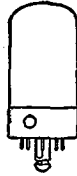


5AC-L-0



## Sylvania Type 14A4

MEDIUM-MU TRIODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>3</sup> / <sub>4</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

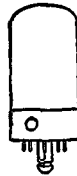
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7A4.



6AA-L-0



## Sylvania Type 14A5

BEAM POWER AMPLIFIER

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>3</sup> / <sub>4</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
Maximum Plate Voltage.....	300 Volts
Maximum Screen Voltage.....	300 Volts
Maximum Plate Dissipation.....	7.5 Watts
Maximum Screen Dissipation.....	1.5 Watts
Maximum Heater-Cathode Voltage.....	90 Volts

#### Direct Interelectrode Capacitances:\*

Grid to Plate.....	0.4 $\mu$ f.
Input.....	6.8 $\mu$ f.
Output.....	7.0 $\mu$ f.

\*With 1<sup>1</sup>/<sub>8</sub>" diameter shield (RMA Std. 308) connected to cathode.

### TYPICAL OPERATION

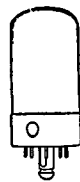
#### CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.
Plate Voltage.....	250 Volts
Screen Voltage.....	250 Volts
Grid Voltage§.....	-12.5 Volts
Self-Bias Resistor.....	370 Ohms
Peak AF Signal Voltage.....	12.5 Volts
Plate Current Zero Signal.....	30 Ma.
Plate Current Maximum Signal.....	32 Ma.
Screen Current Zero Signal.....	3.5 Ma.
Screen Current Maximum Signal.....	5.5 Ma.
Plate Resistance.....	70000 Ohms
Mutual Conductance.....	3000 $\mu$ mhos
Load Resistance.....	7500 Ohms
Power Output.....	2.8 Watts
Total Harmonic Distortion.....	7 Per Cent

§The DC resistance in the grid circuit under rated maximum condition should never exceed 0.5 megohm for self bias, and 0.1 megohm for fixed bias operation.

## 14A7 Sylvania Type

REMOTE CUT-OFF RF PENTODE



8V-L-5

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

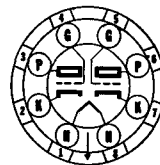
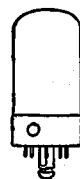
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7A7.

## 14AF7 Sylvania Type

TWIN TRIODE AMPLIFIER



8AC-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

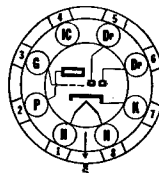
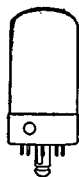
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7AF7.

## 14B6 Sylvania Type

DUODIODE HIGH-MU TRIODE



8W-L-7

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7B6.



8X-L-0



## Sylvania Type 14B8

PENTAGRID CONVERTER

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>32</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

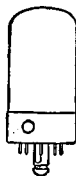
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7B8.



6AA-L-0



## Sylvania Type 14C5

BEAM POWER AMPLIFIER

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 <sup>3</sup> / <sub>8</sub> "
Maximum Seated Height.....	2 <sup>3</sup> / <sub>8</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

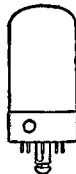
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	225 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7C5.



8V-L-5



## Sylvania Type 14C7

SHARP CUT-OFF RF PENTODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>32</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

# 14C7 (Cont'd)

## RATINGS

Heater Voltage AC or DC (Nominal)	14.0 Volts
Maximum Plate Voltage	300 Volts
Maximum Screen Voltage	100 Volts
Maximum Screen Supply Voltage	300 Volts
Maximum Plate Dissipation	1.0 Watt
Maximum Screen Dissipation	0.1 Watt
Minimum External Grid Bias	0 Volt
Maximum Heater-Cathode Voltage	90 Volts

### Direct Interelectrode Capacitances:\*

Grid to Plate	0.004 $\mu$ f. Max.
Input	6.0 $\mu$ f.
Output	6.5 $\mu$ f.

\*With 1 $\frac{3}{4}$ " diameter shield (RMA Std. 308) connected to cathode.

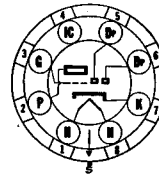
## TYPICAL OPERATION CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage	12.6	12.6 Volts
Heater Current	150	150 Ma.
Plate Voltage	100	250 Volts
Screen Voltage	100	100 Volts
Control Grid Voltage	-1.0	-3.0 Volts
Self-Bias Resistor	130	1000 Ohms
Suppressor Grid and Pin No. 6	Connected to	Cathode
Plate Current	5.7	2.2 Ma.
Screen Current	1.8	0.7 Ma.
Plate Resistance (Approximate)	400	1.0 Megohm
Mutual Conductance	2275	1575 $\mu$ mhos
Grid Bias for Approx. Plate Current Cut-Off	-8.5	-8.5 Volts

Data for use in Resistance Coupled Amplifiers may be obtained by referring to type 7C7 in appendix.

# 14E6 Sylvania Type

DUODIODE MEDIUM-MU TRIODE



8W-L-7

## PHYSICAL SPECIFICATIONS

Base	Lock-In 8 Pin
Bulb	T-9
Maximum Overall Length	2 $\frac{3}{4}$ "
Maximum Seated Height	2 $\frac{1}{4}$ "
Mounting Position	Any

## RATINGS

Heater Voltage AC or DC (Nominal)	14.0 Volts
-----------------------------------	------------

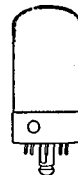
## OPERATION

Heater Voltage AC or DC	12.6 Volts
Heater Current	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7E6. For diode load curve data, refer to that for Type 7B6.

# 14E7 Sylvania Type

DUODIODE PENTODE



8AE-L-7

## PHYSICAL SPECIFICATIONS

Base	Lock-In 8 Pin
Bulb	T-9
Maximum Overall Length	2 $\frac{3}{4}$ "
Maximum Seated Height	2 $\frac{1}{4}$ "
Mounting Position	Any

## RATINGS

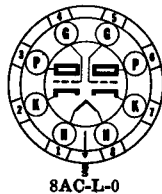
Heater Voltage AC or DC (Nominal)	14.0 Volts
-----------------------------------	------------

## OPERATION

Heater Voltage AC or DC	12.6 Volts
Heater Current	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7E7.

SYLVANIA RADIO TUBES



8AC-L-0



## Sylvania Type 14F7

HIGH-MU DUO TRIODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>3</sup> / <sub>4</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

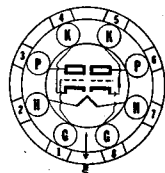
### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

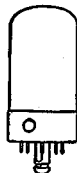
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Type 7F7.



8BW-L-0



## Sylvania Type 14F8

DOUBLE TRIODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8-Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>3</sup> / <sub>4</sub> "
Maximum Seated Height.....	1 <sup>3</sup> / <sub>4</sub> "
Mounting Position.....	Any

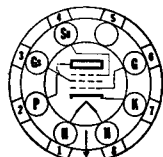
### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

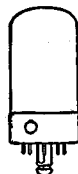
### TYPICAL OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Type 7F8.



8V-L-5



## Sylvania Type 14H7

SEMI-REMOTE CUT-OFF RF PENTODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>3</sup> / <sub>4</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

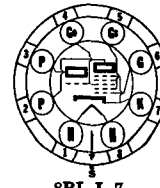
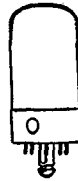
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7H7.

## 14J7 Sylvania Type

TRIODE HEPTODE CONVERTER



8BL-L-7

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

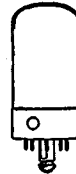
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7J7.

## 14N7 Sylvania Type

MEDIUM-MU DUO TRIODE



8AC-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>5</sup> / <sub>8</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

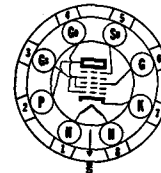
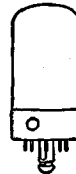
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	300 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7N7.

## 14Q7 Sylvania Type

PENTAGRID CONVERTER



8AL-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

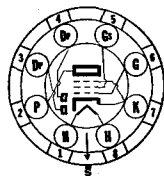
### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

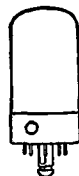
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7Q7.



8AE-L-7



## Sylvania Type 14R7

DUODIODE PENTODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

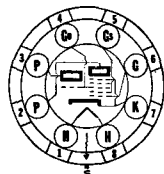
### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

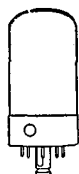
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Lock-In Type 7R7. For diode load current data, see Type 7B6.



8BL-L-7



## Sylvania Type 14S7

TRIODE HEPTODE CONVERTER

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

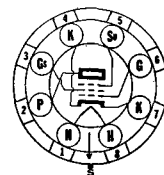
### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

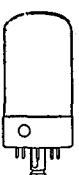
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7S7.



8BJ-L-5



## Sylvania Type 14W7

SHARP CUT-OFF RF PENTODE

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 <sup>35</sup> / <sub>64</sub> "
Maximum Seated Height.....	2 <sup>1</sup> / <sub>4</sub> "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

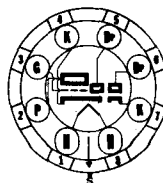
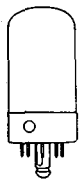
### OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	225 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7W7.

# 14X7 Sylvania Type

DUO-DIODE HI-MU TRIODE



8BZ-L-4

## PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{5}{8}$ "
Maximum Seated Height.....	2 $\frac{3}{8}$ "
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
--	------------

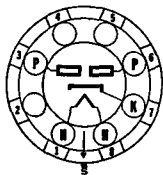
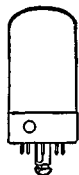
## OPERATION

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	150 Ma.

For other rating, operation and application data, refer to Sylvania Lock-In Type 7X7.

# 14Y4 Sylvania Type

DUODIODE RECTIFIER



5AB-L-0

## PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 $\frac{3}{8}$ "
Maximum Seated Height.....	2 $\frac{1}{4}$ "
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC (Nominal).....	14.0 Volts
Maximum AC Plate Voltage (RMS per Plate, Condenser Input).....	325 Volts
Maximum AC Plate Voltage (RMS, Choke Input).....	450 Volts
Maximum Peak Inverse Voltage.....	1250 Volts
Maximum DC Heater-Cathode Voltage.....	450 Volts
Maximum Steady State Peak Plate Current Per Plate.....	210 Ma.
Tube Voltage Drop at 70 Ma. DC Per Plate.....	22 Volts
Maximum Output Current.....	70 Ma.

## TYPICAL OPERATION FULL WAVE RECTIFIER

### CONDENSER INPUT TO FILTER

Heater Voltage AC or DC.....	12.6 Volts
Heater Current.....	0.300 Ampere
AC RMS Voltage per Plate.....	325 Volts
DC Output Current.....	70 Ma.
Plate Supply Impedance per Plate $\S$ .....	150 Ohms Min.

### CHOKE INPUT TO FILTER

Heater Voltage.....	12.6 Volts
Heater Current.....	0.300 Amperes
AC Voltage Per Plate.....	450 Volts
DC Output Current.....	70 Ma.
Minimum Value of Input Choke.....	8 Henrys

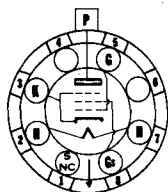
$\S$ When filter condensers larger than 40  $\mu$ fd are used it may be necessary to increase the specified plate supply impedance.

## APPLICATION

Sylvania Type 14Y4 is a full-wave cathode type rectifier of Lock-In construction, giving it desirable mechanical features. This tube is designed for service in aircraft or compact AC receivers. Operating conditions and characteristics are similar to those of Type 7Y4 except for heater rating. Conventional full or half-wave circuits may be used.

SYLVANIA RADIO TUBES





5BT-0-0



## Sylvania Type 19BG6G

BEAM POWER AMPLIFIER

### PHYSICAL SPECIFICATIONS

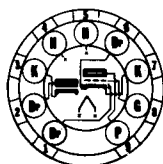
Base .....	Medium Octal 6 Pin
Bulb .....	ST-16
Maximum Overall Length .....	5 1/4"
Maximum Seated Height .....	5 3/8"
Mounting Position* .....	Vertical, Base Up or Down

\*Horizontal operation is permitted if the plane passing through pins 2 and 7 is vertical.

### RATINGS

Heater Voltage .....	18.9 Volts
Heater Current .....	300 Ma.

For other ratings operation and application data, refer to Sylvania Type 6BG6G.



9E-0-0



## Sylvania Type 19C8

TRIPLE DIODE TRIODE

### PHYSICAL SPECIFICATIONS

Base .....	Small Button 9 Pin
Bulb .....	T-6 3/8
Maximum Overall Length .....	2 3/8"
Maximum Seated Height .....	1 1/8"
Mounting Position .....	Any

### RATINGS

Heater Voltage .....	18.9 Volts
Maximum Plate Voltage .....	250 Volts
Maximum Plate Dissipation .....	1.0 Watt
Maximum Diode Current per Plate .....	6.0 Ma.
Maximum Peak Heater-Cathode Voltage .....	200 Volts

#### Direct Interelectrode Capacitances: (approx. values—unshielded)

Plate of Diode #1 or #3 to All Other Elements .....	5.2 $\mu$ f.
Plate of Diode #2 to All Other Elements .....	4.0 $\mu$ f.
Plate of Diode #1 or #3 to Grid (Maximum) .....	0.0300 $\mu$ f.
Plate of Diode #2 to Grid (Maximum) .....	0.006 $\mu$ f.

