6AV6—3AV6—12AV6

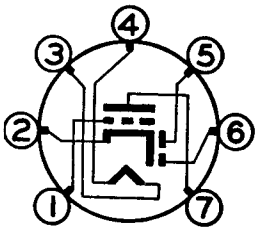
DUPLEX-DIODE TRIODE

DESCRIPTION AND RATING

The 6AV6 is a miniature duplex-diode, high-mu triode intended primarily for use as a combined detector, amplifier, and automatic-volume-control tube in radio receivers. The triode section incorporates a high amplification factor and is capable of providing a relatively large undistorted output voltage from a very small input signal.

The 3AV6, 6AV6, and 12AV6 are alike except for heater ratings and heater-cathode voltage ratings. The 12AV6 is particularly suited for use in a-c/d-c radio receivers. The 3AV6, 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 3AV6 is used in conjunction with other 600-milliampere types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

BASING DIAGRAM



RETMA 7BT

TERMINAL CONNECTIONS

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

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	3AV6	6AV6	12AV6
Heater Voltage, AC or DC	3.15	6.3	12.6 Volts
Heater Current	0.6	0.3	0.15 Amperes
Heater Warm-up Time*	11	...	....Seconds
Direct Interelectrode Capacitances	With Shield†		Without Shield
Triode Grid to Plate	2.0		2.0 μμf
Triode Input	2.2		2.2 μμf
Triode Output	1.2		0.8 μμf
Grid to Diode-Number 2 Plate, maximum	0.04		0.04 μμf

Mechanical

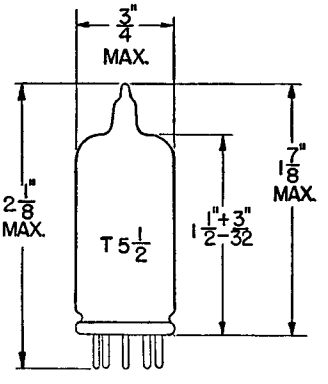
Mounting Position—Any
Envelope—T-5½, Glass
Base—E7-1, Miniature Button 7-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES

Plate Voltage		300	Volts
Positive DC Grid Voltage		0	Volts
Plate Dissipation		0.5	Watts
Heater-Cathode Voltage	3AV6	6AV6 12AV6	
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	1.0	1.0	Milliamperes

PHYSICAL DIMENSIONS



RETMA 5-2

GENERAL ELECTRIC

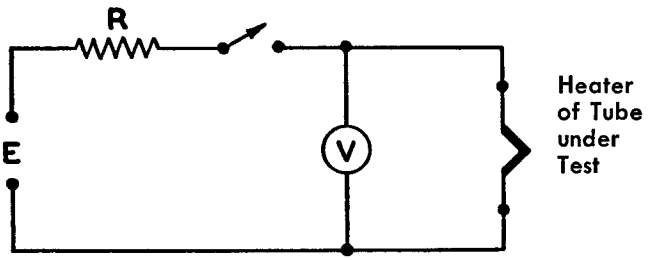
Supersedes ET-T814, dated 6-53

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER

Plate Voltage	100	250	Volts
Grid Voltage	−1	−2	Volts
Amplification Factor	100	100	
Plate Resistance, approximate	80000	62500	Ohms
Transconductance	1250	1600	Micromhos
Plate Current	0.5	1.2	Milliamperes
Average Diode Current, Each Diode With 10 Volts DC Applied		2.0	Milliamperes

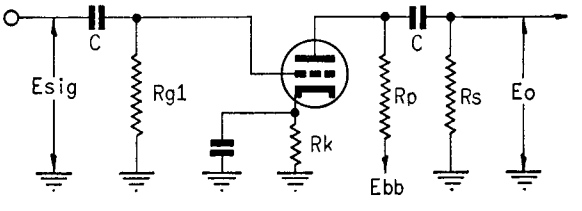
* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals (V) to increase from zero to the heater test voltage (V_1). For this type, E = 12.5 volts (RMS or DC), V_1 = 2.5 volts (RMS or DC), and R = 15.8 ohms.



† With external shield (RETMA 316) connected to pin 2.

