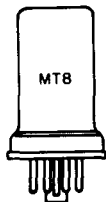


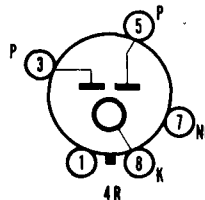
# TYPES 00A, 01A, 0Y4

(See Condensed Data Section)



**SYLVANIA TYPE OZ4  
OZ4A  
OZ4G**

**FULL-WAVE GAS RECTIFIER**



## MECHANICAL DATA

	OZ4, OZ4A	OZ4G
Bulb.....	Metal, Outline 8-3	T-7, Outline 7A-1
Base.....	Small Wafer Octal 6-Pin	Dwarf Octal 5-Pin
Basing.....	4R	4R
Cathode.....	Cold	Cold
Mounting Position.....	Any	Any

## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage..... None Required

### MAXIMUM RATINGS AND CHARACTERISTICS (Design Center Values—Except as Noted)

	OZ4, OZ4G	OZ4A
Peak Starting Plate Supply Voltage (Min) ...	300	Volts
Peak Plate to Plate Voltage.....	1000	Volts
Peak Inverse Plate Voltage.....		880 Volts
Peak Plate Current.....	200	Ma
D C Output Current (Max).....	75	85 Ma
D C Output Current (Min).....	30	30 Ma
D C Output Voltage.....	300	300 Volts
Average Dynamic Tube Voltage Drop.....	24	24 Volts

## SYLVANIA TUBE TESTER SETTINGS

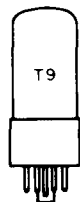
	A	B	C	D	E	F	G	Test or K
139/140	70	1	—	0	6	—	99†	ZW
	70	3	—	0	6	—	99†	ZW
219/220	—	1	8	11	8	Z	3*	—
	—	1	8	11	8	Z	5*	—

\* Diode gas test does not apply.

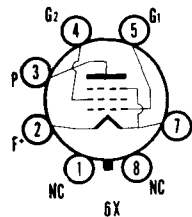
† Push Z before W; release W before Z.

# TYPES 1A3, 1A4, 1A4P, 1A4T

(See Condensed Data Section)



**SYLVANIA TYPE 1A5GT**  
**PENTODE POWER AMPLIFIER**



## MECHANICAL DATA

Bulb.....	T-9, Outline 9-11
Base.....	Intermediate Octal 7-Pin
Basing.....	6 X
Mounting Position.....	Any

# 1A5GT (Cont'd)

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma

### TYPICAL OPERATION

#### Class A<sub>1</sub> Amplifier

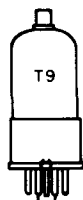
Plate Voltage.....	85	90 Volts
Grid No. 2 Voltage.....	85	90 Volts
Grid No. 1 Voltage <sup>1</sup> .....	-4.5	-4.5 Volts
Plate Current.....	3.5	4.0 Ma
Grid No. 2 Current.....	0.7	0.8 Ma
Transconductance.....	800	850 $\mu$ mhos
Plate Resistance.....	0.3	0.3 Megohm
Load Resistance.....	25000	25000 Ohms
Power Output.....	100	115 Mw
Total Harmonic Distortion.....	10.0	7.0 Percent

### NOTE:

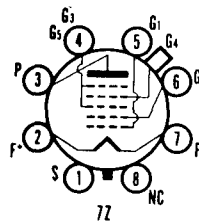
1. Self bias is recommended for battery operation, although it reduces the power output slightly. It makes a separate bias supply unnecessary and allows the bias to decrease in proportion with the decrease in B supply volts with age.

## TYPE 1A6

(See Condensed Data Section)



**SYLVANIA TYPE 1A7GT**  
HEPTODE CONVERTER



## MECHANICAL DATA

Bulb.....	T-9, Outline 9-18
Base.....	Small Wafer Octal 8-Pin With Metal Sleeve
Basing.....	7Z
Top Cap.....	Miniature
Mounting Position.....	Any

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma

### MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	110 Volts
Grid No. 2 Voltage.....	110 Volts
Grid No. 3 and 5 Voltage.....	60 Volts
Grid No. 3 and 5 Supply Voltage.....	110 Volts
Cathode Current.....	4.0 Ma

### TYPICAL OPERATION

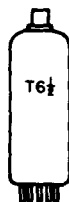
Plate Voltage.....	90 Volts
Grid No. 3 and 5 Voltage <sup>1</sup> .....	45 Volts
Grid No. 2 Voltage.....	90 Volts
Grid No. 4 Voltage (Control Grid) <sup>2</sup> .....	0 Volts
Grid No. 1 Resistor (Osc. Grid).....	0.2 Megohm
Plate Current.....	0.6 Ma
Grid No. 3 and 5 Current.....	0.7 Ma
Grid No. 2 Current.....	1.2 Ma
Grid No. 1 Current.....	0.035 Ma
Plate Resistance.....	0.6 Megohm
Total Cathode Current.....	2.5 Ma
Conversion Transconductance.....	
Grid No. 4 Voltage at 0 Volts.....	250 $\mu$ mhos
Grid No. 4 Voltage at -2 Volts.....	50 $\mu$ mhos
Grid No. 4 Voltage at -3 Volts.....	5 $\mu$ mhos

### NOTES:

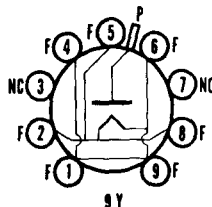
1. Obtained preferably by using a properly by-passed 70,000 ohm resistor in series with a 90 volt supply.
2. A resistance of at least 1.0 megohm should be in the grid return to negative filament pin.

# TYPES 1AB5, 1AF4, 1AF5

(See Condensed Data Section)



**SYLVANIA TYPE 1AX2**  
HIGH VOLTAGE HALF-WAVE RECTIFIER



## MECHANICAL DATA

Bulb	T-6 1/2, Outline 6A-2
Base	Miniature Button 9-Pin
Basing	9 Y
Top Cap.	Skirted Miniature
Mounting Position	Any

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage <sup>1</sup>	1.4 Volts
Filament Current	650 Ma

### DIRECT INTERELECTRODE CAPACITANCES

Plate to Filament	0.7 $\mu$ f
-------------------	-------------

### MAXIMUM RATINGS (Design Center Values—Except as Noted)

#### Flyback Rectifier Service<sup>2</sup>

Maximum Inverse Plate Voltage	25 Kv
Total D C and Peak (Abs. Max.)	20 Kv
D C	45 Ma
Peak Plate Current	0.5 Ma
Average Plate Current	

### CHARACTERISTICS

Tube Voltage Drop (Conducting 7 Ma)	200 Volts
-------------------------------------	-----------

### TYPICAL OPERATION

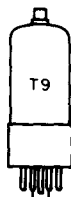
Similar to Type 1 X2B

### NOTES:

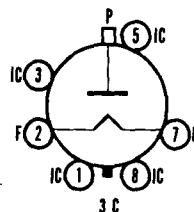
- The filament voltage should never be less than 1.2 volts or more than 1.6 volts.
- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

### WARNING

This tube may produce soft X-rays which can constitute a health hazard unless adequately shielded.



**SYLVANIA TYPE 1B3GT**  
HALF-WAVE RECTIFIER



## MECHANICAL DATA

Bulb	T-9, Outline 9-51
Base	Intermediate Shell Octal 6-Pin
Basing	3 C
Top Cap.	Small
Mounting Position	Any

# 1B3GT (Cont'd)

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage <sup>1</sup> .....	1.25 Volts
Filament Current.....	200 Ma

### DIRECT INTERELECTRODE CAPACITANCES

Plate to Filament.....	1.3 $\mu$ f
------------------------	-------------

### MAXIMUM RATINGS (Design Center Values—Except as Noted)

#### Flyback Voltage Rectifier<sup>2</sup>

Inverse Plate Voltage	
Total D C and Peak (Abs. Max.).....	26 Kv
D C.....	21 Kv
Peak Plate Current.....	50 Ma
Average Plate Current.....	0.5 Ma

#### R F Voltage Rectifier

Peak Inverse Plate Voltage (Abs. Max.).....	33 Kv
Peak Plate Current.....	30 Ma
Average Plate Current.....	1.0 Ma
Maximum Frequency of Supply Voltage.....	100 Kc
Minimum Frequency of Supply Voltage.....	1.5 Kc

### CHARACTERISTICS

Tube Voltage Drop Measured with Tube Conducting	
7 Ma (approx.).....	100 Volts

### NOTES:

- Under no circumstances should the filament voltage be less than 1.05 volts or more than 1.45 volts.
- For operation in a 525-line, 30 frame system the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

## APPLICATION

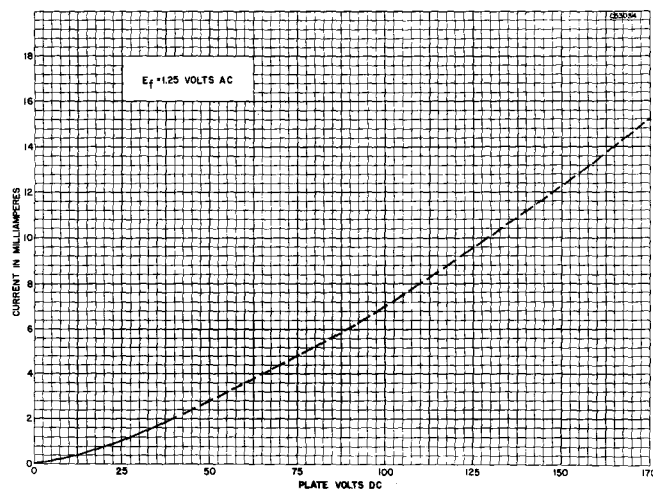
The Sylvania Type 1B3GT is a filamentary type half-wave diode intended for service as the high voltage rectifier in television receivers and other high voltage rectifier applications.

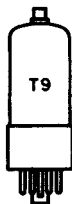
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	1.4	0	2457	0	8	—	28	V
219/220	1.25	2	13578	14	7	U	9*	—

\* Diode gas test does not apply.

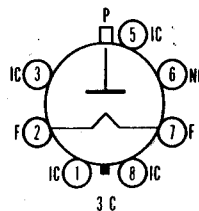
## AVERAGE CHARACTERISTICS





## SYLVANIA TYPE 1G3GT

### HV HALF-WAVE RECTIFIER



### MECHANICAL DATA

Bulb	T-9
Base	B5-82, Intermediate-Shell Octal 5-Pin or B5-85 Short, Intermediate-Shell Octal 5-Pin B6-8, Intermediate-Shell Octal 6-Pin or B6-60 Short, Intermediate-Shell Octal 6-Pin B7-47 Short, Intermediate-Shell Octal 7-Pin or B7-166, Intermediate-Shell Octal 7-Pin
Cap.	C1-34
Outline	9-51 or 9-52
Basing <sup>2</sup>	3C
Cathode	Coated Filament
Mounting Position	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage <sup>1</sup>	1.25 Volts
Filament Current	200 Ma

#### DIRECT INTERELECTRODE CAPACITANCES (Approx.)

Plate to Filament and Internal Shield	1.3 $\mu\mu\text{f}$
---------------------------------------	----------------------

#### MAXIMUM RATINGS (Design-Center Values—Except as Noted)

##### Flyback Voltage Rectifier<sup>4</sup>

Inverse Plate Voltage	
Total DC and Peak (Absolute Value)	26,000 Volts
DC	21,000 Volts
Peak Plate Current	50 Ma
Average Plate Current	0.5 Ma

##### R F Voltage Rectifier

Peak-Inverse Plate Voltage (Absolute Value)	33,000 Volts
Peak Plate Current	30 Ma
Average Plate Current	1.0 Ma
Frequency of Supply Voltage	
Minimum	1.5 Kc
Maximum	100 Kc

#### CHARACTERISTICS

Tube Drop for $I_b = 7$ Ma (approx.)	100 Volts
--------------------------------------	-----------

#### NOTES:

- On the 5-Pin bases, Pin 1 is omitted.  
On the 5-Pin bases, the 6-Pin bases, and the 7-Pin base JETEC No. B7-166, Pin 4 is omitted.  
On the 5-Pin bases, the 6-Pin bases, and the 7-Pin base JETEC No. B7-47, Pin 6 is omitted.
- Socket terminals 1, 3, 4, 5, 6, and 8 may be connected to terminal 7 or to a corona shield which connects to terminal 7. Terminals 4 and 6 may be used as tie points for components at or near filament potential.
- Under no circumstances should the filament voltage be less than 1.05 volts or more than 1.45 volts.
- For operation in a 525-line, 30-frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission," the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

### APPLICATION

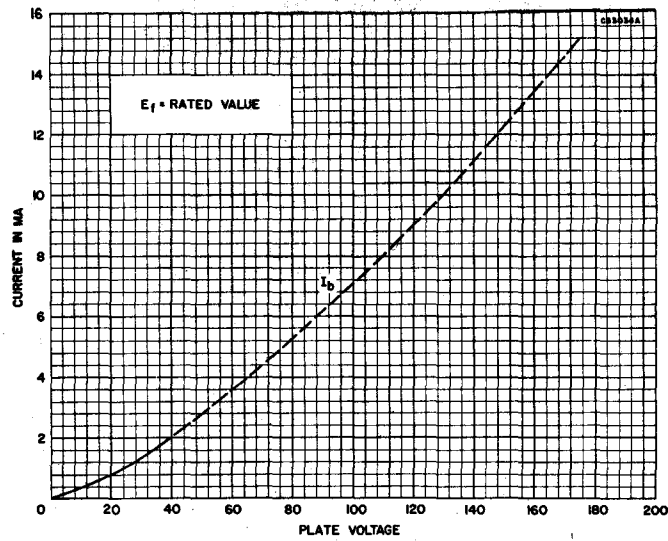
The Sylvania Type 1G3GT is a filamentary half-wave diode intended for service as the high voltage rectifier in television receivers and other high voltage rectifier applications. The Type 1G3GT is identical to the Type 1B3GT except that the overall and seated heights of the Type 1G3GT are each  $\frac{1}{2}$  inch shorter than for the Type 1B3GT.

#### WARNING

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Plate Voltage or 16,000 volts, whichever is less.