### TYPICAL OPERATION

#### CLASS A AMPLIFIER—TRIODE UNIT

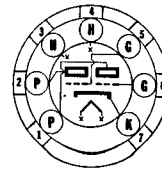
Heater Voltage .....	18.9 Volts
Heater Current .....	150 Ma.
Plate Voltage .....	100 Volts
Control Grid Voltage .....	-1 Volt
Plate Resistance .....	80,000 Ohms
Mutual Conductance .....	1,250 $\mu$ mhos
Amplification Factor .....	100
Plate Current .....	0.5 Ma.

### APPLICATION

Sylvania Type 19C8 is a miniature type tube having a high- $\mu$  triode and three high-perveance diodes in the same envelope. The diode referred to as diode #2 has a separate cathode connection.

## 19J6 Sylvania Type

MEDIUM MU DUOTRIODE



7BF-0-0

### PHYSICAL SPECIFICATIONS

Base .....	Miniature Button 7 Pin
Bulb .....	T-5 $\frac{1}{2}$
Maximum Overall Length .....	2 $\frac{1}{4}$ "
Maximum Seated Height .....	1 $\frac{1}{8}$ "
Mounting Position .....	Any

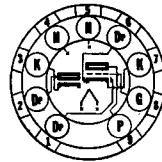
### RATINGS

Heater Voltage AC or DC .....	18.9 Volts
Heater Current .....	150 Ma.
Maximum Plate Voltage .....	300 Volts
Maximum Plate Dissipation .....	1.5 Watts
Maximum Peak Heater-Cathode Voltage .....	90 Volts

For other data, refer to Type 6J6, which has identical operating conditions.

## 19T8 Sylvania Type

TRIPLE DIODE TRIODE



9E-0-3 & 7

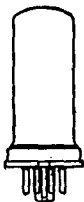
### RATINGS AND OPERATION

Heater Voltage AC or DC .....	18.9 Volts
Heater Current .....	150 Ma.

For other data refer to corresponding Type 6T8 which is identical except for heater ratings.



7S-1-0 (25A6)  
7S-0-0 (25A6GT)



## Sylvania Type 25A6<sup>GT</sup>

POWER AMPLIFIER PENTODE

### PHYSICAL SPECIFICATIONS

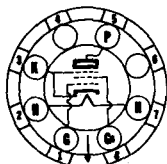
	25A6	25A6GT
Base.....	Small Wafer 7 Pin	Intermediate Octal 7 Pin
Bulb.....	Metal 8-6	T-9
Maximum Overall Length.....	3 1/4"	3 3/4"
Maximum Seated Height.....	2 13/16"	2 3/4"
Mounting Position.....	Any	Any

### RATINGS

Heater Voltage AC or DC.....	25.0 Volts
Heater Current.....	300 Ma.
Maximum Plate Voltage.....	160 Volts
Maximum Screen Voltage.....	135 Volts
Maximum Plate Dissipation.....	5.3 Watts
Maximum Screen Dissipation.....	1.9 Watts
Maximum Heater-Cathode Voltage.....	90 Volts

### TYPICAL OPERATION

Heater Voltage AC or DC.....	25.0	25.0	25.0 Volts
Heater Current.....	300	300	300 Ma.
Plate Voltage.....	95	135	160 Volts
Screen Voltage.....	95	135	120 Volts
Grid Voltage.....	-15	-20	-18 Volts
Self-Bias Resistor.....	625	450	450 Ohms
Peak A-F Signal Voltage.....	15	20	18 Volts
Plate Current (Zero Signal).....	20	37	33 Ma.
Plate Current (Maximum Signal).....	22	39	36 Ma.
Screen Current (Zero Signal).....	4	8	6.5 Ma.
Screen Current (Maximum Signal).....	8	14	12 Ma.
Plate Resistance.....	45000	35000	42000 Ohms
Mutual Conductance.....	2000	2450	2375 $\mu$ mhos
Load Resistance.....	4500	4000	5000 Ohms
Power Output.....	0.9	2	2.2 Watts
Total Harmonic Distortion.....	11	9	10 Per Cent



6CK-0-0



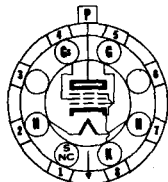
## Sylvania Type 25AV5<sup>GT</sup>

BEAM POWER AMPLIFIER

### RATINGS AND OPERATION

Heater Voltage AC or DC.....	25 Volts
Heater Current.....	300 Ma.

For other data, refer to corresponding Type 6AV5GT which is identical except for heater ratings.



6AM-0-0



## Sylvania Type 25BQ6<sup>GT</sup>

BEAM POWER AMPLIFIER

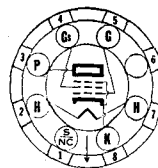
### RATINGS AND OPERATION

Heater Voltage AC or DC.....	25 Volts
Heater Current.....	300 Ma.

For other data refer to corresponding Type 6BQ6GT which is identical except for heater ratings.

## 25C6G Sylvania Type

BEAM POWER AMPLIFIER



7S-0-0

### PHYSICAL SPECIFICATIONS

Base.....	Medium Octal 7 Pin
Bulb.....	ST14
Maximum Overall Length.....	4 3/8"
Maximum Seated Height.....	4 1/16"
Mounting Position.....	Any

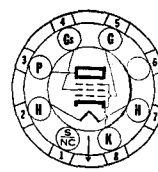
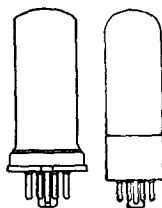
### RATINGS

Heater Voltage AC or DC.....	25.0 Volts
Heater Current.....	300 Ma.

For other data on this type refer to type 6Y6 which is identical except for heater ratings.

## 25L6GT Sylvania Type

BEAM POWER AMPLIFIER



7S-1-0 (25L6)  
7S-0-0 (25L6GT)

### PHYSICAL SPECIFICATIONS

	25L6	25L6GT
Base.....	Small Wafer Octal 7 Pin	Intermediate Octal 7 Pin
Bulb.....	Metal 8-6	T-9
Maximum Overall Length.....	3 1/4"	3 5/16"
Maximum Seated Height.....	2 11/16"	2 3/4"
Mounting Position.....	Any	Any

### TYPICAL OPERATION

#### CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage.....	25.0	25.0 Volts
Heater Current.....	300	300 Ma.
Plate Voltage.....	110	200 Volts
Screen Voltage.....	110	125 Volts
Grid Voltage*.....	-7.5	** Volts
Peak AF Signal Voltage.....	7.5	8.5 Volts
Cathode Bias Resistor.....	140	180 Ohms
Plate Current, Zero Signal.....	49	46 Ma.
Plate Current, Maximum Signal.....	50	47 Ma.
Screen Current, Zero Signal.....	4	2.2 Ma.
Screen Current, Maximum Signal.....	10	8.5 Ma.
Plate Resistance.....	13,000	28,000 Ohms
Mutual Conductance.....	8000	8000 μmhos
Load Resistance.....	2000	4000 Ohms
Total Harmonic Distortion.....	10	10 %
Power Output.....	2.1	3.8 Watts

\*For fixed bias circuits the grid circuit resistance should not exceed 0.1 megohm; for self-bias operation 0.5 megohm should be the maximum.

\*\*Obtained by self-bias resistor. Fixed bias operation at maximum ratings is not recommended.

### APPLICATION

Sylvania 25L6 and 25L6G are power amplifiers intended especially for operation in the output stage of ac-dc and d-c receivers. These tubes provide high power output at the comparatively low plate and screen voltages which are available in such receivers.



4CG-0-0

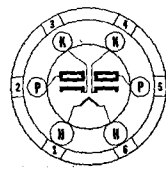


## Sylvania Type 25W

HALF WAVE HIGH VACUUM RECTIFIER

### RATINGS AND OPERATION

Heater Voltage AC or DC	25.0 Volts
Heater Current	300 Ma.
For other rating, operation and application data refer to corresponding Type 6W4GT.	



6E-0-0



## Sylvania Type 25Z5

HIGH-VACUUM RECTIFIER

### PHYSICAL SPECIFICATIONS

Base	Small 6 Pin
Bulb	T9 or ST12
Maximum Overall Length	4 $\frac{3}{16}$ "
Maximum Seated Height	3 $\frac{3}{16}$ "
Mounting Position	Any

### RATINGS

Heater Voltage AC or DC	25.0 Volts
Heater Current	300 Ma.
Maximum DC Heater-Cathode Voltage	350 Volts
Maximum Peak Inverse Voltage	700 Volts
Tube Voltage Drop (150 Ma. Per Plate)	22 Volts
Maximum Steady State Peak Plate Current Per Plate	450 Ma.

### TYPICAL OPERATION

#### VOLTAGE DOUBLER

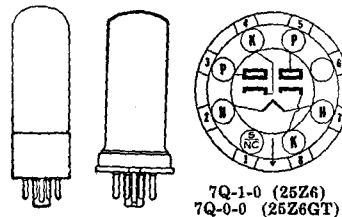
Heater Voltage	25.0 Volts
AC Plate Voltage Per Plate (RMS)	117 Volts Max.
DC Output Current	75 Ma. Max.
Maximum Steady State Peak Plate Current Per Plate	450 Ma. Max.
Plate Supply Impedance (Minimum)	* Ohms
*Sufficient to limit the maximum steady-state peak plate current to value shown.	
Additional impedance may be required when a filter of more than 40 mfd. is used.	

#### HALF-WAVE RECTIFIER

Heater Voltage	25.0	25.0	25.0 Volts
A-C Plate Voltage per Plate (RMS)	117	150	235 $\frac{1}{2}$ Volts
D-C Output Current per Plate	75 $\frac{1}{2}$	75 $\frac{1}{2}$	75 $\frac{1}{2}$ Ma.
Plate Supply Impedance	15	40	100 Ohms
‡Maximum.			

## 25Z6<sup>GT</sup> Sylvania Type

HIGH-VACUUM RECTIFIER



7Q-1-0 (25Z6)  
7Q-0-0 (25Z6GT)

### PHYSICAL SPECIFICATIONS

	25Z6	25Z6GT
Base.....	Small Wafer Octal 7 Pin	Intermediate Octal 7 Pin
Bulb.....	Metal 8-6	T-9
Maximum Overall Length.....	3 1/4"	3 5/8"
Maximum Seated Height.....	2 1/16"	2 3/4"
Mounting Position.....	Any	Any

### RATINGS

Heater Voltage AC or DC.....	25.0 Volts
Heater Current.....	300 Ma.
Maximum DC Heater-Cathode Voltage.....	350 Volts
Maximum Peak Inverse Voltage.....	700 Volts
Tube Voltage Drop (150 Ma. Per Plate).....	22 Volts
Maximum Steady State Peak Current Per Plate.....	450 Ma.

### TYPICAL OPERATION VOLTAGE DOUBLER

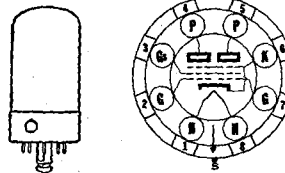
Heater Voltage.....	25.0 Volts
AC Plate Voltage Per Plate (RMS).....	117 Volts Max.
DC Output Current.....	75 Ma. Max.
Peak Plate Current*.....	450 Ma. Max.
Plate Supply Impedance (Minimum).....	* Ohms
*Sufficient to limit the maximum steady-state peak plate current to value shown.	
Additional impedance may be required when a filter of more than 40 mfd. is used.	

### HALF-WAVE RECTIFIER

	25.0	25.0	25.0 Volts
Heater Voltage.....	25.0	25.0	25.0 Volts
AC Plate Voltage Per Plate (RMS).....	117	150	235 $\frac{1}{2}$ Volts
DC Output Current Per Plate.....	75 $\frac{1}{2}$	75 $\frac{1}{2}$	75 $\frac{1}{2}$ Ma.
Plate Supply Impedance.....	15	40	100 Ohms
‡Maximum.			

