

Sylvania

TYPE 7A8

OCTODE CONVERTER

RATINGS AND CHARACTERISTICS

Heater Voltage (Nominal) AC or DC	7.0	Volts
Heater Current (Nominal)	0.160	Ampere
Maximum Plate Voltage	300	Volts
Maximum Screen Supply Voltage	300	Volts
Maximum Screen Voltage	100	Volts
Maximum Oscillator Anode Voltage	200	Volts
Maximum Oscillator Anode Supply Voltage	300	Volts
Maximum Plate Dissipation	1	Watt
Maximum Screen Dissipation	0.3	Watt
Maximum Anode Grid Dissipation	0.75	Watt
Maximum Total Cathode Current	13	Ma.
Minimum Signal-Grid Bias Voltage	0	Volt
Maximum Heater-Cathode Voltage	90	Volts

Direct Interelectrode Capacitances:*

Grid G to Plate	0.15	μf.	Max.
Grid G to Grid Ga	0.3	μf.	Max.
Grid G to Grid Go	0.15	μf.	Max.
Grid Go to Grid Ga	0.60	μf.	
Grid G to all Electrodes (R-F Input)	7.5	μf.	
Grid Ga to all Electrodes except Go (Osc. Output)	3.4	μf.	
Grid Go to all Electrodes except Ga (Osc. Input)	3.8	μf.	
Plate to all Electrodes (Mixer Output)	9.0	μf.	

* With 1 5/16" diameter shield (RMA Std. M8-308) connected to cathode.

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

Heater Voltage (AC or DC)	6.3	6.3	Volts
Heater Current	0.150	0.150	Ampere
Plate Voltage	100	250	Volts
Control Grid Voltage (G)	-3.0	-3.0	Volts
Self-Bias Resistor	400	280	Ohms
Screen Grid Voltage (Gs)	75	100	Volts
Oscillator Anode Voltage (Ga)	100	250#	Volts
Oscillator Grid Resistor	50,000	50,000	Ohms
Plate Current	1.8	3.0	Ma.
Screen Grid Current	2.7	3.2	Ma.
Oscillator Anode Current	2.8	4.2	Ma.
Oscillator Grid Current	0.2	0.4	Ma.
Plate Resistance (Approx.)	650,000	700,000	Ohms
Conversion Conductance	375	550	μmhos
Control Grid Voltage for 2 μmhos Conversion Conductance	-22.5	-30	Volts

Applied through 20,000 ohm dropping resistor, properly bypassed.

PHYSICAL SPECIFICATIONS

Style	Lock-In
Base	Lock-In 8-Pin
Bulb	T-9
Diameter	1 3/16" Max.
Seated Height	2 1/4" Max.
Overall Length	2 25/32" Max.
Mounting Position	Any

BASE PIN CONNECTIONS

Pin 1	- Heater
Pin 2	- Plate
Pin 3	- Oscillator Anode Ga
Pin 4	- Oscillator Grid Go
Pin 5	- Screen Grid Gs
Pin 6	- Control Grid G
Pin 7	- Cathode, Suppressor & Internal Shield
Pin 8	- Heater
RMA Basing 8U-L-7	

from RMA release #140, June 10, 1938
originally sponsored by Philco Radio & Television Corp.

**OSCILLATOR DESIGN DATA
NON OSCILLATING CONDITION**

Oscillator Anode Current	10 Ma.
Mutual Conductance (Go to Ga)	1600 μ mhos
Amplification Factor (Go to Ga)	65

These measurements were taken with a plate voltage of 250 volts, oscillator anode voltage of 180 volts, screen voltage of 100 volts, oscillator grid at 0 volts, and Grid (G) connected to cathode.

CIRCUIT APPLICATION

Sylvania Type 7A8 is a single-ended octode converter tube of Lock-In design suitable for use in A-C, AC-DC and auto receivers. Compactness, short connections to the electrodes and simplified shielding are some of the features of this tube.

The applications and operation are quite similar to the Sylvania Type 6A7, but the Type 7A8 has a suppressor grid added to improve the plate resistance particularly under low voltage conditions.