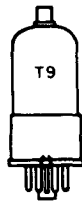
# 1G3GT (Cont'd)

## AVERAGE CHARACTERISTICS

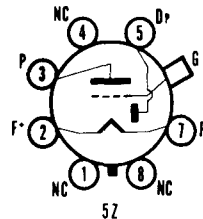


**TYPES 1B4/951, 1B4P, 1B5/25S,  
1B7GT, 1C3, 1C5GT, 1C6,  
1C7G, 1D5G, 1D5GT,  
1D7G, 1D8GT, 1E4, 1E5,  
1E5GT, 1E5GP, 1E7GT, 1F4,  
1F5G, 1F6, 1F7G, 1F7GV,  
1G4GT, G, 1G5G, 1G6GT,  
G, 1H4G, GT**

(See Condensed Data Section)



**SYLVANIA TYPE 1H5GT**  
DIODE HIGH-MU TRIODE



**MECHANICAL DATA**

Bulb.....	T-9, Outline 9-18
Base.....	Small Wafer Octal, Metal Sleeve 7-Pin
Basing.....	5Z
Top Cap.....	Miniature
Mounting Position.....	Any

**ELECTRICAL DATA**

**FILAMENT CHARACTERISTICS**

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma

**APPLICATION**

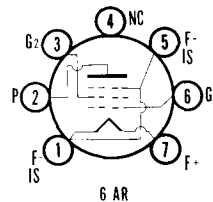
For other information on this type refer to corresponding lock-in Type 1LH4 which is identical in electrical characteristics.

**TYPES 1H6GT, 1J5G, 1J6GT, G**

(See Condensed Data Section)



**SYLVANIA TYPE 1L4**  
SHARP CUTOFF PENTODE



**MECHANICAL DATA**

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	6AR
Mounting Position.....	Any

# 1L4 (Cont'd)

## ELECTRICAL DATA

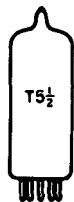
### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

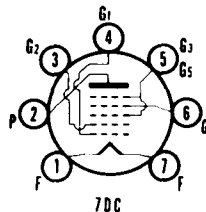
### TYPICAL OPERATION

Plate Voltage.....	90	90 Volts
Grid No. 2 Voltage.....	67.5	90 Volts
Grid No. 1 Voltage.....	0	0 Volts
Plate Current.....	2.9	4.5 Ma
Grid No. 2 Current.....	1.2	2.0 Ma
Transconductance.....	925	1025 $\mu$ mhos
Plate Resistance.....	0.6	0.35 Megohm
Grid No. 1 Bias for $I_b = 10 \mu$ a.....	-6.0	-8.0 Volts

Note: For use in R-C coupled amplifiers see appendix.



**SYLVANIA TYPE 1L6**  
PENTAGRID CONVERTER



## MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	7DC
Mounting Position.....	Any

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma

### DIRECT INTERELECTRODE CAPACITANCES

	Shielded <sup>1</sup>	Unshielded
Grid No. 4 to Plate.....	0.36	0.46 $\mu$ mf Max
Grid No. 2 to Grid No. 4.....	0.24	0.24 $\mu$ mf
Grid No. 1 to Grid No. 4.....	0.19	0.19 $\mu$ mf
R F Input: $c_4$ to All.....	7.5	7.5 $\mu$ mf
Oscillator Input: $c_1$ to All except $c_2$ .....	2.2	2.2 $\mu$ mf
Oscillator Output: $c_2$ to All except $c_1$ .....	2.6	2.6 $\mu$ mf
Mixer Output: Plate to All.....	12.0	7.0 $\mu$ mf
Grid No. 1 to Plate.....	0.10	0.15 $\mu$ mf Max

### MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	110 Volts
Grid No. 3 and 5 Voltage.....	65 Volts
Grid No. 3 and 5 Supply Voltage.....	110 Volts
Grid No. 2 Voltage (Oscillator Plate).....	110 Volts
Total Cathode Current.....	4.0 Ma

### TYPICAL OPERATION

Plate Voltage.....	90 Volts
Grid No. 2 Voltage (Anode Grid).....	90 Volts
Grid No. 3 and 5 Voltage <sup>2</sup> .....	45 Volts
Grid No. 4 Voltage (Control Grid).....	0 Volts
Plate Current.....	0.5 Ma
Grid No. 3 and 5 Current.....	0.6 Ma
Grid No. 2 Current (Anode Grid).....	1.2 Ma
Grid No. 1 Current (Osc. Grid).....	0.035 Ma
Total Cathode Current.....	2.35 Ma
Grid No. 4 Circuit Resistance.....	1.0 Megohm
Grid No. 1 Circuit Resistance.....	0.2 Megohm
Conversion Transconductance	
Grid No. 4 at 0 Volts.....	300 $\mu$ mhos
Grid No. 4 at -3.5 Volts (approx.).....	10 $\mu$ mhos
Oscillator Transconductance <sup>3</sup> .....	550 $\mu$ mhos

### NOTES:

- External shield No. 316 connected to Pin 1.
- Obtained preferably by using a properly by-passed dropping resistor of from 45,000 to 75,000 ohms in series with the B supply.
- Not oscillating with  $E_{c1} = 0$  V,  $E_b = 90$  V,  $E_{c3}$  and 5 = 45 V,  $E_{c2} = 90$  V,  $E_{c4} = 0$  V.

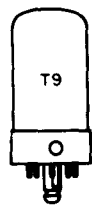
## APPLICATION

Sylvania Type 1L6 is a miniature type pentagrid converter designed for use in low drain battery operated receivers. It is similar in construction and application to Types 1A7GT and 1LA6. The small size and low current requirements recommend it for use in small portable receivers.

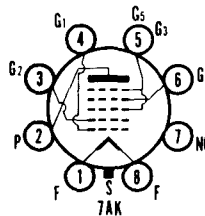


# TYPE 1LA4

(See Condensed Data Section)



## SYLVANIA TYPE 1LA6 HEPTODE CONVERTER



### MECHANICAL DATA

Bulb.....	T-9, Outline 9-30
Base.....	Lock-in 8-Pin
Basing.....	7AK
Mounting Position.....	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

#### TYPICAL OPERATION

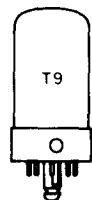
Plate Voltage.....	90 Volts
Grid No. 2 Voltage (Anode Grid).....	90 Volts
Grid No. 3 and 5 Voltage <sup>1</sup> .....	45 Volts
Grid No. 4 Voltage (Control Grid).....	0 Volts
Plate Current.....	0.55 Ma
Grid No. 3 and 5 Current.....	0.6 Ma
Grid No. 2 Current.....	1.2 Ma
Grid No. 1 Current.....	0.035 Ma
Conversion Transconductance.....	250 $\mu$ mhos
Plate Resistance.....	0.75 Megohm
Control Grid Bias for $g_c = 10 \mu$ mhos.....	-3 Volts
Oscillator Grid ( $g_1$ ) Resistor.....	0.2 Megohm
Maximum Allowable Grid 4 Resistance to Negative Filament.....	1.0 Megohm

#### NOTE:

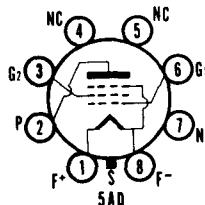
1. Obtained preferably by using a properly by-passed voltage dropping resistor of 45,000 to 70,000 ohms in series with the B supply voltage.

### APPLICATION

Similar in construction and application to the Type 1L6. Sylvania Type 1R5 is recommended for use in new equipment.



## SYLVANIA TYPE 1LB4 PENTODE POWER AMPLIFIER



### MECHANICAL DATA

Bulb.....	T-9, Outline 9-30
Base.....	Lock-in 8-Pin
Basing.....	5AD
Mounting Position.....	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

#### MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	110 Volts
Grid No. 2 Voltage.....	110 Volts
Cathode Current.....	6.0 Ma

# 1LB4 (Cont'd)

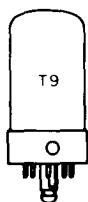
## TYPICAL OPERATION

Plate Voltage.....	45	62.5	67.5	90 Volts
Grid No. 2 Voltage.....	45	62.5	67.5	90 Volts
Grid No. 1 Voltage.....	-4.5	-5.0	-6.0	-9.0 Volts
Plate Current (Zero Signal).....	1.6	3.8	3.8	5.0 Ma
Grid No. 2 Current (Zero Signal).....	0.3	0.8	0.8	1.0 Ma
Transconductance.....	650	875	875	925 $\mu$ mhos
Plate Resistance (approx.).....	0.4	0.3	0.3	0.25 Megohm
Load Resistance.....	20000	16000	16000	12000 Ohms
Power Output.....	35	90	100	200 Mw
Total Harmonic Distortion.....	10	10	10	10 Percent

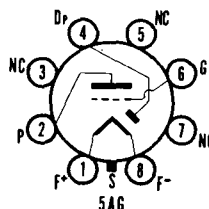
Sylvania Type 3V4 is recommended for use in new equipment.

## TYPES 1LC5, 1LC6, 1LD5, 1LE3, 1LG5

(See Condensed Data Section)



**SYLVANIA TYPE 1LH4**  
DIODE HIGH-MU TRIODE



### MECHANICAL DATA

Bulb.....	T-9, Outline 9-30
Base.....	Lock-in 8-Pin
Basing.....	5AG
Mounting Position.....	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

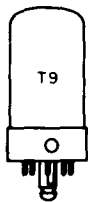
Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

#### TYPICAL OPERATION

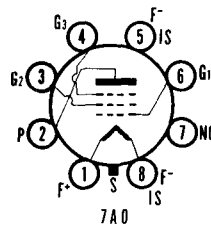
Plate Voltage.....	90 Volts
Grid No. 1 Voltage <sup>1</sup> .....	0 Volts
Plate Current.....	0.15 Ma
Transconductance.....	275 $\mu$ mhos
Amplification Factor.....	65
Plate Resistance.....	0.24 Megohm

#### NOTE:

1. A resistor of at least 1.0 megohm should be in the grid return. The negative filament voltage should be connected to Pin 8.



**SYLVANIA TYPE 1LN5**  
SHARP CUTOFF RF PENTODE



### MECHANICAL DATA

Bulb.....	T-9, Outline 9-30
Base.....	Lock-in 8-Pin
Basing.....	7A0
Mounting Position.....	Any

# 1LN5 (Cont'd)

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

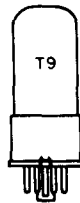
### TYPICAL OPERATION

Plate Voltage.....	90 Volts
Grid No. 2 Voltage.....	90 Volts
Grid No. 1 Voltage <sup>1</sup> .....	0 Volts
Plate Current.....	1.6 Ma
Grid No. 2 Current.....	0.35 Ma
Transconductance.....	800 $\mu$ mhos
Plate Resistance (approx.).....	1.1 Megohms
Grid No. 1 Bias for $g_m = 10 \mu$ mhos (approx.).....	-4.5 Volts

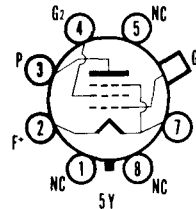
### NOTE:

1. Negative filament return to Pin 8.

Sylvania Type 1U4 is recommended for use in new equipment.



**SYLVANIA TYPE 1N5GT**  
SHARP CUTOFF R F PENTODE



## MECHANICAL DATA

Bulb.....	T-9, Outline 9-18
Base.....	Small Wafer Octal With Metal Sleeve 7-Pin
Basing.....	5Y
Mounting Position.....	Any

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma

### TYPICAL OPERATION

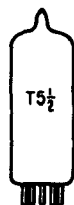
Plate Voltage.....	90 Volts
Grid No. 2 Voltage.....	90 Volts
Grid No. 1 Voltage <sup>1</sup> .....	0 Volts
Plate Current.....	1.2 Ma
Grid No. 2 Current.....	0.3 Ma
Transconductance.....	750 $\mu$ mhos
Plate Resistance (approx.).....	1.5 Megohms
Grid No. 1 Bias for $g_m = 50 \mu$ mhos.....	-3.2 Volts
$g_m = 5 \mu$ mhos.....	-4.0 Volts

### NOTE:

1. Negative filament return to Pin 7.

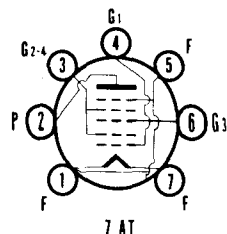
**TYPES 1N6G, 1P5GT, G, 1Q5GT,  
G, 1Q6, 1R4**

(See Condensed Data Section)



## SYLVANIA TYPE 1R5

### HEPTODE CONVERTER



#### MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	7AT
Mounting Position.....	Any

#### ELECTRICAL DATA

##### FILAMENT CHARACTERISTICS

Filament Voltage D C .....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

##### DIRECT INTERELECTRODE CAPACITANCES

	Shielded <sup>1</sup>	Unshielded
Mixer Grid to Plate: g3 to p.....	0.3	0.4 $\mu$ mf Max
R F Input: g3 to All.....	7.0	7.0 $\mu$ mf
Mixer Output: p to All.....	12.0	7.5 $\mu$ mf
Oscillator Input: g1 to All.....	3.8	3.8 $\mu$ mf
Coupling: g1 to g3.....	0.2	0.2 $\mu$ mf Max
Oscillator Grid to Plate: g1 to p.....	0.1	0.1 $\mu$ mf Max

##### MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	90 Volts
Grid No. 2 and 4 Voltage.....	67.5 Volts
Grid No. 2 and 4 Supply Voltage.....	90 Volts
Cathode Current.....	5.5 Ma
Positive D C Grid No. 3 Voltage.....	0 Volts

##### CHARACTERISTICS AND TYPICAL OPERATION<sup>2</sup>

Plate Voltage.....	45	67.5	90 Volts
Grid No. 2 and 4 Voltage.....	45	67.5	67.5 Volts
Grid No. 3 Voltage.....	0	0	0 Volts
Oscillator Grid (Grid No. 1) Voltage R M S.....	15	25	25 Volts
Oscillator Grid (Grid No. 1) Current.....	150	250	250 $\mu$ a
Oscillator Grid (Grid No. 1) Resistance.....	0.1	0.1	0.1 Megohm
Plate Resistance (approx.).....	0.5	0.4	0.4 Megohm
Plate Current.....	0.7	1.4	1.5 Ma
Grid No. 2 and 4 Current.....	2.1	3.5	3.5 Ma
Cathode Current.....	3.0	5.2	5.3 Ma
Conversion Transconductance.....	210	280	280 $\mu$ mhos
Grid No. 3 Voltage for $g_e = 10 \mu$ mhos (approx.).....	-7	-13	-13 Volts
Grid No. 3 Voltage for $g_e = 100 \mu$ mhos (approx.).....	-2.2	-4.9	-5.0 Volts

##### NOTES:

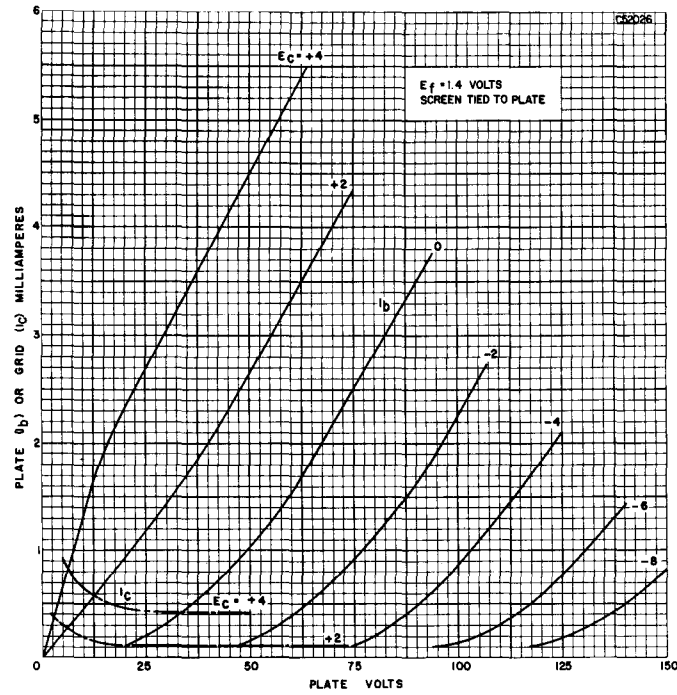
- Shield No. 316 connected to Pin 1.
- The characteristics shown were obtained with separate excitation. The characteristics under these conditions correspond very closely with those obtained in self-excited oscillatory circuit operating with zero bias.

