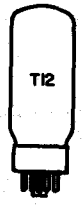
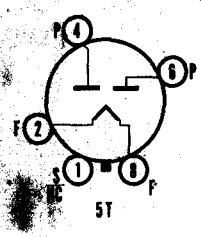


SYLVANIA TYPE 5V3

FULL-WAVE RECTIFIER



MECHANICAL DATA

Bulb	T-12
Base	B8-118, Short Medium Shell Octal 8-Pin
Outline	12-104
Basing	5T
Cathode	Coated Filament
Mounting Position	Vertical[1]

ELECTRICAL DATA

FILAMENT CHARACTERISTICS

Filament Voltage, A C or D C	5.0 Volts
Filament Current	3.8 Amperes

RATINGS (Design Center Values)[2]

Rectifier Service[3]

Peak Inverse Plate Voltage	1400 Volts Max.
A C Plate Supply Voltage Each Plate, R M S (See Rating Chart I)	500 Volts Max.
Steady State Peak Plate Current Each Plate (See Rating Chart II)	1.2 Amperes Max.
Transient Peak Plate Current Each Plate (See Rating Chart III)	5.5 Amperes Max.
D C Output Current	(See Rating Chart I)

AVERAGE CHARACTERISTICS

Tube Voltage Drop Tube Conducting 350 Ma Each Plate	47 Volts

TYPICAL OPERATION

Full Wave Rectifier—Capacitor Input Filter

A C Plate Supply Voltage Each Plate, R M S[4]	300	425 Volts
Filter Input Capacitor	40	40 μf
Effective Plate Supply Resistance Each Plate	24	56 Ohms
D C Output Current	380	350 Ma
D C Output Voltage at Filter Input	285	430 Volts

Full Wave Rectifier—Choke Input Filter

A C Plate Supply Voltage Each Plate, R M S[4]	500 Volts
Filter Input Choke	10 Henrys
D C Output Current	350 Ma
D C Output Voltage at Filter Input	385 Volts

NOTES:

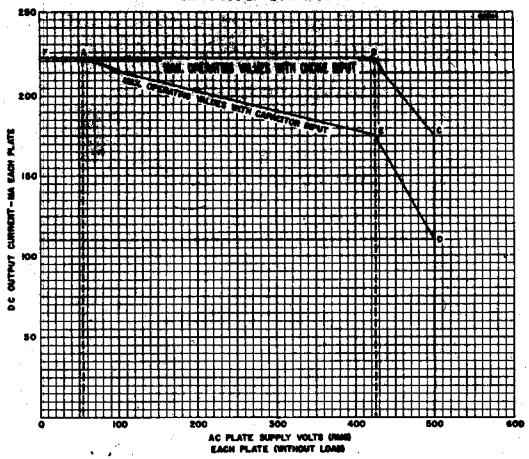
1. Horizontal operation is permitted if pins 2 and 4 are in a vertical plane.
2. See "Interpretation of Rating Charts."
3. For use with sinusoidal supply voltages within the frequency range of 25 to 1000 cps.
4. A C plate voltage is measured without load.

APPLICATION

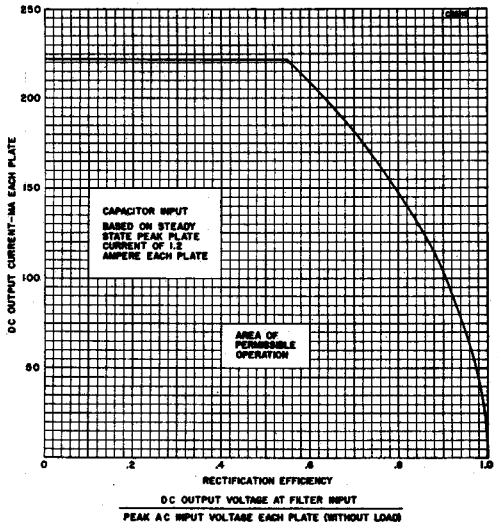
The Sylvania Type 5V3 is a filamentary, full-wave, high vacuum rectifier designed for service in the power supply of color television receivers or other equipment requiring high current.

SYLVANIA TYPE 5V3 (Cont'd)

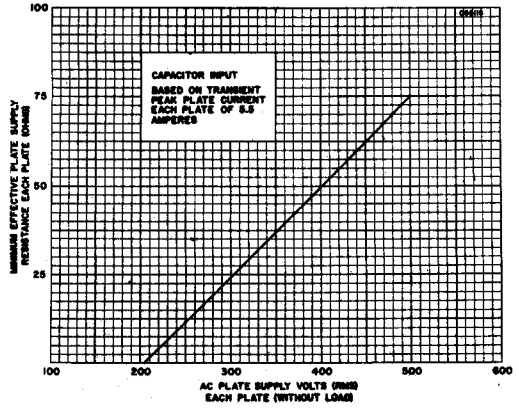
RATING CHART I

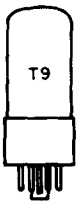


RATING CHART II

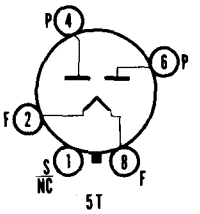


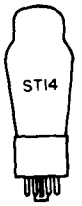
RATING CHART III





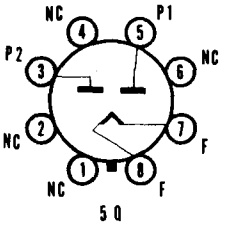
SYLVANIA TYPE 5Y3G
5Y3GT





SYLVANIA TYPE 5Y4G

FULL-WAVE RECTIFIER



MECHANICAL DATA

	5Y3G	5Y3GT	5Y4G
Bulb	ST-14	T-9	ST-14
Outline	14-3	9-13	14-3
Base	Medium Octal 5-Pin	Intermediate Octal 5-Pin	Medium Octal 8-Pin
Basing	5T	5T	5Q
Mounting Position[1]	Vertical	Vertical	Vertical

ELECTRICAL DATA

FILAMENT CHARACTERISTICS

Filament Voltage	5.0 Volts
Filament Current	2.0 Amperes

MAXIMUM RATINGS (Design Center Values)

Peak Inverse Plate Voltage	1400 Volts
A C Plate Supply Voltage Each Plate	See Rating Chart
Steady State Peak Plate Current Each Plate	400 Ma
Transient Peak Plate Current Each Plate	2.2 Amperes
Steady State D C Output Current Each Plate	See Rating Chart
Tube Voltage Drop (Measured with Tube Conducting 125 Ma Each Plate)	60 Volts

TYPICAL OPERATION

Full-Wave Rectifier Service

	Capacitor Input	Choke Input
A C Plate Supply Voltage Each Plate (R M S)	350	500 Volts
Input Capacitor	10	μf
Input Choke		10 Henries
Effective Plate Supply Impedance Each Plate	50	Ohms
D C Output Current	125	125 Ma
D C Output Voltage	350	390 Volts

NOTE:

1. Horizontal operation permitted if pins 2 and 4 are in a vertical plane for basing 5T and pins 1 and 4 for basing 5Q.

APPLICATION

Sylvania Types 5Y3G, 5Y3GT and 5Y4G are identical except for bulb and basings; they are similar to Type 80.

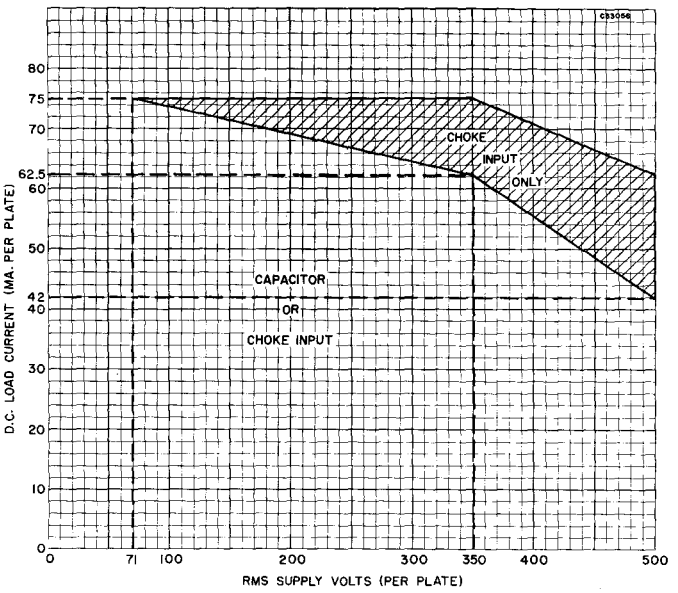
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	6	—	0	2	—	22	Y
	5.0	6	—	0	5	—	22	Y
219/220	5.0	2	8	14	8	Z	4*	—
	5.0	2	8	14	8	Z	6*	—

* Diode gas test does not apply.

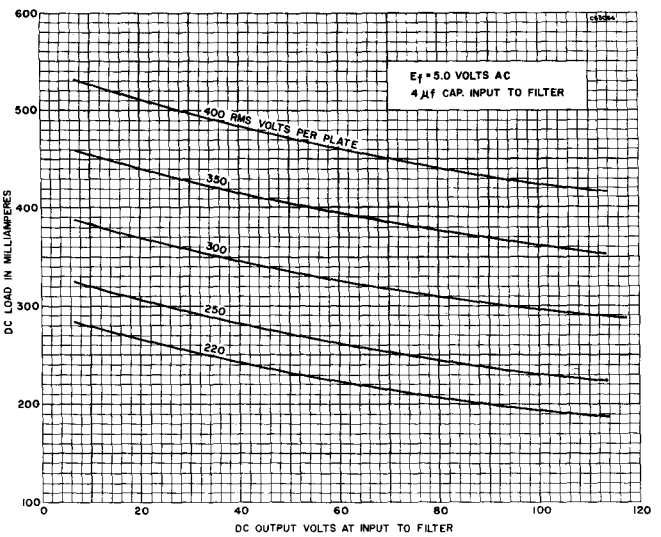
5Y3G, 5Y3GT, 5Y4G (Cont'd)

RATING CHART



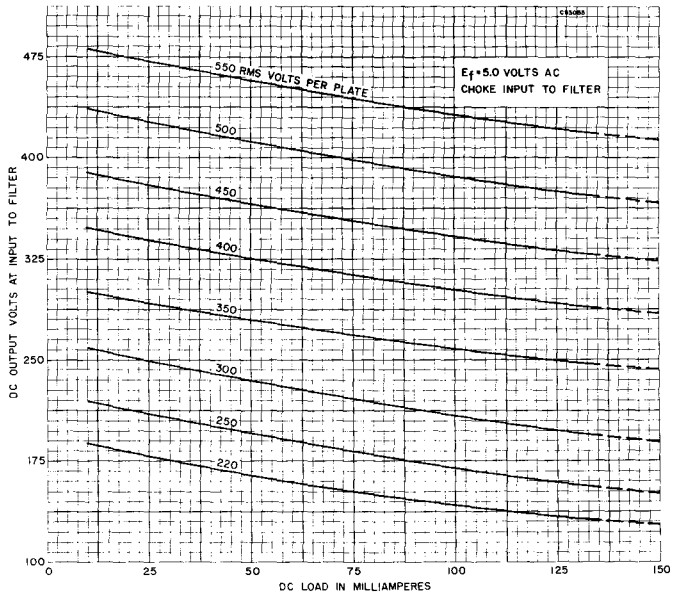
AVERAGE OPERATING CHARACTERISTICS

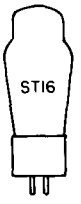
CAPACITOR INPUT TO FILTER



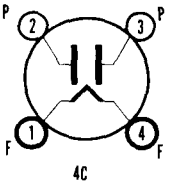
5Y3G, 5Y3GT, 5Y4G (Cont'd)

AVERAGE OPERATING CHARACTERISTICS
CHOKE INPUT TO FILTER





SYLVANIA TYPE 5Z3
FULL-WAVE RECTIFIER



MECHANICAL DATA

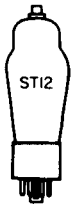
Bulb	ST-16, Outline 16-1
Base	Medium 4-Pin
Basing	4C
Mounting Position	Vertical[1]

NOTE:
1. Horizontal operation permitted if pins 1 and 2 are in a vertical plane.

For further data on Type 5Z3, refer to corresponding Type 5U4G which is identical except for basing.

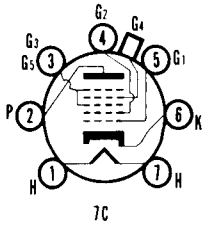
TYPES 5Z4, 6A3, 6A4, 6A5G, 6A6, 6A7S

(See Condensed Data Section)



SYLVANIA TYPE 6A7

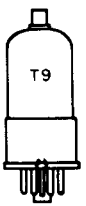
HEPTODE CONVERTER



MECHANICAL DATA

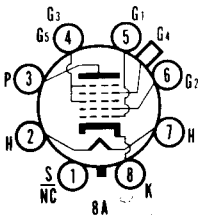
Bulb	ST-12, Outline 12-6
Base	Small 7-Pin
Basing	7C
Top Cap	Small
Mounting Position	Any

For typical operation refer to Type 6A8 which is electrically identical.



SYLVANIA TYPE 6A8
6A8G
6A8GT

HEPTODE CONVERTER



MECHANICAL DATA

	6A8	6A8G	6A8GT
Bulb	Metal	ST-12	T-9
Outline	8-4	12-8	9-18
Base	Small Wafer Octal	Small Octal	Small Wafer Octal
Basing	8A	8A	8A
Top Cap	Miniature	Miniature	Miniature
Mounting Position	Any	Any	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3	Volts
Heater Current	300	Ma
Maximum Heater-Cathode Voltage	90	Volts

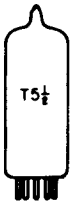
TYPICAL OPERATION

Plate Voltage	100	250 Volts
Grid No. 3 and 5 Voltage (Screen Grid)	50	100 Volts
Grid No. 4 Voltage	−1.5	−3.0 Volts
Grid No. 1 Resistance	50000	50000 Ohms
Grid No. 2 Voltage (Anode Grid)	100	250[1] Volts
Plate Current	1.1	3.5 Ma
Grid No. 3 and 5 Current	1.3	2.7 Ma
Grid No. 2 Current	2.0	4.0 Ma
Grid No. 1 Current (Osc. Grid)	0.25	0.4 Ma
Conversion Transconductance	360	550 μmhos
Self Bias Resistor	300	300 Ohms
Plate Resistance	0.6	0.36 Megohm
Signal Grid Bias for g_m = 3 μmhos (Grid No. 4)	−20	Volts
g_m = 6 μmhos		−35 Volts

NOTE:

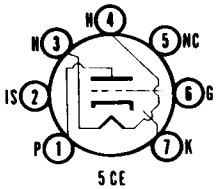
1. Through a 20,000 ohm resistor.

Type 6A7 is identical in ratings and operating conditions to Type 6A8G/GT.