JEDEC DATA
 JOINT ELECTRON TUBE ENGINEERING COUNCIL
 COMMITTEE ON RECEIVING TUBES

JEDEC TYPE 7A8

OCTODE

140D Laboratories Div.
 Industry Serv. Lab.
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MECHANICAL DATA

Coated unipotential cathode	
Outline drawing	9-30 Bulb. T-9
Base	D8-1, lock-in 8-pin
Maximum diameter	1-3/16"
Maximum overall length	2-25/32"
Maximum seated height	2-1/4"
Pin connections	Basing 8U
Pin 1 - Heater	Pin 5 - Grids #3 and #5
Pin 2 - Plate	Pin 6 - Grid #4
Pin 3 - Grid #2	Pin 7 - Cathode, grid #6, internal shield
Pin 4 - Grid #1	Pin 8 - Heater
Mounting position	any

ELECTRICAL DATA

Direct Interelectrode Capacitances*

Mixer grid to plate: (g_4 to p) max.	0.15	μf
Mixer grid to oscillator anode: (g_4 to g_2) max.	0.30	μf
Mixer grid to oscillator grid: (g_4 to g_1) max.	0.15	μf
Oscillator grid to oscillator anode: (g_1 to g_2)	0.60	μf
Mixer input: g_4 to ($h+k+g_1+g_2+g_3$ and $5+g_6+p$)	7.5	μf
Mixer output: p to ($h+k+g_1+g_2+g_3$ and $5+g_4+g_6$)	9.0	μf
Oscillator input: g_1 to ($h+k+g_4+g_3$ and $5+g_6+p$)	3.8	μf
Oscillator output: g_2 to ($h+k+g_3$ and $5+g_4+g_6+p$)	3.4	μf

*External shield #308 connected to pin #7

Ratings

Heater voltage (nominal) (ac or dc)	7.0	volts
Maximum heater-cathode voltage	90	volts
Maximum plate voltage	300	volts
Maximum grids #3 and #5 voltage	100	volts
Maximum grids #3 and #5 supply voltage	300	volts
Maximum grid #2 voltage	200	volts
Maximum grid #2 supply voltage	300	volts
Minimum negative grid #4 voltage	0	volts
Maximum plate dissipation	1.0	watts
Maximum grids #3 and #5 dissipation	0.3	watts
Maximum grid #2 dissipation	0.75	watts
Maximum cathode current	13.0	ma

ELECTRICAL DATA (Continued)

Typical Operating Conditions and Characteristics*

Heater voltage.	6.3	6.3	volts
Heater current.	150	150	ma
Plate voltage.	100	250	volts
Grids #3 and #5 voltage	75	100	volts
Grid #2 voltage**	100	250	volts
Grid #4 voltage	-3	-3	volts
Grid #1 resistor.	50,000	50,000	ohms
Plate resistance (approx.)	0.65	0.70	megohm
Conversion transconductance	375	550	μmhos
Plate current	1.8	3.0	ma
Grids #3 and #5 current	2.7	3.2	ma
Grid #2 (oscillator anode) current.	2.8	4.2	ma
Grid #1 (oscillator grid) current	0.2	0.4	ma
Total cathode current.	7.5	10.8	ma

*Characteristics shown are obtained in the standard R.M.A. Conversion Conductance Test Set which uses separate excitation. The characteristics under these conditions correspond very closely with those obtained in a self-excited oscillatory circuit operating with zero bias.

**Applied through a 20,000 ohm dropping resistor.

Oscillator characteristics (not oscillating)

Plate voltage	250	volts
Grid #1 voltage	0	volts
Grid #2 voltage	180	volts
Grids #3 and #5 voltage	100	volts
Grid #4 voltage	0	volts
Transconductance between grid #1 and grid #2.	1600	μmhos
Amplification factor between grid #1 and grid #2.	65	
Grid #2 (oscillator anode) current.	10	ma

Refer to "Interpretation of Receiving Tube Ratings"