## 28D7 Sylvania Type

DOUBLE BEAM POWER AMPLIFIER



8BS-L-0

### PHYSICAL SPECIFICATIONS

	Lock-In 8 Pin
Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 5/8"
Maximum Seated Height.....	2 3/4"
Mounting Position.....	Any

## RATINGS

Heater Voltage.....	28 Volts
Heater Current.....	0.400 Ampere
Maximum Plate Voltage.....	100 Volts
Maximum Screen Voltage.....	67.5 Volts
Maximum Plate Dissipation (Per Section).....	3.0 Watts
Maximum Screen Dissipation (Per Section).....	0.5 Watts
Maximum Heater-Cathode Voltage.....	90 Volts

## TYPICAL OPERATION

RESISTANCE COUPLED AMPLIFIER CLASS A<sub>2</sub>

	Self Bias	Fixed Bias
Heater Voltage.....	28.0	28.0 Volts
Heater Current.....	0.400	0.400 Ampere
Plate Voltage§.....	28.0	28.0 Volts
Screen Voltage.....	28.0	28.0 Volts
Grid Voltage.....		-3.5 Volts
Self-Bias Resistor.....	390	Ohms
Zero Signal Plate Current.....	9.0	12.5 Ma.
Maximum Signal Plate Current.....	6.5	8.1 Ma.
Zero Signal Screen Current.....	0.7	1.0 Ma.
Maximum Signal Screen Current.....	1.6	1.9 Ma.
Plate Resistance.....		4200 Ohms
Mutual Conductance.....		3400 μmhos
Peak AF Signal Voltage.....	4.9	4.9 Volts
Control Grid Resistor Per Section.....	0.5	0.2 Megohm
Load Resistance.....	4000	4000 Ohms
Power Output.....	80	100 Milliwatts
Total Harmonic Distortion.....	10	10 Per Cent

PUSH-PULL RESISTANCE COUPLED CLASS A<sub>2</sub>

	Self Bias	Fixed Bias
Heater Voltage.....	28.0	28.0 Volts
Plate Voltage§.....	28.0	28.0 Volts
Screen Voltage.....	28.0	28.0 Volts
Grid Voltage.....		-3.5 Volts
Self-Bias Resistor.....	180	Ohms
Zero Signal Plate Current.....	18.5	25.0 Ma.
Maximum Signal Plate Current.....	14.5	19.0 Ma.
Zero Signal Screen Current.....	1.2	2.0 Ma.
Maximum Signal Screen Current.....	2.5	3.0 Ma.
Peak AF Signal Voltage (G to G).....	9.8	9.8 Volts
Control Grid Resistor (Per Section).....	0.5	0.2 Ohms
Load Resistance.....	6000	6000 Ohms
Total Harmonic Distortion.....	2.5	2.0 Per Cent
Power Output.....	175	225 Milliwatts

TRANSFORMER COUPLED CLASS A<sub>2</sub>

Heater Voltage.....	28.0 Volts
Plate Voltage§.....	28.0 Volts
Screen Voltage.....	28.0 Volts
Grid Voltage.....	.0 Volt
Self-Bias Resistor.....	0 Ohms
Zero Signal Plate Current.....	64.0 Ma.
Maximum Signal Plate Current.....	58.0 Ma.
Zero Signal Screen Current.....	4.0 Ma.
Maximum Signal Screen Current.....	17.0 Ma.
Peak AF Signal Voltage (G to G).....	17.8 Volts
Load Resistance (Plate to Plate).....	1500 Ohms
Total Harmonic Distortion.....	11.0 Per Cent
Power Output.....	600 Milliwatts

§The above characteristics may be realized provided the DC plate circuit resistance does not exceed 50 ohms per section.

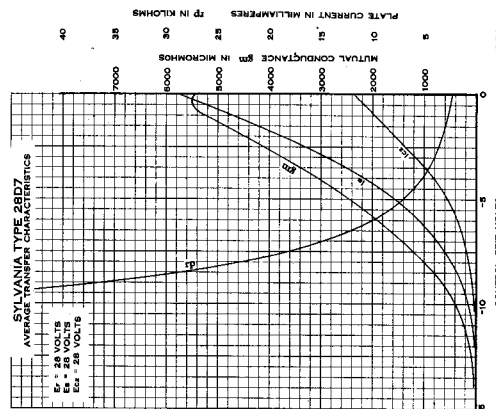
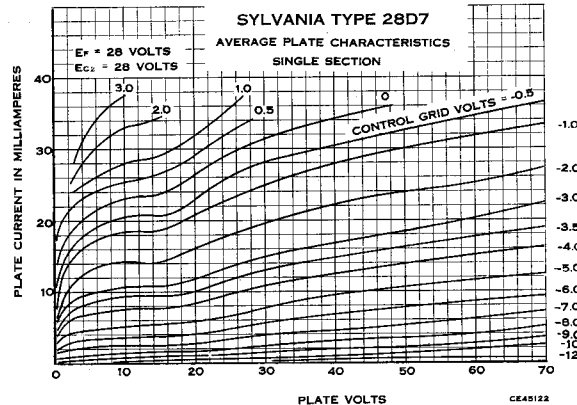
## APPLICATION

Sylvania Type 28D7 is a double beam power output tube of Lock-In construction designed for low voltage operation. Comparatively large power outputs are obtainable with very low applied plate voltages. Power outputs of 150 milliwatts or more are readily obtainable using this type of tube in a push-pull circuit employing self-bias. However, each section may be used as desired, separately, parallel or push-pull. Whenever a source of separate bias can be provided, the useful plate voltage will be increased by the amount of the bias. In low voltage operation slight increases in plate voltage are important in giving improved performance. In some cases this bias can be obtained from an oscillator, making a separate battery for bias unnecessary.

## 28D7 (Cont'd)

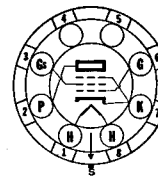
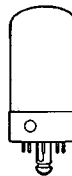
The precautions usually recommended for satisfactory performance of output stages are especially important with Type 28D7. Grid resistors should not exceed values specified so as to minimize the effects of grid currents. A low- $\mu$  driver tube (20 or less) is more satisfactory than high- $\mu$  tubes for maintaining high output with low distortion. Greatest power output is provided by using another 28D7 with sections paralleled coupled to the output stage by means of a coupling transformer of 5.75:1 impedance ratio (primary to  $\frac{1}{2}$  secondary). Power outputs in the order of 600 milliwatts at 11% distortion are obtainable in this manner at plate voltages of 28 volts with Class A2 operating conditions. At 600 mw., driver power output of 80 mw. at 12.8 volts is required.

Additional information available on request.



## 35A5 Sylvania Type

BEAM POWER AMPLIFIER



6AA-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{3}{4}$ "
Maximum Seated Height.....	2 $\frac{1}{4}$ "
Mounting Position.....	Any

SYLVANIA RADIO TUBES



**RATINGS**

Heater Voltage AC or DC.....	35.0 Volts
Heater Current.....	150 Ma.
Maximum Plate Voltage.....	200 Volts
Maximum Screen Voltage.....	125 Volts
Maximum Plate Dissipation.....	8.5 Watts
Maximum Screen Dissipation.....	1.0 Watt
Maximum Heater-Cathode Voltage.....	90 Volts

**TYPICAL OPERATION**

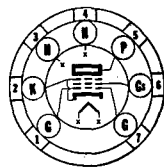
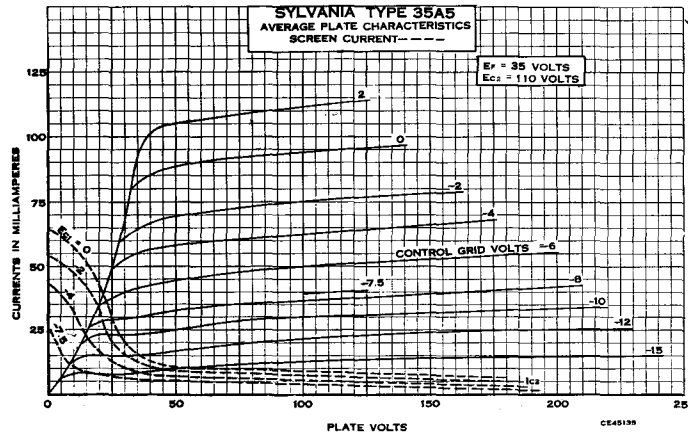
Heater Voltage AC or DC.....	35.0	35.0 Volts
Heater Current.....	150	150 Ma.
Plate Voltage.....	110	200 Volts
Screen Voltage.....	110	125 Volts
Grid Voltage*.....	-7.5	*** Volts
Peak Signal Voltage.....	7.5	8.0 Volts
Self-Bias Resistor.....	175	180 Ohms
Zero Signal Plate Current.....	40	43 Ma.
Maximum Signal Plate Current.....	41	43 Ma.
Zero Signal Screen Current.....	3.0	2.0 Ma.
Maximum Signal Screen Current.....	7.0	5.5 Ma.
Plate Resistance.....	14000	34000 Ohms
Mutual Conductance.....	5800	6100 $\mu$ mhos
Load Resistance.....	2500	5000 Ohms
Power Output.....	1.5	3.0 Watts
Total Harmonic Distortion.....	10	10 %

\*The maximum grid circuit resistance under fixed bias conditions should not exceed 0.1 megohm and for self-bias 0.5 megohm.

\*\*\*Obtained by self-bias resistor. Fixed bias operation at maximum ratings is not recommended.

**APPLICATION**

Sylvania Type 35A5 is a beam power amplifier of Lock-In construction and is designed especially for use in the output stage of AC-DC and DC receivers. The heater ratings make this tube suitable for use with 150 Ma. tubes in receivers using series heater circuits. Electrically, this type is equivalent to Type 35L6GT.



7BZ-0-0

**Sylvania Type 35B5****BEAM POWER AMPLIFIER****PHYSICAL SPECIFICATIONS**

Base.....	Miniature Button 7 Pin
Bulb.....	T-5 1/2"
Maximum Overall Length.....	2 3/8"
Maximum Seated Height.....	2 3/8"
Mounting Position.....	Any

# 35B5 (Cont'd)

## RATINGS

Heater Voltage AC or DC .....	35.0 Volts
Heater Current .....	150 Ma.
Maximum Plate Voltage .....	117 Volts
Maximum Screen Voltage .....	117 Volts
Maximum Plate Dissipation .....	4.5 Watts
Maximum Screen Dissipation .....	1.0 Watts
Maximum Peak Heater-Cathode Voltage .....	150 Volts
<b>Direct Interelectrode Capacitances:*</b>	
Control Grid to Plate .....	0.4 $\mu$ fd.
Input .....	11.0 $\mu$ fd.
Output .....	6.5 $\mu$ fd.

\*With no external shield.

## TYPICAL OPERATION

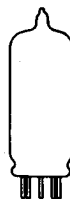
Heater Voltage .....	35.0 Volts
Heater Current .....	150 Ma.
Plate Voltage .....	110 Volts
Screen Voltage .....	110 Volts
Control Grid Voltage .....	-7.5 Volts
Peak Signal Voltage .....	7.5 Volts
Self-Bias Resistor .....	175 Ohms
Zero Signal Plate Current .....	40 Ma.
Maximum Signal Plate Current .....	41. Ma.
Zero Signal Screen Current .....	3.0 Ma.
Maximum Signal Screen Current .....	7.0 Ma.
Plate Resistance .....	14,000 Ohms
Mutual Conductance .....	5800 $\mu$ mhos
Load Resistance .....	2500 Ohms
Power Output .....	1.5 Watts
Total Harmonic Distortion .....	10 %

## APPLICATION

Sylvania Type 35B5 is a miniature output tube having the same characteristics as Sylvania Type 35A5 but for operation under the 110 volt condition only. For curve data reference should be made to Type 35A5.

## 35C5 Sylvania Type

BEAM POWER AMPLIFIER



7CV-0-0

NOTE: With the exception of the base diagram given above the characteristics of Type 35C5 are identical with those given for Type 35B5 on this page.

## 35L6<sup>GT</sup> Sylvania Type

BEAM POWER AMPLIFIER



7S-0-0

## PHYSICAL SPECIFICATIONS

Base .....	Intermediate Octal 7 Pin
Bulb .....	T-9
Maximum Overall Length .....	3 $\frac{5}{8}$ "
Maximum Seated Height .....	2 $\frac{3}{4}$ "
Mounting Position .....	Any

**RATINGS**

Heater Voltage AC or DC.....	35.0 Volts
Heater Current.....	150 Ma.
Maximum Plate Voltage.....	200 Volts
Maximum Screen Voltage.....	125 Volts
Maximum Plate Dissipation.....	8.5 Watts
Maximum Screen Dissipation.....	1.0 Watt
Maximum Heater-Cathode Voltage.....	90 Volts

**TYPICAL OPERATION**

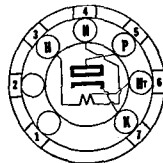
Heater Voltage.....	35.0	35.0 Volts
Heater Current.....	150	150 Ma.
Plate Voltage.....	110	200 Volts
Screen Voltage.....	110	125 Volts
Grid Voltage *.....	-7.5	** Volts
Cathode Bias Resistor.....	175	180 Ohms
Peak Signal Voltage.....	7.5	8.0 Volts
Plate Current.....	40	43 Ma.
Maximum Signal Plate Current.....	41	43 Ma.
Screen Current (Approx.).....	3.0	2.0 Ma.
Maximum Signal Screen Current.....	7.0	5.5 Ma.
Plate Resistance (Approx.).....	14,000	34,000 Ohms
Mutual Conductance.....	5800	6100 $\mu$ mhos
Load Resistance.....	2500	5000 Ohms
Power Output.....	1.5	3.0 Watts
Total Harmonic Distortion.....	10.0	10.0 %

\*For fixed bias circuits the grid circuit resistance should not exceed 0.1 megohm; for self-bias operation 0.5 megohm should be the maximum.

\*\*Obtained by self-bias resistor. Fixed bias operation at maximum ratings is not recommended.

**APPLICATION**

Sylvania Type 35L6GT is a beam power amplifier tube designed for use as an output tube in AC-DC receivers. It is similar to type 25L6GT in application and equivalent to Lock-in types 35A5. Type 35L6GT is capable of delivering large power outputs at reasonable distortion levels with relatively low applied voltages. For curve data, refer to Lock-in Type 35A5.