SYLVANIA TYPE 6AB4

R F TRIODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	5CE
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Grid to Plate	1.5	1.5 μμf
Input	2.2	2.2 μμf
Output	1.4	0.50 μμf
Grounded Grid Operation		
Plate to Cathode	0.20	0.24 μμf
Input	5.2	5.0 μμf
Output	2.6	1.7 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	2.5 Watts
Negative Control Grid Voltage D C	−50 Volts

TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	100	250 Volts
Cathode Resistor	270	200 Ohms
Plate Current	3.7	10 Ma
Transconductance	4000	5500 μmhos
Amplification Factor	60	60
Plate Resistance	15000	10900 Ohms
Control Grid Bias for I_b=10 μa (approx.)	−5	−12 Volts

APPLICATION

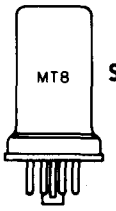
Sylvania Type 6AB4 is a miniature triode to be used as a gounded-grid r f amplifier, frequency converter or oscillator at frequencies below 300 mc. Electrically it is equal to one section of a Type 12AT7.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	2	6	38	U
219/220	6.3	3	4	27	4	6X	1	7

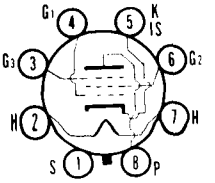
TYPES 6AB5/6N5, 6AB6G, 6AB7/1853, 6AC5G, GT

(See Condensed Data Section)



SYLVANIA TYPE 6AC7/1852

PENTODE AMPLIFIER



8N

MECHANICAL DATA

Bulb	Metal, Outline 8-1
Base	Small Wafer Octal 8-Pin
Basing	8N
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES[1]

Grid to Plate	0.015 $\mu\mu$f Max
Input	11 $\mu\mu$f
Output	5 $\mu\mu$f

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	3.02 Watts
Grid No. 2 Voltage	150 Volts
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Dissipation	0.38 Watt
Self Bias Resistor (Minimum)	160 Ohms
Grid No. 1 Circuit Resistance with Self Bias	
Fixed Screen Voltage	0.25 Megohm
Series Screen Resistor	0.50 Megohm

TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	300	300 Volts
Grid No. 2 Supply Voltage	150	300 Volts
Grid No. 2 (Screen) Resistor		60000 Ohms
Grid No. 3 (Suppressor) Grid Voltage	0	0 Volts
Self Bias Resistor	160	160 Ohms
Plate Current	10	10 Ma
Grid No. 2 Current	2.5	2.5 Ma
Transconductance	9000	9000 μmhos
Plate Resistance (approx.)	1.0	1.0 Megohm

NOTE:

1. With shell connected to cathode.

SYLVANIA TUBE TESTER SETTINGS

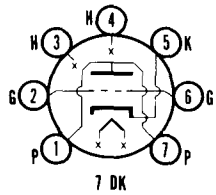
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	6	36	45	W
219/220	6.3	2	7	71	7	46SY	8	5

TYPES 6AD5GT, 6AD6G, 6AD7G, 6AE5GT, 6AE6G, 6AE7GT

(See Condensed Data Section)

SYLVANIA TYPE 6AF4

U H F TRIODE



7 DK

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7DK
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	225 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	50 Volts
D C, Heater Positive with Respect to Cathode	25 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	1.9 μμf
Input	2.2 μμf
Output	0.45 μμf

MAXIMUM RATINGS (Design Center Values)

U H F Oscillator Service

Plate Voltage	150 Volts
Plate Input	2.5 Watts
Plate Dissipation	2.25 Watts
Negative Grid Voltage	50 Volts
Grid Current	8 Ma
Cathode Current	28 Ma
Grid Circuit Resistance	
Fixed Bias	Not Recommended
Cathode Bias	0.5 Megohm

CHARACTERISTICS

Class A_1 Amplifier

Plate Voltage	80 Volts
Cathode Bias Resistor	150 Ohms
Plate Current	16 Ma
Transconductance	6600 μmhos
Amplification Factor	15
Plate Resistance	2270 Ohms

TYPICAL OPERATION (Oscillator at 950 mc)

Plate Voltage	100 Volts
Grid Voltage (Self Bias)	−4 Volts
Grid Resistor	10000 Ohms
Plate Current	22 Ma
Grid Current (approx.)	400 μa

APPLICATION

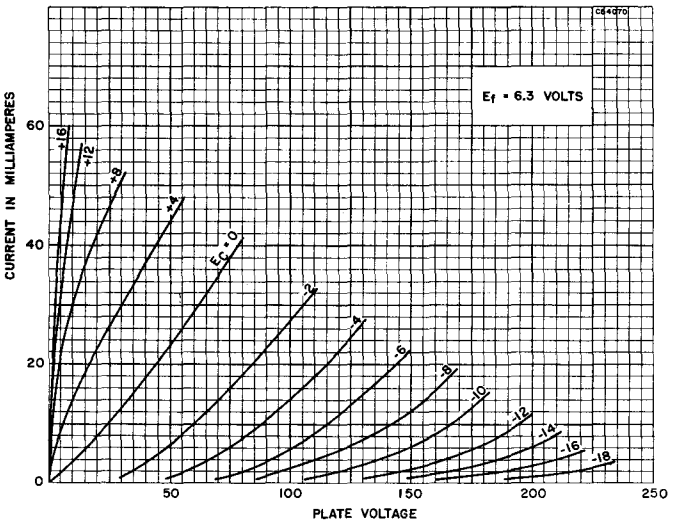
Sylvania Type 6AF4 is a miniature medium mu triode designed for service as a u h f oscillator.

SYLVANIA TUBE TESTER SETTINGS

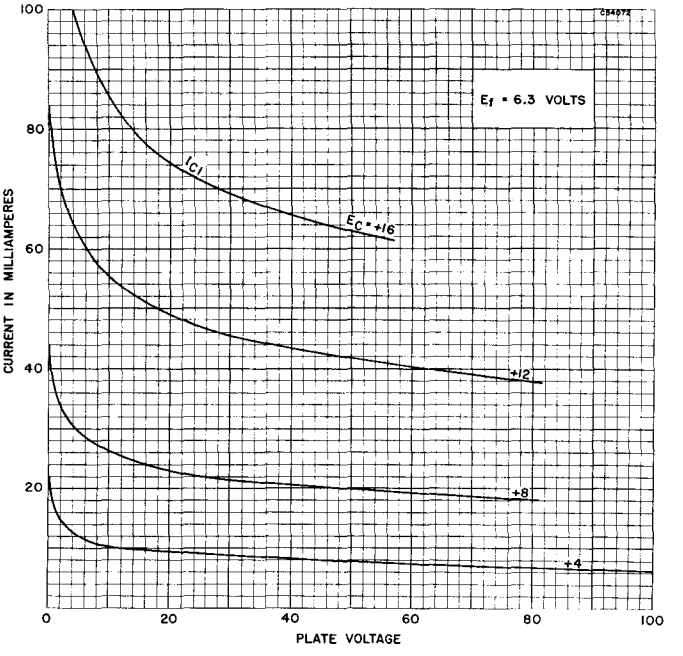
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	46	0	2	2	19	X
	6.3	0	32	0	3	6	19	X
219/220	6.3	3	467	12	4	2V	1	5
	6.3	3	124	12	4	6V	7	5

6AF4 (Cont'd)

AVERAGE PLATE CHARACTERISTICS

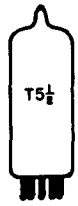


AVERAGE CHARACTERISTICS



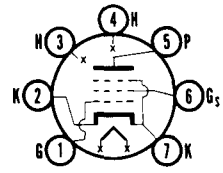
TYPES 6AF4A, 6AF5G, 6AF6G

(See Condensed Data Section)



SYLVANIA TYPE 6AG5

SHARP CUTOFF R F PENTODE



7BD

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BD
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Grid to Plate	0.020	0.030 μμf Max
Input	6.6	6.5 μμf
Output	3.1	1.8 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Voltage	See Rating Chart for Type 6AM8
Plate Dissipation	2.0 Watts
Grid No. 2 Dissipation	0.5 Watt
Positive D C Grid No. 1 Voltage	0 Volts

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier

	Triode[2]		Pentode		
Plate Voltage	250	180	100	125	250 Volts
Grid No. 2 Voltage	Plate	Plate	100	125	150 Volts
Cathode Resistor	820	330	180	100	180 Ohms
Plate Current	5.5[3]	7.0[3]	4.5	7.2	6.5 Ma
Grid No. 2 Current			1.4	2.1	2.0 Ma
Transconductance	3800	5700	4500	5100	5000 μmhos
Plate Resistance (approx.)	0.01	0.008	0.6	0.5	0.8 Megohm
Amplification Factor	42	45			
Grid No. 1 Voltage for I_b=10 μa			−5	−6	−8 Volts

NOTES:

1. External shield No. 316 connected to pin No. 7.
2. Grid No. 2 tied to plate.
3. Total current flowing to plate + grid No. 2.

APPLICATION

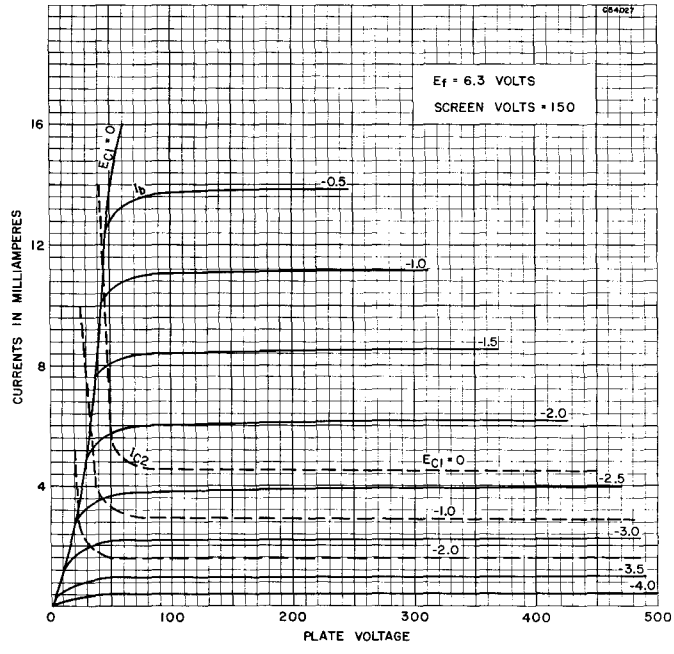
Sylvania Type 6AG5 is a miniature sharp cutoff pentode designed for service as an i f amplifier or r f amplifier at frequencies up to approximately 400 mc. The 6AG5 features low input and output capacitances and high gm. Isolation of input and output circuits is made possible through the use of two cathode leads. It is similar to Type 6BC5.

SYLVANIA TUBE TESTER SETTINGS

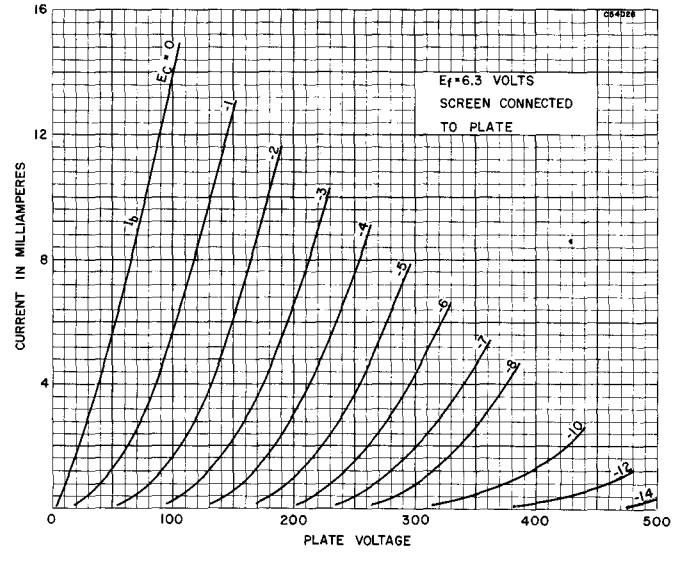
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	4	0	4	36	30	V
219/220	6.3	3	47S	73	4	16Z	5	2
	6.3	3	42S	73	4	16Z	5	7

6AG5 (Cont'd)

AVERAGE PLATE CHARACTERISTICS

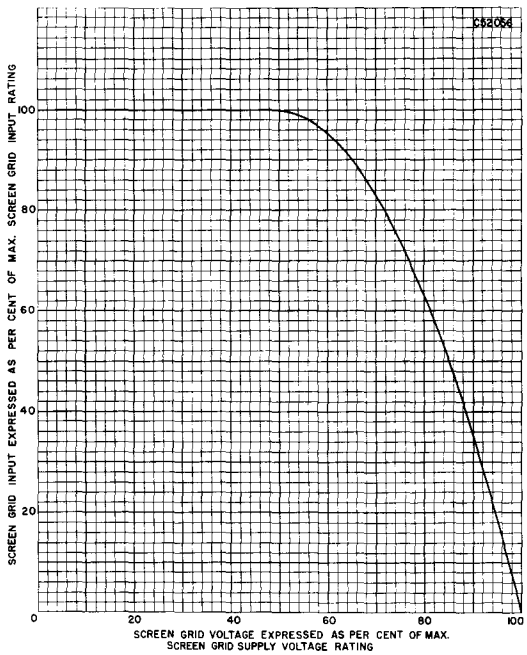


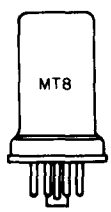
AVERAGE PLATE CHARACTERISTICS
TRIODE CONNECTED



6AG5 (Cont'd)

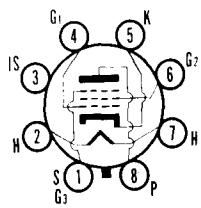
SCREEN GRID RATING CHART





SYLVANIA TYPE 6AG7

PENTODE VIDEO AMPLIFIER



8Y

MECHANICAL DATA

Bulb	Metal, Outline 8-6
Base	Small Wafer Octal 8-Pin
Basing	8Y
Mounting Position	Vertical[1]

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	650 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

(Shell Connected to Cathode)

Grid to Plate	0.060 $\mu\mu$f
Input	13.0 $\mu\mu$f
Output	7.5 $\mu\mu$f

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	9.0 Watts
Grid No. 2 Voltage	300 Volts
Grid No. 2 Dissipation	1.5 Watts
Positive D C Grid No. 1 Voltage	0 Volts
Grid No. 1 Circuit Resistance	
Fixed Bias	0.25 Megohm
Cathode Bias	1.0 Megohm

6AG7 (Cont'd)

TYPICAL OPERATION

Class A_1 Amplifier

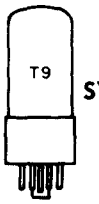
Plate Voltage	300 Volts
Grid No. 2 Voltage	150 Volts
Grid No. 1 Voltage	−3.0 Volts
Self Bias Resistor	81 Ohms
Plate Current (Zero Signal)	30 Ma
Plate Current (Maximum Signal)	30.5 Ma
Grid No. 2 Current (Zero Signal)	7.0 Ma
Grid No. 2 Current (Maximum Signal)	9.0 Ma
Transconductance	11000 μmhos
Plate Resistance	0.13 Megohm
Load Resistance	10000 Ohms
Power Output	3.0 Watts
Total Harmonic Distortion	7.0 Percent

NOTE:

1. Horizontal operation is permitted if pins 2 and 7 are in vertical plane.

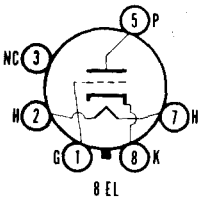
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	6	36	25	W
219/220	6.3	2	7	23	7	46Z	8	5



SYLVANIA TYPE 6AH4GT

VERTICAL DEFLECTION AMPLIFIER



MECHANICAL DATA

Bulb	T-9, Outline 9-41
Base	Short Intermediate Shell Octal 6-Pin
Basing	8EL
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	0.75 Ampere
Maximum Heater-Cathode Voltage	
D C, Heater Positive With Respect to Cathode	100 Volts
Total D C and Peak	200 Volts

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Vertical Deflection Amplifier[2]

Plate Voltage	500 Volts
Peak Positive Plate Voltage (Abs. Max.)	2000 Volts
Plate Dissipation[3]	7.5 Watts
Positive Grid Voltage	0 Volts
Peak Negative Pulse Grid Voltage	200 Volts
Average Cathode Current	60 Ma
Peak Cathode Pulse Current	180 Ma
Grid Circuit Resistance	2.2 Megohms

CHARACTERISTICS

Plate Voltage	250	250 Volts
Grid Voltage	−33	−23 Volts
Plate Current	5.0	30 Ma
Transconductance		4500 μmhos
Amplification Factor		8
Plate Resistance		1780 Ohms
Grid Voltage for I_b=0.5 Ma (approx.)		−40 Volts

NOTES:

1. Shield No. 308 connected to cathode.
2. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
3. An adequate bias resistor or other means is required to protect the tube in the absence of excitation.

6AH4GT (Cont'd)

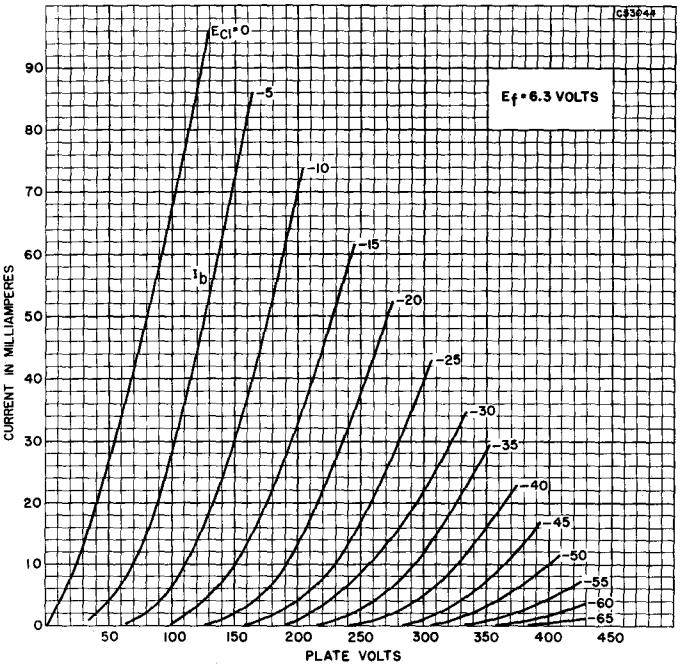
APPLICATION

Sylvania Type 6AH4GT is a low-mu high perveance triode for use as a vertical deflection amplifier in television receivers. It will furnish high plate currents at low plate voltages and will withstand the high pulse voltages encountered in this application.