#### SYLVANIA TUBE TESTER SETTINGS

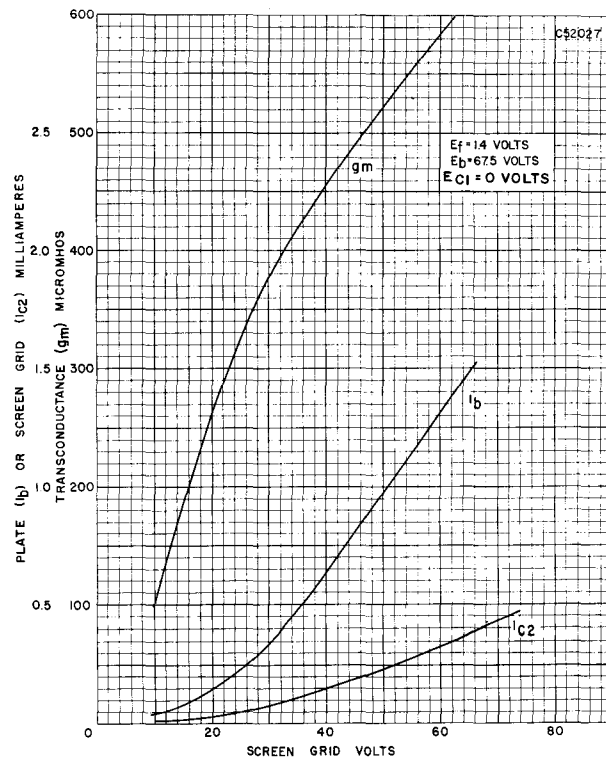
	A	B	C	D	E	F	G	Test or K
139/140	1.4	2	45	4	1	016	60	T
	1.4	2	45	4	0	8	65	U
219/220	1.4	7	51	39	1	036T	2	---
	1.4	7	51S	63	5	4X	3	---

1S5 (Cont'd)

AVERAGE PLATE CHARACTERISTICS



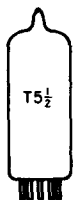
AVERAGE CHARACTERISTICS



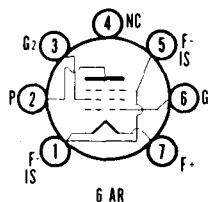
SYLVANIA ELECTRONIC TUBES

# TYPES 1SA6GT, 1SB6GT

(See Condensed Data Section)



## SYLVANIA TYPE 1T4 REMOTE CUTOFF R F PENTODE



### MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	6AR
Mounting Position.....	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

#### DIRECT INTERELECTRODE CAPACITANCES (Shielded)<sup>1</sup>

Grid to Plate.....	0.01 $\mu$ f Max
Input.....	3.6 $\mu$ f
Output.....	7.5 $\mu$ f

#### MAXIMUM RATINGS (Design Center Values)

Plate Voltage.....	90 Volts
Grid No. 2 Voltage.....	90 Volts
Positive Grid No. 1 Voltage.....	0 Volts
Total Cathode Current.....	5.5 Ma

#### CHARACTERISTICS AND TYPICAL OPERATION

##### Class A<sub>1</sub> Amplifier

Plate Voltage.....	45	67.5	90	90 Volts
Grid No. 2 Voltage.....	45	67.5	45	67.5 Volts
Grid No. 1 Voltage.....	0	0	0	0 Volts
Plate Current.....	1.7	3.4	1.8	3.5 Ma
Grid No. 2 Current.....	0.7	1.5	0.65	1.4 Ma
Transconductance.....	700	875	750	900 $\mu$ mhos
Plate Resistance (approx.).....	0.35	0.25	0.8	0.5 Megohm
Grid No. 1 Bias for 10 $\mu$ mhos.....	-10	-16	-10	-16 Volts

#### NOTE:

- Shield No. 316 connected to Pin No. 1.

### APPLICATION

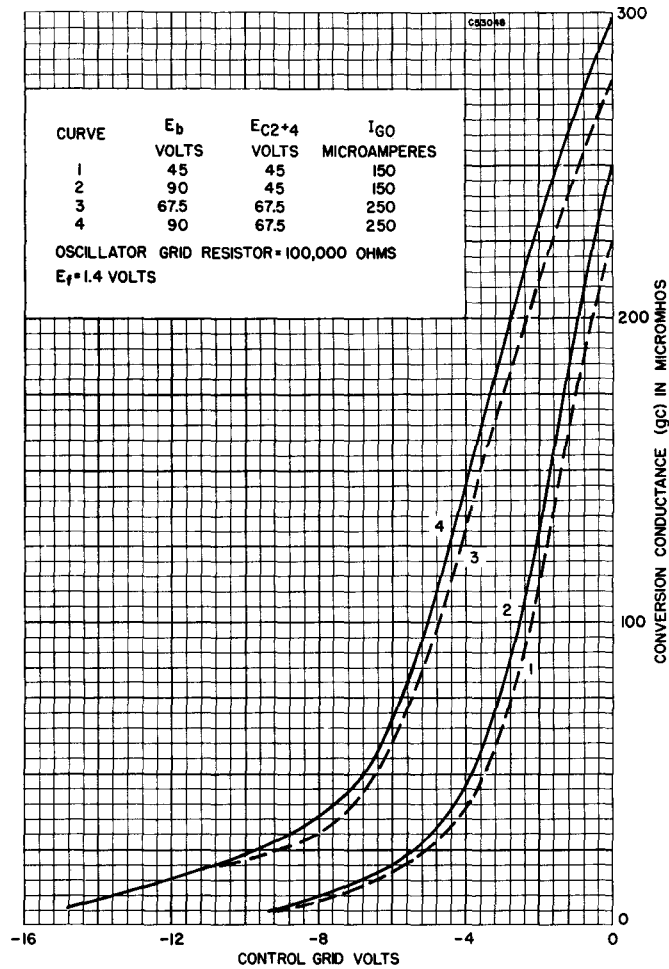
Sylvania Type 1T4 is an r f remote cutoff pentode of the miniature style of construction. It is especially designed for radio frequency amplifier service in compact, light weight, portable equipment.

### SYLVANIA TUBE TESTER SETTINGS

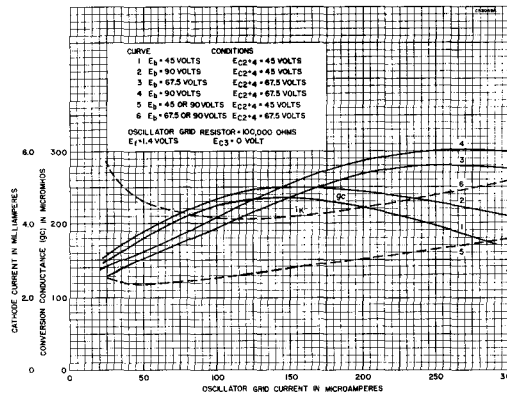
	A	B	C	D	E	F	G	Test or K
139/140	1.4	2	45	4	1	016	17	V
219/220	1.4	1	457	64	7	036Y	2	---
	1.4	5	147	64	7	036Y	2	---

# 1R5 (Cont'd)

## AVERAGE CONVERSION CHARACTERISTICS (SEPARATE EXCITATION)

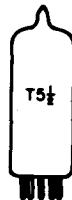


## AVERAGE CONVERSION CHARACTERISTICS (SEPARATE EXCITATION)

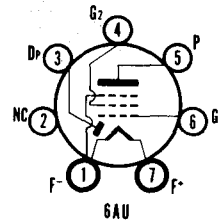


# TYPE 1S4

(See Condensed Data Section)



## SYLVANIA TYPE 1S5 DIODE PENTODE



### MECHANICAL DATA

Bulb	T-5 1/2, Outline 5-2
Base	Miniature Button 7-Pin
Basing	6AU
Mounting Position	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage D C	1.4 Volts
Filament Current	50 Ma
Filament Voltage D C (Abs. Max.)	1.6 Volts

#### DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate	0.2 $\mu\text{f}$
Input	2.2 $\mu\text{f}$
Output	2.4 $\mu\text{f}$

#### MAXIMUM RATINGS (Design Center Values)

##### Class A<sub>1</sub> Amplifier

Plate Voltage	90 Volts
Grid No. 2 Voltage	90 Volts
Positive D C Grid No. 1 Voltage	0 Volts
Negative D C Grid No. 1 Voltage	50 Volts
Cathode Current	3.0 Ma
Diode Current for Continuous Operation	0.25 Ma

#### CHARACTERISTICS AND TYPICAL OPERATION

##### Class A<sub>1</sub> Amplifier

Plate Voltage	67.5	90 Volts
Grid No. 2 Voltage	67.5	90 Volts
Grid No. 1 Voltage	0	0 Volts
Plate Current	1.6	2.7 Ma
Grid No. 2 Current	0.4	0.5 Ma
Transconductance	625	720 $\mu\text{mhos}$
Plate Resistance (approx.)	0.6	0.5 Megohm
Grid No. 1 Bias for $I_b = 10 \mu\text{a}$		-5 Volts
Average Diode Current at 10 Volts D C		1.5 Ma

### APPLICATION

Sylvania Type 1S5 is a diode pentode of the miniature construction, especially designed for detector-audio service in compact, light weight, portable equipment. The high operating efficiency allows the tube to be used with extremely low B supply voltages. The internal construction of Type 1S5 is similar to that of Sylvania Type 1LD5. For use in resistance coupled circuits, see appendix.

### SYLVANIA TUBE TESTER SETTINGS

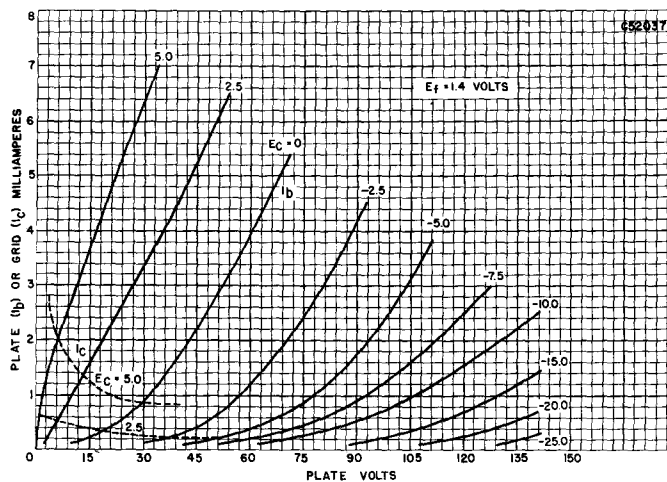
	A	B	C	D	E	F	G	Test or K
139/140	1.4	2	4	4	4	68	23	V
	1.4	2	4	4	0	—	55	T
219/220	1.4	1	27	14	7	046U	5	—
	1.4	1	27	44	7	T	3*	—

\* Diode gas test does not apply.