5BQ-0-0

**Sylvania Type 35W4****HALF-WAVE RECTIFIER****PHYSICAL SPECIFICATIONS**

Base.....	Miniature Button 7 Pin
Bulb.....	T-5 1/2
Maximum Overall Length.....	2 3/8"
Maximum Seated Height.....	2 3/8"
Mounting Position.....	Any

**RATINGS**

Heater Voltage AC or DC.....	35.0 Volts
Heater Current.....	150 Ma.
Maximum Peak Inverse Plate Voltage.....	330 Volts
Maximum Peak Plate Current.....	600 Ma.
Maximum DC Output Current	
With Panel Lamp (No shunting resistor).....	60 Ma.
(With shunting resistor).....	90 Ma.
Without Panel Lamp.....	100 Ma.
Maximum Voltage Panel Lamp Section (Panel Lamp Open).....	15 Volts
Maximum Peak Heater-Cathode Voltage.....	330 Volts
Tube Voltage Drop at 200 Ma. Plate Current.....	18 Volts

**TYPICAL OPERATION**

With No. 40 or No. 47 Panel Lamps and 40 $\mu$ f. Condenser Input Filter				
Heater Voltage.....	32.0	32.0	32.0	32.0 Volts
Heater Current.....	150	150	150	150 Ma.
RMS Plate Supply.....	117	117	117	117 Volts
Min. Effective Plate Supply				
Impedance.....	15	15	15	15 Ohms
Panel Lamp Shunting Resistor.....	300	150	100	100 Ohms
DC Output Current.....	60	70	80	90 Ma.

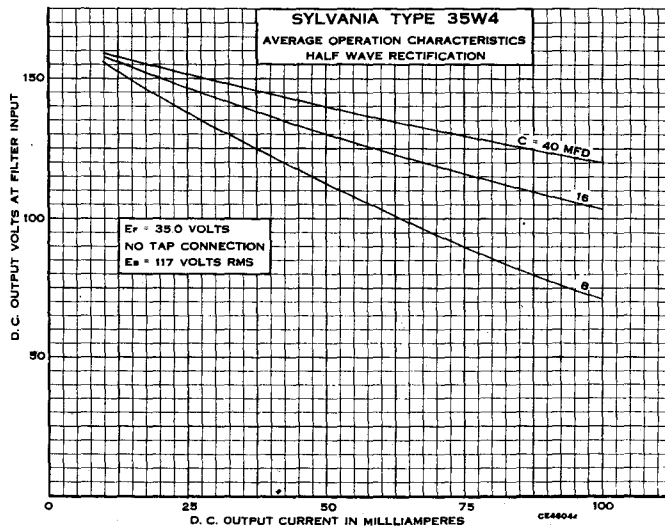
# 35W4 (Cont'd)

## With 40 $\mu$ f. Input Condenser and No Panel Lamp

Heater Voltage.....	35.0 Volts
Heater Current.....	150 Ma.
RMS Supply Voltage.....	117 Volts
Minimum Effective Plate Supply Impedance.....	15 Ohms
DC Output Current.....	100 Ma.
Maximum Value of Panel Lamp Shunting Resistor	
70 Ma. Output.....	800 Ohms
80 Ma. Output.....	400 Ohms
90 Ma. Output.....	250 Ohms

## APPLICATION

Sylvania Type 35W4 is a miniature style half-wave rectifier with tapped heater for panel lamp operation. It is similar in application to Type 35Z5GT and Lock-In Type 35Y4. Care should be taken in designing equipment for use with this tube to assure adequate ventilation as this tube, in common with other rectifiers, runs at quite high temperatures.



# 35Y4 Sylvania Type

## HALF-WAVE RECTIFIER



5AL-L-0

## PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{3}{8}$ "
Maximum Seated Height.....	2 $\frac{3}{8}$ "
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC.....	35.0 Volts
Heater Current.....	150 Ma.
Maximum AC Plate Voltage (RMS).....	235 Volts
Maximum Peak Inverse Voltage.....	700 Volts
Maximum Steady State Peak Plate Current.....	600 Ma.
Maximum Peak Heater-Cathode Voltage.....	350 Volts
Maximum DC Output Current	
Without Panel Lamp.....	100 Ma.
With Panel Lamp and Shunting Resistor.....	90 Ma.
With Panel Lamp and No Shunting Resistor.....	60 Ma.

Maximum Value of Panel Lamp Shunting Resistor	
For 70 Ma. DC Output Current.....	800 Ohms
For 80 Ma. DC Output Current.....	400 Ohms
For 90 Ma. DC Output Current.....	250 Ohms
Tapped Section Voltage (Between Pins 1 and 4)	
With 0.150 Ampere flowing between Pins 1 and 8.....	7.5 Volts
Maximum Voltage Across Tapped Section when	
Panel Lamp Fails (RMS).....	15.0 Volts
Tube Voltage Drop at 200 Ma. DC Plate Current.....	18 Volts

### TYPICAL OPERATION

#### With 40 Mfd. Input Condenser and No. 40 or 47 Panel Lamp

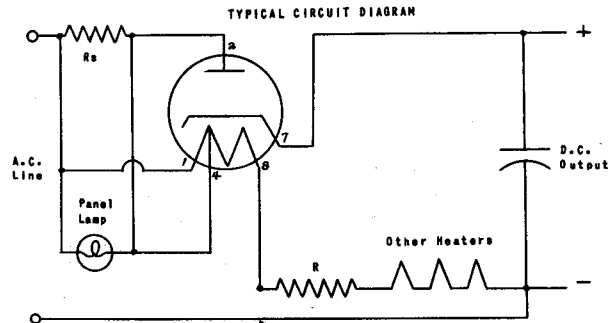
Heater Voltage (Pins 1 and 8).....	32.0	32.0	32.0	32.0	32.0 Volts
Heater Current (Pins 4 and 8).....	150	150	150	150	150 Ma.
Voltage Across Tapped Section of					
Heater (Pins 1 and 4).....	5.5	5.5	5.5	5.5	5.5 Volts
AC Plate Voltage.....	117	117	117	117	235 Volts
DC Output Current.....	60	70	80	90	60 Ma.
Minimum Effective Plate Supply					
Impedance.....	15	15	15	15	100 Ohms
Panel Lamp Shunt Resistor.....		300	150	100	..... Ohms

#### With 40 Mfd. Input Condenser and No Panel Lamp

Heater Voltage (Pins 1 and 8).....	35.0	35.0 Volts
Heater Current (Pins 4 and 8).....	150	150 Ma.
Voltage Across Tapped Section of Heater (Pins 1 and 4).....	7.5	7.5 Volts
AC Plate Voltage (RMS).....	117	235 Volts
DC Output Current.....	100	100 Ma.
Minimum Effective Plate Supply Impedance.....	15	100 Ohms

### APPLICATION

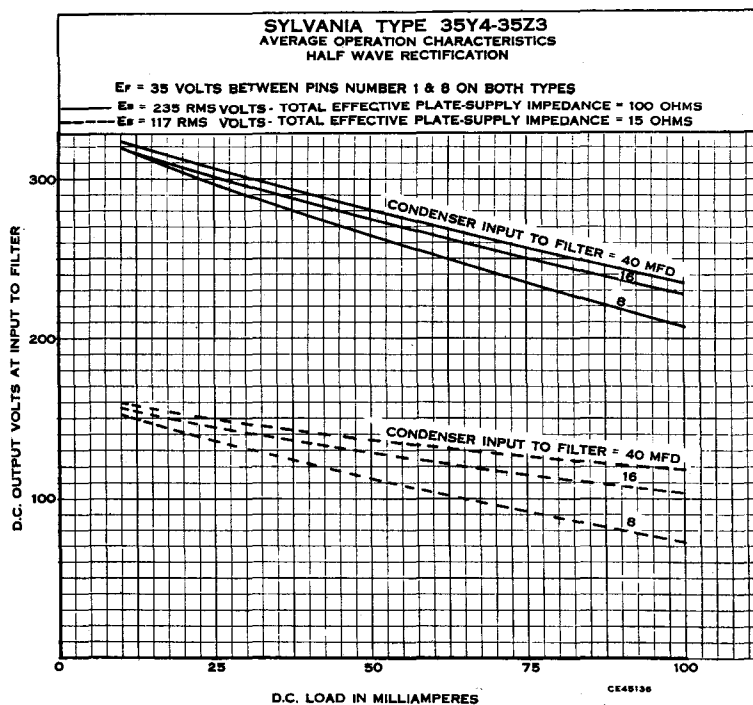
Sylvania Type 35Y4 is a high-vacuum type rectifier tube of Lock-In construction designed for use in AC-DC receivers. Its heater ratings enable it to be used in series with other tubes in the 150-Ma. heater group. A heater tap has been brought out to pin No. 4 to provide for panel lamp operation. When so used, the rectifier plate should be connected to this tap so that rectifier plate current will also pass through the lamp. At higher dc load conditions, a shunt resistor on the panel lamp is essential.



Rs Pilot Lamp Shunt Resistor

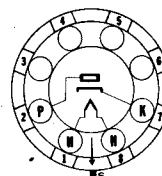
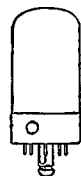
R Ballast Resistor

# 35Y4 (Cont'd)



## 35Z3 Sylvania Type

HALF-WAVE RECTIFIER



4Z-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 5/8"
Maximum Seated Height.....	2 5/8"
Mounting Position.....	Any

### RATINGS

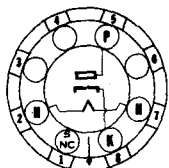
Heater Voltage AC or DC.....	35.0 Volts
Heater Current.....	150 Ma.
Maximum AC (RMS) Plate Voltage.....	235 Volts
Maximum Peak Heater-Cathode Voltage.....	350 Volts
Maximum Peak Inverse Voltage.....	700 Volts
Maximum Steady State Peak Plate Current.....	600 Ma.
Tube Voltage Drop at 200 Ma. DC Plate Current.....	18 Volts
Maximum DC Output Current.....	100 Ma.

### TYPICAL OPERATION HALF-WAVE RECTIFIER

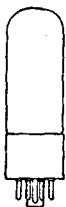
Heater Voltage (AC or DC).....	35.0	35.0 Volts
Heater Current.....	150	150 Ma.
AC Plate Voltage RMS.....	117	235 Volts
Minimum Total Effective Plate Supply Impedance.....	15	100 Ohms
DC Output Current.....	100	100 Ma.

### APPLICATION

Sylvania Type 35Z3 is a high-vacuum half-wave rectifier of Lock-In construction, especially designed for use in compact AC-DC receivers. Characteristics are the same as those of 35Z4GT and 35Y4 except that the latter makes provision for the use of a pilot lamp.



5AA-0-0



## Sylvania Type 35Z4

HALF-WAVE RECTIFIER

### PHYSICAL SPECIFICATIONS

Base.....	Intermediate Octal 6 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{5}{16}$ "
Maximum Seated Height.....	2 $\frac{3}{4}$ "
Mounting Position.....	Any

### TYPICAL OPERATION

Heater Voltage.....	35.0	35.0 Volts
Heater Current.....	150	150 Ma.
AC Plate Supply Voltage (RMS).....	117	235 Volts
Minimum Plate Supply Impedance.....	15	100 Ohms
DC Output Current.....	100	100 Ma.
Tube Voltage Drop at 200 Ma. DC Plate Current.....		18 Volts

### APPLICATION

Sylvania Type 35Z4GT is a half-wave high-vacuum rectifier tube designed for AC-DC receiver service. It is similar to type 35Z5GT and to Lock-In type 35Y4 except that it does not have the heater tap for use with a pilot light.



6AD-0-0



## Sylvania Type 35Z5GT

HALF-WAVE RECTIFIER

### PHYSICAL SPECIFICATIONS

Base.....	Intermediate Octal 6 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{5}{16}$ "
Maximum Seated Height.....	2 $\frac{3}{4}$ "
Mounting Position.....	Any

### TYPICAL OPERATION \* \*

#### CONDENSER INPUT

Heater Voltage.....	35.0 Volts
Heater Current.....	150 Ma.
AC Plate Voltage (RMS).....	125 Volts Max.
DC Output Current*.....	60 Ma. Max.
DC Output Current**.....	100 Ma. Max.
Maximum Peak Inverse Voltage.....	700 Volts
Maximum Peak Plate Current.....	600 Ma.
Series Plate Resistor.....	25 Ohms Min.
Tube Voltage Drop at 200 Ma.**.....	18 Volts
Maximum Peak Heater-Cathode Voltage.....	350 Volts

\*With rectified plate current through the panel lamp section of the heater shunted by a 6.3 volt, 0.150 ampere panel lamp, (Sylvania Panel Lamp S40 or S47).

\*\*Panel lamp not connected.

### APPLICATION

Sylvania Type 35Z5G is a half-wave high-vacuum rectifier designed for use in ac-dc and dc line operated receivers. The 35-volt heater is tapped to permit operation of a Sylvania S40 or S47 panel lamp across Pins 2 and 3. Conventional half-wave rectifier circuits are applicable.

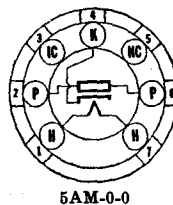
A peak limiting resistor of at least 25 ohms must be used in series with the plate and a surge limiting resistor should be placed in series with the heaters of the other tubes in the heater circuit.

Reference should be made to the Lock-In equivalent Type 35Y4 for further data.

## 45Z3 Sylvania Type

HALF-WAVE HIGH-VACUUM

RECTIFIER



5AM-0-0

### PHYSICAL SPECIFICATIONS

Base.....	Miniature Button 7 Pin
Bulb.....	T-5 1/2
Maximum Overall Length.....	2 1/8"
Maximum Seated Height.....	1 1/8"
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC.....	45 Volts
Heater Current.....	75 Ma.
Maximum Peak Inverse Voltage.....	350 Volts
Maximum Peak Plate Current.....	390 Ma.
Maximum Peak Heater-Cathode Voltage.....	330 Volts

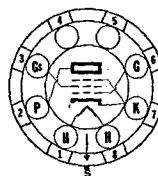
### TYPICAL OPERATION

Heater Voltage.....	45 Volts
Heater Current.....	75 Ma.
RMS Plate Voltage.....	117 Volts
Minimum Effective Plate Supply Impedance.....	15 Ohms
Output Current DC*.....	65 Ma.