SYLVANIA TUBE TESTER SETTINGS

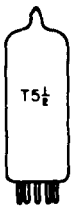
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	3	5	24	Y
219/220	6.3	2	7S	17	7	1Z	5	8

AVERAGE PLATE CHARACTERISTICS
EACH SECTION



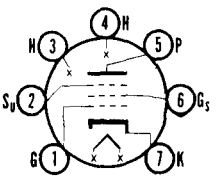
TYPE 6AH5G

(See Condensed Data Section)



SYLVANIA TYPE 6AH6

SHARP CUTOFF R F PENTODE



7 BK

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BK
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES (Shielded)[1]

Grid to Plate	.020 μμf Max
Input	10 μμf
Output	3.6 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	3.2 Watts
Grid No. 2 Voltage	150 Volts
Grid No. 2 Dissipation	0.4 Watt
Cathode Current	13 Ma

TYPICAL OPERATION

	Pentode Connected	Triode Connected
Plate Voltage	300	150 Volts
Grid No. 2 Voltage	150	150 Volts
Grid No. 3 Voltage	Tie to Cathode	
Cathode Bias Resistor	160	160 Ohms
Plate Current	10.0	12.5 Ma
Grid No. 2 Current	2.5	Ma
Transconductance	9000	11000 μmhos
Amplification Factor		40
Plate Resistance (approx.)	500000	3600 Ohms
Grid No. 1 Bias for I_b = 10 μa (approx.)	−7.0	−7.0 Volts

NOTE:

1. Shield No. 316.

APPLICATION

Sylvania Type 6AH6 is a sharp cutoff pentode designed for use in television, video and i f circuits where wide band amplification and low impedance output is required. The triode operating conditions are given to permit its use in cathode follower circuits. The suppressor grid does not have large enough plate current control for practical use.

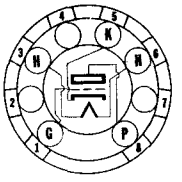
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	4	36	39	W
219/220	6.3	3	4S	22	4	16Y	5	7

TYPES 6AH7GT, 6AJ4, 6AJ5

(See Condensed Data Section)

NOTE; 6AJ5 data continued on page following this supplement.



8-DK

Sylvania Type 6AK4

HIGH FREQUENCY TRIODE

PHYSICAL SPECIFICATIONS

Base	Subminiature Button, Flexible Leads
Bulb	T-3
Maximum Bulb Length	1.375"
Minimum Lead Length	1.500"
Mounting Position	Any
Basing	8-DK

RATINGS

Heater Voltage AC or DC	6.3 Volts
Maximum Plate Voltage	250 Volts
Maximum Heater to Cathode Voltage	90 Volts
Maximum Plate Dissipation	3.0 Watts
Maximum Cathode Current	20 Ma.

Direct Interelectrode Capacitances:

	Shielded*	Unshielded
Grid to Plate	1.3	1.4 μμf.
Input	2.0	1.8 μμf.
Output	1.7	0.6 μμf.

*With 0.405" diameter shield connected to cathode

TYPICAL OPERATION

Heater Voltage	6.3 Volts
Heater Current	150 Ma.
Plate Voltage	200 Volts
Grid Voltage* Obtained from Self Bias Resistor of	680 Ohms
Plate Current	9.5 Ma.
Transconductance	3800 μmhos
Amplification Factor	20
Plate Resistance	5300 Ohms
Grid Voltage for Plate Current Cut-Off to 10 μa.	−20 Volts

*Provides an operating bias of approx. 6.5 volts.
Fixed bias operation is not recommended.

APPLICATION

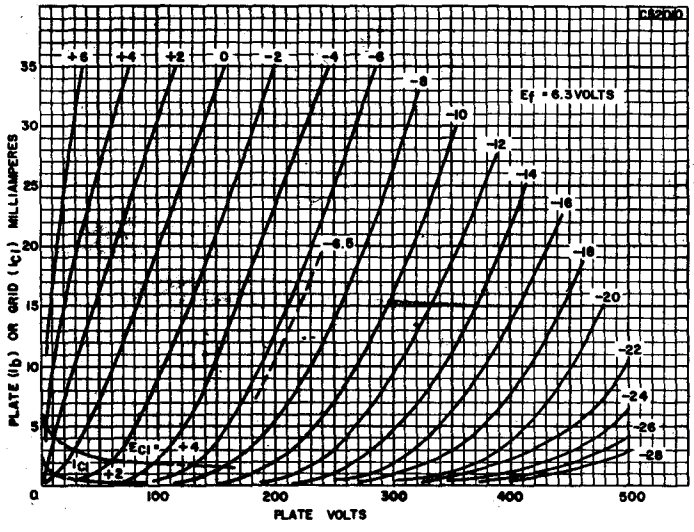
Sylvania Type 6AK4 is a general purpose medium mu triode in the subminiature style. This tube is a commercial version of the 6K4 and is considered a replacement for it.

At frequencies of around 500 mc, an output of approximately ¾ watt may be obtained when used in a suitable circuit.

6AK4 (cont'd)

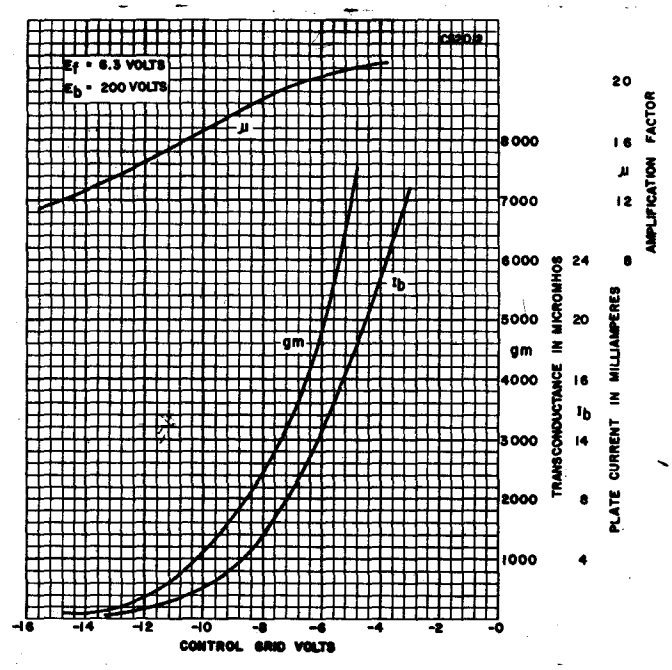
Sylvania Type 6AK4

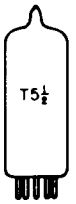
AVERAGE PLATE CHARACTERISTICS



Sylvania Type 6AK4

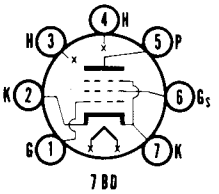
AVERAGE TRANSFER CHARACTERISTICS





SYLVANIA TYPE 6AK5

HIGH FREQUENCY PENTODE



7BD

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-1
Base	Miniature Button 7-Pin
Basing	7BD
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	175 Ma
Maximum Heater-Cathode Voltage	120 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Grid to Plate	.02	.03 μμf
Input	4.0	4.0 μμf
Output	2.8	2.1 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	180 Volts
Plate Dissipation	1.7 Watts
Grid No. 2 Voltage	140 Volts
Grid No. 2 Dissipation	0.5 Watt
Grid No. 2 Supply Voltage	180 Volts
Positive Grid No. 1 Voltage	0 Volts
Cathode Current	18 Ma

TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	120	180 Volts
Grid No. 2 Voltage	120	120 Volts
Cathode Bias Resistor[2]	180	180 Ohms
Plat Current	7.5	7.7 Ma
Grid No. 2 Current	2.5	2.4 Ma
Transconductance	5000	5100 μmhos
Plate Resistance (approx.)	0.30	0.50 Megohm

NOTES:

1. Shield No. 316 connected to cathode.
2. Fixed bias operation is not recommended.

APPLICATION

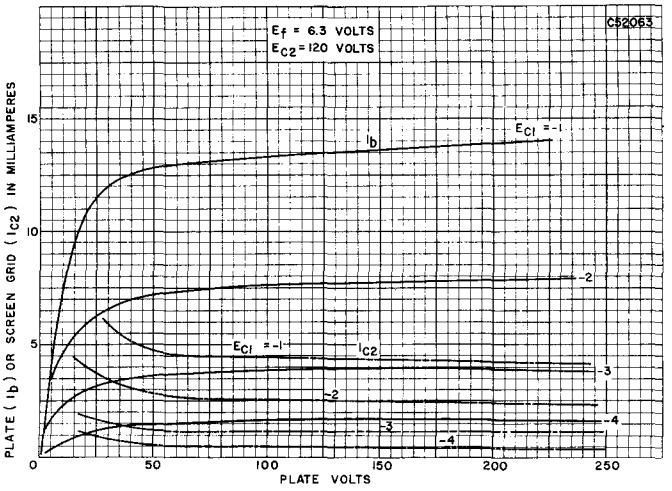
Sylvania Type 6AK5 is a miniature sharp cutoff r f pentode capable of operation up to 400 mc. The dual cathode leads, when properly used, help isolate input and output circuits, thereby permitting greater gain per stage.

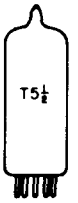
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	4	0	4	36	50	U
219/220	6.3	3	47S	27	4	16Y	5	2
	6.3	3	24S	27	4	16Y	5	7

6AK5 (Cont'd)

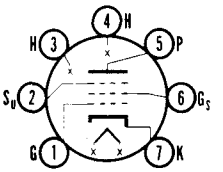
AVERAGE PLATE CHARACTERISTICS





SYLVANIA TYPE 6AK6

PENTODE POWER AMPLIFIER



7 BK

MECHANICAL DATA

Bulb	T-5 ½ Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BK
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage, D C	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	0.12 μμf
Input	3.6 μμf
Output	4.2 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	2.75 Watts
Grid No. 2 Voltage	250 Volts
Grid No. 2 Dissipation	0.75 Watt

TYPICAL OPERATION

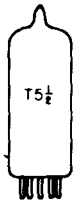
Class A_1 Power Amplifier

Plate Voltage	180 Volts
Grid No. 2 Voltage	180 Volts
Grid No. 1 Voltage	-9 Volts
Grid No. 3	Connected to Cathode at Socket
Plate Current (Zero Signal)	15 Ma
Grid No. 2 Current (Zero Signal)	2.5 Ma
Transconductance	2300 μmhos
Plate Resistance	0.2 Megohm
Load Resistance	10000 Ohms
Total Harmonic Distortion	10 Percent
Maximum Signal Power Output	1.1 Watts

6AK6 (Cont'd)

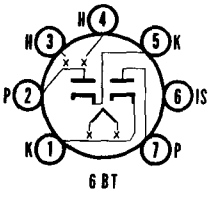
APPLICATION

Sylvania Type 6AK6 is a power amplifier pentode designed for use in radio equipment where power consumption must be kept to a minimum. This tube may also be used to advantage in power amplifiers where isolation between input and output circuits is desired because of its highly effective screen grid. Electrically, the Type 6AK6 is similar to Type 6G6G.



SYLVANIA TYPE 6AL5

DUO DIODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-1
Base	Miniature Button 7-Pin
Basing	6BT
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	330 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Plate Input (Each Section)	3.2	2.5 μμf
Plate to Plate	.026	.068 μμf
Cathode Input (Each Section)	3.6	3.4 μμf

MAXIMUM RATINGS (Design Center Values)

Peak Inverse Plate Voltage	330 Volts
Peak Plate Current Each Plate	54 Ma
D C Output Current Each Plate	9.0 Ma

TYPICAL OPERATION

A C Plate Voltage Per Plate	117 Volts
Effective Plate Supply Impedance Each Plate	300 Ohms Min
D C Output Current Each Plate	9.0 Ma

NOTE:

1. Shield No. 316 connected to Pin 6.

APPLICATION

Sylvania Type 6AL5 is a miniature double diode designed for high frequency operation. Each section has a resonant frequency of approximately 700 mc. An internal shield is provided to permit independent operation of each diode.

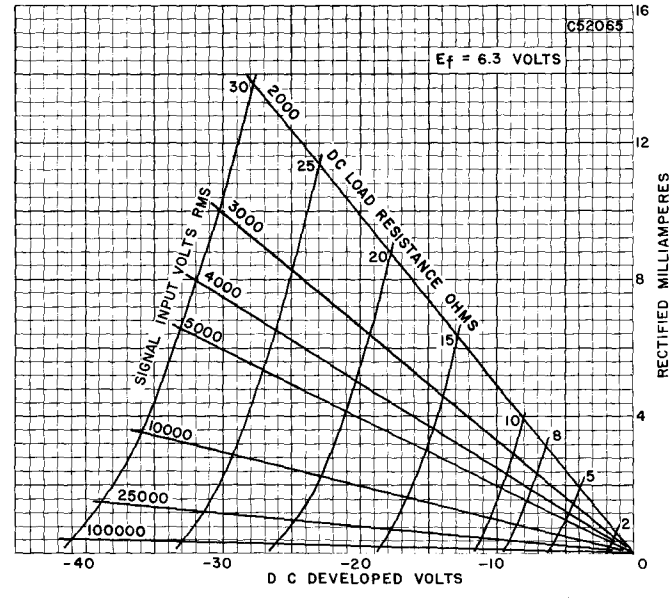
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	—	55	T
	6.3	0	—	0	3	—	55	T
219/220	6.3	3	14	21	4	X	2*	5
	6.3	3	45	21	4	X	7*	1

* Diode gas test does not apply.

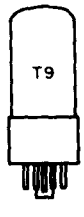
6AL5 (Cont'd)

AVERAGE OPERATING CHARACTERISTICS
HALF-WAVE RECTIFICATION—SINGLE DIODE



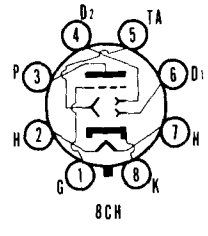
TYPE 6AL6G

(See Condensed Data Section)



SYLVANIA TYPE 6AL7GT

TUNING INDICATOR



MECHANICAL DATA

Bulb	T-9, Outline 9-7
Base	Intermediate Shell Octal 8-Pin
Basing	8CH
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage	90 Volts

TYPICAL OPERATION

Tuning Indicator Service

Target Voltage	315 Volts
Grid Voltage[1]	0 Volts
Deflection Electrode Voltages[2]	0 Volts
Deflection Sensitivity (approx.) (Per Volt)	1 mm
Grid Voltage for Fluorescent Cutoff (approx.)	-7.0 Volts
Cathode Bias Resistor (approx.)	3300 Ohms

6AL7GT (Cont'd)

NOTES:

1. When not used for fluorescent control the grid should be connected to the cathode.
2. The illustration shows the fluorescent areas controlled by the deflection electrodes connected to D1, D2 and D3, respectively.

APPLICATION

Sylvania Type 6AL7GT is a tuning indicator tube using the principle of the cathode ray tube and designed for use with f m circuits in addition to a m. Circuits other than those shown may be used utilizing the grid and/or D3 for additional control such as squelch and limiting voltages.