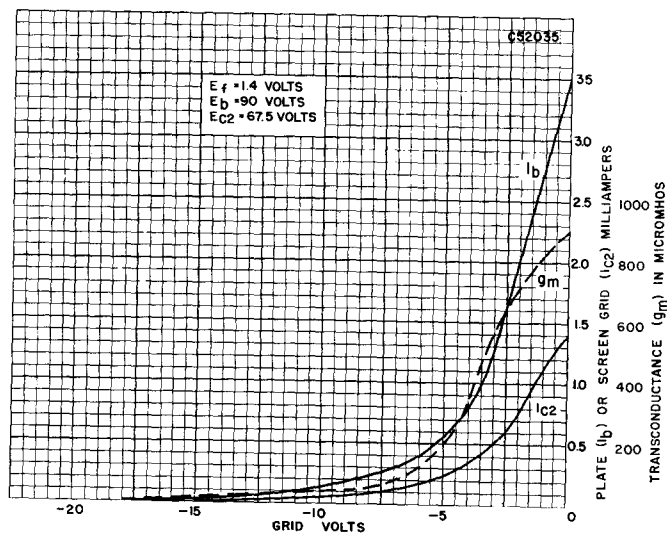


# 1T4 (Cont'd)

## AVERAGE PLATE CHARACTERISTICS TRIODE CONNECTED

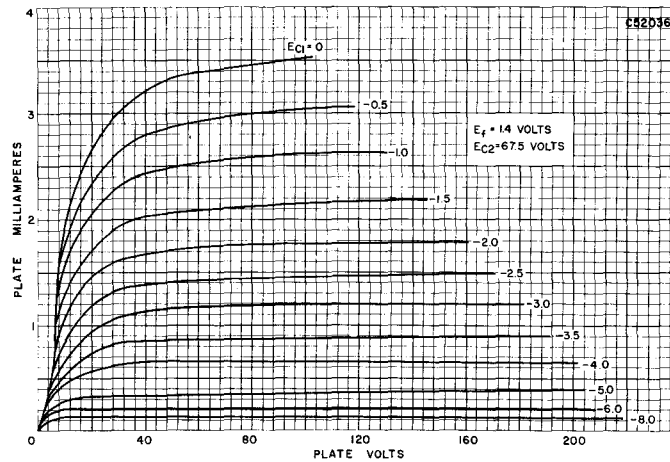


## AVERAGE TRANSFER CHARACTERISTICS



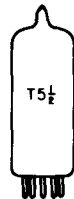
# 1T4 (Cont'd)

## AVERAGE PLATE CHARACTERISTICS

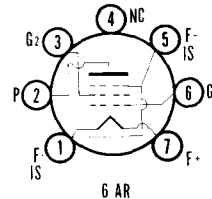


## TYPE 1T5GT

(See Condensed Data Section)



## SYLVANIA TYPE 1U4 SHARP CUTOFF R F PENTODE



### MECHANICAL DATA

Bulb	T-5 1/2, Outline 5-2
Base	Miniature Button 7-Pin
Basing	6AR
Mounting Position	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage D C	1.4 Volts
Filament Current	50 Ma
Filament Voltage D C (Abs. Max.)	1.6 Volts

#### DIRECT INTERELECTRODE CAPACITANCES (With or Without Shield)<sup>1</sup>

Grid to Plate	.008 $\mu$ f Max
Input	3.6 $\mu$ f
Output	7.5 $\mu$ f

#### MAXIMUM RATINGS (Design Center Values)

Plate Voltage	110 Volts
Grid No. 2 Voltage	110 Volts
Positive Grid No. 1 Voltage	0 Volts
Total Cathode Current	6.5 Ma

#### CHARACTERISTICS AND TYPICAL OPERATION

##### Class A<sub>1</sub> Amplifier

Plate Voltage	90 Volts
Grid No. 2 Voltage	90 Volts
Grid No. 1 Voltage	0 Volts
Plate Current	1.6 Ma
Grid No. 2 Current	0.45 Ma
Transconductance	900 $\mu$ mhos
Plate Resistance (approx.)	1.5 Megohms
Grid No. 1 Bias for $I_b=10 \mu$ a	4.0 Volts

# 1U4 (Cont'd)

**NOTE:**

1. Shield No. 316 connected to Pin No. 1 or 5.

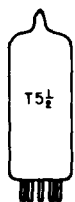
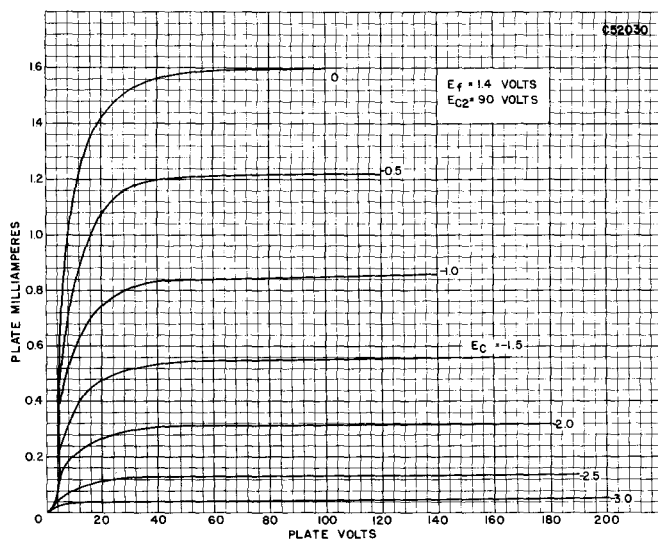
## APPLICATION

Sylvania Type 1U4 is a sharp cutoff r f pentode very similar in application and characteristics to Type 1LN5. Data required for its use in resistance coupled amplifier circuits are shown in appendix.

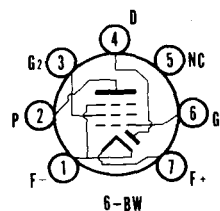
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	1.4	2	45	4	1	016	20	V
219/220	1.4	1	57S	26	7	036U	2	—

## AVERAGE PLATE CHARACTERISTICS



**SYLVANIA TYPE 1U5**  
DIODE PENTODE



## MECHANICAL DATA

Bulb	T-5 1/2, Outline 5-2
Base	Miniature Button 7-Pin
Basing	6BW
Mounting Position	Any

# 1U5 (Cont'd)

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage D C.....	1.4 Volts
Filament Current.....	50 Ma
Filament Voltage D C (Abs. Max.).....	1.6 Volts

### DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid to Plate .....	0.2 $\mu\mu\text{f}$
Input.....	2.2 $\mu\mu\text{f}$
Output.....	2.4 $\mu\mu\text{f}$

### NOTE:

Except for base diagram and capacitances, the Type 1U5 is identical to the Type 1S5. R-C Coupled Amplifier data is given in the Appendix. See Type 1S5 for other data and characteristics curves.

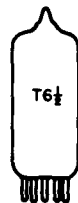
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	1.4	2	48	4	1	016	25	V
	1.4	2	48	4	7	—	55	T
219/220	1.4	1	7	13	7	036U	2	—
	1.4	1	7	45	7	T	4*	—

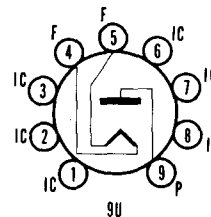
\* Diode gas test does not apply.

## TYPES 1U6, 1V

(See Condensed Data Section)



**SYLVANIA TYPE 1V2**  
HALF-WAVE RECTIFIER



## MECHANICAL DATA

Bulb.....	T-6 1/2, Outline 6-2
Base.....	Small Button 9-Pin
Basing.....	9U
Mounting Position.....	Any

## ELECTRICAL DATA

### FILAMENT CHARACTERISTICS

Filament Voltage A C.....	0.625 Volt
Filament Current.....	300 Ma

### MAXIMUM RATINGS (Design Center Values)

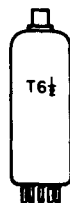
Peak Inverse Plate Voltage.....	7500 Volts
Peak Plate Current.....	10 Ma
Average Plate Current.....	0.5 Ma

## APPLICATION

Sylvania Type 1V2 is a half-wave rectifier designed especially for use in television circuits using fly-back or high frequency oscillator supplies.

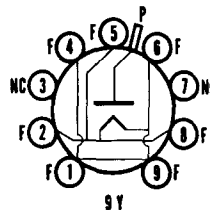
## TYPE 1W4

(See Condensed Data Section)



## SYLVANIA TYPE 1X2B

### H-V HALF-WAVE RECTIFIER



#### MECHANICAL DATA

Bulb	T-6 1/2, Outline 6A-2
Base	Small Button 9-Pin
Basing (Note 1)	9Y
Top Cap	Skirted Miniature
Mounting Position	Any

#### ELECTRICAL DATA

##### FILAMENT CHARACTERISTICS

Filament Voltage	1.25 Volts
Filament Current	200 Ma

##### DIRECT INTERELECTRODE CAPACITANCES

Plate to Filament	1.0 $\mu$ f
-------------------	-------------

##### MAXIMUM RATINGS (Design Center Values—Except as Noted)

###### Flyback Rectifier Service<sup>2</sup>

Peak Inverse Plate Voltage (Abs. Max.)	22 Kv
Steady State Peak Plate Current	45 Ma
D C Output Current	0.5 Ma
Tube Voltage Drop for $I_b=7$ Ma	100 Volts

##### CHARACTERISTICS AND TYPICAL OPERATION

###### Flyback Rectifier Service<sup>2</sup>

Positive Peak Plate Voltage	18 Kv
Negative Peak Plate Voltage	2.0 Kv
D C Output Voltage (approx.)	18 Kv
D C Output Current (approx.)	100 $\mu$ a
Peak Plate Current	35 Ma

##### NOTES:

1. Pins 3 and 7 can be used as a tie point for the filament dropping resistor and high voltage resistor. Do not connect to the low voltage circuits.
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.

#### APPLICATION

Sylvania Type 1X2B is a miniature filament type diode designed for use as a high voltage rectifier in television receivers and other high voltage rectifier applications. It is applicable for use in both flyback and r f types of supplies as well as for use at power line frequency. The 1X2B supersedes Types 1X2 and 1X2A which are identical except for lower Peak Inverse Plate Voltage.

#### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	1.4	8	12345	0	8	—	72	T
(Converted tester, see roll chart)								
219/220	1.25	0	124568	58	2	T	9*	—

\* Diode gas test does not apply.

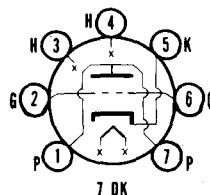
TYPES 2A3, 2A3H, 2A5,  
2A6, 2A7, 2A7S

(See Condensed Data Section)



## SYLVANIA TYPE 2AF4

### UHF TRIODE



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage.....	2.35 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS section in Appendix).....	
Maximum Heater-Cathode Voltage.....	50 Volts
Total D C and Peak.....	25 Volts
D C, Heater Positive with Respect to Cathode.....	

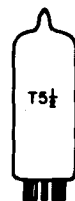
For other rating, operation, and application data, refer to corresponding Type 6AF4, which is identical except for heater ratings.

#### APPLICATION

The Sylvania Type 2AF4 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

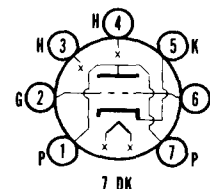
## TYPES 2B7, 2B7S, 2E5, 2G5, 2S/4S

(See Condensed Data Section)



## SYLVANIA TYPE 2T4

### UHF TRIODE



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage.....	2.35 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	50 Volts
Total D C and Peak.....	25 Volts
D C, Heater Positive with Respect to Cathode.....	

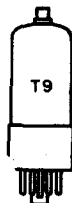
For other rating, operation, and application data, refer to corresponding Type 6T4, which is identical except for heater ratings.

#### APPLICATION

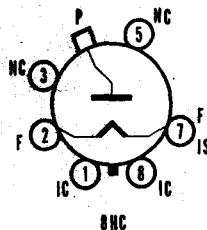
The Sylvania Type 2T4 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

#### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	2.5	0	46	0	2	2	38	U
	2.5	0	23	0	3	6	38	U
219/220	2.5	3	467	24	4	2X	1	5
	2.5	3	124	24	4	6X	7	5



**SYLVANIA TYPE 2B3**  
**HV HALF-WAVE RECTIFIER**



**MECHANICAL DATA**

Bulb	T-9
Base <sup>1</sup>	B6-8, Intermediate-Shell Octal 6-Pin or B6-60 Short, Intermediate-Shell Octal 6-Pin
Cap.	C1-34
Outline	9-51 or 9-52
Basing	8HC
Cathode	Coated Filament
Mounting Position	Any

**ELECTRICAL DATA**

**FILAMENT CHARACTERISTICS**

Filament Voltage <sup>2</sup>	1.75 Volts
Filament Current	250 Ma

**DIRECT INTERELECTRODE CAPACITANCE (Unshielded)**

Plate to Filament (approx.)	1.3 $\mu\text{f}$
-----------------------------	-------------------

**MAXIMUM RATINGS (Design Maximum Values)<sup>3</sup>**

**Flyback Voltage Rectifier<sup>4</sup>**

Inverse Plate Voltage	
Total DC and Peak	27,000 Volts
DC	22,000 Volts
Peak Plate Current	50 Ma
Average Plate Current	0.5 Ma

**CHARACTERISTICS**

Tube Drop for $I_b = 7 \text{ Ma}$ (approx.)	100 Volts
--	-----------

**NOTES:**

1. Bases B6-8 and B6-60. Pins 4 and 6 removed.
2. Under no circumstances should the filament voltage be less than 1.5 volts or more than 2.0 volts.
3. Design-Maximum Ratings are the limiting values, expressed with respect to bogey tubes, at which satisfactory tube life can be expected to occur. In order to obtain satisfactory circuit performance, therefore, the equipment designer must establish the circuit design so that no design maximum value is exceeded with a bogey tube under the worst probable operating conditions with respect to the combined effect of supply voltage variation, equipment component variation, equipment control adjustment, load variation and other variation associated with the equipment or the environment of the equipment.
4. For operation in a 525 line, 30 frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission," the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

**APPLICATION**

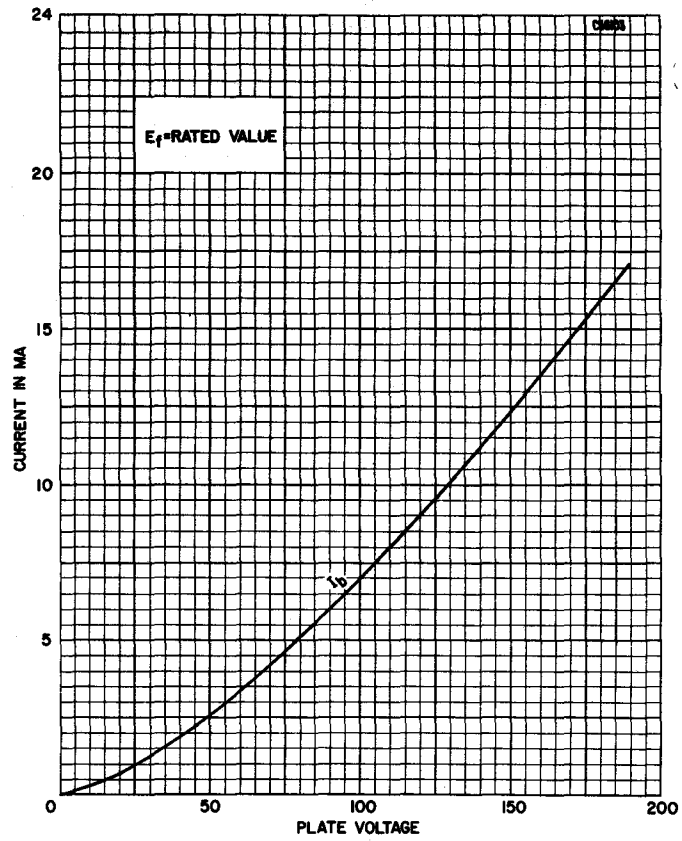
The Sylvania Type 2B3 is a filamentary half-wave diode intended for service as the high voltage rectifier in television receivers. Differing from Type 1B3GT in higher filament ratings it offers possibilities for operation from a flyback transformer without filament dropping resistor.