CLASS A RESISTANCE-COUPLED AMPLIFIER

Rp Meg.	Rs Meg.	Rg1 Meg.	Ebb = 90 Volts Rk	Gain	Eo	Ebb = 180 Volts Rk	Gain	Eo	Ebb = 300 Volts Rk	Gain	Eo
0.10	0.10	0.10	1400	31	3.9	900	41	12	780	45	24
0.10	0.24	0.10	1600	37	5.4	1100	47	16	910	52	34
0.24	0.24	0.10	2500	39	5.0	2000	51	14	1500	56	30
0.24	0.51	0.10	3400	43	6.6	2300	55	19	1700	60	38
0.51	0.51	0.10	5800	45	5.6	4000	55	16	2800	61	31
0.51	1.0	0.10	7100	47	7.3	4600	58	20	3500	63	40
0.24	0.24	10	0	34	3.3	0	50	13	0	60	28
0.24	0.51	10	0	41	4.6	0	56	17	0	64	37
0.51	0.51	10	0	39	4.2	0	55	15	0	65	30
0.51	1.0	10	0	42	5.4	0	61	18	0	67	37

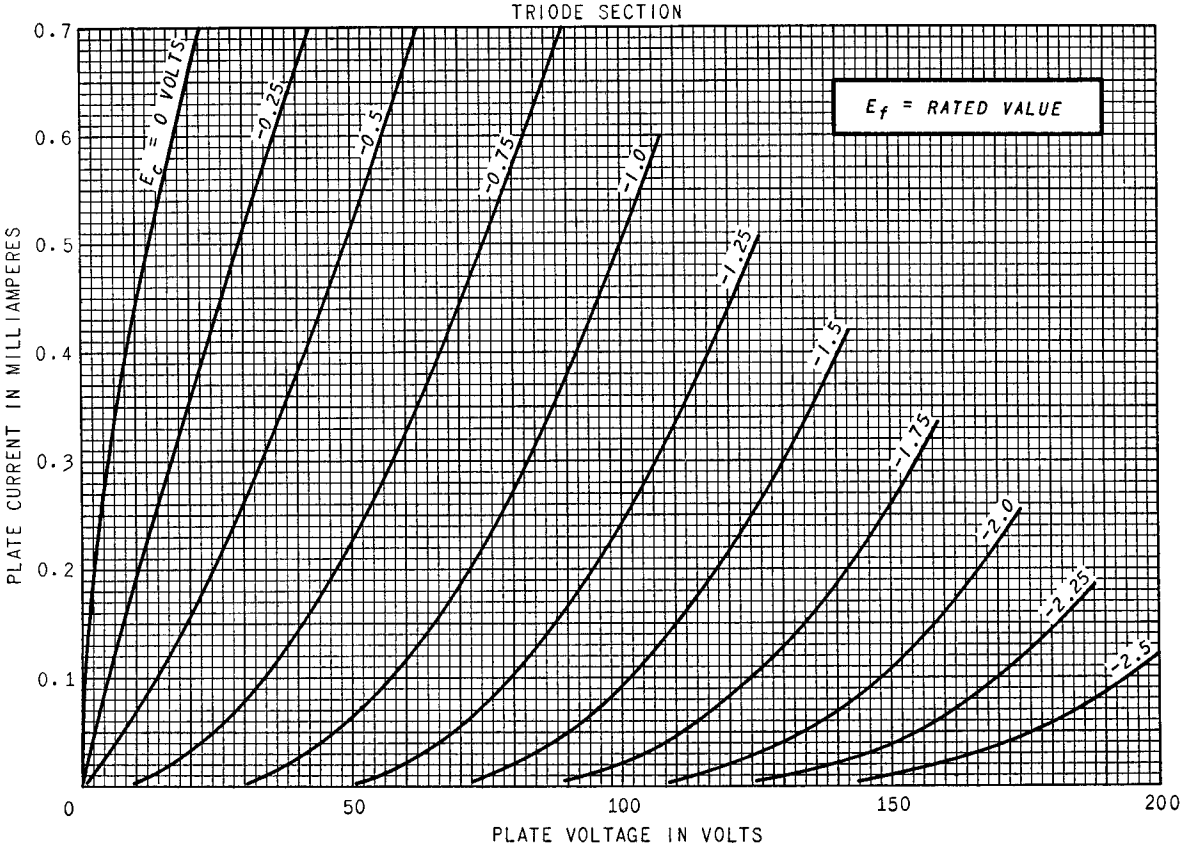


Note: Coupling capacitors (C) should be selected to give desired frequency response. Rk should be adequately by-passed.

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.