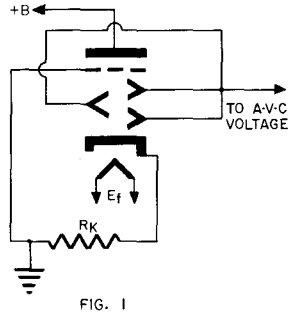


FIG. 1

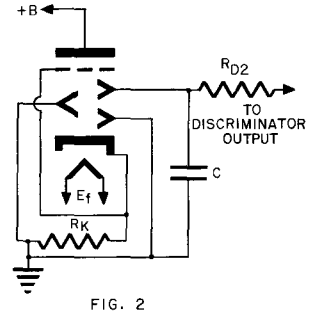
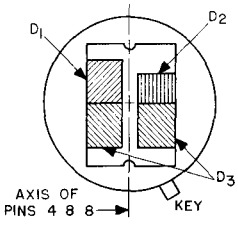


FIG. 2

CONDITIONS:

+B = 250 V DC APPROX.
R_K = 3300 OHMS
R_{D2} = 1.0 MEGOHM
C = 0.05 MICROFARAD

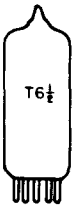


PATTERN RESPONSE IN VARIOUS CIRCUITS

CONTROL VOLTAGE SOURCE	SIGNAL	CIRCUIT (SEE FIG.)	OFF CHANNEL (-)	ON CHAN. OFF TUNE (-)	ON TUNE	ON CHAN. OFF TUNE (+)	OFF CHANNEL (+)
DISCRIMINATOR	FM	2					
AVC	AM	1					

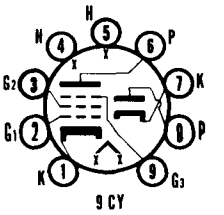
TYPE 6AM4

(See Condensed Data Section)



SYLVANIA TYPE 6AM8

DIODE PENTODE



MECHANICAL DATA

Bulb	T-6 ½, Outline 6-2
Base	Small Button 9-Pin
Basing	9CY
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Pentode		
Grid to Plate	0.015	0.015 μμf Max
Input	6.0	6.0 μμf
Output	3.4	2.6 μμf
Diode		
Input: p to (h+k)	2.3	1.7 μμf
Cathode to (h+p)	4.0	4.0 μμf
Coupling: (diode p to pentode p)	0.035	0.10 μμf
Coupling: (diode p to grid 1)	0.005	0.006 μμf
Coupling: (diode k to pentode p)	0.15	0.15 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	2.8 Watts
Grid No. 2 Voltage	See Rating Chart
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Dissipation	0.5 Watt
Positive Grid No. 1 Voltage	0 Volts
Grid No. 3 Voltage	0 Volts
Grid No. 1 Circuit Resistance	
Cathode Bias	1.0 Megohm
Fixed Bias	0.25 Megohm
Diode Current for Continuous Operation	5.0 Ma

CHARACTERISTICS

Plate Voltage	200 Volts
Grid No. 2 Voltage	150 Volts
Grid No. 3 Voltage	0 Volts
Cathode Resistor	120 Ohms
Plate Current	11.5 Ma
Grid No. 2 Current	2.7 Ma
Transconductance	7000 μmhos
Plate Resistance (Approx.)	0.6 Megohm
Grid No. 1 Voltage for I_b = 10 μa	−8 Volts
Diode Plate Voltage for Diode Current of 50 Ma[2]	10 Volts

NOTES:

1. Shield No. 315.
2. Test condition only. Operating conditions must not exceed the design center rating.

APPLICATION

Sylvania Type 6AM8 is a miniature diode-pentode designed for use as a combined video detector and last i f stage. The pentode section has a sharp cutoff characteristic and is similar to the Type 6CB6. The diode is similar to one section of a 6AL5.

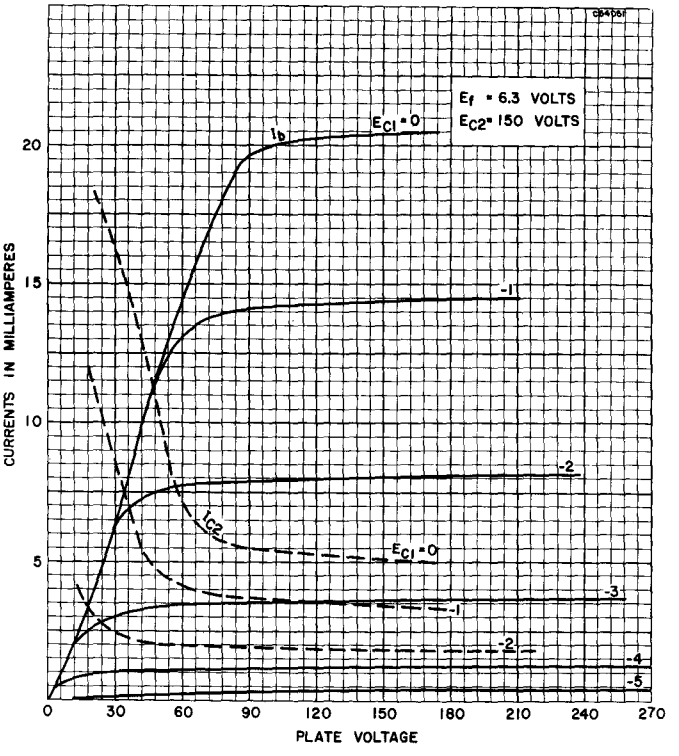
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	0	0	3	36	60	W
	6.3	0	0	0	8	—	49	T
219/220	6.3	4	57S	77	5	23Z	6	1
	6.3	4	15	35	5	T	8*	7

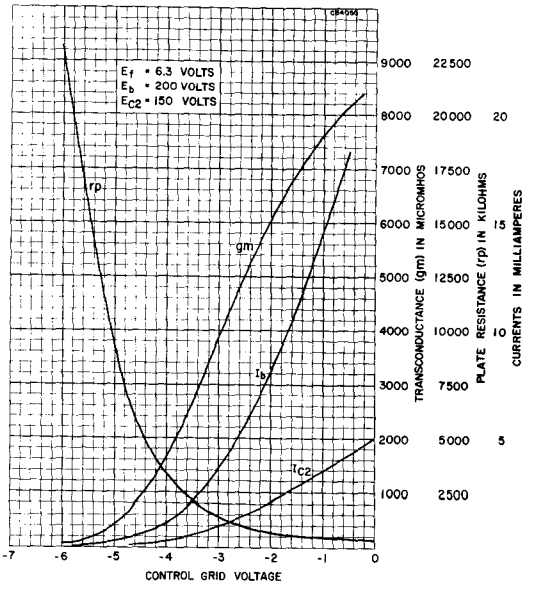
* Diode gas test does not apply.

6AM8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS

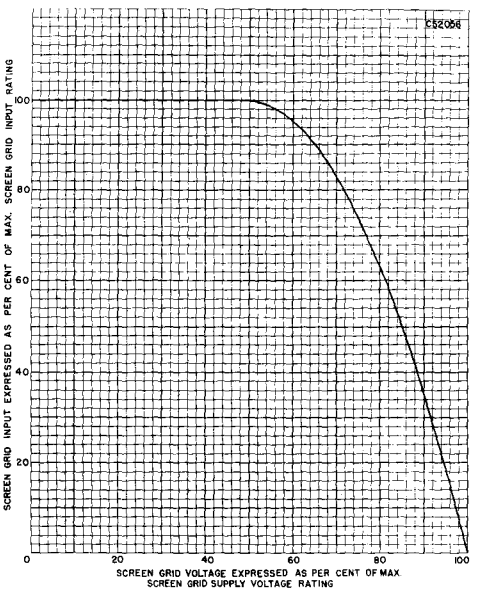


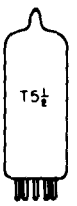
AVERAGE TRANSFER CHARACTERISTICS



6AM8 (Cont'd)

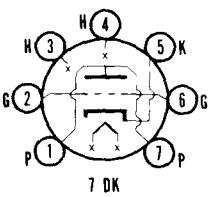
RATING CHART





SYLVANIA TYPE 6AN4

UHF TRIODE



7 DK

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-1
Base	Miniature Button 7-Pin
Basing	7DK
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	225 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded
Grid to Plate	1.7	1.7 μμf
Input	3.3	2.9 μμf
Output	1.8	0.25 μμf
Heater to Cathode[2]	2.9	3.0 μμf
Grid to Cathode[2]	2.6	2.6 μμf
Plate to Cathode[2]	0.18	0.20 μμf
Grounded Grid Operation		
Input	5.7	5.5 μμf
Output	3.4	1.8 μμf

6AN4 (Cont'd)

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	4 Watts
Cathode Current	30 Ma
Grid Circuit Resistance	
Fixed Bias	0.1 Megohm
Cathode Bias	0.5 Megohm

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	200 Volts
Cathode Bias Resistor	100 Ohms
Plate Current	13 Ma
Transconductance	10000 μmhos
Amplification Factor	70
Grid Voltage for I_b = 20 μa	-7 Volts

Mixer Service

Plate Voltage	125 Volts
Cathode Bias Resistor	270 Ohms
Plate Current	7.0 Ma
Oscillator Injection Voltage (R M S)	1.4 Volts
Conversion Transconductance	2900 μmhos

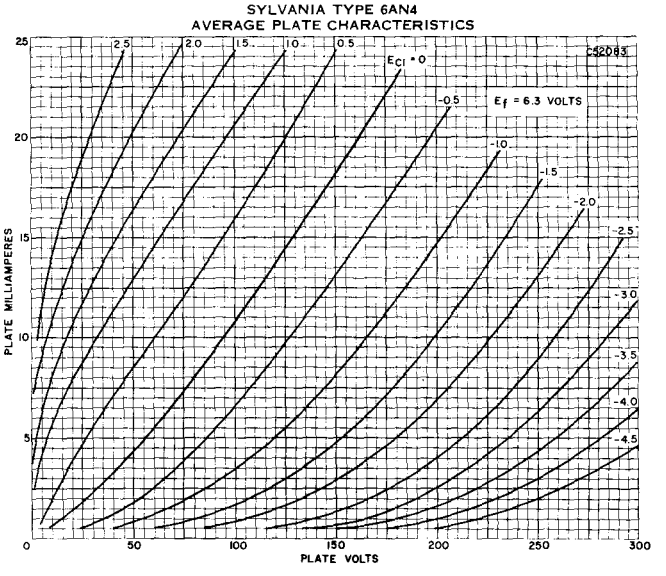
NOTES:

1. Shield No. 316.
2. Measured between specified elements only. When external shield is used, it shall be grounded.

APPLICATION

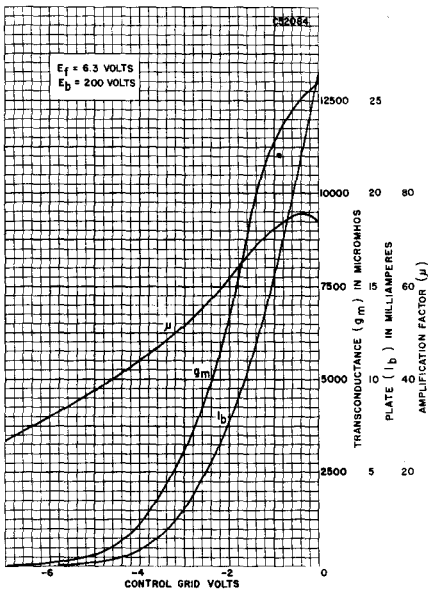
Sylvania Type 6AN4 is a miniature high-mu triode designed for use as a grounded grid amplifier or mixer in u h f television applications.

AVERAGE PLATE CHARACTERISTICS

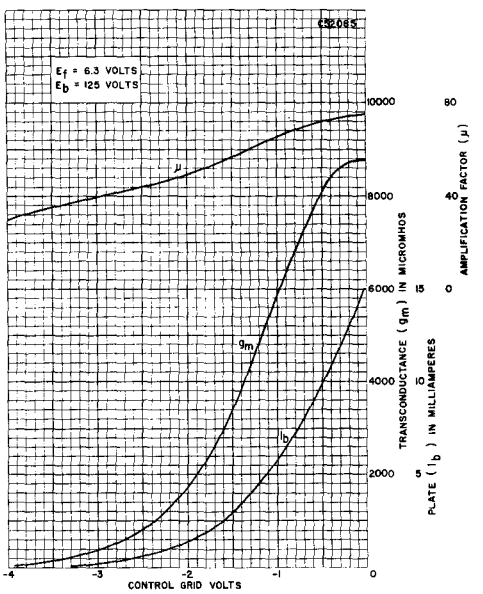


6AN4 (Cont'd)

AVERAGE TRANSFER CHARACTERISTICS

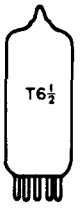


AVERAGE TRANSFER CHARACTERISTICS



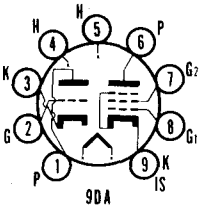
TYPE 6AN5

(See Condensed Data Section)



SYLVANIA TYPE 6AN8

TRIODE PENTODE



MECHANICAL DATA

Bulb	T-6 ½, Outline 6-2
Base	Small Button 9-Pin
Basing	9DA
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Postive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Triode Section

Grid to Plate	1.5 μμf
Input	2.0 μμf
Output	0.27 μμf

Pentode Section

Grid No. 1 to Plate	0.04 μμf Max
Input	7.0 μμf
Output	2.3 μμf
Triode Grid to Pentode Plate	0.005 μμf
Pentode Grid No. 1 to Triode Plate	0.006 μμf
Pentode Plate to Triode Plate	0.045 μμf

MAXIMUM RATINGS (Design Center Values)

	Triode	Pentode
Plate Voltage	300	300 Volts
Grid No. 2 Supply Voltage		300 Volts
Grid No. 2 Voltage	See Rating Chart for Type 6AM8	
Positive Grid No. 1 Voltage	0	0 Volts
Plate Dissipation	2.5	2.0 Watts
Grid No. 2 Input		0.5 Watt
Grid No. 1 Circuit Resistance[1]		
Cathode Bias	1.0	1.0 Megohm
Fixed Bias	0.5	0.25 Megohm

CHARACTERISTICS

	Triode	Pentode
Plate Supply Voltage	200	200 Volts
Grid No. 2 Supply Voltage		150 Volts
Grid No. 1 Voltage	−6	Volts
Cathode Bias Resistor		180 Ohms
Plate Current	13	9.5 Ma
Grid No. 2 Current		2.8 Ma
Amplification Factor	19	
Plate Resistance (approx.)	5750	300000 Ohms
Transconductance	3300	6200 μmhos
Grid No. 1 Voltage for I_b = 10 μa (approx.)	−19	−8 Volts

NOTE:

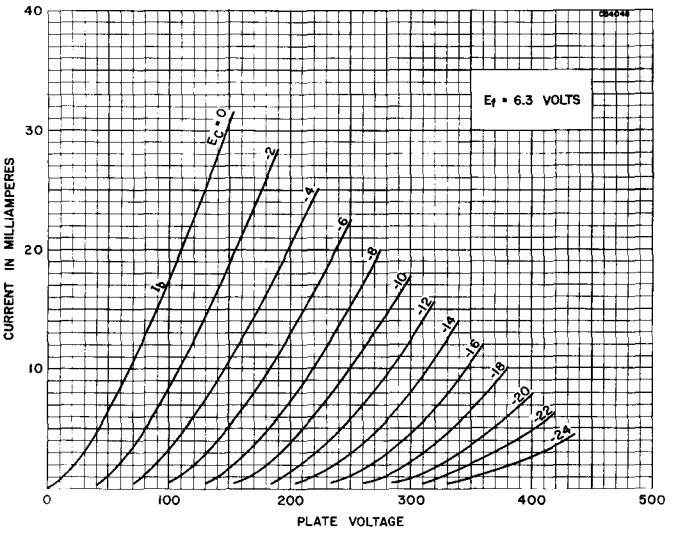
1. If either section is operating at maximum rated conditions, the grid No. 1 circuit resistance for both sections should not exceed the stated values.

APPLICATION

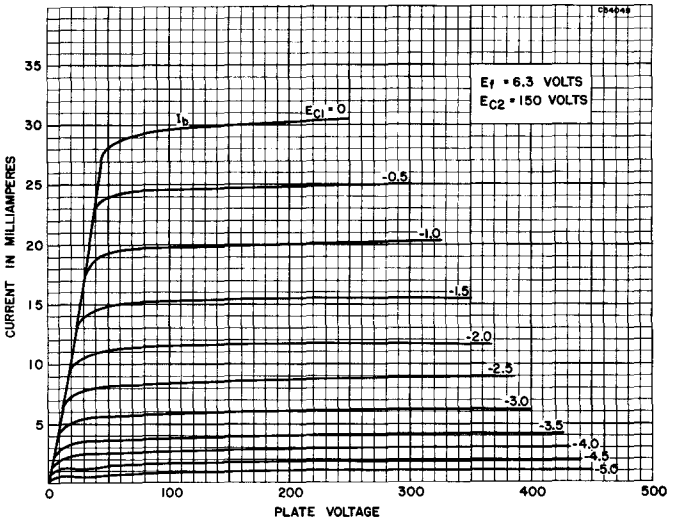
Sylvania Type 6AN8 is a medium-mu triode and sharp cutoff pentode contained in a 9-pin, miniature envelope. It is intended for application in color and monochrome television receivers. The pentode section may be used as an i f amplifier, video amplifier, a g c amplifier and reactance tube. The triode is well suited for use in low frequency oscillator, sync clipper, sync separator and phase splitter circuits.