**WARNING:**

X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Plate Voltage or 16,000 volts, whichever is less.

# 2B3 (Cont'd)

## AVERAGE PLATE CHARACTERISTICS



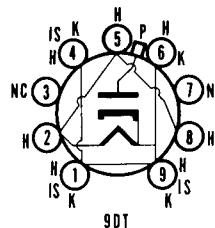


# TYPES 2V2, 2V3G, 2W3, GT, 2Z2/284

(See Condensed Data Section)



**SYLVANIA TYPE 3A2**  
HALF-WAVE RECTIFIER



## MECHANICAL DATA

Bulb	T-6 1/2, Outline 6A-2
Base	Small Button 9-Pin
Basing	9DT
Top Cap	Skirted Miniature
Mounting Position	Any

## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	220 Ma

### DIRECT INTERELECTRODE CAPACITANCES (Approx.)

Plate to Heater, Cathode and Internal Shield	1.0 $\mu\text{f}$
--	-------------------

### MAXIMUM RATINGS (Design Center Values)

#### Pulsed-Rectifier Service<sup>1</sup>

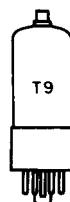
Peak Inverse Plate Voltage	18000 Volts
Peak Plate Current	80 Ma
Average Plate Current	1.5 Ma

### NOTE:

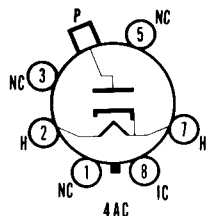
- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

## APPLICATION

Sylvania Type 3A2 is a half-wave vacuum rectifier designed as a high voltage pulse rectifier for use in the scanning systems of color television receivers.



**SYLVANIA TYPE 3A3**  
HALF-WAVE RECTIFIER



## MECHANICAL DATA

Bulb	T-9
Base	Intermediate Shell Octal 6-Pin
Basing	4AC
Maximum Overall Length	4 1/16"
Maximum Seated Height	3 1/2"
Top Cap	Small
Mounting Position	Any

## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	220 Ma

### DIRECT INTERELECTRODE CAPACITANCES (Approx.)

Plate to Heater, Cathode and Internal Shield	1.5 $\mu\text{f}$
--	-------------------

# 3A3 (Cont'd)

## MAXIMUM RATINGS (Design Center Values)

### Pulsed Rectifier Service<sup>1</sup>

Peak Inverse Plate Voltage .....	30000 Volts
Peak Plate Current .....	80 Ma
Average Plate Current .....	1.5 Ma

### NOTE:

- For operation in a 525-line, 30 frame system, the duty cycle of the voltage pulse must not exceed 15% of one scanning cycle.

## APPLICATION

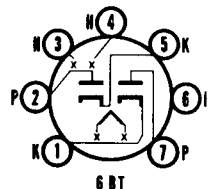
Sylvania Type 3A3 is a half-wave vacuum rectifier designed as a high voltage pulse rectifier for use in the scanning systems of color television receivers.

## TYPES 3A5, 3A8GT

(See Condensed Data Section)



**SYLVANIA TYPE 3A5**  
DUO DIODE



## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage .....	3.15 Volts
Heater Current .....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix) .....	
Maximum Heater-Cathode Voltage .....	
Total D C and Peak .....	200 Volts
D C, Heater Positive with Respect to Cathode .....	100 Volts

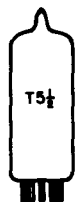
For other rating, operation, and application data, refer to corresponding Type 6AL5, which is identical except for heater ratings.

## APPLICATION

The Sylvania Type 3A5 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

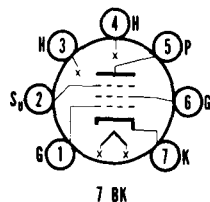
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	1	—	48	T
	3.3	0	—	0	3	—	48	T
219/220	3.3	3	14	21	4	X	2*	5
	3.3	3	45	21	4	X	7*	1



## SYLVANIA TYPE 3AU6

SHARP CUTOFF R F PENTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage.....	3.15 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

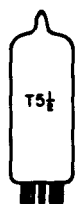
For other rating, operation, and application data, refer to corresponding Type 6AU6, which is identical except for heater ratings.

### APPLICATION

The Sylvania Type 3AU6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

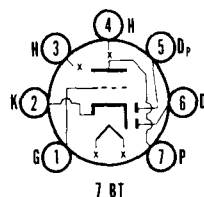
### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	4	36	33	W
219/220	3.3	3	4	21	4	16Y	5	7



## SYLVANIA TYPE 3AV6

DUO DIODE TRIODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage.....	3.15 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6AV6, which is identical except for heater ratings.

### APPLICATION

The Sylvania Type 3AV6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

# 3AV6 (Cont'd)

## SYLVANIA TUBE TESTER SETTINGS

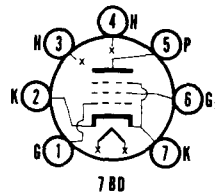
	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	3	3	46	T
	3.3	0	—	0	4	—	51	T
	3.3	0	—	0	5	—	51	T
219/220	3.3	3	4	35	4	1T	7	2
	3.3	3	4	40	4	T	5*	2
	3.3	3	4	40	4	T	6*	2

## TYPES 3B7/1291, 3BA6

(See Condensed Data Section)



### SYLVANIA TYPE 3BC5 SHARP CUTOFF R F PENTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage.....	3.15 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

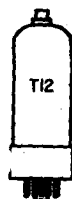
For other rating, operation, and application data, refer to corresponding Type 6BC5, which is identical except for heater ratings.

### APPLICATION

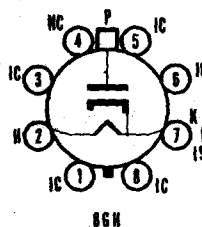
The Sylvania Type 3BC5 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	4	0	4	36	70	T
219/220	3.3	3	47S	65	4	16Z	5	2
	3.3	3	24S	65	4	16Z	5	7



**SYLVANIA TYPE 3B2**  
**HV HALF-WAVE RECTIFIER.**



**MECHANICAL DATA**

Bulb.....	T-12
Base.....	B8-71, Short Jumbo Shell Octal, 8-Pin
Top Cap.....	C1-1, Small
Outline.....	See Drawing
Basing.....	8GH
Cathode.....	Coated Unipotential
Mounting Position.....	Any

**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

Heater Voltage.....	3.15 Volts
Heater Current.....	220 Ma

**DIRECT INTERELECTRODE CAPACITANCES (Approx.)**

Plate to (h + k + I.S.).....	1.8 $\mu$ f
------------------------------	-------------

**MAXIMUM RATINGS (Design Center Values—Except as Noted)**  
**Pulsed Rectifier Service<sup>2</sup>**

Inverse Plate Voltage	
Total DC and Peak (Absolute Max.).....	35,000 Volts
DC.....	25,000 Volts
Peak Plate Current.....	80 Ma
Average Plate Current.....	1.1 Ma

**CHARACTERISTICS**

Tube Drop with DC	
Plate Current of 7 Ma.....	135 Volts

**NOTES:**

1. Pins 1, 3, 5 and 7 may be connected together. Pins 2, 6 and 8 may be connected together. Pin 4 may be connected to either pin 2 or pin 7, or may be used as a tie point for a heater dropping resistor. Do not use pin 4 as a low potential tie point.
2. For operation in a 525-line, 30-frame system as described in "Standards of Good Engineering Practice for Television Broadcast Stations; Federal Communications Commission."

**APPLICATION**

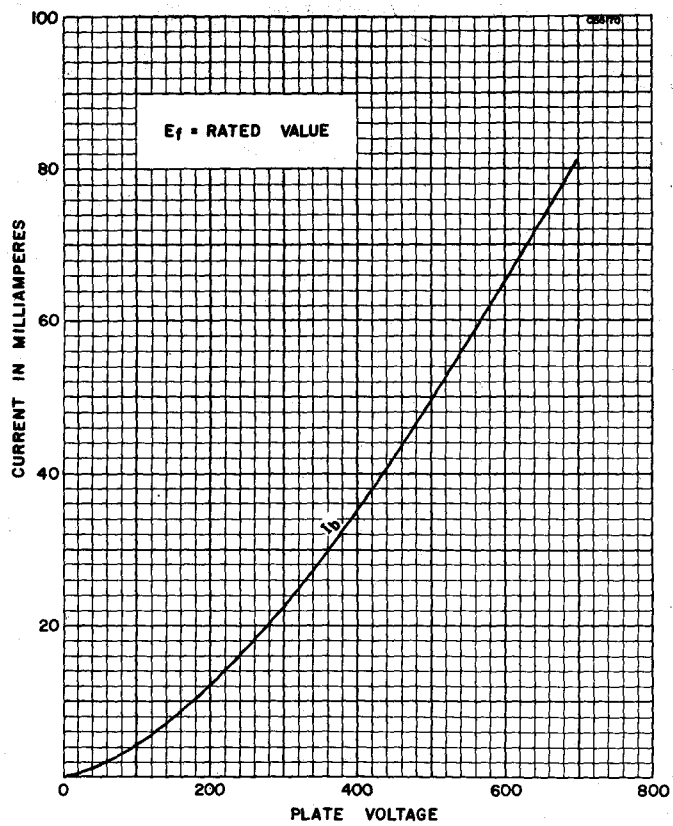
The Sylvania Type 3B2 is a half-wave, high voltage rectifier contained in a T-12 envelope. It is designed for application as a high voltage rectifier in color television receivers.

**WARNING:**

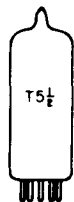
X-ray radiation shielding may be necessary to protect against possible danger of personal injury from prolonged exposure at close range if this tube is operated at higher than the manufacturer's Maximum Rated Anode Voltage or 16,000 volts, whichever is less.

3B2 (Cont'd)

AVERAGE PLATE CHARACTERISTICS

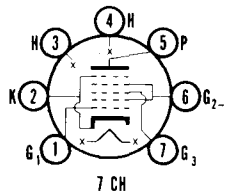


SYLVANIA ELECTRONIC TUBES



## SYLVANIA TYPE 3BE6

### HEPTODE CONVERTER



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

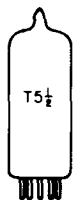
For other rating, operation, and application data, refer to corresponding Type 6BE6, which is identical except for heater ratings.

#### APPLICATION

The Sylvania Type 3BE6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

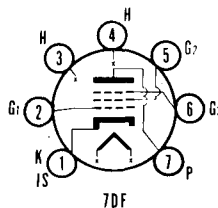
#### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	4	46	85	W
	3.3	0	—	0	5	3	35	U
219/220	3.3	3	4	13	4	067U	5	2
	3.3	3	4S	41	4	1X	6	2



## SYLVANIA TYPE 3BN6

### GATED BEAM DISCRIMINATOR



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6BN6, which is identical except for heater ratings.

#### APPLICATION

The Sylvania Type 3BN6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

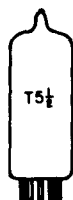
# 3BN6 (Cont'd)

## SYLVANIA TUBE TESTER SETTINGS

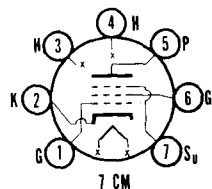
	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	3	25	47	V
	3.3	0	—	0	3	056	32	V
219/220	3.3	3	4	34	4	25U	7	1
	3.3	3	4	21	4	056U	7	1

## TYPE 3BY6

(See Condensed Data Section)



**SYLVANIA TYPE 3BZ6**  
SEMI-REMOTE CUTOFF PENTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
Total D C and Peak	300 Volts
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	200 Volts

For other rating, operation, and application data, refer to corresponding Type 6BZ6, which is identical except for heater ratings.

### APPLICATION

The Sylvania Type 3BZ6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

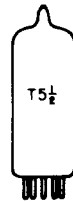
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	4	36	50	W
219/220	3.3	3	4S	38	4	16Y	5	2



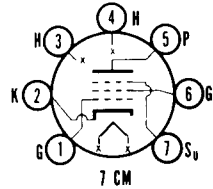
# TYPE 3C6/XXB

(See Condensed Data Section)



## SYLVANIA TYPE 3CB6

SHARP CUTOFF R F PENTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
Total D C and Peak	300 Volts
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	200 Volts

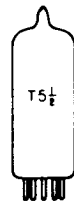
For other rating, operation, and application data, refer to corresponding Type 6CB6, which is identical except for heater ratings.

### APPLICATION

The Sylvania Type 3CB6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

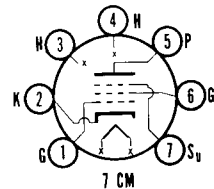
### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	—	0	4	36	60	W
219/220	3.3	3	4S	26	4	167Y	5	2



## SYLVANIA TYPE 3CF6

SHARP CUTOFF PENTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage	3.15 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Heater Negative with Respect to Cathode	
Total D C and Peak	300 Volts
Heater Positive with Respect to Cathode	
D C	100 Volts
Total D C and Peak	200 Volts

For other rating, operation, and application data, refer to corresponding Type 6CF6, which is identical except for heater ratings.

# 3CF6 (Cont'd)

## APPLICATION

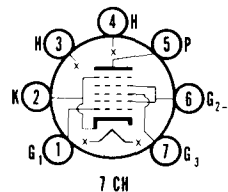
The Sylvania Type 3CF6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	3.3	0	---	0	4	36	60	W
219/220	3.3	3	4S	63	4	16Z	5	2



**SYLVANIA TYPE 3CS6**  
DUAL CONTROL HEPTODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage.....	3.15 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	200 Volts
Total D.C. and Peak.....	100 Volts
D.C., Heater Positive with Respect to Cathode.....	

For other rating, operation, and application data, refer to corresponding Type 6CS6, which is identical except for heater ratings.

