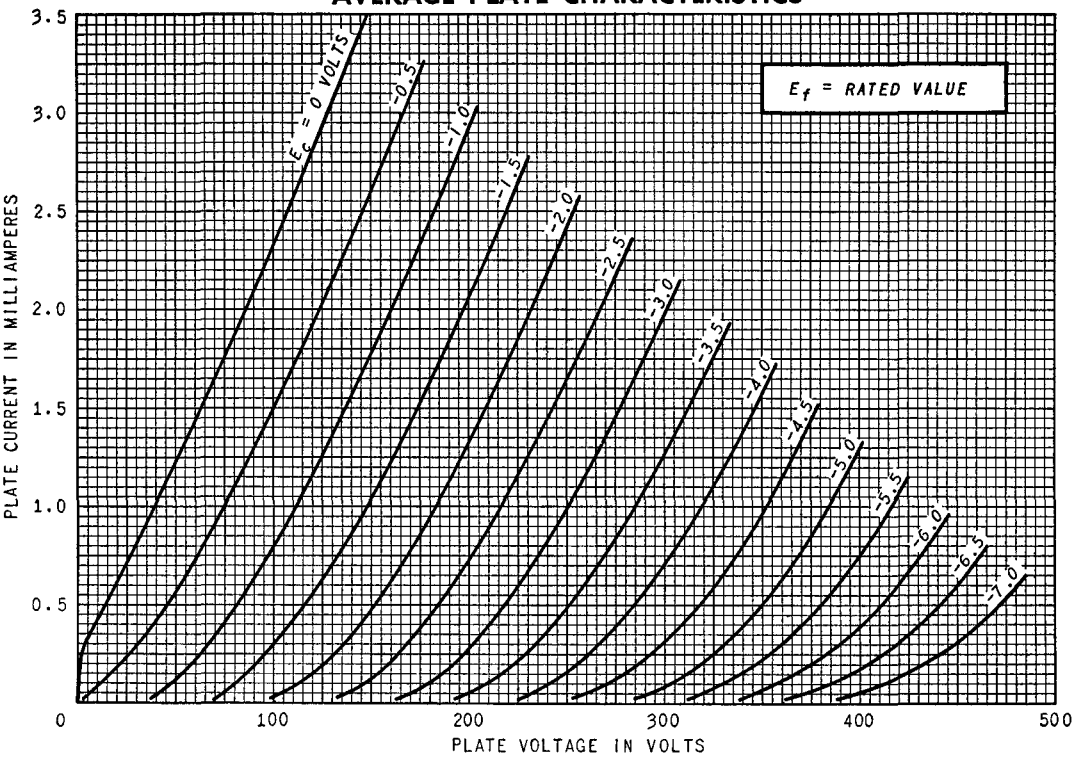
Rp Meg.	Rs Meg.	Rg1 Meg.	Ebb = 90 Volts			Ebb = 180 Volts			Ebb = 300 Volts		
			Rk	Gain	Eo	Rk	Gain	Eo	Rk	Gain	Eo
0.10	0.10	0.10	5700	21	7.0	2400	29	18	1800	33	35
0.10	0.24	0.10	6100	26	9.0	2700	34	23	2000	38	42
0.24	0.24	0.10	9100	30	10	4300	40	24	3000	44	43
0.24	0.51	0.10	10000	34	13	4700	45	31	3300	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