6AN8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION

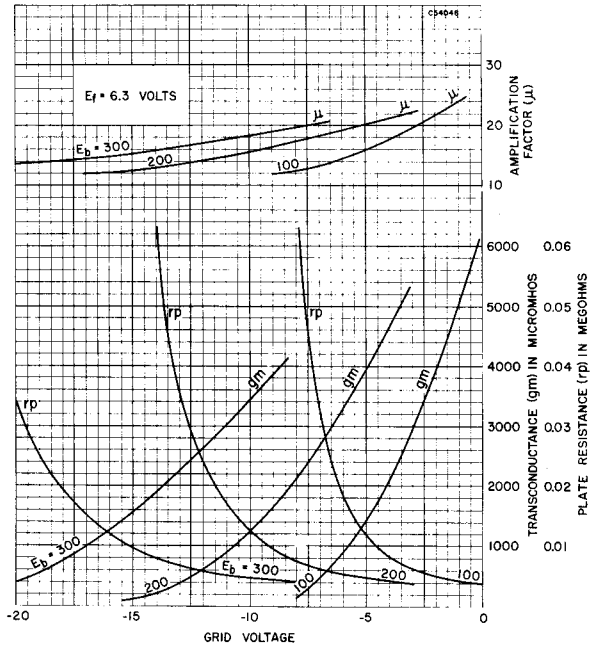


AVERAGE PLATE CHARACTERISTICS
PENTODE SECTION

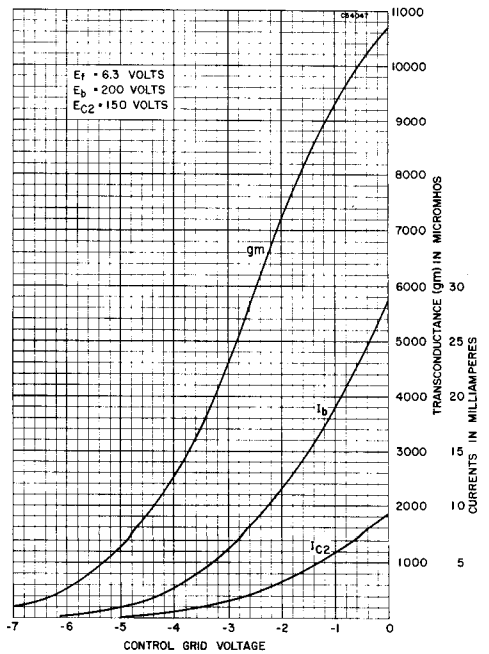


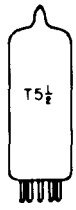
6AN8 (Cont'd)

AVERAGE TRANSFER CHARACTERISTICS
TRIODE SECTION



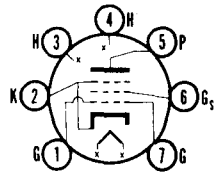
AVERAGE TRANSFER CHARACTERISTICS
PENTODE SECTION





SYLVANIA TYPE 6AQ5

BEAM POWER AMPLIFIER



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-3
Base	Miniature Button 7-Pin
Basing	7BZ
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	0.4 $\mu\mu$f
Input	8.0 $\mu\mu$f
Output	8.5 $\mu\mu$f

MAXIMUM RATINGS (Design Center Values—Except as Noted)

	Class A_1 Amplifier	Vertical Deflection Amplifier Triode Connected[1]	
Plate Voltage	250	250	Volts
Peak Positive Plate Voltage (Abs. Max.)		1100	Volts
Plate Dissipation (Note 2 Vert. Defl. Amp.)	12	9	Watts
Peak Negative Grid Voltage		250	Volts
Grid No. 2 Voltage	250		Volts
Grid No. 2 Dissipation	2.0		Watts
Average Cathode Current		35	Ma
Peak Cathode Current		105	Ma
Grid No. 1 Circuit Resistance			
Fixed Bias	0.1		Megohm
Cathode Bias	0.5	2.2	Megohms
Bulb Temperature (At Hottest Point)	250°		C

CHARACTERISTICS AND TYPICAL OPERATION

	Triode Connected	Class A_1 Amplifier		
Plate Voltage	250	180	250	Volts
Grid No. 2 Voltage	250	180	250	Volts
Grid No. 1 Voltage	−12.5	−8.5	−12.5	Volts
Peak A F Grid No. 1 Voltage		8.5	12.5	Volts
Plate Current (Zero Signal)	49.5	29	45	Ma
Plate Current (Maximum Signal)		30	47	Ma
Grid No. 2 Current (Zero Signal)		3.0	4.5	Ma
Grid No. 2 Current (Maximum Signal)		4.0	7.0	Ma
Transconductance	4800	3700	4100	μmhos
Amplification Factor	9.5			
Plate Resistance (approx.)	1970	58000	52000	Ohms
Control Grid Bias For I_b = 0.5 Ma	−37			Volts
Load Resistance		5500	5000	Ohms
Maximum Signal Power Output		2.0	4.5	Watts
Total Harmonic Distortion (approx.)		8.0	8.0	Percent

Class AB_1 Power Amplifier (2 Tubes)

Plate Voltage	250 Volts
Grid No. 2 Voltage	250 Volts
Grid No. 1 Voltage	−15 Volts
Peak A F Grid to Grid Voltage	30 Volts
Plate Current (Zero Signal)	70 Ma
Plate Current (Maximum Signal)	79 Ma
Grid No. 2 Current (Zero Signal)	5.0 Ma
Grid No. 2 Current (Maximum Signal)	13 Ma
Transconductance (Per Tube)	3750 μmhos
Plate Resistance (Per Tube)	60000 Ohms
Effective Load Resistance (Plate to Plate)	10000 Ohms
Total Harmonic Distortion	5 Percent
Maximum Signal Power Output	10 Watts

NOTES:

1. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
2. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

6AQ5 (Cont'd)

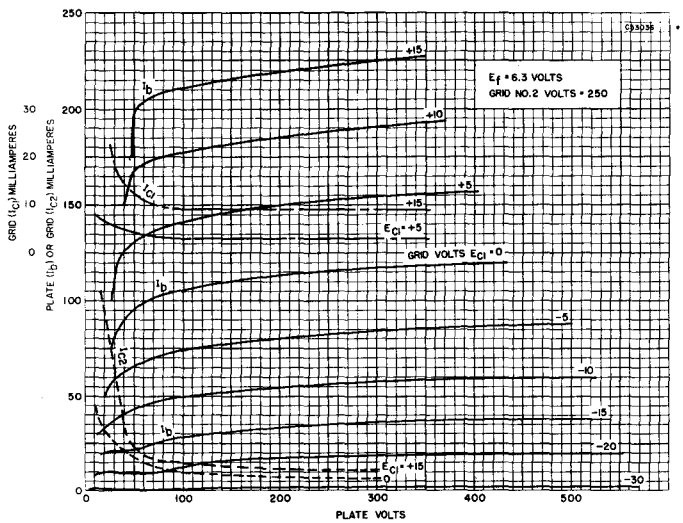
APPLICATION

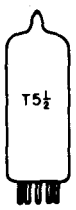
Sylvania Type 6AQ5 is a miniature beam power pentode intended for service as a general purpose audio power amplifier or vertical deflection amplifier in television receiver sweep circuits. The Type 6AQ5 is equivalent to the Type 6V6GT within its maximum ratings.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	4	0	4	36	37	Y
219/220	6.3	3	14	25	4	067Z	5	2
	6.3	3	47	25	4	16Z	5	2

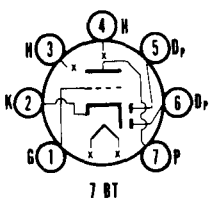
AVERAGE PLATE CHARACTERISTICS





SYLVANIA TYPE 6AQ6

DUO DIODE HIGH-MU TRIODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BT
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	150 Ma
Maximum Heater-Cathode Voltage	90 Volts

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts

6AQ6 (Cont'd)

TYPICAL OPERATION

Class A_1 Amplifier

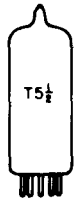
Plate Voltage	100	250 Volts
Grid Voltage	−1.0	−3.0 Volts
Plate Current	0.8	1.0 Ma
Transconductance	1150	1200 μmhos
Amplification Factor	70	70
Plate Resistance	61000	58000 Ohms

APPLICATION

Sylvania Type 6AQ6 is similar to Type 6Q7 but has lower heater current and lower internal capacitances.

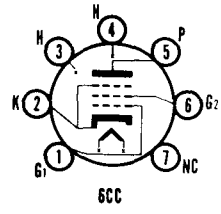
TYPE 6AQ7GT

(See Condensed Data Section)



SYLVANIA TYPE 6AR5

BEAM POWER AMPLIFIER



6CC

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-3
Base	Miniature Button 7-Pin
Basing	6CC
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	400 Ma
Maximum Heater-Cathode Voltage	90 Volts

MAXIMUM RATINGS (Design Center Values)

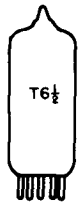
Plate Voltage	250 Volts
Plate Dissipation	8.5 Watts
Grid No. 2 Voltage	250 Volts
Grid No. 2 Dissipation	2.5 Watts
Grid No. 1 Circuit Resistance	
Fixed Bias	0.1 Megohm
Cathode Bias	0.5 Megohm

TYPICAL OPERATION

Plate Voltage	250	250 Volts
Grid No. 2 Voltage	250	250 Volts
Grid No. 1 Voltage	−16.5	−18 Volts
Self Bias Resistor	420	500 Ohms
Plate Current (Zero Signal)	34	32 Ma
Plate Current (Maximum Signal)	35	33 Ma
Grid No. 2 Current (Zero Signal)	5.7	5.5 Ma
Grid No. 2 Current (Maximum Signal)	10	10 Ma
Transconductance	2400	2300 μmhos
Plate Resistance (approx.)	65000	68000 Ohms
Load Resistance	7000	7600 Ohms
Power Output	3.2	3.4 Watts
Total Harmonic Distortion	7	11 Percent

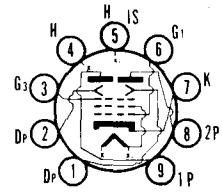
APPLICATION

Sylvania Type 6AR5 is a miniature beam power amplifier similar to Types 7B5 and 6K6G, with the plate and screen voltage maximum rating being lower for the 6AR5.



SYLVANIA TYPE 6AR8

SHEET-BEAM TUBE



9DP

MECHANICAL DATA

Bulb	T-6 ½, Outline 6-3
Base	Small Button 9-Pin
Basing[1]	9DP
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma

DIRECT INTERELECTRODE CAPACITANCES (Approx.)

	Unshielded
Deflector No. 1 and No. 2 to All	4.8 μμf
Grid No. 1 to All Except Plates	7.5 μμf
Plate No. 1 and No. 2 to All	0.4 μμf
Grid No. 1 to Deflector No. 1	0.040 μμf Max
Grid No. 1 to Deflector No. 2	0.060 μμf Max
Plate No. 1 to Plate No. 2	0.4 μμf
Deflector No. 1 to Deflector No. 2	0.38 μμf

MAXIMUM RATINGS (Design Center Values)

Plate No. 1 and Plate No. 2 Voltage	300 Volts
Plate No. 1 and Plate No. 2 Dissipation (Each Plate)	2.0 Watts
Accelerator Voltage	300 Volts
Peak Deflector No. 1 and Deflector No. 2 Voltage	±150 Volts
Positive D C Grid No. 1 Voltage	0 Volts
D C Cathode Current	30 Ma
Grid No. 1 Circuit Resistance	
Fixed Bias	0.1 Megohms
Cathode Bias	0.25 Megohms

CHARACTERISTICS AND TYPICAL OPERATION

Average Characteristics with Deflectors Grounded

Plate No. 1 Voltage	250 Volts
Plate No. 2 Connected to Plate No. 1 Accelerator Voltage	250 Volts
Deflectors No. 1 and No. 2 Voltage	0 Volts
Cathode Bias Resistor	300 Ohms
Total Plate Current	10 Ma
Accelerator Current	0.4 Ma
Grid No. 1 Transconductance	4000 μmhos
Grid No. 1 Voltage, Approx., for I_b (Total) = 10 μa	-14 Volts

Average Deflector Characteristics

Plates No. 1 and No. 2 Voltage	250 Volts
Accelerator Voltage	250 Volts
Cathode Bias Resistor	300 Ohms
Deflector Switching Voltage, Max.[2]	20 Volts
Deflector Bias Voltage for Minimum Deflector Switching Voltage[2]	-8 Volts
Voltage Difference Between Deflectors for $I_{b1} = I_{b2}$, Approx.	0 Volts
Plate No. 1 Current, Max. $E_{d1} = -15$ Volts, $E_{d2} = +15$ Volts	1.0 Ma
Plate No. 2 Current, Max. $E_{d1} = +15$ Volts, $E_{d2} = -15$ Volts	1.0 Ma
Deflector No. 1 Current, Max. $E_{d1} = +25$ Volts, $E_{d2} = -25$ Volts	0.5 Ma
Deflector No. 2 Current, Max. $E_{d1} = -25$ Volts, $E_{d2} = +25$ Volts	0.5 Ma

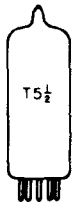
NOTES:

1. Pin 5 should be connected directly to ground.
2. Deflector switching voltage is defined as the total voltage change required on either deflector, with an equal and opposite change on the other deflector, to switch the plate current from one plate to the other.

APPLICATION

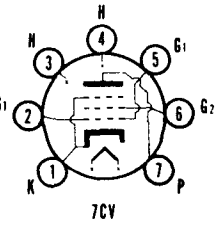
The Type 6AR8 is a sheet-beam tube intended for use as a color television synchronous detector. A pair of balanced deflectors directs the beam to either of the two plates and a control grid varies the intensity of the beam. The use of this tube in color television receivers eliminates the need for phase-inversion circuits preceding the matrixes.

The 6AR8 should be so located in the receiver so that it is not subjected to stray magnetic fields.



SYLVANIA TYPE 6AS5

BEAM POWER AMPLIFIER



7CV

MECHANICAL DATA

Bulb	T-5 ½, Outline 5-3
Base	Miniature Button 7-Pin
Basing	7CV
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	800 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	0.6 $\mu\mu$f
Input	12 $\mu\mu$f
Output	6.2 $\mu\mu$f

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	150 Volts
Grid No. 2 Voltage	117 Volts
Plate Dissipation	5.5 Watts
Grid No. 2 Dissipation	1.0 Watt
Grid No. 1 Circuit Resistance	
Fixed Bias	0.1 Megohm
Cathode Bias	0.5 Megohm

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier

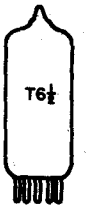
Plate Voltage	150 Volts
Grid No. 2 Voltage	110 Volts
Grid No. 1 Voltage	-8.5 Volts
Peak A F Grid No. 1 Voltage	8.5 Volts
Plate Current (Zero Signal)	35 Ma
Plate Current (Maximum Signal)	36 Ma
Grid No. 2 Current (Zero Signal)	2 Ma
Grid No. 2 Current (Maximum Signal)	6.5 Ma
Transconductance	5600 μmhos
Load Resistance	4500 Ohms
Total Harmonic Distortion	10 Percent
Maximum Signal Power Output	2.2 Watts

APPLICATION

Sylvania Type 6AS5 is a miniature, beam power pentode designed primarily for service as the audio power output stage in automobile and a c operated receivers. It is capable of delivering a relatively high output with low supply voltages.

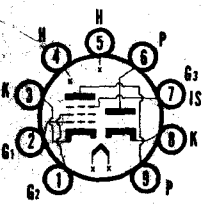
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	5	0	3	26	25	Y
219/220	6.3	3	45S	16	4	26Z	7	1
	6.3	3	42S	16	4	56Z	7	1



SYLVANIA TYPE 6AS8
5AS8

SINGLE DIODE
SHARP CUTOFF PENTODE



9DS

MECHANICAL DATA

Bulb	T-6½
Base	E9-1, Small Button 9-Pin
Outline	6-2
Basing	9DS
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

	5AS8	6AS8
Heater Voltage	4.7	6.3 Volts
Heater Current	600	450 Ma
Heater Warm-up Time[1]	11	Seconds
Heater-Cathode Voltage (Design Center Values)		
Heater Negative with Respect to Cathode		
Total D C and Peak		200 Volts Max.
Heater Positive with Respect to Cathode		
D C		100 Volts Max.
Total D C and Peak		200 Volts Max.