\*Condenser input filter.

## 50A5 Sylvania Type

BEAM POWER AMPLIFIER



6AA-L-0

### PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 5/8"
Maximum Seated Height.....	2 3/8"
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC.....	50.0 Volts
Heater Current.....	0.150 Ampere
Maximum Plate Voltage.....	200 Volts
Maximum Screen Voltage.....	117 Volts
Maximum Plate Dissipation.....	10 Watts
Maximum Screen Dissipation.....	1.25 Watts
Maximum Heater-Cathode Voltage.....	90 Volts

### TYPICAL OPERATION

#### CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage AC or DC.....	50.0	50.0 Volts
Heater Current.....	0.150	0.150 Ampere
Plate Voltage.....	110	200 Volts
Screen Voltage.....	110	125 Volts
Grid Voltage*.....	-7.5	8.0 Volts
Peak Signal Voltage.....	7.5	8.0 Volts
Self-Bias Resistor.....	175	180 Ohms
Zero Signal Plate Current.....	49	46 Ma.
Maximum Signal Plate Current.....	50	47 Ma.
Zero Signal Screen Current.....	4.0	2.2 Ma.
Maximum Signal Screen Current.....	10.0	8.5 Ma.
Plate Resistance.....	13,000	28,000 Ohms
Mutual Conductance.....	8000	8000 μmhos
Load Resistance.....	2000	4000 Ohms
Power Output.....	2.1	3.8 Watts
Total Harmonic Distortion.....	10	10 Percent

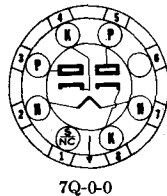
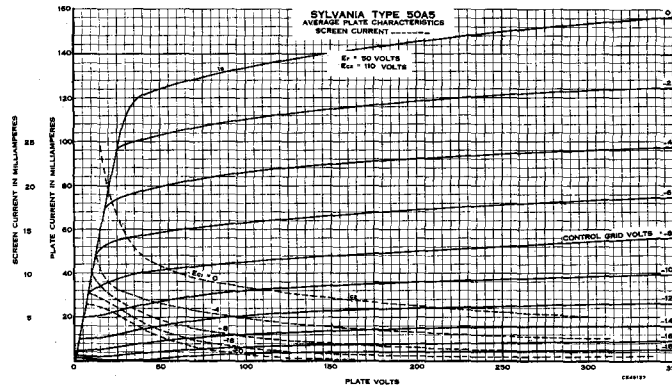
\*The maximum grid circuit resistance under fixed bias conditions should not exceed 0.1 megohm and for self-bias 0.5 megohm.

\*\*Obtained by self-bias resistor; fixed bias operation not recommended.



## APPLICATION

Sylvania Type 50A5 is a beam power amplifier of Lock-In construction designed especially for use as an output tube in AC-DC receivers using other 150 ma. heater tubes operating in series heater circuits. The beam power construction gives high power output and good power sensitivity, at reasonable distortion levels. Transformer or impedance coupling is to be preferred for input circuits but resistance coupling methods are satisfactory provided the grid circuit resistance does not exceed 0.1 megohm with fixed bias or 0.5 megohms with self bias.



7Q-0-0



## Sylvania Type 50AX6G

FULL WAVE RECTIFIER

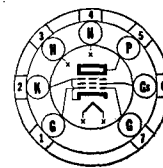
## RATINGS AND OPERATION

Heater Voltage AC or DC..... 50 Volts  
 Heater Current..... 300 Ma.

For other data, refer to corresponding Type 6AX6G which is identical except for heater ratings.

## 50B5 Sylvania Type

BEAM POWER AMPLIFIER



7BZ-0-0

## PHYSICAL SPECIFICATIONS

Base..... Miniature Button 7 Pin  
 Bulb..... T-5 1/2  
 Maximum Overall Length..... 2 3/8  
 Maximum Seated Height..... 2 3/8  
 Mounting Position..... Any

## RATINGS

Heater Voltage AC or DC..... 50 Volts  
 Heater Current..... 150 Ma.  
 Maximum Plate Voltage..... 135 Volts  
 Maximum Screen Voltage..... 117 Volts  
 Maximum Plate Dissipation..... 5.5 Watts  
 Maximum Screen Dissipation..... 1.25 Watts  
 Maximum Heater-Cathode Voltage..... 180 Volts

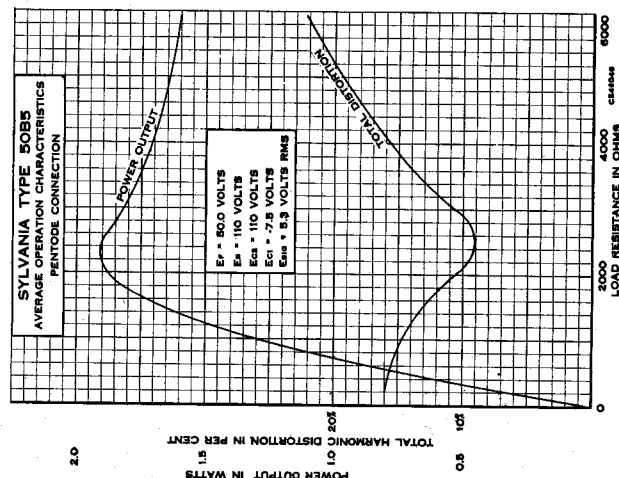
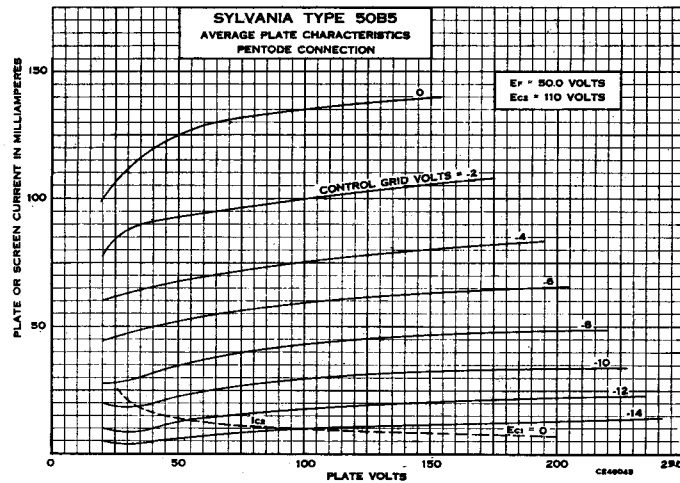
# 50B5 (Cont'd)

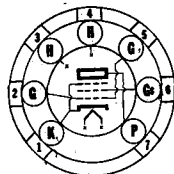
## TYPICAL OPERATION

Heater Voltage.....	50 Volts
Heater Current.....	150 Ma.
Plate Voltage.....	110 Volts
Screen Voltage.....	110 Volts
Control Grid Voltage.....	-7.5 Volts
Peak Signal Voltage.....	7.5 Volts
Zero Signal Plate Current.....	49 Ma.
Maximum Signal Plate Current.....	50 Ma.
Zero Signal Screen Current.....	4.0 Ma.
Maximum Signal Screen Current.....	8.5 Ma.
Plate Resistance (Approximate).....	10000 Ohms
Mutual Conductance.....	7500 $\mu$ mhos
Load Resistance.....	2500 Ohms
Total Harmonic Distortion.....	9.0 Percent
Maximum Signal Power Output.....	1.9 Watts

## APPLICATION

Sylvania Type 50B5 is a beam power output amplifier tube of miniature style of construction. It is similar in application to Type 35L6GT, 50L6GT and Lock-In Types 35A5 and 50A5. Grid circuit resistances should not exceed 0.5 megohm for self bias or 0.1 megohm for fixed bias. Due to the high temperature at which these tubes operate, adequate ventilation should be assured in equipment designed for their use.





7CV-0-0



## Sylvania Type 50C5

BEAM POWER AMPLIFIER

NOTE: With the exception of the base diagram given above the characteristics of Type 50C5 are identical with those given for Type 50B5.



7S-0-0



## Sylvania Type 50C6G

BEAM POWER AMPLIFIER

### RATINGS AND OPERATION

Heater Voltage AC or DC..... 50.0 Volts  
 Heater Current..... 150 Ma.

For other data refer to corresponding Type 6Y6G which is identical except for heater ratings.



7S-0-0



## Sylvania Type 50L6GT

BEAM POWER AMPLIFIER

### PHYSICAL SPECIFICATIONS

Base..... Intermediate Octal 7 Pin  
 Bulb..... T-9  
 Maximum Overall Length..... 3 3/8"  
 Maximum Seated Height..... 2 3/4"  
 Mounting Position..... Any

### RATINGS

Heater Voltage AC or DC..... 50 Volts  
 Heater Current..... 150 Ma.  
 Maximum Plate Voltage..... 200 Volts  
 Maximum Screen Voltage..... 117 Volts  
 Maximum Plate Dissipation..... 10 Watts  
 Maximum Screen Dissipation..... 1.25 Watts  
 Maximum Heater Cathode Voltage..... 90 Volts

### TYPICAL OPERATION

#### CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage.....	50	50 Volts
Heater Current.....	150	150 Ma.
Plate Voltage.....	110	200 Volts
Screen Voltage.....	110	125 Volts
Grid Voltage*.....	-7.5	** Volts
Self-Bias Resistor.....	140	180 Ohms
Peak AF Grid Signal.....	7.5	8.3 Volts
Plate Resistance (Approx.).....	13,000	28,000 Ohms
Mutual Conductance.....	8000	8000 μmhos
Zero Signal Plate Current.....	49	46 Ma.
Maximum Signal Plate Current.....	50	47 Ma.
Zero Signal Screen Current (Approx.).....	4.0	2.2 Ma.
Maximum Signal Screen Current (Approx.).....	10.0	8.5 Ma.
Load Resistance.....	2000	4000 Ohms
Power Output.....	2.1	3.8 Watts
Total Harmonic Distortion.....	10	10 Percent

\*Under rated maximum conditions, grid circuit resistance should not exceed 0.5 megohm for self-bias operation, and 0.1 megohm for fixed bias operation.

\*\*Obtained by self-bias resistor. Fixed bias operation not recommended.

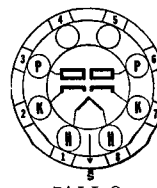
### APPLICATION

Sylvania Type 50L6GT is a beam power output tube designed for use in series heater circuits with other tubes in the 150 Ma. heater group. It is very similar in characteristics to Sylvania Lock-In Type 50A5 and reference should also be made to that type for further application information.

SYLVANIA RADIO TUBES

# 50X6 Sylvania Type

HIGH-VACUUM RECTIFIER



7AJ-L-0

## PHYSICAL SPECIFICATIONS

Base.....	Lock-In 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 $\frac{3}{4}$ "
Maximum Seated Height.....	2 $\frac{5}{8}$ "
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC 10%.....	50.0 Volts
Heater Current.....	150 Ma.
Maximum Inverse Plate Voltage.....	700 Volts
Maximum Steady State Peak Current Per Plate.....	450 Ma.
Maximum DC Output Current Per Plate.....	75 Ma.
Maximum Heater to Cathode Voltage.....	350 Volts
Tube Voltage Drop at 150 Ma. Per Plate.....	22 Volts

## TYPICAL OPERATION

### VOLTAGE DOUBLER

	Half Wave	Full Wave
Heater Voltage AC or DC.....	50	50 Volts
Heater Current.....	150	150 Ma.
AC Plate Voltage Per Plate RMS.....	117	117 Volts
Filter Input Condenser.....	16	16 Mfd.
Minimum Total Effective Plate Supply Impedance.....	30	15 Ohms
DC Output Current.....	75	75 Ma.

### HALF-WAVE RECTIFIER

#### Single Section — Condenser Input Filter

Heater Voltage AC or DC.....	50	50	50 Volts
Heater Current.....	150	150	150 Ma.
Plate Supply Voltage AC (RMS).....	117	150	235 Volts
Filter Input Condenser.....	16	16	16 Mfd.
Minimum Total Effective Plate Supply Impedance.....	15	40	100 Ohms
DC Output Current.....	75	75	75 Ma.

# 50Y6<sup>GT</sup> Sylvania Type

HIGH-VACUUM RECTIFIER



7Q-0-0

## RATINGS AND OPERATION

Heater Voltage AC or DC.....	50 Volts
Heater Current.....	150 Ma.

For other data refer to corresponding Type 25Z6GT which is identical except for heater ratings.



8AN-0-0



## Sylvania Type 50Y7<sup>GT</sup>

HIGH-VACUUM RECTIFIER DOUBLER

### PHYSICAL SPECIFICATIONS

Base	Intermediate Shell 8 Pin Octal
Bulb	T-9
Maximum Overall Length	3 <sup>11</sup> / <sub>16</sub> "
Maximum Seated Height	2 <sup>3</sup> / <sub>4</sub> "
Mounting Position	Any

### RATINGS

Heater Voltage AC or DC	50 Volts
Heater Current	150 Ma.
Maximum Peak Inverse Plate Voltage	700 Volts
Maximum AC Plate Voltage per Plate (RMS)	
Voltage Doubler Service	117 Volts
Half-Wave Rectifier	235 Volts
Maximum Steady State Peak Current per Plate	450 Ma.
Maximum Peak Heater-Cathode Voltage	350 Volts
Tapped Section Voltage (Pins 6 & 7)	7.5 Volts
Tube Voltage Drop at 150 Ma. per Plate	22 Volts
Maximum DC Output Current per Plate	75 Ma.
Maximum DC Output Current per Plate with Panel Lamp	60 Ma.
with Shunt Resistor	65 Ma.