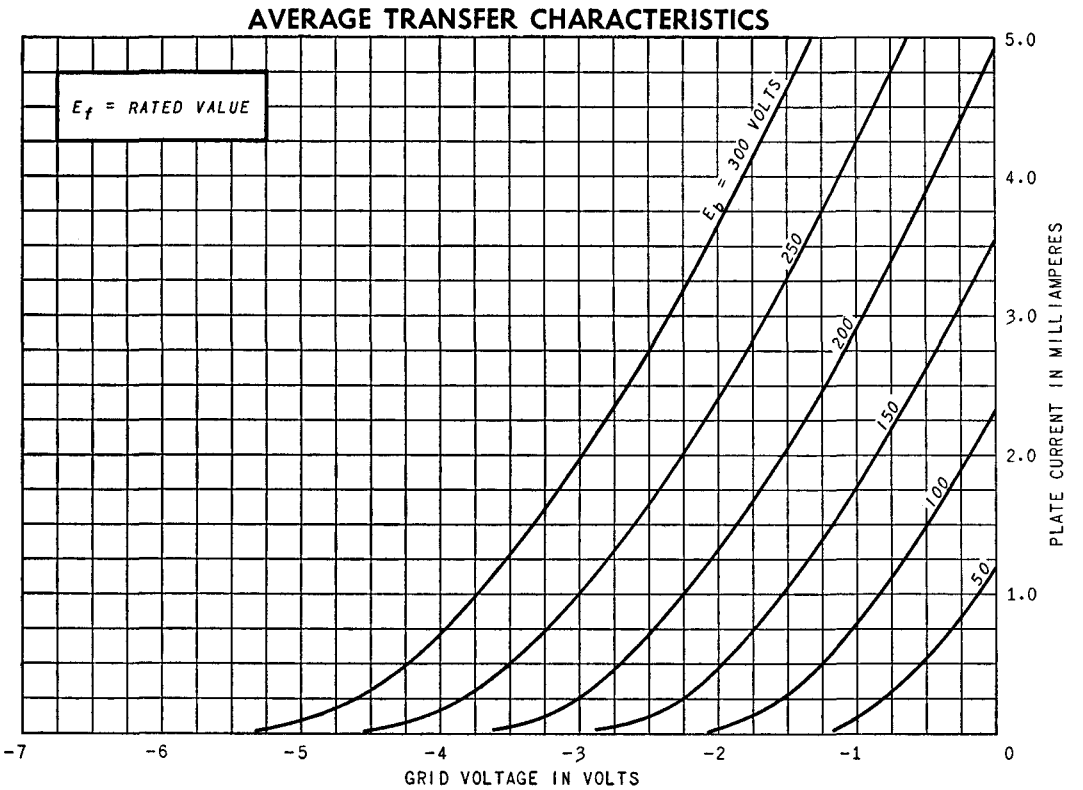
Note: Coupling capacitors (C) should be selected to give desired frequency response. Rk should be adequately by-passed.

Notes: 1. Eo 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.

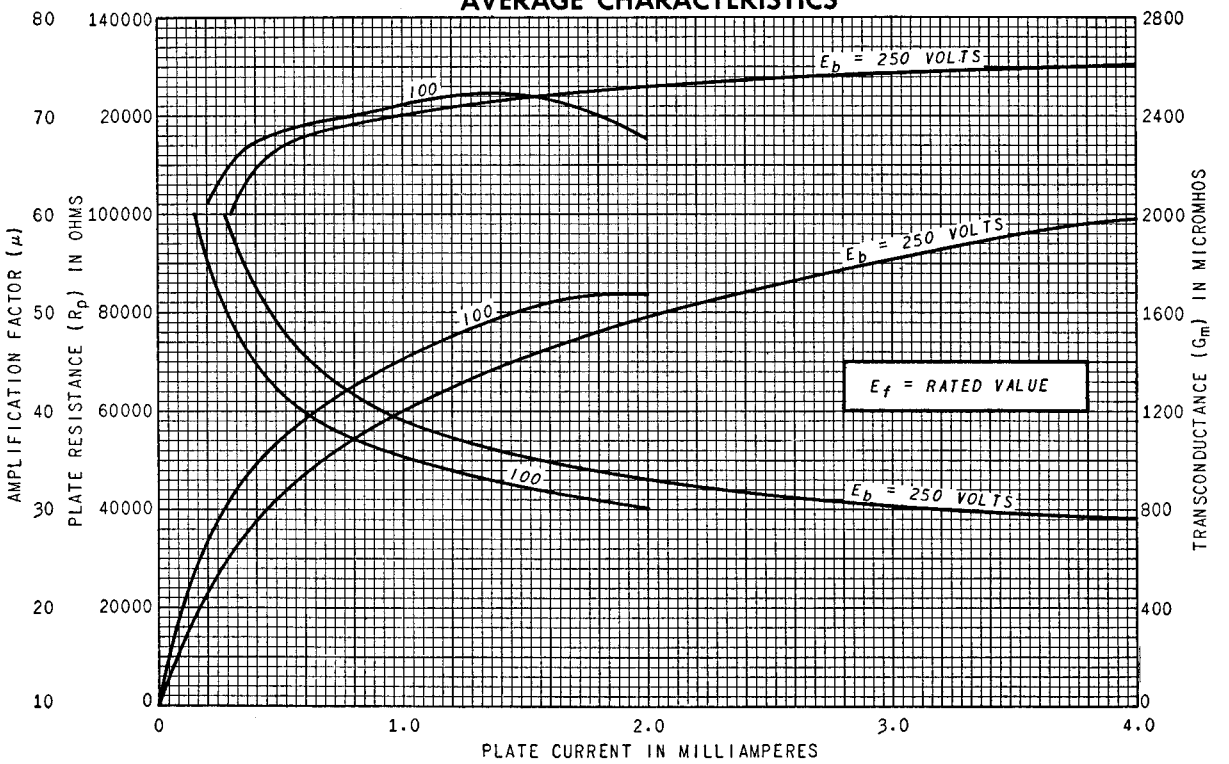
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