### APPLICATION

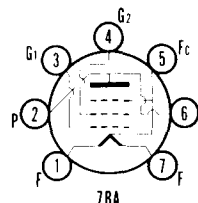
The Sylvania Type 3CS6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

## TYPES 3D6, 3E5, 3E6, 3LE4, 3LF4

(See Condensed Data Section)



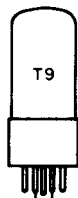
**SYLVANIA TYPE 3Q4**  
BEAM POWER AMPLIFIER



### MECHANICAL DATA

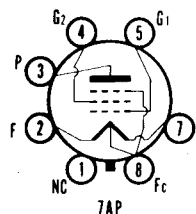
Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	7BA
Mounting Position.....	Any

**Note:** With the exception of the base diagram given above, the Type 3Q4 is identical to Type 3V4.



## SYLVANIA TYPE 3Q5GT

### BEAM POWER AMPLIFIER



#### MECHANICAL DATA

Bulb..... T-9, Outline 9-11  
 Base..... Intermediate Octal 7-Pin  
 Basing..... 7AP  
 Mounting Position..... Any

#### ELECTRICAL DATA

##### FILAMENT CHARACTERISTICS

	Series	Parallel
Filament Voltage D C.....	2.8	1.4 Volts
Filament Current.....	50	100 Ma
Filament Voltage D C (Abs. Max.).....	3.2	1.6 Volts

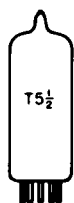
##### TYPICAL OPERATION

Class A Amplifier	Series <sup>1</sup>		Parallel <sup>2</sup>		
Plate Voltage.....	90	110	85	90	110 Volts
Grid No. 2 Voltage.....	90	110	85	90	110 Volts
Grid No. 1 Voltage.....	-4.5	-6.6	-5.0	-4.5	-6.6 Volts
Peak A F Signal Voltage..	4.5	5.1	5.0	4.5	5.4 Volts
Plate Current.....	8.0	8.5	7.0	9.5	10 Ma
Grid No. 2 Current.....	1.0	1.1	0.8	1.3	1.4 Ma
Transconductance.....	2000	2000	1950	2200	2200 $\mu$ mhos
Plate Resistance (approx.)	80000	110000	70000	90000	100000 Ohms
Load Resistance.....	8000	8000	9000	8000	8000 Ohms
Power Output <sup>3</sup> .....	230	330	250	270	400 Mw
Total Harmonic Distortion	8.5	8.5	5.5	6.0	6.0 Percent

##### NOTES:

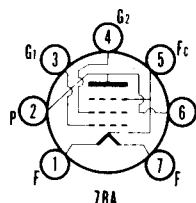
1. A 270 ohm resistor should be connected between pins 7 and 8 to balance current in the two filament sections.
2. For parallel operation, connect pins 1 and 8 to the positive voltage and pin 7 to the negative.
3. Use of a peak signal voltage equal to the bias voltage gives power output of 400 Mw at 10% distortion for series connection and 500 Mw at 10% distortion for the parallel connection.

Sylvania Type 3V4 is recommended for use in new equipment.



## SYLVANIA TYPE 3S4

### PENTODE POWER AMPLIFIER



#### MECHANICAL DATA

Bulb..... T-5 1/2, Outline 5-2  
 Base..... Miniature Button 7-Pin  
 Basing..... 7BA  
 Mounting Position..... Any

#### ELECTRICAL DATA

##### FILAMENT CHARACTERISTICS

	Series	Parallel <sup>1</sup>
Filament Voltage D C.....	2.8	1.4 Volts
Filament Current.....	50	100 Ma

##### MAXIMUM RATINGS (Design Center Values)

	Series	Parallel <sup>1</sup>
Plate Voltage.....	90	90 Volts
Screen Voltage.....	67.5	67.5 Volts
Cathode Current (Zero Signal) <sup>2</sup> .....	6	12 Ma

# 3S4 (Cont'd)

## CHARACTERISTICS AND TYPICAL OPERATION

Class A <sub>1</sub> Amplifier	Series		Parallel <sup>1</sup>	
	67.5	90	67.5	90
Plate Voltage	67.5	90	67.5	90
Grid No. 2 Voltage	67.5	67.5	67.5	67.5
Negative Grid Voltage	-7	-7	-7	-7
Peak Signal Voltage	7	7	7	7
Plate Current (Zero Signal)	6.0	6.1	7.2	7.4
Grid No. 2 Current (Zero Signal)	1.2	1.1	1.5	1.4
Transconductance	1400	1425	1550	1575
Load Resistance	5000	8000	5000	8000
Plate Resistance (approx.)	0.1	0.1	0.1	0.1
Total Harmonic Distortion	12	13	10	12
Maximum Signal Power Output	160	235	180	270

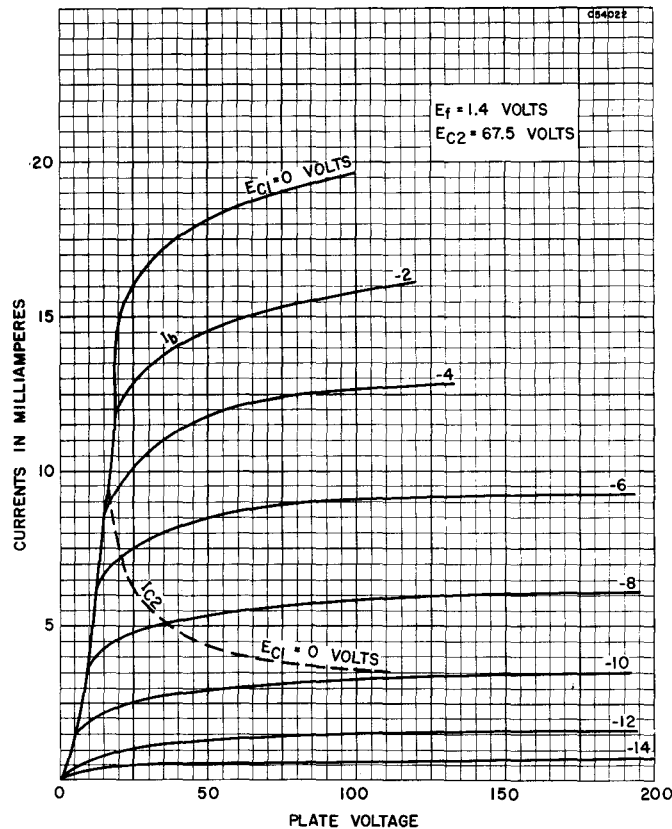
### NOTES:

1. For parallel operation, tie pins 1 and 7. Negative end of filament connected to pin No. 5.
2. When series filament connections are used, a shunting resistor should be used across the negative filament section (pins 1 and 5) to limit cathode current to the value specified. If other tubes in a series filament string contribute to the filament current, another resistor should be connected between pins 1 and 7 to carry any excess current over the ratings.

### APPLICATION

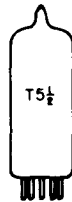
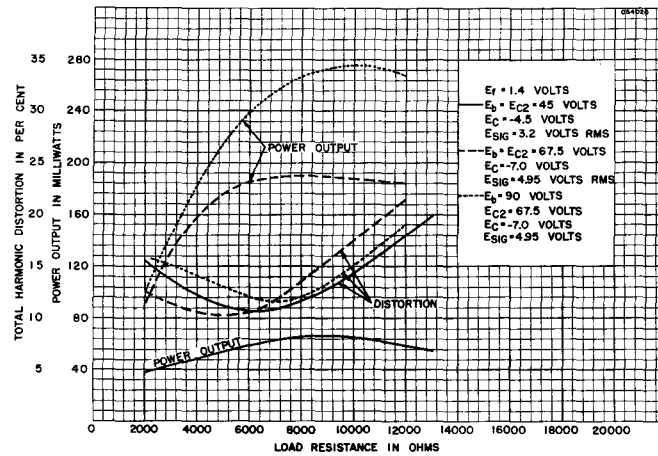
Sylvania Type 3S4 is a miniature power amplifier pentode designed for service in portable, battery operated equipment. The electrical characteristics of the 3S4 are similar to those of the 1S4. The Type 3S4, however, is designed for operation from either a 1.4 volt or 2.8 volt filament supply.

### AVERAGE PLATE CHARACTERISTICS

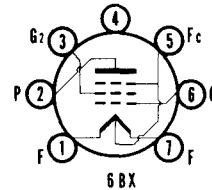


# 3S4 (Cont'd)

## AVERAGE OPERATION CHARACTERISTICS



**SYLVANIA TYPE 3V4**  
PENTODE POWER AMPLIFIER



### MECHANICAL DATA

Bulb.....	T-5 1/2, Outline 5-2
Base.....	Miniature Button 7-Pin
Basing.....	6B X
Mounting Position.....	Any

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

	Series	Parallel
Filament Voltage D C.....	2.8	1.4 Volts
Filament Current.....	50	100 Ma

#### DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

Grid No. 1 to Plate.....	0.20 $\mu\text{f}$ Max.
Input.....	5.5 $\mu\text{f}$
Output.....	3.8 $\mu\text{f}$

#### MAXIMUM RATINGS (Design Center Values)

	Series	Parallel
Plate Voltage.....	90	90 Volts
Grid No. 2 Voltage.....	90	90 Volts
Cathode Current (Zero Signal) <sup>1</sup> .....	6	12 Ma

# 3V4 (Cont'd)

## CHARACTERISTICS AND TYPICAL OPERATION

Class A <sub>1</sub> Amplifier	Series	Parallel	
Plate Voltage.....	90	85	90 Volts
Grid No. 2 Voltage.....	90	85	90 Volts
Negative Grid Voltage.....	-4.5	-5	4.5 Volts
Peak Signal Voltage.....	4.5	5	4.5 Volts
Plate Current (Zero Signal).....	7.7	6.9	9.5 Ma
Grid No. 2 Current (Zero Signal).....	1.7	1.5	2.1 Ma
Transconductance.....	2000	1975	2150 $\mu$ mhos
Load Resistance.....	10000	10000	10000 Ohms
Total Harmonic Distortion.....	7	10	7 Percent
Maximum Signal Power Output.....	0.24	0.25	0.27 Watt

### NOTE:

- When series filament connections are used a shunting resistor should be used across the negative filament section (pins 1 and 5) to limit cathode current to the value specified. If other tubes in a series filament string contribute to the filament current, another resistor should be connected between pins 1 and 7 to carry any excess current over the ratings.

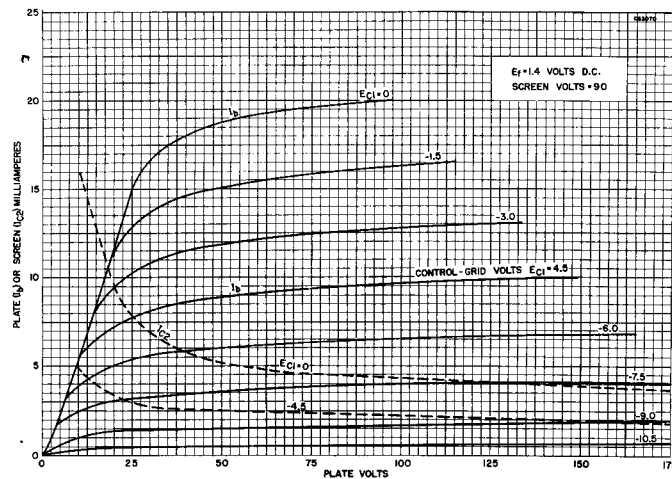
## APPLICATION

Sylvania Type 3V4 is a miniature power amplifier pentode designed for service in the output stage of portable equipment. The filament is center tapped to permit operation from a 1.4 volt or 2.8 volt source. Except for basing, the Type 3V4 is identical to the Type 3Q4.

## SYLVANIA TUBE TESTER SETTINGS

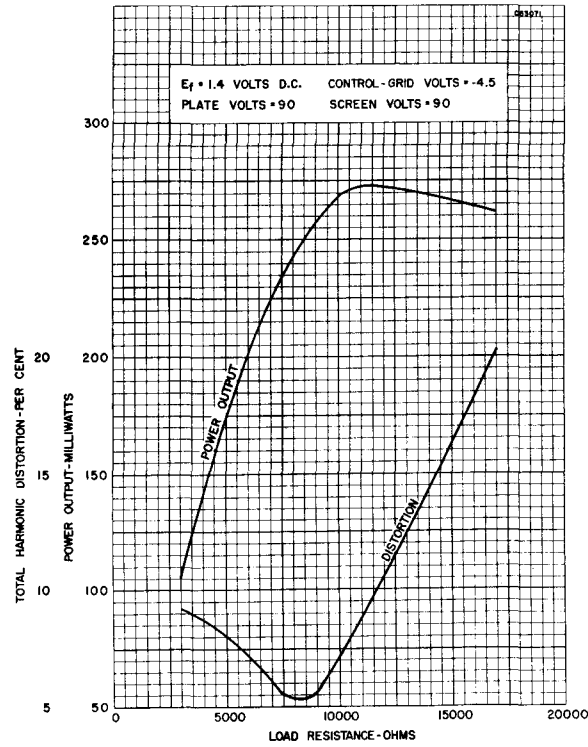
	A	B	C	D	E	F	G	Test or K
139/140	2.5	2	45	4	1	016	45	U
219/220	2.5	1	57S	32	7	036X	2	

## AVERAGE PLATE CHARACTERISTICS



# 3V4 (Cont'd)

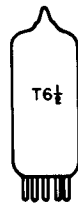
## AVERAGE OPERATION CHARACTERISTICS



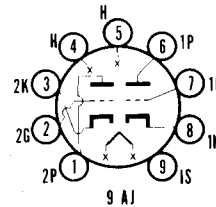
## TYPE 4A6G

(See Condensed Data Section)

## TYPE 4BC8—See 6BC8



### SYLVANIA TYPE 4BQ7A MEDIUM-MU DUO TRIODE



### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage .....	4.2 Volts
Heater Current .....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix) .....	
Maximum Heater-Cathode Voltage .....	
Total D C and Peak .....	200 Volts
D C, Heater Positive with Respect to Cathode .....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6BQ7A, which is identical except for heater ratings.

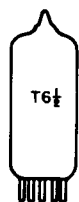
# 4BQ7A (Cont'd)

## APPLICATION

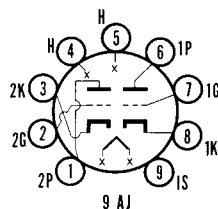
The Sylvania Type 4BQ7A is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	1	3	17	W
	5.0	0	—	0	3	7	17	W
219/220	5.0	4	58	20	5	2X	1	3
	5.0	4	35	20	5	7X	6	8



**SYLVANIA TYPE 4BZ7**  
MEDIUM-MU DUO TRIODE



## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage	4.2 Volts
Heater Current	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix)	
Maximum Heater-Cathode Voltage	
Total D C and Peak	200 Volts
D C, Heater Positive with Respect to Cathode	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6BZ7, which is identical except for heater ratings.