### TYPICAL OPERATION

#### FULL-WAVE VOLTAGE DOUBLER

	No Panel Lamp	With No. 40 or No. 47 Panel Lamp
Heater Voltage	50	46 Volts
Plate Supply Voltage AC (RMS)	117	117 Volts
DC Output Current	75	65 Ma.
Minimum Total Effective Plate Supply Resistance per Plate	15	15 Ohms
Panel Lamp Shunting Resistor		250 Ohms
Panel Lamp Voltage		5.5 Volts

#### Half-Wave Rectifier per Section—No Panel Lamp

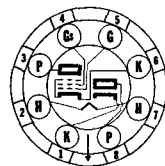
Heater Voltage	50	50	50 Volts
Heater Current	150	150	150 Ma.
Plate Supply Voltage AC (RMS)	117	150	235 Volts
Filter Input Capacitance	16	16	16 $\mu$ f.
Minimum Total Effective Plate Supply Impedance	15	40	100 Ohms
DC Output Current	75	75	75 Ma.

#### Half-Wave Rectifier per Section—With Panel Lamp

Heater Voltage	46	46	46 Volts
Heater Current (Pins 2 & 6)	150	150	150 Ma.
Plate Supply Voltage AC (RMS)	117	150	235 Volts
Filter Input Capacitance	16	16	16 $\mu$ f.
Minimum Total Effective Plate Supply Impedance	15	40	100 Ohms
DC Output Current	65	65	65 Ma.
Panel Lamp Voltage	5.5	5.5	5.5 Volts
Panel Lamp Shunting Resistor	250	250	250 Ohms

### APPLICATION

Sylvania Type 50Y7<sup>GT</sup> is a high-vacuum rectifier designed for voltage doubler or half-wave service in sets requiring a panel lamp.



8AA-0-0



## Sylvania Type 70L7<sup>GT</sup>

RECTIFIER

BEAM POWER AMPLIFIER

### PHYSICAL SPECIFICATIONS

Base	Intermediate Octal 8 Pin
Bulb	T-9
Maximum Overall Length	3 <sup>11</sup> / <sub>16</sub> "
Maximum Seated Height	2 <sup>3</sup> / <sub>4</sub> "
Mounting Position	Any

# 70L7GT (Cont'd)

## RATINGS

Heater Voltage AC or DC.....	70.0 Volts
Heater Current.....	0.150 Ampere

### RECTIFIER UNIT

Maximum AC Plate Voltage (RMS).....	117 Volts
Maximum Peak Inverse Voltage.....	350 Volts
Maximum DC Heater-Cathode Voltage.....	175 Volts
Maximum Steady State Peak Plate Current.....	420 Ma.
Tube Voltage Drop at 140 Ma. applied DC.....	20 Volts

### AMPLIFIER UNIT

Maximum Plate Voltage.....	117 Volts
Maximum Screen Voltage.....	117 Volts
Maximum Plate Dissipation.....	5.0 Watts
Maximum Screen Dissipation.....	1.0 Watt
Maximum Heater-Cathode Voltage.....	90 Volts

## TYPICAL OPERATION

Heater Voltage.....	70 Volts
Heater Current.....	0.150 Ampere

### RECTIFIER UNIT

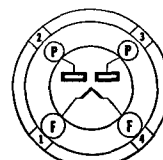
AC Plate Voltage.....	117 Volts
DC Output Current.....	70 Ma.
Minimum Effective Plate Supply Impedance.....	15 Ohms

### AMPLIFIER UNIT CLASS A<sub>1</sub>

Plate Voltage.....	110 Volts
Screen Voltage.....	110 Volts
Grid Voltage.....	-7.5 Volts
Self-Bias Resistor.....	175 Ohms
Peak AF Grid Voltage.....	7.5 Volts
Zero Signal Plate Current.....	40 Ma.
Maximum Signal Plate Current.....	43 Ma.
Zero Signal Screen Current (Nominal).....	3.0 Ma.
Maximum Signal Screen Current (Nominal).....	6.0 Ma.
Plate Resistance.....	15000 Ohms
Mutual Conductance.....	7500 $\mu$ mhos
Load Resistance.....	2000 Ohms
Maximum Signal Power Output.....	1.8 Watts
Total Harmonic Distortion.....	10 Percent

# 80 Sylvania Type

## FULL-WAVE RECTIFIER



4C-0-0

## PHYSICAL SPECIFICATIONS

Base.....	Medium 4 Pin
Bulb.....	ST14
Maximum Overall Length.....	4 $\frac{11}{16}$ " <sup>†</sup>
Maximum Seated Height.....	4 $\frac{1}{16}$ " <sup>†</sup>
Mounting Position.....	Vertical <sup>†</sup>

<sup>†</sup>Horizontal operation permitted if pins 1 & 2 are in a vertical plane.

## RATINGS

Filament Voltage AC.....	5.0 Volts
Filament Current.....	2.0 Amperes
Peak Inverse Voltage.....	1400 Volts Max.
Tube Voltage Drop (125 Ma. per Plate).....	60 Volts

## TYPICAL OPERATION

### CONDENSER INPUT TO FILTER

AC Voltage per Plate (RMS).....	350 Volts Max.
DC Output Current.....	125 Ma. Max.
Plate Supply Impedance per Plate.....	50 Ohms Min.

### CHOKE INPUT TO FILTER

AC Voltage per Plate (RMS).....	500 Volts Max.
DC Output Current.....	125 Ma. Max.
Input Choke Value.....	10 Henrys

SYLVANIA RADIO TUBES



4C-0-0



## Sylvania Type 82

FULL-WAVE MERCURY VAPOR  
RECTIFIERS

### PHYSICAL SPECIFICATIONS

	TYPE 82	TYPE 83
Base.....	Medium 4 Pin	Medium 4 Pin
Bulb.....	ST14	ST16
Maximum Overall Length.....	4 $\frac{11}{16}$ "	5 $\frac{5}{16}$ "
Maximum Seated Height.....	4 $\frac{1}{16}$ "	4 $\frac{3}{4}$ "
Mounting Position.....	Vertical—Base Down	Vertical—Base Down

### RATINGS

Filament Voltage AC.....	2.5	5.0 Volts
Filament Current.....	3.0	3.0 Amperes
Maximum Peak Inverse Voltage.....	1550	1550 Volts
Tube Voltage Drop (Approximate).....	15	15 Volts

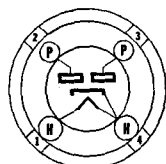
### TYPICAL OPERATION

#### CONDENSER INPUT TO FILTER

AC Voltage per Plate (RMS).....	450	450 Volts Max.
DC Output Current.....	115	225 Ma. Max.
Peak Plate Current.....	0.5	1.0 Ampere Max.
Plate Supply Impedance per Plate.....	50	50 Ohms Min.
Condensed Mercury Temperature Operating Range.....	24° to 60°	20° to 60° Centigrade

#### CHOKE INPUT TO FILTER

AC Voltage per Plate (RMS).....	550	550 Volts Max.
DC Output Current.....	115	225 Ma. Max.
Peak Plate Current.....	0.5	1.0 Ampere Max.
Input Choke Value (Minimum).....	6	3 Henrys
Condensed Mercury Temperature Operating Range.....	24° to 60°	20° to 60° Centigrade



4AD-0-0



## Sylvania Type 83V

FULL-WAVE HIGH-VACUUM  
RECTIFIER

### PHYSICAL SPECIFICATIONS

Base.....	Medium 4 Pin
Bulb.....	ST14
Maximum Overall Length.....	4 $\frac{11}{16}$ "
Maximum Seated Height.....	4 $\frac{1}{16}$ "
Mounting Position.....	Any

### RATINGS

Heater Voltage AC.....	5.0 Volts
Heater Current.....	2.0 Amperes
Maximum Peak Inverse Voltage.....	1400 Volts
Tube Voltage Drop (175 Ma. per Plate).....	25 Volts

### TYPICAL OPERATION

#### CONDENSER INPUT TO FILTER

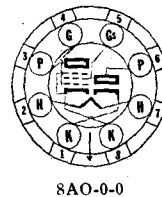
AC Voltage per Plate (RMS).....	375 Volts Max.
DC Output Current.....	175 Ma. Max.
Plate Supply Impedance per Plate.....	100 Ohms Min.

#### CHOKE INPUT TO FILTER

AC Voltage per Plate.....	500 Volts Max.
DC Output Current.....	175 Ma. Max.
Input Choke Value (Minimum).....	4.0 Henrys

# 117L7/M7GT Sylvania Type

RECTIFIER  
BEAM POWER AMPLIFIER



8AO-0-0

## PHYSICAL SPECIFICATIONS

Base.....	Intermediate Octal 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 7/16"
Maximum Seated Height.....	2 7/8"
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC.....	117 Volts
Heater Current.....	90 Ma.
Maximum Peak Inverse Voltage Rectifier Section.....	350 Volts
Maximum Peak Plate Current.....	450 Ma.
Maximum Peak Heater-Cathode Voltage.....	330 Volts

## AMPLIFIER SECTION

Maximum Plate Voltage.....	117 Volts
Maximum Screen Voltage.....	117 Volts
Maximum Plate Dissipation.....	6.0 Watts
Maximum Screen Dissipation.....	1.0 Watt

## TYPICAL OPERATION

Heater Voltage AC or DC.....	117 Volts
Heater Current.....	90 Ma.

## RECTIFIER SECTION CONDENSER INPUT FILTER

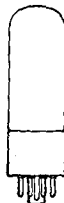
RMS Plate Voltage.....	117 Volts
DC Output Current.....	75 Ma.
Effective Plate Supply Impedance.....	15 Ohms

## AMPLIFIER SECTION

Plate Voltage.....	105 Volts
Screen Voltage.....	105 Volts
Grid Voltage.....	-5.2 Volts
Self-Bias Resistor.....	110 Ohms
Peak Signal Voltage.....	5.2 Volts
Zero Signal Plate Current.....	43 Ma.
Maximum Signal Plate Current.....	43 Ma.
Zero Signal Screen Current.....	4.0 Ma.
Maximum Signal Screen Current.....	5.5 Ma.
Plate Resistance (Approximate).....	17000 Ohms
Mutual Conductance.....	5300 $\mu$ mhos
Load Resistance.....	4000 Ohms
Total Harmonic Distortion.....	5 Percent
Maximum Signal Power Output.....	0.85 Watt

# 117N7GT Sylvania Type

RECTIFIER  
BEAM POWER AMPLIFIER



8AV-0-0

## PHYSICAL SPECIFICATIONS

Base.....	Intermediate Octal 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	3 7/16"
Maximum Seated Height.....	2 7/8"
Mounting Position.....	Any

## RATINGS

Heater Voltage AC or DC.....	117 Volts
Heater Current.....	90 Ma.

## RECTIFIER SECTION

Maximum Peak Inverse Voltage.....	350 Volts
Maximum Peak Plate Current.....	450 Ma.
Maximum Peak Heater-Cathode Voltage.....	330 Volts

SYLVANIA RADIO TUBES



**AMPLIFIER SECTION**

Maximum Plate Voltage.....	117 Volts
Maximum Screen Voltage.....	117 Volts
Maximum Plate Dissipation.....	5.5 Watts
Maximum Screen Dissipation.....	1.0 Watt
Maximum Heater-Cathode Voltage.....	90 Volts

**TYPICAL OPERATION**

Heater Voltage.....	117 Volts
Heater Current.....	90 Ma.

**RECTIFIER SECTION, CONDENSER INPUT FILTER**

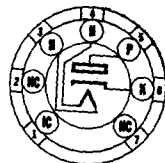
RMS Plate Voltage.....	117 Volts
DC Output Current.....	75 Ma.
Effective Plate Supply Impedance*.....	15 Ohms

**AMPLIFIER SECTION**

Plate Voltage.....	100 Volts
Screen Voltage.....	100 Volts
Grid Voltage§.....	-6.0 Volts
Self-Bias Resistor.....	105 Ohms
Peak Signal Voltage.....	6.0 Volts
Zero Signal Plate Current.....	51 Ma.
Zero Signal Screen Current.....	5.0 Ma.
Plate Resistance.....	16000 Ohms
Load Resistance.....	3000 Ohms
Mutual Conductance.....	7000 $\mu$ mhos
Total Harmonic Distortion.....	6 Percent
Maximum Signal Power Output.....	1.2 Watts

\*When more than a 40 mf. filter condenser is used at the filter input more plate supply impedance than the minimum shown may be required.

§Grid circuit resistance should not exceed 0.25 megohm with fixed bias or 1.0 megohm with self bias.



4CB-0-0

**Sylvania Type 117Z3****HALF-WAVE RECTIFIER****PHYSICAL SPECIFICATIONS**

Base.....	Miniature Button 7 Pin
Bulb.....	T-5 $\frac{1}{2}$
Maximum Overall Length.....	2 $\frac{3}{8}$ "
Maximum Seated Height.....	2 $\frac{3}{8}$ "
Mounting Position.....	Any

**RATINGS**

Heater Voltage (AC or DC).....	117 Volts
Heater Current.....	40 Ma.
Maximum AC Plate Voltage (RMS).....	117 Volts
Maximum Peak Heater to Cathode Voltage.....	
Cathode Positive.....	330 Volts
Cathode Negative.....	165 Volts
Maximum Peak Inverse Voltage.....	330 Volts
Maximum Steady State Peak Plate Current.....	540 Ma.
Tube Voltage Drop at 180 Ma. DC Plate Current.....	22.5 Volts
Maximum DC Output Current.....	90 Ma.
Maximum Plate Current Surge.....	1800 Ma.