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Pentode Section	
Grid No. 1 to Plate	0.02 μμf Max.
Input: g1 to (h+k+g2+g3)	7.0 μμf
Output: p to (h+k+g2+g3)	2.4 μμf
Coupling	
Pentode Grid to Diode Plate	0.005 μμf Max.
Pentode Plate to Diode Cathode	0.15 μμf Max.
Pentode Plate to Diode Plate	0.10 μμf Max.
Diode Section	
Plate to Heater, Cathode and Internal Shield	3.0 μμf

MAXIMUM RATINGS (Design Center Values)

Pentode Section	
Plate Voltage	300 Volts
Plate Dissipation	2.5 Watts
Grid No. 2 Voltage	See 6AM8 Rating Chart
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Dissipation	0.5 Watt
Positive Grid No. 1 Voltage	0 Volts
Grid No. 3 Voltage	0 Volts
Grid No. 1 Circuit Resistance	
Cathode Bias	1.0 Megohm
Fixed Bias	0.25 Megohm
Diode Section	
Peak Inverse Plate Voltage	330 Volts
Peak Plate Current	50 Ma
D C Plate Current	5 Ma

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier	
Plate Supply Voltage	200 Volts
Grid No. 2 Supply Voltage	150 Volts
Grid No. 3 Voltage	Connected to Cathode at Socket
Cathode Resistor	180 Ohms
Plate Current	9.5 Ma
Grid No. 2 Current	3.0 Ma
Transconductance	6200 μmhos
Plate Resistance (approx.)	0.3 Megohm
Grid No. 1 Voltage for Ib = 10 μa (approx.)	−8 Volts

NOTES:

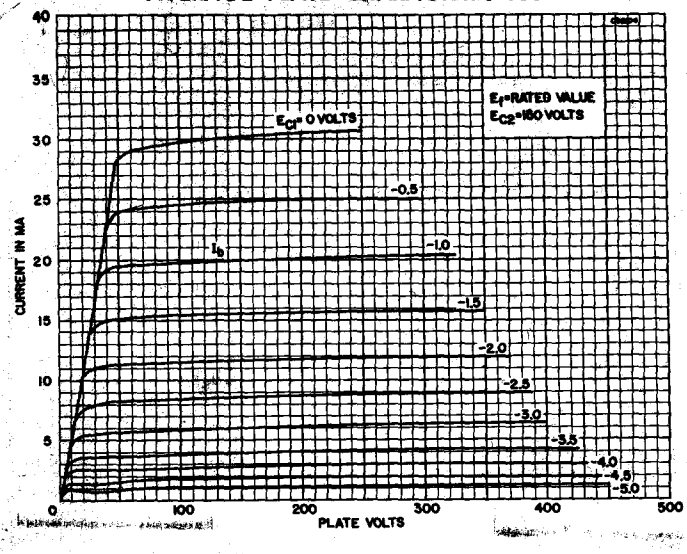
1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying four (4) times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to three (3) times rated heater voltage divided by rated heater current.

APPLICATION

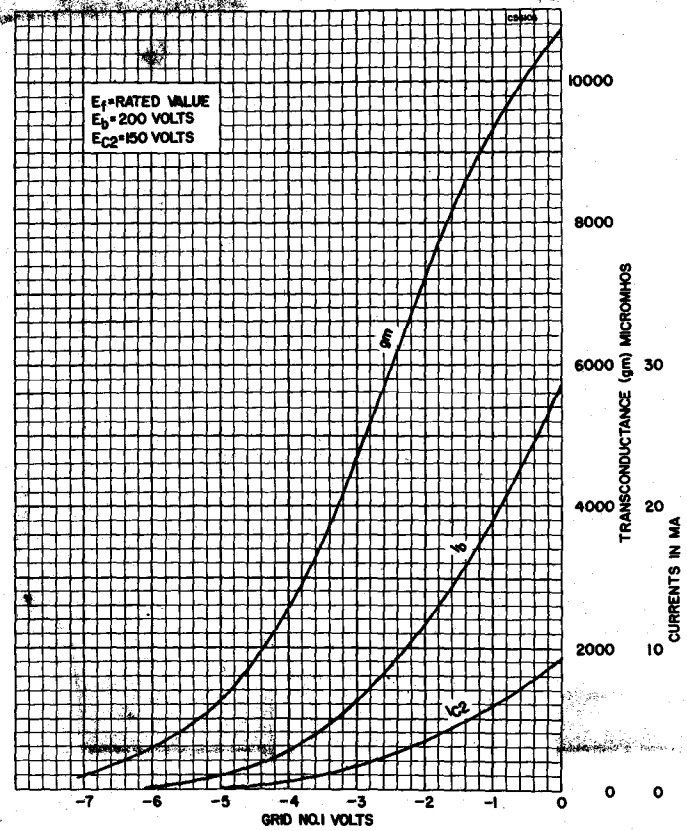
The Sylvania Types 5AS8 and 6AS8 have a diode and pentode contained in a miniature envelope. The pentode section has sharp cutoff characteristics and may be used as an IF amplifier, video amplifier and agc amplifier.
The high perveance diode can be used as an audio detector, video detector or d c restorer.

6AS8, 5AS8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS

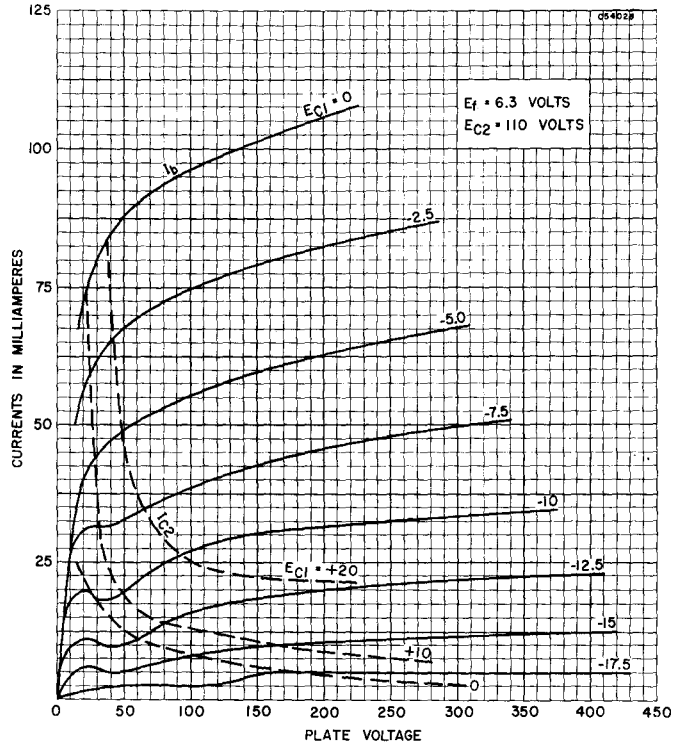


AVERAGE TRANSFER CHARACTERISTICS



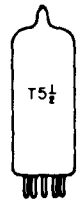
6AS5 (Cont'd)

AVERAGE PLATE CHARACTERISTICS



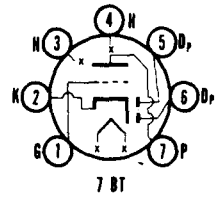
TYPES 6AS6, 6AS8

(See Condensed Data Section)



SYLVANIA TYPE 6AT6

DUO DIODE HIGH-MU TRIODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BT
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

6AT6 (Cont'd)

DIRECT INTERELECTRODE CAPACITANCES (Shielded)[1]

Grid to Plate	2.1 μμf
Input	2.3 μμf
Output	1.1 μμf
Diode Plate to Grid (Max.)	0.025 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	0.5 Watt
Positive Grid Voltage	0 Volts
Diode Current (Each Section)	1.0 Ma

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	100	250 Volts
Grid Voltage	-1	-3 Volts
Plate Current	0.8	1.0 Ma
Transconductance	1300	1200 μmhos
Amplification Factor	70	70
Plate Resistance	54000	58000 Ohms
Average Diode Current at 10 Volts D C	2.0	2.0 Ma

NOTE:

1. Shield No. 316 connected to cathode.

APPLICATION

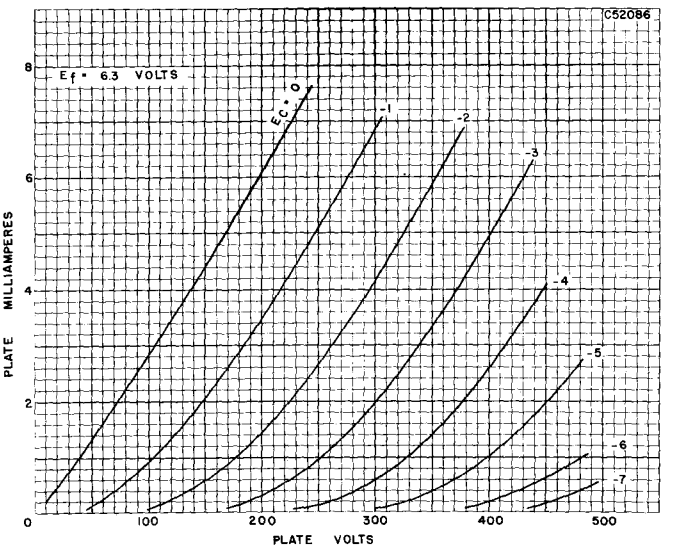
Sylvania Type 6AT6 is a miniature duo-diode, high-mu triode suitable for second detector audio amplifier service. Each section is independent except for a common cathode. Characteristics are similar to Type 6Q7G. Resistance coupled amplifier data may be found in the Appendix.

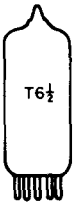
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	3	3	55	T
	6.3	0	—	0	4	—	55	T
	6.3	0	—	0	5	—	55	T
219/220	6.3	3	4	37	4	1T	7	2
	6.3	3	4	41	4	T	5*	2
	6.3	3	4	41	4	T	6*	2

* Diode gas test does not apply.

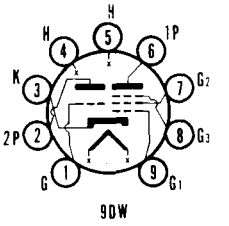
AVERAGE PLATE CHARACTERISTICS





SYLVANIA TYPE 6AT8

TRIODE PENTODE CONVERTER



9DW

MECHANICAL DATA

Bulb	T-6 ½, Outline 6-2
Base	Small Button 9-Pin
Basing	9DW
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	450 Ma

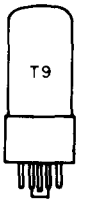
DIRECT INTERELECTRODE CAPACITANCES

Pentode Unit	**Shielded**[1]	**Unshielded**	
Grid No. 1 to Plate	0.016	0.025 μμf	Max
Input	4.7	4.5 μμf	
Output	1.6	0.9 μμf	
Triode Unit			
Grid to Plate	1.5	1.5 μμf	
Input	2.4	2.0 μμf	
Output	1.0	0.5 μμf	
Pentode Grid No. 1 to Triode Plate	0.04	0.05 μμf	Max
Pentode Plate to Triode Plate	0.007	0.05 μμf	Max

NOTE:

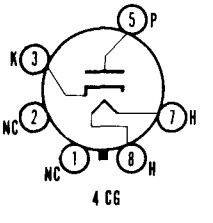
1. Shield No. 315 connected to cathode.

For other rating, operation, and application data, refer to corresponding Type 6X8, which is identical except for basing and interelectrode capacities.



SYLVANIA TYPE 6AU4GT

DAMPER DIODE



4CG

MECHANICAL DATA

Bulb	T-9, Outline 9-44
Base	Short Intermediate Octal[1]
Basing	4CG
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	1.8 Amperes
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
D C	900 Volts
Total D C and Peak (Abs. Max.)	4500 Volts
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	300 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Heater to Cathode	4.0 μμf
Plate to Cathode and Heater	8.5 μμf
Cathode to Plate and Heater	11.5 μμf

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Damper Diode[2]

Peak Inverse Plate Voltage (Abs. Max.)	4500 Volts
D C Plate Current	175 Ma
Steady State Peak Plate Current	1050 Ma
Plate Dissipation	6.0 Watts

CHARACTERISTICS

Average Tube Voltage Drop for I_b = 350 Ma	25 Volts

6AU4GT (Cont'd)

TYPICAL OPERATION

Damper Service—90° Deflection Scan System

Peak Inverse Plate Voltage	3.65 Kv
Peak Heater-Cathode Voltage	3.9 Kv
Average Cathode Current	120 Ma
Peak Cathode Current	500 Ma
Boosted B+ Voltage	640 Volts
Plate Dissipation	2.8 Watts

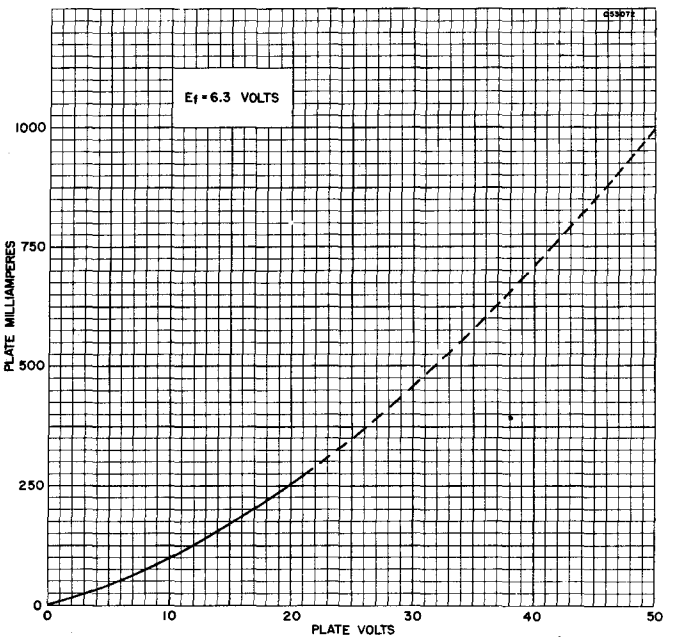
NOTES:

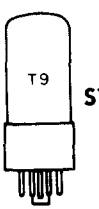
1. May be either 5 or 6-pin. Socket terminals #1 (if used), 2, 4 and 6 shall not be used as tie points. Pin #1 may be omitted on 5-Pin base.
2. For operation in a 525-line, 30 frame system, the duty cycle of the horizontal voltage pulse must not exceed 15% of one scanning cycle. Power rectification service is not recommended.

APPLICATION

Sylvania Type 6AU4GT is an indirectly heated half-wave rectifier designed primarily for service as a damping diode in television receivers. It is capable of withstanding extremely high voltage pulses between cathode and both heater and plate elements.

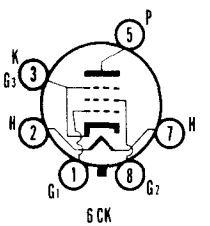
AVERAGE PLATE CHARACTERISTICS





SYLVANIA TYPE 6AU5GT

BEAM POWER AMPLIFIER



6CK

MECHANICAL DATA

Bulb	T-9, Outline 9-11
Base	Intermediate Octal 6-Pin
Basing	6CK
Mounting Position	Any

6AU5GT (Cont'd)

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	1.25 Amperes
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	0.5 μμf
Input	11.3 μμf
Output	7.0 μμf

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Horizontal Deflection Amplifier[1]

Plate Supply Voltage D C (Boost + D C Supply)	550 Volts
Peak Positive Plate Voltage (Abs. Max.)	5500 Volts
Peak Negative Plate Voltage	1250 Volts
Plate Dissipation[2]	10 Watts
Grid No. 2 Voltage D C	200 Volts
Grid No. 2 Dissipation	2.5 Watts
Peak Negative Grid No. 1 Voltage	300 Volts
Average Cathode Current	110 Ma
Peak Cathode Current	400 Ma
Grid No. 1 Circuit Resistance	0.47 Megohm
Bulb Temperature (At Hottest Point)	210° C

CHARACTERISTICS

Pentode Operation

Plate Voltage	60	115 Volts
Grid No. 2 Voltage	175	175 Volts
Grid No. 1 Voltage	0	−20 Volts
Plate Current	210	60 Ma
Grid No. 2 Current	25	6.8 Ma
Transconductance		5600 μmhos
Plate Resistance		6000 Ohms
Grid No. 1 Bias With E_b= 115 V and E_{c2}= 150 V for I_b = 1 Ma (approx.)		−45 Volts

Triode Connected

Plate Voltage	100 Volts
Grid No. 2 Voltage (Tied to Plate)	100 Volts
Grid No. 1 Voltage	−4.5 Volts
Amplification Factor	5.9

NOTES:

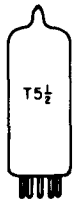
1. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
2. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.

APPLICATION

Sylvania Type 6AU5GT is a beam power amplifier designed especially for use as a horizontal scanner in television receivers using magnetic deflection.