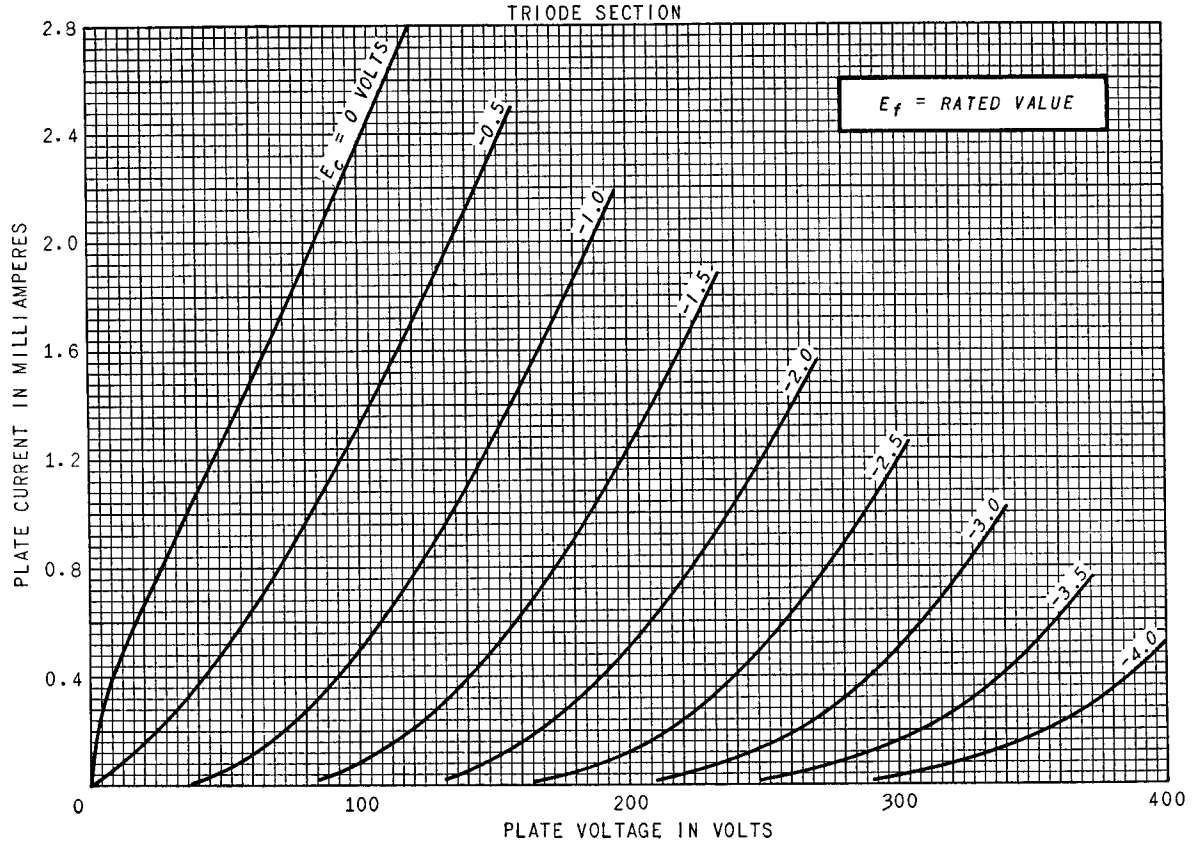
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