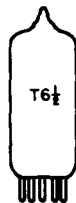
## APPLICATION

The Sylvania Type 4BZ7 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

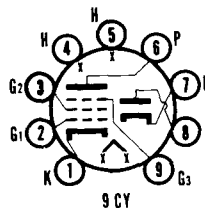
### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	1	3	31	U
	5.0	0	—	0	3	7	31	U
219/220	5.0	4	58	23	5	2X	1	3
	5.0	4	35	23	5	7X	6	8





**SYLVANIA TYPE 5AM8**  
DIODE PENTODE



**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

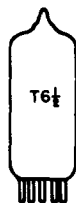
For other rating, operation, and application data, refer to corresponding Type 6AM8, which is identical except for heater ratings.

**APPLICATION**

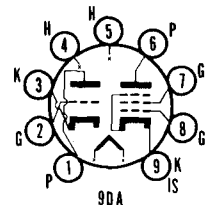
The Sylvania Type 5AM8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

**SYLVANIA TUBE TESTER SETTINGS**

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	3	36	75	W
	5.0	0	—	0	8	—	47	T
219/220	5.0	4	57S	77	5	23Z	6	1
	5.0	4	15	35	5	T	8*	7



**SYLVANIA TYPE 5AN8**  
TRIODE PENTODE



**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6AN8, which is identical except for heater ratings.

**APPLICATION**

The Sylvania Type 5AN8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

**SYLVANIA TUBE TESTER SETTINGS**

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	1	3	27	W
	5.0	0	—	0	3	079	63	W
219/220	5.0	4	59S	25	5	2Y	1	3
	5.0	4	35S	80	5	078Z	6	9

# 4BQ7A (Cont'd)

## APPLICATION

The Sylvania Type 4BQ7A is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

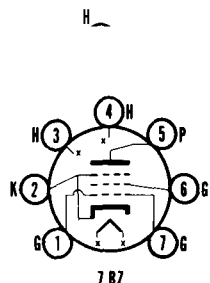
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	1	3	17	W
	5.0	0	—	0	3	7	17	W
219/220	5.0	4	58	20	5	2X	1	3
	5.0	4	35	20	5	7X	6	8

A



**SYLVANIA TYPE 5AQ5**  
BEAM POWER AMPLIFIER



## ELECTRICAL DATA

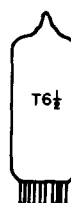
### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

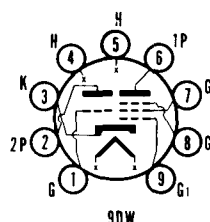
For other rating, operation, and application data, refer to corresponding Type 6AQ5, which is identical except for heater ratings.

## APPLICATION

The Sylvania Type 5AQ5 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.



**SYLVANIA TYPE 5AT8**  
TRIODE PENTODE



## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

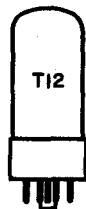
For other rating, operation, and application data, refer to corresponding Type 6AT8, which is identical except for heater ratings.

## APPLICATION

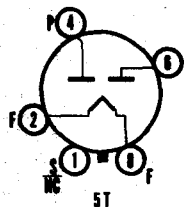
The Sylvania Type 5AT8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

## TYPE 5AU4

(See Condensed Data Section)



**SYLVANIA TYPE 5AU4**  
FULL WAVE RECTIFIER



**MECHANICAL DATA**

Bulb.....	T-12
Base.....	B8-114, Short Medium Shell Octal 8-Pin
Outline.....	(Straight-Sided) 12-104
Basing.....	5T
Cathode.....	Coated Filament
Mounting Position.....	Vertical <sup>1</sup>

**ELECTRICAL DATA**

**FILAMENT CHARACTERISTICS**

Filament Voltage.....	5.0 Volts
Filament Current.....	3.75 Amperes

**MAXIMUM RATINGS (Design Center Values)<sup>2</sup>**

<b>Rectifier Service<sup>3</sup></b>	
Peak Inverse Plate Voltage.....	1400 Volts
A C Plate Supply Voltage Each Plate, R M S (See Rating Chart I).....	500 Volts
Steady State Peak Plate Current Each Plate (See Rating Chart II).....	1.075 Amperes
Transient Peak Plate Current Each Plate <sup>4</sup> (See Rating Chart III).....	5.25 Amperes
D C Output Current.....	(See Rating Chart I)

**AVERAGE CHARACTERISTICS**

Tube Voltage Drop Tube Conducting 350 Ma Each Plate.....	50 Volts
---	----------

**TYPICAL OPERATION**

<b>Full Wave Rectifier—Capacitor Input Filter</b>		
A C Plate Supply Voltage Each Plate, R M S <sup>5</sup> .....	300	400 Volts
Filter Input Capacitor.....	40	40 $\mu$ f
Effective Plate Supply Resistance Each Plate.....	30	50 Ohms
D C Output Current.....	350	325 Ma
D C Output Voltage at Filter Input.....	275	395 Volts
<b>Full Wave Rectifier—Choke Input Filter</b>		
A C Plate Supply Voltage Each Plate, R M S <sup>5</sup> .....		500 Volts
Filter Input Choke.....		10 Henrys
D C Output Current.....		325 Ma
D C Output Voltage at Filter Input.....		395 Volts

**NOTES:**

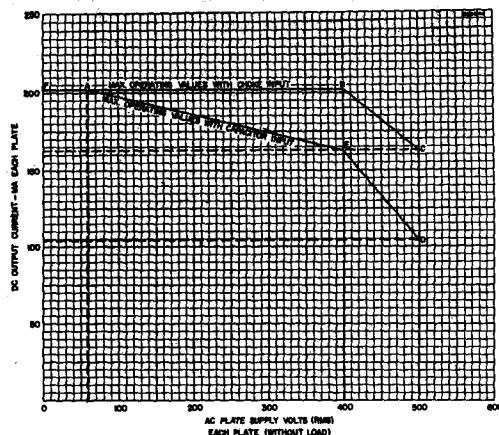
1. Horizontal operation is permitted if pins 2 and 4 are in a vertical plane.
2. See "Interpretation of Rating Charts."
3. For use with sinusoidal supply voltages within the frequency range of 25 to 1000 c p s.
4. Maximum duration 0.2 second.
5. A C plate voltage is measured without load.

**APPLICATION**

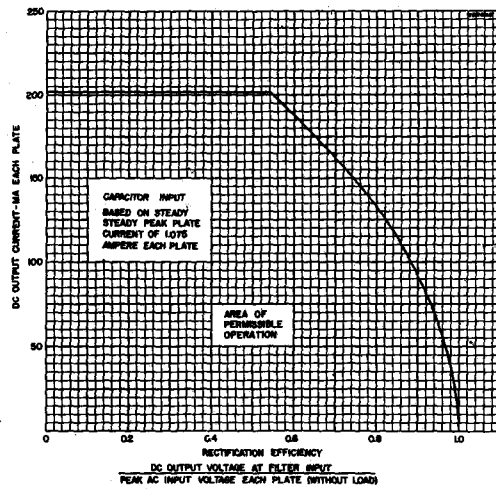
The Sylvania Type 5AU4 is a filamentary, full-wave, high vacuum rectifier designed for service in the power supply of television receivers or other equipment having high current requirements.

# 5AU4 (Cont'd)

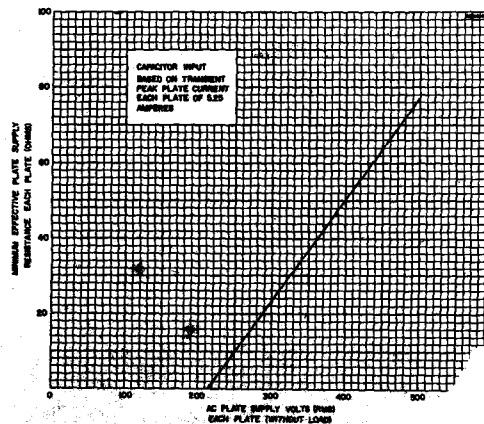
## RATING CHART I



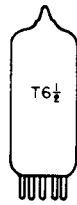
## RATING CHART II



## RATING CHART III

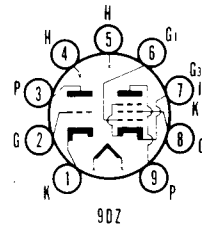


SYLVANIA ELECTRONIC TUBE



## SYLVANIA TYPE 5AV8

TRIODE PENTODE



### MECHANICAL DATA

Basing..... 9DZ

### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage..... 4.7 Volts  
 Heater Current..... 600 Ma  
 Heater Warm-up Time (See SERIES STRING HEATERS  
 Section in Appendix)  
 Maximum Heater-Cathode Voltage  
 Total D C and Peak..... 200 Volts  
 D C, Heater Positive with Respect to Cathode..... 100 Volts

For other rating, operation, and application data, refer to corresponding Type 6AN8, which is identical except for heater ratings and basing.

### APPLICATION

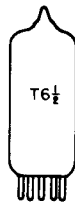
The Sylvania Type 5AV8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	2	0	4	49	58	W
	5.0	0	7	0	5	3	42	U
219/220	5.0	4	15S	65	5	68Z	9	7
	5.0	4	57	32	5	2X	3	1

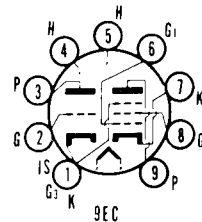
## TYPES 5AW4, 5AX4GT, 5AZ4

(See Condensed Data Section)



## SYLVANIA TYPE 5B8

TRIODE PENTODE



### MECHANICAL DATA

Bulb..... T-6 1/2, Outline 6-2  
 Base..... Small Button 9-Pin  
 Basing..... 9EC  
 Mounting Position..... Any

### ELECTRICAL DATA

#### HEATER CHARACTERISTICS

Heater Voltage..... 4.7 Volts  
 Heater Current..... 600 Ma  
 Heater Warm-up Time (See SERIES STRING HEATERS  
 Section in Appendix)  
 Maximum Heater-Cathode Voltage  
 Total D C and Peak..... 200 Volts  
 D C, Heater Positive with Respect to Cathode..... 100 Volts

# 5B8 (Cont'd)

## DIRECT INTERELECTRODE CAPACITANCES (Unshielded)

### Triode Section

Grid to Plate.....	1.7 $\mu\text{f}$
Grid to (k+l.S. +h and Pentode g3).....	1.9 $\mu\text{f}$
Plate to (k+l.S. +h and Pentode g3).....	1.4 $\mu\text{f}$

### Pentode Section

Grid No. 1 to Plate.....	.05 $\mu\text{f}$ Max.
Grid No. 1 to (k+g2+h).....	6.0 $\mu\text{f}$
Plate to (k+g2+g3+l.S. +h and Triode k).....	2.6 $\mu\text{f}$
Plate to (k+g2+h).....	.15 $\mu\text{f}$

### Coupling

Triode Grid to Pentode Plate.....	.0078 $\mu\text{f}$
Pentode Grid No. 1 to Triode Plate.....	.0033 $\mu\text{f}$
Triode Plate to Pentode Plate.....	.060 $\mu\text{f}$

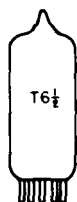
## MAXIMUM RATINGS AND CHARACTERISTICS

Refer to corresponding Type 6AN8 which is identical except for basing, heater characteristics and direct interelectrode capacitances.

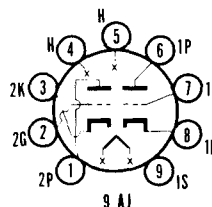
## APPLICATION

The Sylvania Type 5B8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

## TYPE 5BE8—See 6BE8



**SYLVANIA TYPE 5BK7A**  
MEDIUM-MU DUO TRIODE



## ELECTRICAL DATA

### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

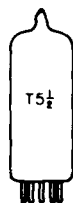
For other rating, operation, and application data, refer to corresponding Type 6BK7A, which is identical except for heater ratings.

## APPLICATION

The Sylvania Type 5BK7A is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

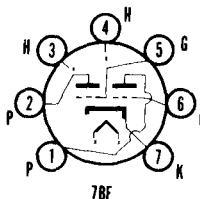
## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	1	3	17	W
	5.0	0	—	0	3	7	17	W
219/220	5.0	4	58	25	5	2X	1	3
	5.0	4	35	25	5	7X	6	8



## SYLVANIA TYPE 5J6

### MEDIUM-MU DUO TRIODE



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6J6, which is identical except for heater ratings.

#### APPLICATION

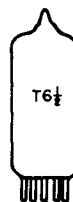
The Sylvania Type 5J6 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

#### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	2	6	37	U
	5.0	0	—	0	1	5	37	U
219/220	5.0	3	4S	41	4	6X	1	7
	5.0	3	4S	41	4	5X	2	7

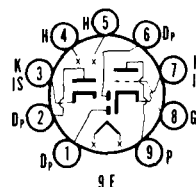
## TYPE 5T4

(See Condensed Data Section)



## SYLVANIA TYPE 5T8

### TRIPLE DIODE TRIODE



#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage.....	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6T8, which is identical except for heater ratings.