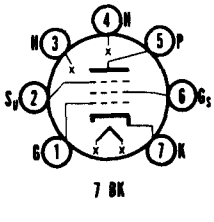
SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	3	57	23	Y
219/220	6.3	2	7	15	7	18Z	5	3



SYLVANIA TYPE 6AU6

SHARP CUTOFF R F PENTODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BK
Mounting Position	Any

6AU6 (Cont'd)

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	180 Volts
Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	.0035 μμf	Max
Input	5.5 μμf	
Output	5.0 μμf	

MAXIMUM RATINGS (Design Center Values)

Plate Voltage	300 Volts
Plate Dissipation	3 Watts
Grid No. 2 Supply Voltage	300 Volts
Grid No. 2 Voltage	(See Rating Chart for Type 6AM8)
Grid No. 2 Dissipation	0.65 Watt
Grid No. 2 Supply Voltage	300 Volts
Positive Grid No. 1 Voltage	0 Volts

CHARACTERISTICS AND TYPICAL OPERATION

Plate Voltage	100	250	250	Volts
Grid No. 3	Connected to Cathode at Socket			
Grid No. 2 Voltage	100	125	150	Volts
Cathode Bias Resistor	150	100	68	Ohms
Grid No. 1 Voltage	−1.0	−1.0	−1.0	Volt
Plate Current	5.0	7.6	10.6	Ma
Grid No. 2 Current	2.1	3.0	4.3	Ma
Plate Resistance	0.5	1.5	1.0	Megohms
Transconductance	3900	4500	5200	μmhos
Grid No. 1 Voltage for I_b = 10 μa	−4.2	−5.5	−6.5	Volts

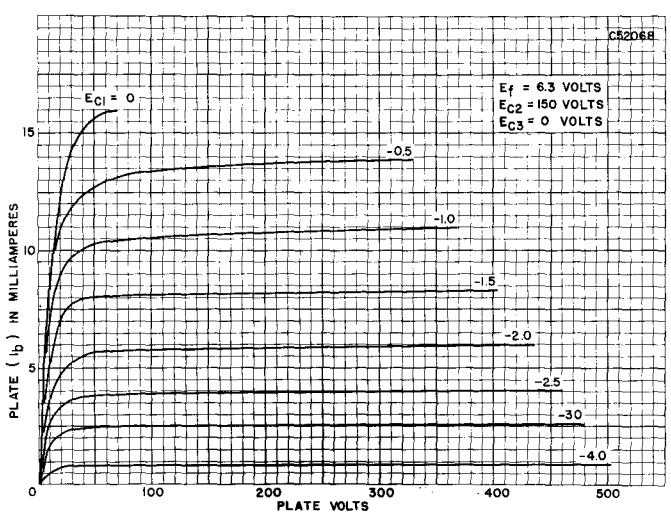
APPLICATION

Sylvania Type 6AU6 is a miniature sharp cutoff pentode, r f amplifier capable of operation up to 400 mc. Resistance coupled amplifier data is given in the Appendix.

SYLVANIA TUBE TESTER SETTINGS

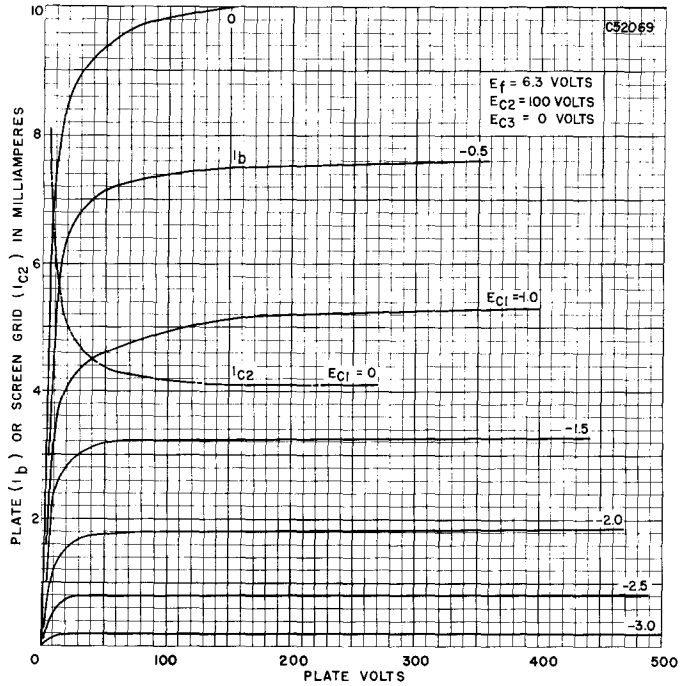
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	4	36	33	W
219/220	6.3	3	4	21	4	16Y	5	7

AVERAGE PLATE CHARACTERISTICS

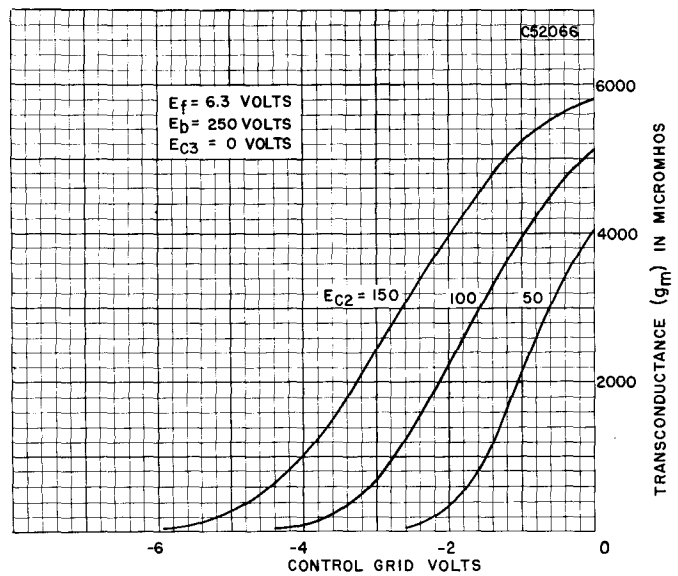


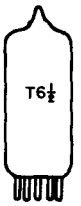
6AU6 (Cont'd)

AVERAGE PLATE CHARACTERISTICS



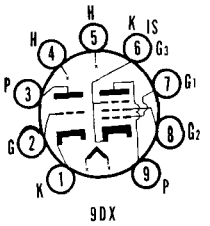
AVERAGE TRANSFER CHARACTERISTICS





SYLVANIA TYPE 6AU8

TRIODE PENTODE



9DX

MECHANICAL DATA

Bulb	T-6½
Base	E9-1, Miniature, 9 Button-Pin
Outline	6-3
Basing	9DX
Cathode	Coated Unipotential
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	600 Ma
Heater Warm-up Time	(See Series String Heaters in Appendix)
Heater-Cathode Voltage (Design Center Values)	
Heater Negative with Respect to Cathode	
Total D C and Peak	200 Volts Max.
Heater Positive with Respect to Cathode	
D C	100 Volts Max.
Total D C and Peak	200 Volts Max.

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Triode	
Grid to Plate	2.2 μμf
Input	2.6 μμf
Output	0.34 μμf
Pentode	
Grid to Plate	0.044 μμf
Input	7.5 μμf
Output	2.4 μμf
Coupling	
Pentode Grid No. 1 to Triode Plate	0.006 μμf Max.
Triode Grid to Pentode Plate	0.022 μμf Max.
Pentode Plate to Triode Plate	0.12 μμf Max.

RATINGS (Design Center Values)

	Triode	Pentode
Plate Voltage	300	300 Volts Max.
Grid No. 2 Supply Voltage		300 Volts Max.
Grid No. 2 Voltage	See Rating Chart for Type 6AM8	
Plate Disspation	2.5	3.0 Watts Max.
Grid No. 2 Dissipation		1.0 Watt Max.
Positive Grid No. 1 Voltage		0 Volts Max.
Grid No. 1 Circuit Resistance		
Fixed Bias	0.5	0.25 Megohm Max.
Self Bias	1.0	1.0 Megohm Max.

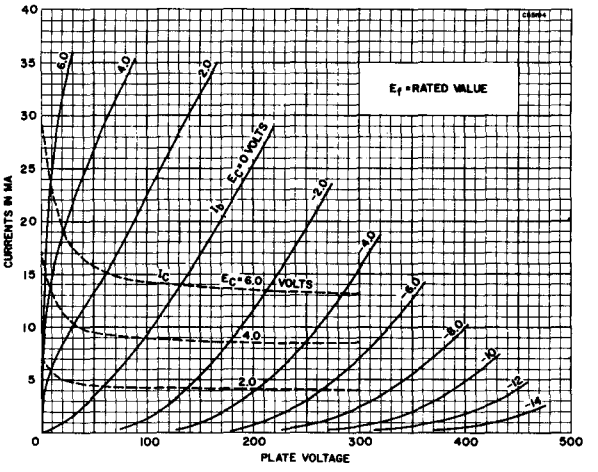
CHARACTERISTICS AND TYPICAL OPERATION

Class A$_1$ Amplifier	**Triode**	**Pentode**
Plate Voltage	150	200 Volts
Grid No. 2 Voltage		125 Volts
Cathode Bias Registor	150	82 Ohms
Amplification Factor	40	
Plate Resistance (approx.)	.0082	.15 Megohm
Transconductance	4900	7000 μmhos
Plate Current	9.0	15 Ma
Grid No. 2 Current		3.4 Ma
Grid No. 1 Voltage (approx.) for Ib = 100 μa.	-6.5	8 Volts d c

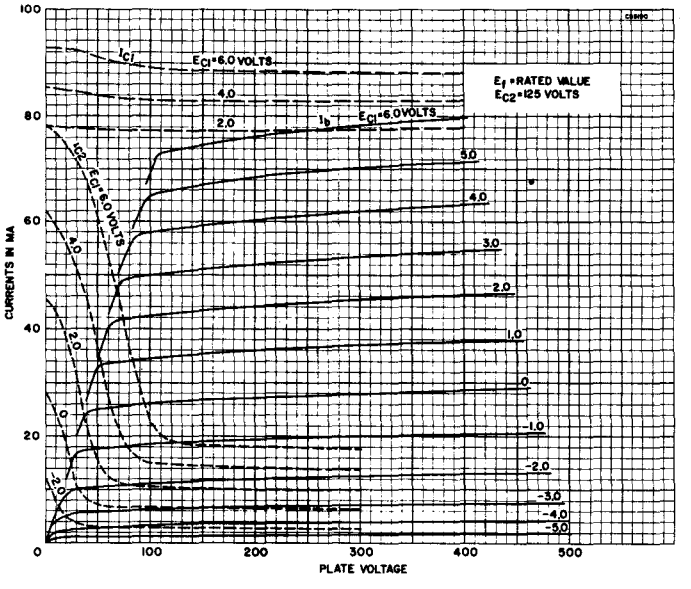
APPLICATION

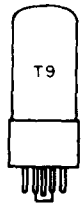
The Sylvania Type 6AU8 is a medium mu triode and sharp cutoff pentode contained in a 9-pin miniature envelope. It is intended for service in television receivers employing a series string heater arrangement. The triode section is designed for operaton as a sync separator. The pentode section is designed to serve as a video amplifier.

AVERAGE PLATE CHARACTERISTICS
TRIODE SECTION



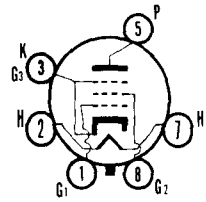
AVERAGE PLATE CHARACTERISTICS
PENTODE SECTION





SYLVANIA TYPE 6AV5GT

BEAM POWER AMPLIFIER



6CK

MECHANICAL DATA

Bulb	T-9, Outline 9-11 or 9-41
Base	Intermediate Shell Octal 6-Pin or Short Intermediate Shell Octal 6-Pin
Basing	6CK
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	1.2 Amperes
Heater-Cathode Voltage	
D C, Heater Positive with Respect to Cathode	100 Volts
Total D C and Peak	200 Volts

DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	0.7 $\mu\mu$f
Input	14 $\mu\mu$f
Output	7.0 $\mu\mu$f

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Horizontal Deflection Amplifier[1]

D C Plate Supply Voltage (Boost + D C Power Supply)	550 Volts
Peak Positive Plate Voltage (Abs. Max.)	5500 Volts
Peak Negative Plate Voltage	1250 Volts
Plate Dissipation[2]	11 Watts
Peak Negative Grid No. 1 Voltage	300 Volts
D C Grid No. 2 Voltage	175 Volts
Grid No. 2 Dissipation	2.5 Watts
Average Cathode Current	110 Ma
Peak Cathode Current	400 Ma
Grid No. 1 Circuit Resistance	0.47 Megohm
Bulb Temperature (At Hottest Point)	210° C

AVERAGE CHARACTERISTICS

	Instantaneous Values	
Plate Voltage	60	250 Volts
Grid No. 2 Voltage	150	150 Volts
Grid No. 1 Voltage	0	−22.5 Volts
Plate Current	225	55 Ma
Grid No. 2 Current	25	2.1 Ma
Plate Resistance (approx.)		20000 Ohms
Transconductance		5500 μmhos
Grid No. 1 Voltage for I_b = 1 Ma (approx.)		−46 Volts
Triode Amplification Factor[3]		4.3

NOTES:

1. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.
2. In stages operating with grid leak bias, an adequate cathode bias resistor or other suitable means is required to protect the tube in the absence of excitation.
3. Triode connection (screen tied to plate) with $E_b = E_{c2} = 150$ Volts and $E_{c1} = -22.5$ Volts.

APPLICATION

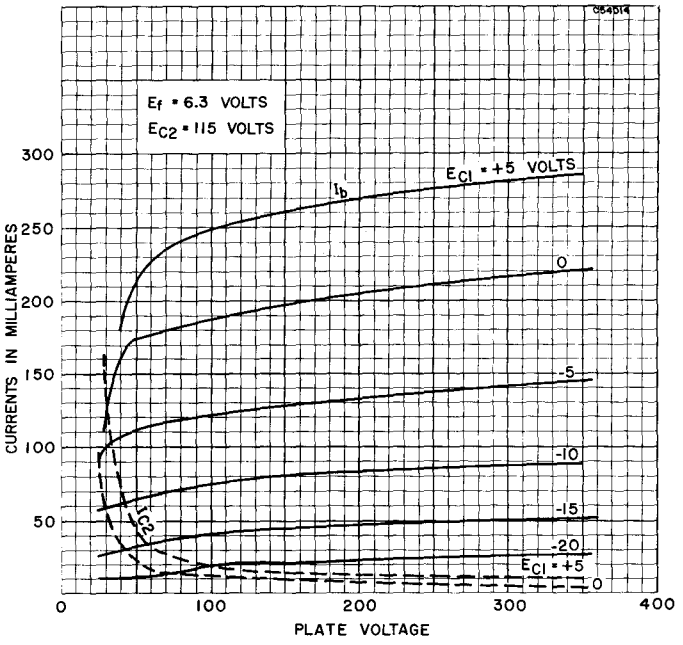
Sylvania Type 6AV5GT is a beam power pentode designed primarily for use as the horizontal deflection amplifier in television receivers.

SYLVANIA TUBE TESTER SETTINGS

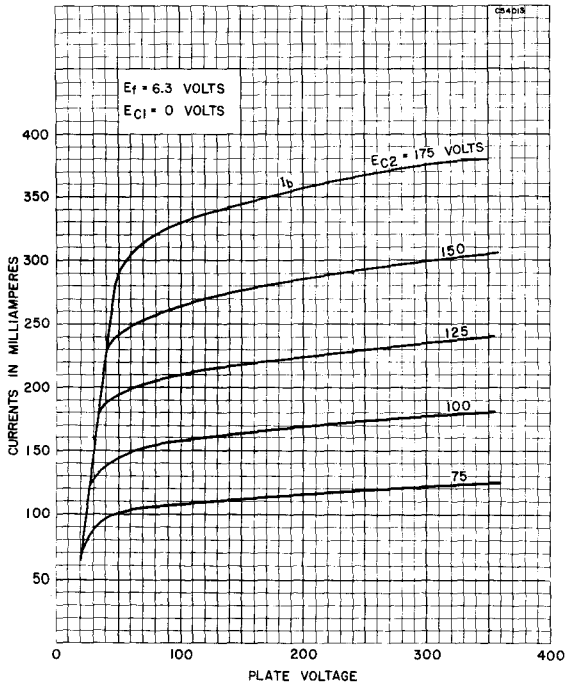
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	3	57	21	Y
219/220	6.3	2	7	12	7	18Z	5	3

6AV5GT (Cont'd)

AVERAGE PLATE CHARACTERISTICS

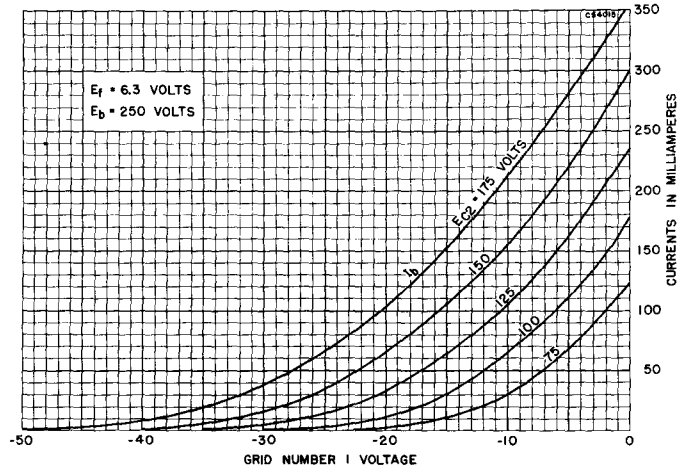


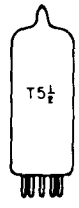
AVERAGE PLATE CHARACTERISTICS



6AV5GT (Cont'd)

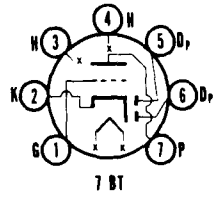
AVERAGE TRANSFER CHARACTERISTICS





SYLVANIA TYPE 6AV6

DUO DIODE TRIODE



MECHANICAL DATA

Bulb	T-5 ½, Outline 5-2
Base	Miniature Button 7-Pin
Basing	7BT
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	300 Ma
Maximum Heater-Cathode Voltage	90 Volts

DIRECT INTERELECTRODE CAPACITANCES (Shielded)[1]

Grid to Plate	2.1 μμf
Input	2.3 μμf
Output	0.9 μμf

MAXIMUM RATINGS (Design Center Values)

Plate Voltage (Triode Section)	300 Volts
Diode Plate Current Each Diode	1.0 Ma

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier

Plate Voltage	100	250 Volts
Grid Voltage	−1	−2 Volts
Plate Current	0.5	1.2 Ma
Plate Resistance	80000	62500 Ohms
Transconductance	1250	1600 μmhos
Amplification Factor	100	100

6AV6 (Cont'd)

NOTE:
1. Shield No. 316 connected to cathode.