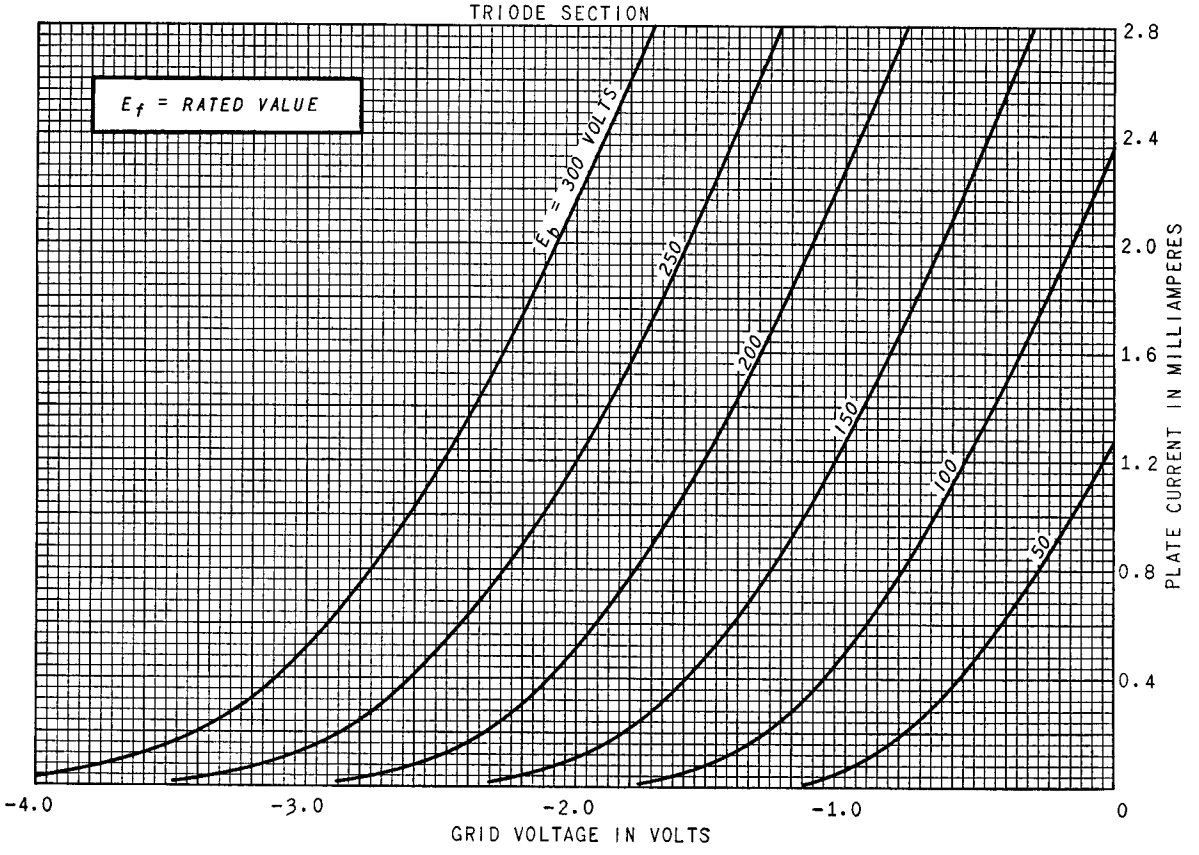


AVERAGE PLATE CHARACTERISTICS

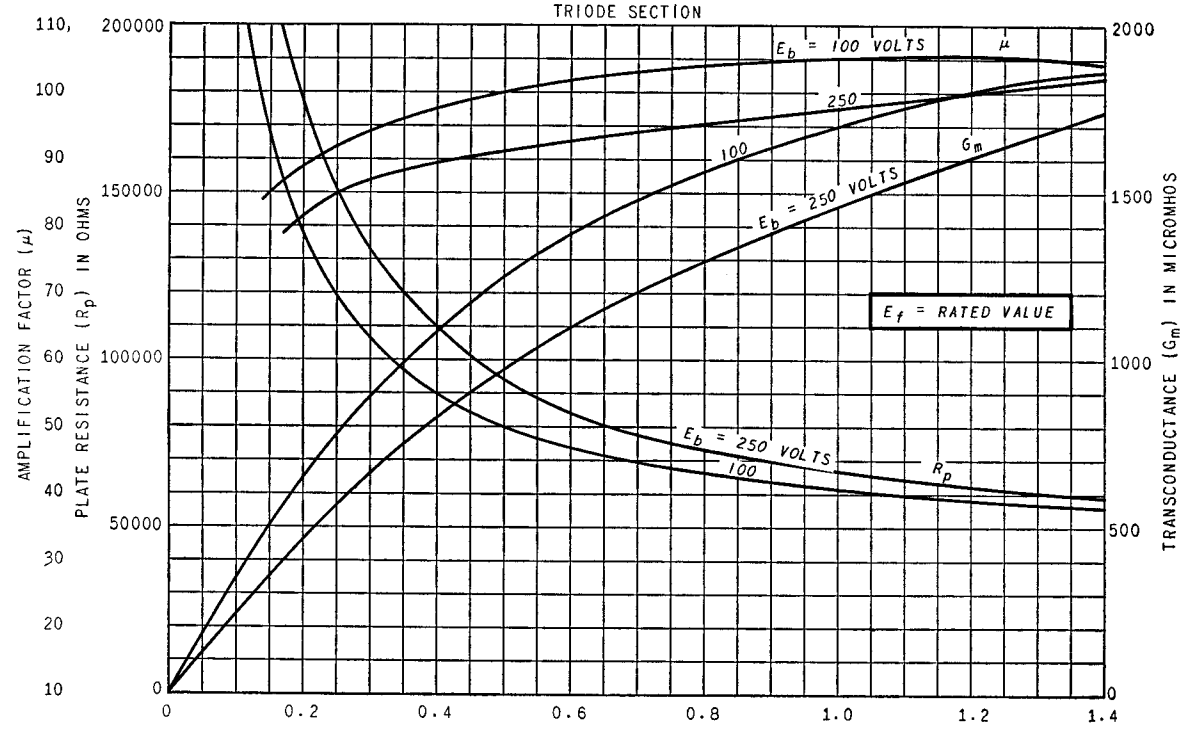
TRIODE SECTION



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



OPERATION CHARACTERISTICS