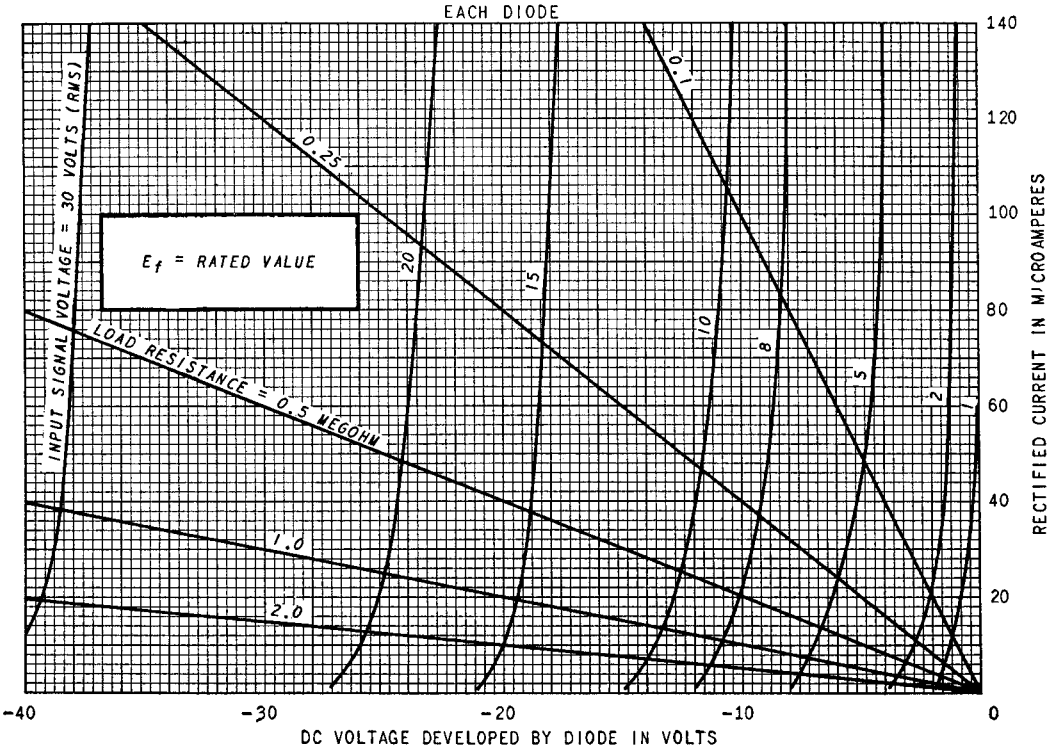


AVERAGE CHARACTERISTICS



OPERATION CHARACTERISTICS

EACH DIODE



ELECTRONIC COMPONENTS DIVISION

GENERAL ELECTRIC

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