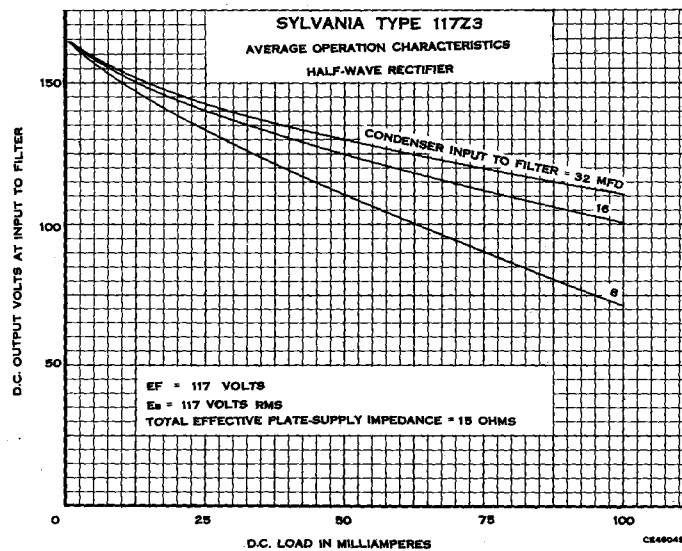
**TYPICAL OPERATION**

Heater Voltage (AC or DC).....	117 Volts
Heater Current.....	40 Ma.
AC Plate Voltage (RMS).....	117 Volts
Output Current.....	90 Ma.
Minimum Total Effective Plate Supply Impedance.....	15 Ohms

**APPLICATION**

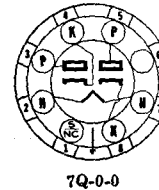
Sylvania Type 117Z3 is a miniature half-wave rectifier designed for use in portable and AC-DC receivers. The output is sufficient for operation of combination battery portables with the high efficiency 50 Ma tubes in series.

# 117Z3 (Cont'd)



## 117Z6<sup>GT</sup> Sylvania Type

HIGH-VACUUM RECTIFIER



7Q-0-0

### PHYSICAL SPECIFICATIONS

Base .....	Intermediate Octal 7 Pin
Bulb .....	T-9
Maximum Overall Length .....	3 <sup>5</sup> / <sub>16</sub> "
Maximum Seated Height .....	2 <sup>3</sup> / <sub>4</sub> "
Mounting Position .....	Any

### RATINGS

Maximum Peak Inverse Plate Voltage .....	700 Volts
Maximum Peak Plate Current Per Plate .....	360 Ma.
Maximum DC Output Current Per Plate .....	60 Ma.
Maximum Peak Heater-Cathode Voltage .....	350 Volts
Average Tube Drop at 120 Ma. Output Current .....	15 Volts

### TYPICAL OPERATION

#### HALF-WAVE RECTIFIER WITH CONDENSER INPUT FILTER\*

Heater Voltage .....	117	117	117 Volts
Heater Current .....	75	75	75 Ma.
RMS Plate Supply Voltage .....	117	150	235 Volts
Input Filter Condenser .....	40	40	40 $\mu$ f.
Minimum Effective Plate Supply Impedance (Per Plate) .....	15	40	100 Ohms
DC Output Current (Per Plate) .....	60	60	60 Ma.

\*The sections may be used separately or in parallel.

#### VOLTAGE DOUBLER

	Half-Wave	Full-Wave
RMS Plate Supply Voltage Per Plate .....	117	117 Volts
Input Filter Condenser .....	40	40 $\mu$ f.
Minimum Effective Plate Supply Impedance Per Plate .....	30	15 Ohms
DC Output Current .....	60	60 Ma.

SYLVANIA RADIO TUBES



6Q-0-0  
884



5A-0-0  
885

## Sylvania Type 884 Sylvania Type 885

GAS TRIODES

### PHYSICAL SPECIFICATIONS

	884	885
Base.....	Small Octal 6 Pin	Small 5 Pin
Bulb.....	ST12	ST12
Maximum Overall Length.....	4 1/8"	4 3/16"
Maximum Seated Height.....	3 3/8"	3 3/16"
Mounting Position.....	Any	Any

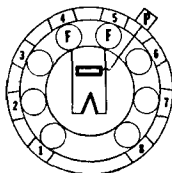
### TYPICAL OPERATION

	884	885
Heater Voltage.....	6.3	2.5 Volts
Heater Current.....	0.600	1.5 Ampere
Maximum Plate Voltage.....	300	300 Volts
Peak Breakdown Voltage.....	350	350 Volts
Peak Plate Current.....	300	300 Ma.
Average Plate Current (0-200 cycles per Sec.).....	3.0	3.0 Ma.
(200+cycles per Sec.).....	2.0	2.0 Ma.

Grid Resistor—1000 ohms per peak grid volt, should not exceed 500,000 ohms.

### APPLICATION

Sylvania Types 884 and 885 are gas triodes used chiefly as sweep circuit oscillators in oscilloscopes. Both types are identical except for heater ratings and base connections.



1247



## Sylvania Type 1247

HIGH FREQUENCY DIODE

### PHYSICAL SPECIFICATIONS

Base.....	Flexible Leads
Bulb.....	T-3
Top Connection.....	Flexible Lead
Maximum Overall Bulb Length.....	1 3/8"
Minimum Lead Length.....	1 1/4"
Mounting Position.....	Any

### RATINGS

Filament Voltage AC or DC $\pm 10\%$ .....	0.7 Volts
Maximum AC Plate Voltage RMS.....	300 Volts
Maximum Peak Inverse Volts.....	850 Volts
Maximum DC Plate Current.....	1.0 Ma.
Maximum Peak Plate Current.....	5.0 Ma.
Tube Voltage Drop at 100 $\mu$ a. (Approx.).....	0.7 Volts

#### Direct Interelectrode Capacitances:

Plate to filament shielded*.....	0.8 $\mu$ f.
Plate to filament unshielded.....	0.6 $\mu$ f.

\*With a 0.400" diameter shield connected to filament.

### TYPICAL OPERATION

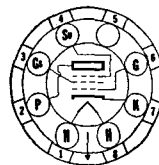
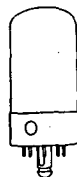
Filament Voltage.....	0.7 Volts
Filament Current.....	65 Ma.
AC Plate Voltage RMS.....	300 Volts
DC Plate Current.....	0.4 Ma.

### APPLICATION

Sylvania Type 1247 is a filament type diode designed for use as the probe tube in vacuum tube voltmeters, such as the Sylvania Polymeter, where its small size makes possible a probe which operates satisfactorily up to 300 Mc.

## 1273 Sylvania Type

NON-MICROPHONIC PENTODE



8V-L-5

### PHYSICAL SPECIFICATIONS

Identical to Type 7AJ7

### RATINGS

Identical to Type 7AJ7

Except Grid to Plate Capacitance, which is 0.004  $\mu\text{f}$ . Maximum.

### TYPICAL OPERATION

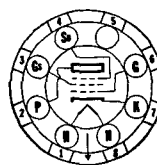
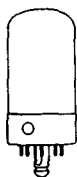
Identical to Type 7AJ7

### APPLICATION

Sylvania Type 1273 is a pentode amplifier designed specially for use in the first stages of high gain amplifiers where low microphonism and tube noise are essential. Reference should be made to Type 14C7 for curves, and to Type 7C7 for resistance coupled amplifier data.

## 1280 Sylvania Type

NON-MICROPHONIC PENTODE



8V-L-5

### PHYSICAL SPECIFICATIONS

Identical to Type 14C7

### RATINGS

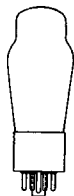
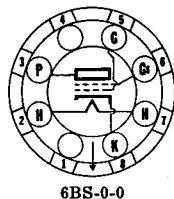
Identical to Type 14C7

### TYPICAL OPERATION

Identical to Type 14C7

### APPLICATION

Sylvania Type 1280 is a pentode amplifier designed specially for use in the first stages of high gain amplifiers requiring series operation of tubes and where low microphonism and minimum tube noise are essential. Reference should be made to Type 14C7 for curves, and to Type 7C7 for resistance coupled amplifier data.



**Sylvania Type 2050**

**Sylvania Type 2051**

**GAS TETRODES**

### PHYSICAL SPECIFICATIONS

Base.....	Small Octal 8 Pin
Bulb.....	ST12
Maximum Overall Length.....	4 1/8"
Maximum Seated Height.....	3 1/16"
Mounting Position.....	Any

### TYPICAL OPERATION

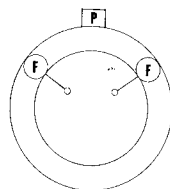
	2050	2051
Heater Voltage.....	6.3	6.3 Volts
Heater Current.....	0.6	0.6 Ampere
RMS Anode Voltage.....	400	220 Volts
Shield Grid Voltage.....	0	0 Volt
Peak Cathode Current.....	1000	375 Ma. Max.
Average Cathode Current.....	100	75 Ma. Max.
Control Grid Voltage (Approx. 180° out of phase with Plate Voltage).....	5.0	4.0 Volts
Peak Signal Voltage.....	5.0	4.0 Volts
Control Grid Circuit Resistance.....	1.0	1.0 Megom
Anode Circuit Limiting Resistance*.....	2000	2000 Ohms

\*Must be sufficient to limit anode current to maximum rating.

The Above Ratings are absolute Maximums.

### APPLICATION

Sylvania Types 2050 and 2051 are gas tetrodes designed for remote circuit control applications. If DC anode supplies are used, provision must be made for interrupting anode supply circuit after each operation to restore grid control action.



5642



**Sylvania Type 5642**

**HALF-WAVE RECTIFIER**

### PHYSICAL SPECIFICATIONS

Base.....	Flexible Leads
Bulb.....	T-3
Maximum Bulb Length.....	2.160"
Minimum Lead Length.....	1 1/4"
Mounting Position.....	Any

### RATINGS

Filament Voltage (AC or DC).....	1.25 Volts
Maximum Peak Inverse Voltage.....	10,000 Volts
Maximum Peak Plate Current*.....	5 Ma.
Maximum Average Output Current.....	0.25 Ma.
Minimum Frequency of Supply Voltage.....	5.0 Kc

**Direct Interelectrode Capacitances:\***

Filament to Plate.....	0.6 μf.
------------------------	---------

\*With no external shield.

## TYPICAL OPERATION

As a Pulse Type Rectifier Doubler in Television Scanning Circuits *	
Filament Voltage .....	1.25 Volts
Filament Current (per tube) .....	200 Ma.
Peak Plate Voltage from Scanning Section .....	8000 Volts
Output Current .....	150 $\mu$ A.
Output Voltage (two tubes in circuit shown) .....	12,000 Volts

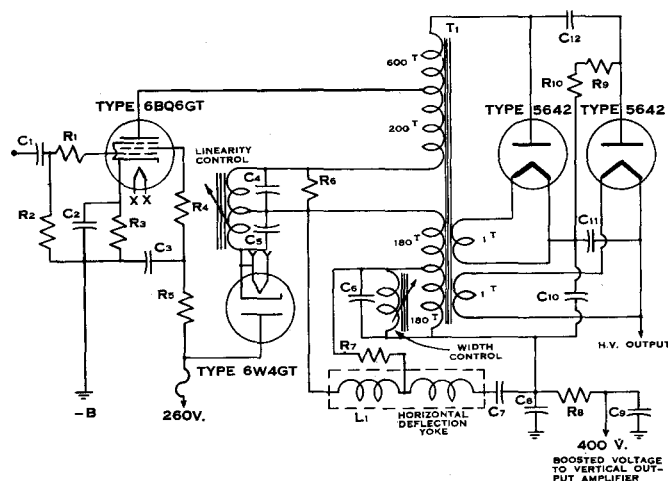
\* The duration of the voltage pulse should not exceed 15% of one horizontal scanning cycle. In a 525 line, interlaced two to one, 30 frame per second television system, 15% of one horizontal scanning cycle is 10 microseconds.

## APPLICATION

Sylvania Type 5642 is a subminiature half-wave rectifier designed for use in high voltage power supplies where high efficiency and compactness are required. The use of a wired-in tube assists in avoiding socket insulation and leakage problems.

Leads should not be bent within 1/16" of the glass. Avoid soldering filament leads within 1/4" of the bulb, and the top (plate) lead should not be soldered within 1/8" of the glass.

The following circuit shows a typical application in a fly-back rectifier delivering 12,000 volts dc to the picture tube anode.