APPLICATION

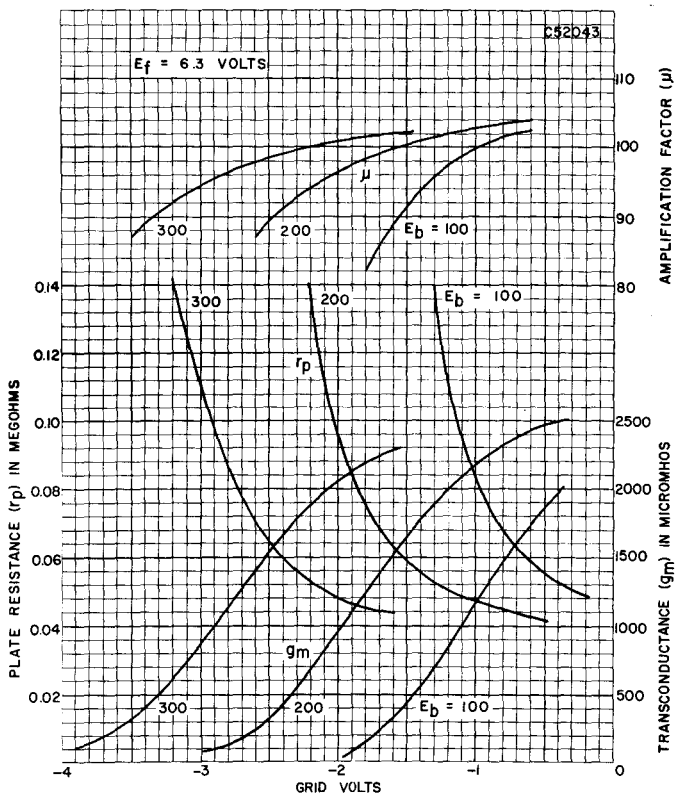
Sylvania Type 6AV6 is a miniature high-mu duo-diode triode designed for second detector-audio amplifier use in radio receivers. Its characteristics are similar to Types 6SF5GT and 7B4 except for a slightly higher transconductance. Resistance coupled amplifier data is given in the Appendix.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	--	0	3	3	60	X
	6.3	0	—	0	4	—	55	T
	6.3	0	—	0	5	--	55	T
219/220	6.3	3	4	37	4	1T	7	2
	6.3	3	4	41	4	T	5*	2
	6.3	3	4	41	4	T	6*	2

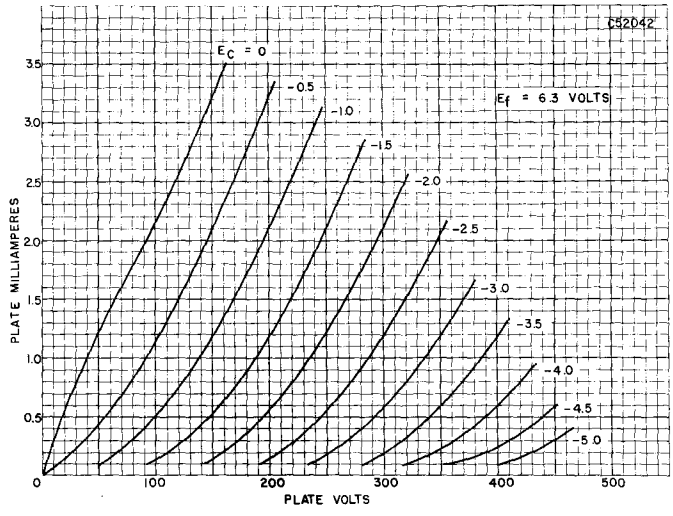
* Diode gas test does not apply.

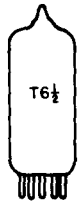
AVERAGE TRANSFER CHARACTERISTICS



6AV6 (Cont'd)

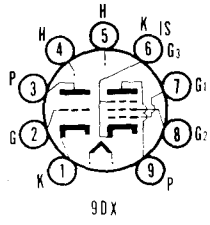
AVERAGE PLATE CHARACTERISTICS





SYLVANIA TYPE 6AW8

TRIODE PENTODE



9DX

MECHANICAL DATA

Bulb	T-6 ½, Outline 6-3
Base	Miniature Button 9-Pin
Basing	9DX
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

DIRECT INTERELECTRODE CAPACITANCES

	Shielded[1]	Unshielded	
Triode Section			
Grid to Plate	2.2	2.2 μμf	
Input	3.4	3.2 μμf	
Output	1.7	0.32 μμf	
Pentode Section			
Grid to Plate	0.030	0.036 μμf	
Input	11.0	11.0 μμf	
Output	3.6	2.8 μμf	
Coupling: (Pentode Grid No. 1 to Triode Plate)	0.005	0.008 μμf	Max
Coupling: (Pentode Plate to Triode Grid)	0.008	0.030 μμf	Max
Coupling: (Pentode Plate to Triode Plate)	0.050	0.20 μμf	Max

6AW8 (Cont'd)

MAXIMUM RATINGS (Design Center Values)

	Triode	Pentode
Plate Voltage	300	300 Volts
Grid No. 2 Supply Voltage		300 Volts
Grid No. 2 Voltage	See Rating Chart for Type 6AM8	
Plate Dissipation	1.0	3.25 Watts
Grid No. 2 Dissipation		1.0 Watt
Negative Grid No. 1 Voltage		50 Volts
Positive Grid No. 1 Voltage		0 Volts
Grid No. 1 Circuit Resistance		
Fixed Bias	0.5	0.25 Megohm
Self Bias	1.0	1.0 Megohm

CHARACTERISTICS AND TYPICAL OPERATION

Class A_1 Amplifier	Triode	Pentode
Plate Voltage	200	200 Volts
Grid No. 2 Voltage		150 Volts
Grid No. 1 Voltage	−2	0 Volts
Cathode Bias Resistor		180 Ohms
Amplification Factor	70	
Plate Resistance (approx.)	.0175	0.4 Megohm
Transconductance	4000	9000 μmhos
Plate Current	4.0	13 Ma
Grid No. 2 Current		3.5 Ma
Grid No. 1 Voltage for I_b = 10 μa (approx.)	−5	−10 Volts

NOTE:

1. Shield No. 315 tied to cathode base pin of section under test.

APPLICATION

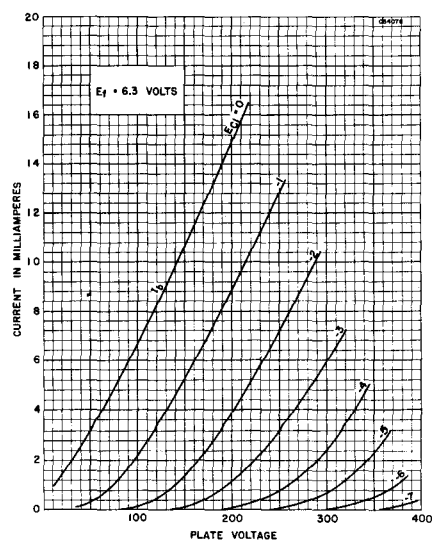
Sylvania Type 6AW8 is intended for service in television receivers employing a series string heater arrangement. The triode section is designed for operation as a sync separator. The pentode section is designed to serve as a video amplifier. For information on specially controlled heaters for series string operation refer to the SERIES STRING section of the Appendix.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	2	0	4	79	53	W
	6.3	0	4	0	5	3	48	T
219/220	6.3	4	15	52	5	78SY	9	6
	6.3	4	56	36	5	2T	3	1

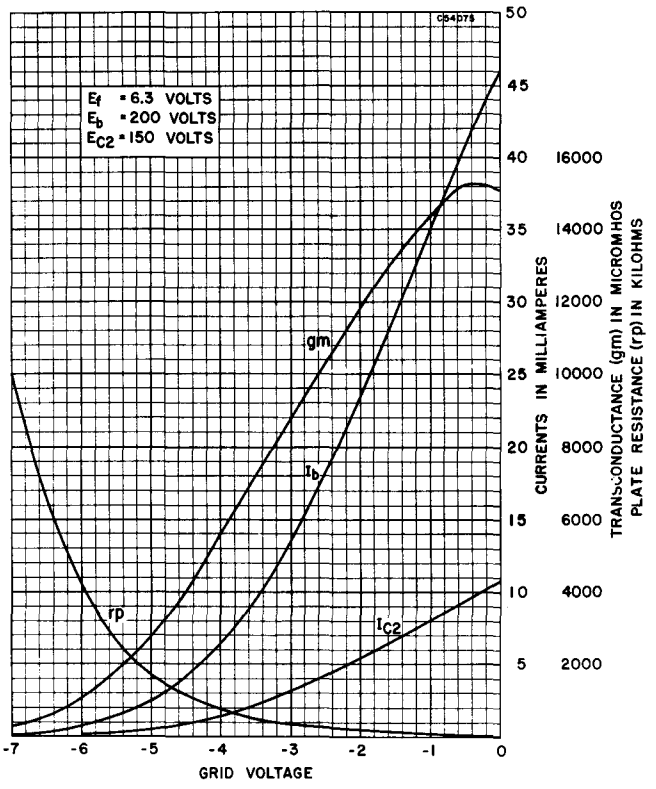
AVERAGE PLATE CHARACTERISTICS

TRIODE SECTION

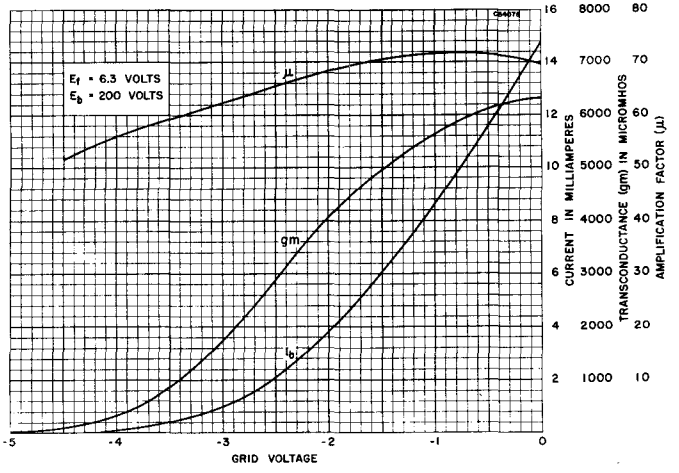


6AW8 (Cont'd)

AVERAGE TRANSFER CHARACTERISTICS

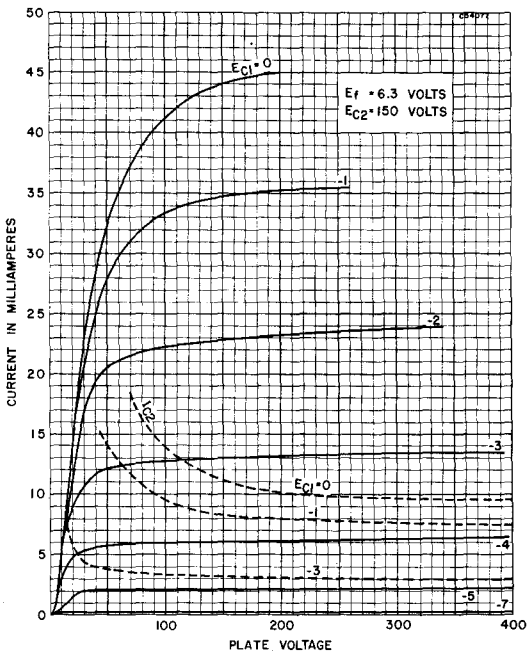


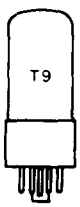
AVERAGE TRANSFER CHARACTERISTICS



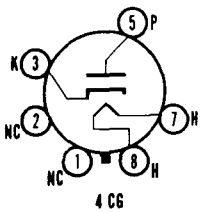
6AW8 (Cont'd)

AVERAGE PLATE CHARACTERISTICS
PENTODE SECTION





SYLVANIA TYPE 6AX4GT
DAMPER DIODE



MECHANICAL DATA

Bulb	T-9, Outline 9-41
Base	Short Intermediate Shell Octal 6-Pin
Basing[1]	4CG
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3 Volts
Heater Current	1.2 Amperes
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode (Abs. Max.)	
D C	900 Volts
Total D C and Peak	4400 Volts
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	300 Volts

MAXIMUM RATINGS (Design Center Values—Except as Noted)

Damper Service[2]

Peak Inverse Voltage (Abs. Max.)	4400 Volts
Steady State Peak Current	750 Ma
Plate Dissipation	4.8 Watts
Average Tube Drop (at 250 Ma)	32 Volts
D C Plate Current	125 Ma

NOTES:

1. Pins 1, 2, 4 and 6 shall not be used as tie points.
2. For operation in a 525 line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

6AX4GT (Cont'd)

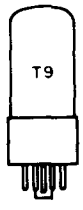
APPLICATION

Sylvania Type 6AX4GT is an indirectly heated half-wave rectifier, designed for service as a damping diode in television receiver direct drive sweep circuits.

SYLVANIA TUBE TESTER SETTINGS

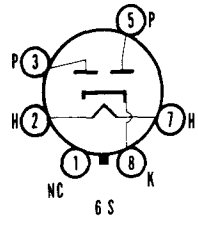
	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	7	1	3		17	Y
219/220	6.3	7	8	11	8	Z	5*	3

* Diode gas test does not apply.



SYLVANIA TYPE 6AX5GT

FULL-WAVE RECTIFIER



MECHANICAL DATA

Bulb	T-9, Outline 9-41
Base	Short Intermediate Shell Octal 6-Pin
Basing	6S
Mounting Position	Any

ELECTRICAL DATA

HEATER CHARACTERISTICS

Heater Voltage	6.3	Volts
Heater Current	1.2	Amperes
Maximum Peak Heater-Cathode Voltage	450	Volts

MAXIMUM RATINGS (Design Center Values)

Peak Inverse Plate Voltage	1250	Volts
Peak Plate Current (Per Plate)	375	Ma

TYPICAL OPERATION

Capacitor Input to Filter (Full-Wave Rectifier)		
A C Voltage Per Plate (R M S)	350	450 Volts
Plate Supply Impedance Per Plate	50	105 Ohms
Filter Input Capacitor	10	10 μf
D C Output Voltage at Input to Filter (approx.)		
Half-Load Current of 62.5 Ma	395	Volts
40.0 Ma		540 Volts
Full-Load Current of 125 Ma	350	Volts
80 Ma		490 Volts
Choke Input to Filter (Full-Wave Rectifier)		
A C Voltage Per Plate (R M S)	350	450 Volts
Filter Input Choke	10	10 Henries
D C Output Voltage at Input to Filter (approx.)		
Half-Load Current of 75 Ma	270	Volts
62.5 Ma		365 Volts
Full-Load Current of 150 Ma	250	Volts
125 Ma		350 Volts

APPLICATION

Sylvania Type 6AX5GT is a full-wave rectifier featuring the unipotential cathode. It is designed for use in both home and automobile radio receivers.

SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	6.3	0	—	0	1	—	23	Y
	6.3	0	—	0	3	—	23	Y
219/220	6.3	2	7	14	7	Z	3*	8
	6.3	2	7	14	7	Z	5*	8

* Diode gas test does not apply.