#### APPLICATION

The Sylvania Type 5T8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

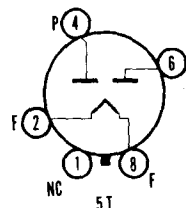
# 5T8 (Cont'd)

## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	4	9	50	T
	5.0	0	—	0	3	—	50	T
	5.0	0	—	0	2	—	50	T
	5.0	0	—	0	1	—	50	T
219/220	5.0	4	53	35	5	8T	9	7
	5.0	4	53	35	5	T	1*	7
	5.0	4	57	35	5	T	2*	3
	5.0	4	53	35	5	T	6*	7



TYPE 5U4G  
5U4GB



### MECHANICAL DATA

	5U4G	5U4GB
Bulb.....	ST16, T-11 or T-12, Outline 16-3	T-12, Outline 12-104
Base.....	Medium Shell Octal 5-Pin Short Medium Shell Octal 5-Pin Flared Medium Shell Octal 5-Pin	Short Medium Shell Octal 5-Pin or Flared Medium Shell Octal 5-Pin or Short Medium Shell Octal 8-Pin
Basing.....	5T	5T
Mounting Position <sup>1</sup> .....	Vertical	Vertical

### ELECTRICAL DATA

#### FILAMENT CHARACTERISTICS

Filament Voltage.....	5.0 Volts
Filament Current.....	3.0 Amperes

#### MAXIMUM RATINGS (Design Center Values)<sup>2</sup>

##### Rectifier Service<sup>3</sup>

	5U4G	5U4GB
Peak Inverse Plate Voltage.....	1550	1550 Volts
AC Plate Supply Voltage Each Plate (R.M.S.).....	(See Chart I)	(See Chart IA)
D C Output Current Each Plate (See Rating Chart I).....	(See Chart I)	(See Chart IA)
Steady State Peak Plate Current Each Plate (See Rating Chart II).....	0.8	1.0 Amperes
Transient Peak Plate Current Each Plate (See Rating Chart III).....	4.0	4.6 Amperes

#### CHARACTERISTICS

Tube Voltage Drop		
Tube Conducting: 225 Ma Each Plate.....	44	44 Volts
275 Ma Each Plate.....		50 Volts
300 Ma Each Plate.....		54 Volts

#### TYPICAL OPERATION

##### Full-Wave Rectifier—Capacitor Input Filter

	5U4G		5U4GB	
A C Plate Supply Voltage				
Each Plate (R.M.S.) <sup>4</sup> .....	300	450	300	450 Volts
Filter Input Capacitor.....	40	40	40	40 $\mu$ f
Effective Plate Supply				
Resistance Each Plate.....	35	85	21	67 Ohms
D C Output Current.....	245	225	300	275 Ma
D C Output Voltage at Filter Input.....	290	470	290	460 Volts

##### Full-Wave Rectifier—Choke Input Filter

A C Plate Supply Voltage				
Each Plate (R.M.S.) <sup>4</sup> .....		550		550 Volts
Filter Input Choke.....		10		10 Henrys
D C Output Current.....		225		275 Ma
D C Output Voltage at Filter Input.....		440		420 Volts



# 5U4G, 5U4GB (Cont'd)

## NOTES:

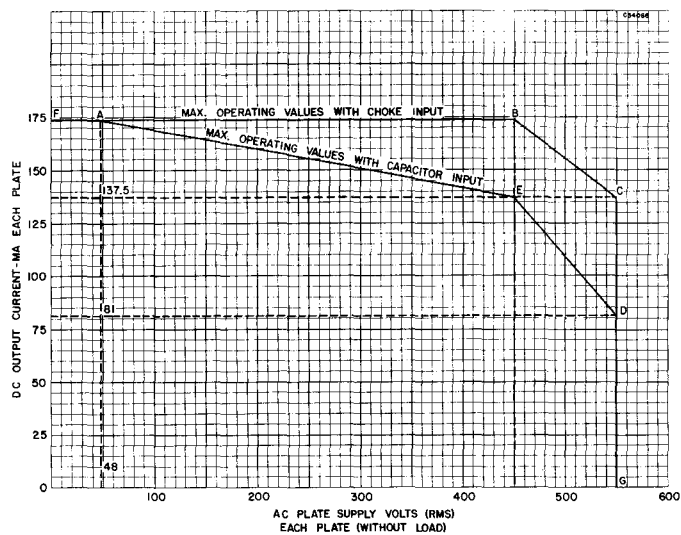
1. Horizontal operation is permitted if Pins 1 and 4 are in a vertical plane.
2. See Rating Charts which represent boundry conditions of operation, operation beyond the boundries is not permitted.
3. For use with sinusoidal supply voltages within the frequency range of 25 to 1000 cps.
4. A C plate voltage is measured without load.

## SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	6	—	0	2	—	20	Y
	5.0	6	—	0	5	—	20	Y
219/220	5.0	2	8	12	8	Z	4*	—
	5.0	2	8	12	8	Z	6*	—

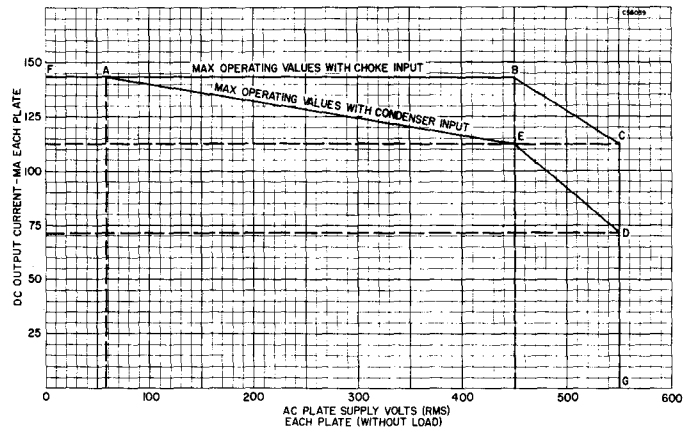
\* Diode gas test does not apply.

## RATING CHART I

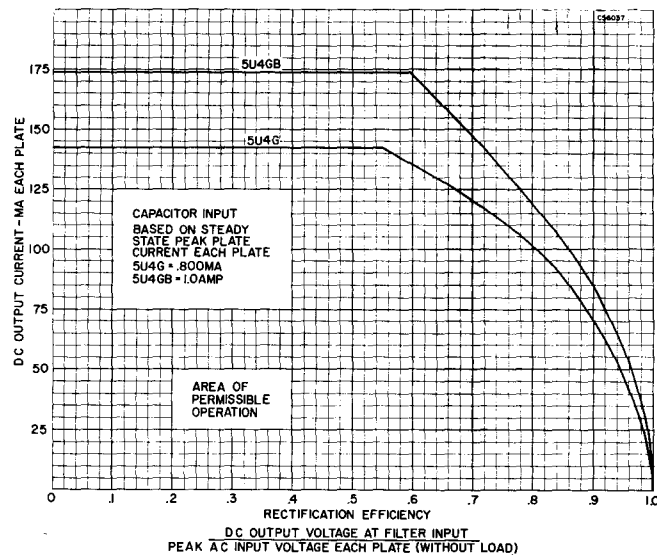


# 5U4G, 5U4GB (Cont'd)

## RATING CHART 1A

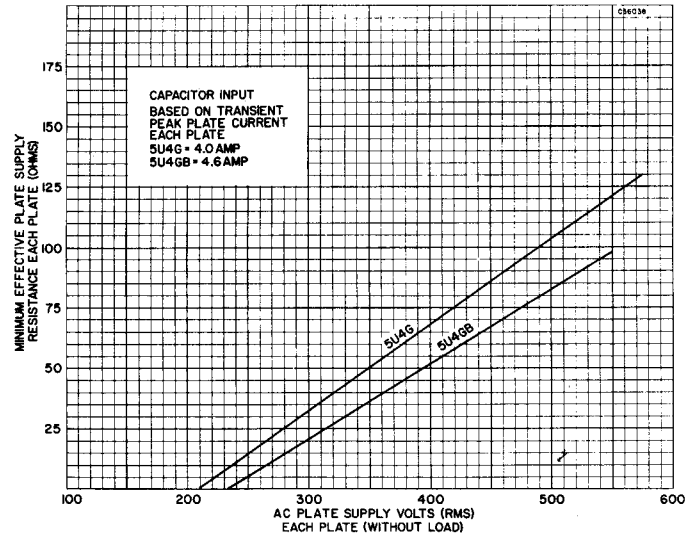


## RATING CHART II



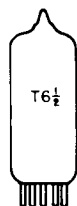
# 5U4G, 5U4GB (Cont'd)

## RATING CHART III



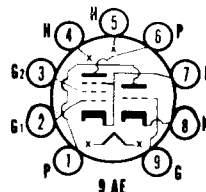
### TYPE 5U4GA

(See Condensed Data Section)



## SYLVANIA TYPE 5U8

### TRIODE PENTODE



#### ELECTRICAL DATA

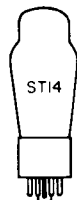
##### HEATER CHARACTERISTICS

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

For other rating, operation, and application data, refer to corresponding Type 6U8, which is identical except for heater ratings.

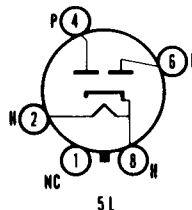
#### APPLICATION

The Sylvania Type 5U8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.



## SYLVANIA TYPE 5V4G

### FULL-WAVE RECTIFIER



#### MECHANICAL DATA

Bulb.....	ST-14, Outline 14-3
Base.....	Medium Octal 5-Pin
Basing.....	5L
Mounting Position.....	Any

#### ELECTRICAL DATA

##### HEATER CHARACTERISTICS

Heater Voltage.....	5.0 Volts
Heater Current.....	2.0 Amperes

##### MAXIMUM RATINGS (Design Center Values)

Peak Inverse Plate Voltage.....	1400 Volts
Peak Plate Current Each Plate.....	525 Ma
Tube Voltage Drop at 175 Ma Each Plate.....	25 Volts

##### CHARACTERISTICS AND TYPICAL OPERATION

###### Full-Wave Rectifier—Capacitor Input to Filter

A C Plate Voltage Each Plate (R M S).....	375 Volts Max
D C Output Current.....	175 Ma Max
Effective Plate Supply Impedance Per Plate.....	100 Ohms Min

###### Choke Input to Filter

A C Voltage Per Plate (R M S).....	500 Volts Max
D C Output Current.....	175 Ma Max
Input Choke Value.....	4.0 Henrys Min

#### APPLICATION

Sylvania Type 5V4G is a cathode type high vacuum rectifier designed for full-wave applications. It is identical to the 83V except that an octal base is used. The cathode is connected internally to the heater.

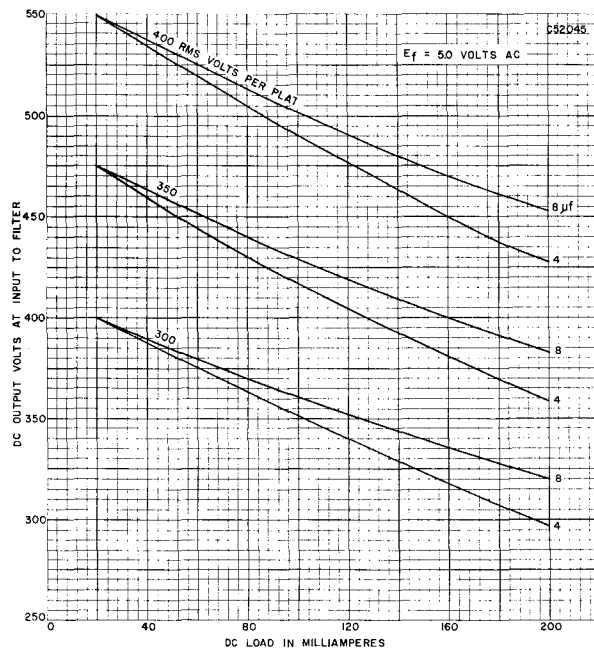
#### SYLVANIA TUBE TESTER SETTINGS

	A	B	C	D	E	F	G	Test or K
139/140	5.0	6	—	0	2	—	20	Y
	5.0	6	—	0	5	—	20	Y
219/220	5.0	2	8	11	8	Z	4*	—
	5.0	2	8	11	8	Z	6*	—

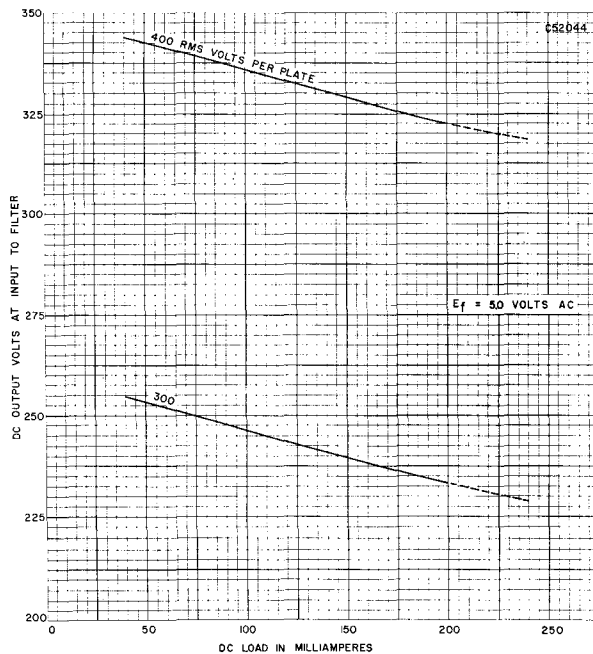
\* Diode gas test does not apply.

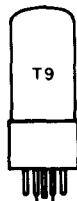
# 5V4G (Cont'd)

## AVERAGE OPERATING CONDITIONS CAPACITOR INPUT TO FILTER

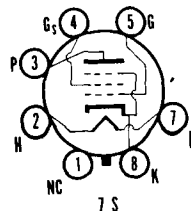


## AVERAGE OPERATING CONDITIONS CHOKE INPUT TO FILTER





**SYLVANIA TYPE 5V6GT**  
BEAM POWER AMPLIFIER



**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

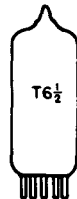
For other rating, operation, and application data, refer to corresponding Type 6V6GT, which is identical except for heater ratings.

**APPLICATION**

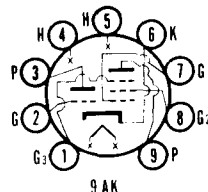
The Sylvania Type 5V6GT is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

**TYPES 5W4, G, GT, 5X3, 5X4G**

(See Condensed Data Section)



**SYLVANIA TYPE 5X8**  
TRIODE PENTODE



**ELECTRICAL DATA**

**HEATER CHARACTERISTICS**

Heater Voltage.....	4.7 Volts
Heater Current.....	600 Ma
Heater Warm-up Time (See SERIES STRING HEATERS Section in Appendix).....	
Maximum Heater-Cathode Voltage	
Total D C and Peak.....	200 Volts
D C, Heater Positive with Respect to Cathode.....	100 Volts

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

**APPLICATION**

The Sylvania Type 5X8 is intended for service in television receivers employing series connected heaters. For information on specially controlled heaters for series string operation refer to the SERIES STRING HEATERS section of the Appendix.

**SYLVANIA TUBE TESTER SETTINGS**

	A	B	C	D	E	F	G	Test or K
139/140	5.0	0	—	0	4	0279	62	V
	5.0	0	—	0	5	3	44	U
219/220	5.0	4	5S	38	5	78Y	9	6
	5.0	4	5S	44	5	2X	3	6