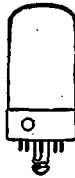


## PARTS LIST

C <sub>1</sub> = 0.001 $\mu$ f. 500 V.	R <sub>1</sub> = 100 Ohm 1/2 Watt
C <sub>2</sub> = 2 $\mu$ f. 50 V.	R <sub>2</sub> = 470 K 1/2 Watt
C <sub>3</sub> = 0.05 $\mu$ f. 400 V.	R <sub>3</sub> = 150 Ohm 5 Watt
C <sub>4</sub> = 0.03 $\mu$ f. 600 V.	R <sub>4</sub> = 100 Ohm 1/2 Watt
C <sub>5</sub> = 0.1 $\mu$ f. 600 V.	R <sub>5</sub> = 8200 Ohm 2 Watt
C <sub>6</sub> = 1200 $\mu$ f. 1000 V.	R <sub>6</sub> = 1 K 1 Watt
C <sub>7</sub> = 0.22 $\mu$ f. 200 V.	R <sub>7</sub> = 1 K 1/2 Watt
C <sub>8</sub> = 10 $\mu$ f. 450 V.	R <sub>8</sub> = 1 K 1/2 Watt
C <sub>9</sub> = 10 $\mu$ f. 450 V.	R <sub>9</sub> = 1.5 Meg. 2 Watt
C <sub>10</sub> = 500 $\mu$ f. 10 Kv.	R <sub>10</sub> = 1.5 Meg. 2 Watt
C <sub>11</sub> = 500 $\mu$ f. 10 Kv.	
C <sub>12</sub> = 500 $\mu$ f. 10 Kv.	
T <sub>1</sub> = Horizontal Output & H. V. Transformer	
L <sub>1</sub> = Deflection Yoke 14 mh	



7CX-L-5



## Sylvania Type 5679

DUODIODE

### PHYSICAL SPECIFICATIONS

Identical to Type 7A6

### RATINGS

Identical to Type 7A6

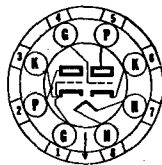
### TYPICAL OPERATION

Identical to Type 7A6

### APPLICATION

Sylvania Type 5679 is a cathode type duodiode in which a center tap on the heater has been provided to permit balancing the sections. This adjustment is required in certain types of vacuum tube voltmeters, such as the Sylvania Polymeter. Reference should be made to Type 7A6 for curve data.

Additional series resistance may be required to limit the voltage across either section to the maximum of 3.5 volts under the highest line voltage condition.



8BD-0-0



## Sylvania Type 5691

HIGH-MU DUOTRIODE

### PHYSICAL SPECIFICATIONS

Base.....	Intermediate Octal 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 7/8"
Maximum Seated Height.....	2 5/8"
Mounting Position.....	Any

### RATINGS

Heater Voltage AC or DC ( $\pm 5\%$ ).....	6.3 Volts
Heater Current.....	0.6 Ampere
Maximum Plate Voltage.....	275 Volts
Maximum Plate Supply Voltage.....	330 Volts
Maximum Plate Dissipation (per section).....	1 Watt
Control Grid Voltage:	
Negative Bias Range.....	-1 to -100 Volts
Negative Peak Value.....	-200 Volts
Maximum Control Grid Current.....	2 Ma.
Maximum Cathode Current (per section).....	10 Ma.
Maximum Heater-Cathode Voltage.....	100 Volts
Maximum Control Grid Circuit Resistance.....	2 Megohm
Direct Interelectrode Capacitances: (Unshielded)	
	Unit No. 1      Unit No. 2
Grid to Plate.....	3.6      3.6 $\mu\text{f.}$
Grid to Cathode.....	2.4      2.7 $\mu\text{f.}$
Plate to Cathode.....	2.3      2.6 $\mu\text{f.}$
Plate to Plate.....	3.2 $\mu\text{f.}$

### TYPICAL OPERATION

#### CLASS A<sub>1</sub> AMPLIFIER

Heater Voltage.....	6.3 Volts
Heater Current.....	0.6 Ampere
Plate Voltage.....	250 Volts
Plate Current.....	2.3 Ma.
Amplification Factor.....	70
Plate Resistance.....	44,000 Ohms
Mutual Conductance.....	1,600 $\mu\text{mhos}$

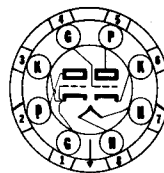
### APPLICATION

Sylvania Type 5691 is a high-mu triode intended for industrial applications. It has exceptional uniformity and stability, resists shock and vibration, and is recommended for applications where a life of 10,000 hours is desirable. Within its ratings it is equivalent to Type 6SL7GT.

SYLVANIA RADIO TUBES

## 5692 Sylvania Type

MEDIUM-MU DUOTRIODE



8BD-0-0

### PHYSICAL SPECIFICATIONS

Base.....	Short Intermediate Octal 8 Pin
Bulb.....	T-9
Maximum Overall Length.....	2 3/4"
Maximum Seated Height.....	2 1/4"
Mounting Position.....	Any

### RATINGS

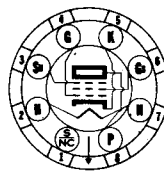
Heater Voltage AC or DC ( $\pm 5\%$ ).....	6.3 Volts
Heater Current.....	0.6 Ampere
Maximum Plate Supply Voltage DC.....	330 Volts
Maximum Plate Voltage DC.....	275 Volts
Control Grid Voltage:	
Maximum Negative Bias Value.....	-1 to -100 Volts
Maximum Negative Peak Value.....	-200 Volts
Maximum DC Control Grid Current.....	2 Ma.
Maximum DC Cathode Current (per section).....	15 Ma.
Maximum Plate Dissipation (per section).....	1.75 Watts
Maximum Peak Heater to Cathode Voltage.....	100 Volts
Maximum Control Grid Circuit Resistance.....	2 Megohms

### APPLICATION

Sylvania Type 5692 is a medium-mu duo triode intended for industrial applications. It has exceptional uniformity and stability, resists shock and vibration, and is recommended for applications where a life of 10,000 hours is desirable. Within its ratings it is equivalent to Type 6SN7GT.

## 5693 Sylvania Type

SHARP CUT-OFF PENTODE



8N-1-0

### PHYSICAL SPECIFICATIONS

Base.....	Small Wafer Octal 8 Pin
Bulb.....	Metal 8-1
Maximum Overall Length.....	2 3/4"
Maximum Seated Height.....	2 1/4"
Mounting Position.....	Any

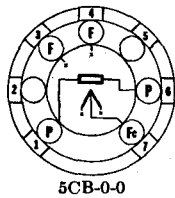
### RATINGS

Heater Voltage AC or DC $\pm 5\%$ .....	6.3 Volts
Heater Current.....	300 Ma.
Maximum DC Plate Voltage.....	300 Volts
Maximum DC Plate Supply Voltage.....	330 Volts
Suppressor Grid Voltage.....	0 to -100 Volts
Maximum Screen Voltage.....	125 Volts
Control Grid Voltage:	
Negative Bias Range.....	-1 to -50 Volts
Negative Peak Value.....	-50 Volts
Maximum Cathode Current.....	10 Ma.
Maximum Plate Dissipation.....	2 Watts
Maximum Screen Dissipation.....	0.3 Watt
Maximum Peak Heater-Cathode Voltage.....	100 Volts
Maximum Control Grid Circuit Resistance.....	40 Megohms

### APPLICATION

Sylvania Type 5693 is a sharp cut-off pentode intended for industrial applications. It has exceptional uniformity and stability, resists shock and vibration, and is recommended for applications where a life of 10,000 hours is desirable. Within its ratings it is equivalent to Type 6SJ7.





5CB-0-0



## Sylvania Type 5722

NOISE GENERATING DIODE

### PHYSICAL SPECIFICATIONS

Base.....	Miniature Button 7 Pin
Bulb.....	T-5 $\frac{1}{2}$
Maximum Overall Length.....	2 $\frac{1}{8}$ "
Maximum Seated Height.....	1 $\frac{1}{8}$ "
Mounting Position.....	Vertical*

\*Horizontal operation permitted if Pins 1 and 2 are in a vertical plane.

### RATINGS

Maximum Filament Voltage.....	5.5 Volts
Minimum Filament Voltage.....	2.0 Volts
Filament Current at 4.9 Volts.....	1.6 Amperes
Maximum DC Plate Voltage.....	200 Volts
Maximum Plate Current.....	35 Ma.
Maximum Plate Dissipation.....	
Continuous Service.....	3.5 Watts
Intermittent Service.....	5.0 Watts
Maximum On Period in 50% Duty Cycle.....	5 Minutes

#### Direct Interelectrode Capacitances:\*

Plate to Filament.....	1.5 $\mu$ f.
------------------------	--------------

\*With no external shield.

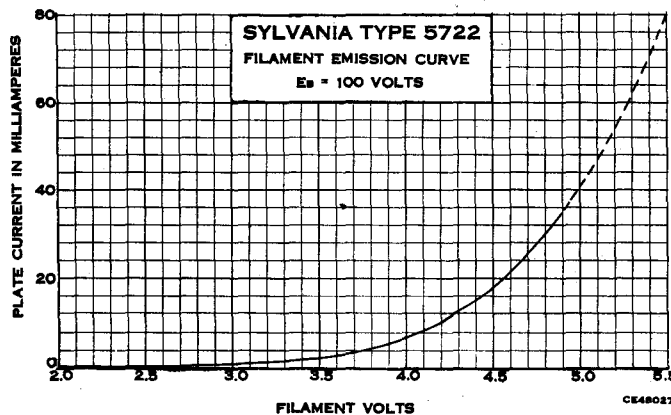
### TYPICAL OPERATION

Sylvania Type 5722 is a tungsten filament diode designed for use as a noise generator at frequencies up to 400 or 500 mc. The filament center tap allows better RF grounding of the filament when used in the recommended circuit shown on a following page.

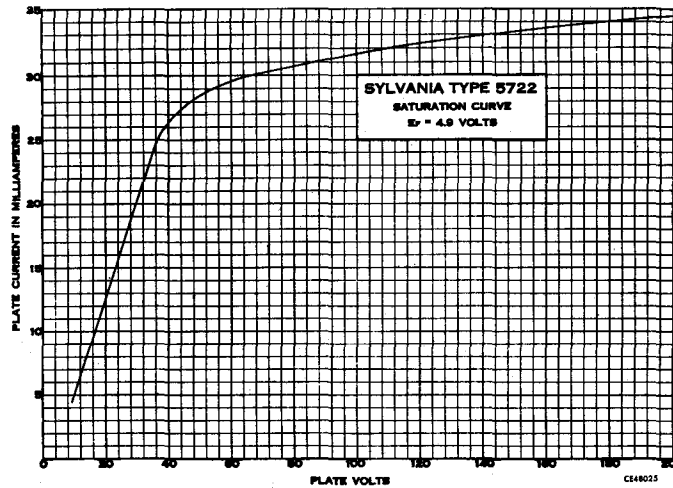
Since the tube has a tungsten filament the "shot effect" may be used as a standard noise source. Sufficient plate voltage is applied to obtain saturation. The noise factor (NF) may be obtained from the equation  $NF = \frac{R}{I}$  where R is the total generator resistance and I is the diode plate current in amperes. To convert to decibels  $NF_{db} = 10 \log_{10} 20 IR$ .

In use, the diode is coupled to the input of the amplifier under test and the filament voltage is increased until the noise output power is double that read without the diode. From the plate current reading and the generator resistance the noise factor can be calculated. Additional construction details may be obtained from the article "How Sensitive is Your Receiver," by Byron Goodman in the September 1947 issue of Q.S.T. and also "Coaxial Noise Diode" by H. Johnson, RCA Review, March 1947, Volume VIII, No. 1.

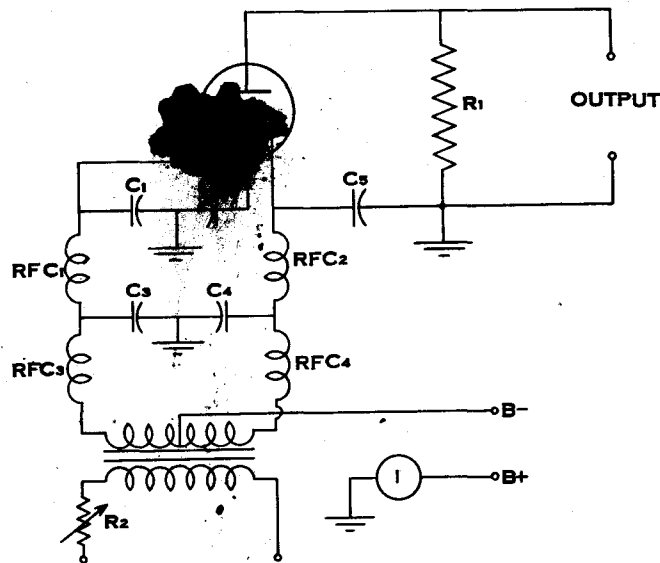
The useful life is dependent on the operating voltages since the usual causes of failure are burnout or vaporization of the tungsten filament.



SYLVANIA RADIO TUBES



RECOMMENDED CIRCUIT



PARTS LIST

- |                  |  |   |
|------------------|--|---|
| C <sub>1</sub>   | }  | 500 μf  |
| C <sub>2</sub>   |  |   |
| C <sub>3</sub>   |  |   |
| C <sub>4</sub>   |  |   |
| C <sub>5</sub>   |  |   |
| RFC <sub>1</sub> | }  | 6 Turns #16 Enamel Wire on 3/16" Air Core   |
| RFC <sub>2</sub> |  |   |
| RFC <sub>3</sub> | }  | 30 Turns #16 Enamel Wire on 3/8" O.D., 1/4" I.D. Bakelite Coil Form With Powdered Iron Core |
| RFC <sub>4</sub> |  |   |
| R <sub>1</sub>   | 50 to 300 Ohms as Required to Match Load |   |
| R <sub>2</sub>   | Filament Voltage Control                 |   |