

Class A₁ Amplifier

CHARACTERISTICS

Triode Unit

Plate Voltage	100	volts
Grid Voltage	—1	volt
Amplification Factor	40	
Plate Resistance (Approx.)	7400	ohms
Transconductance	5400	μ hos
Plate Current	7.9	mA
Grid Voltage (Approx.) for plate current of 100 μ A	—7	volts

Tetrode Unit with Plates No.1A and No.1B Connected to Cathode at Socket

MAXIMUM RATINGS (Design-Maximum Values)

Plate-No.2 Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 Voltage	—2	volts
Plate-No.2 Resistance (Approx.)	0.75	megohm
Transconductance, Grid No.1 to Plate No.2	4400	μ hos
Plate-No.2 Current	7.3	mA
Grid-No.2 Current	1.4	mA
Grid-No.1 Voltage (Approx.) for plate-No.2 current of 100 μ A	—7	volts

Complex-Wave Generator

MAXIMUM RATINGS (Design-Maximum Values)

	Triode Unit	Tetrode Unit	
Plate Voltage	275	—	volts
Plate-No.1A Voltage	—	200	volts
Plate-No.1B Voltage	—	200	volts
Plate-No.2 Voltage	—	275	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	275	volts
Grid-No.2 Voltage	—	See curve page 98	
Grid-No.1 (Control-Grid) Voltage:			
Negative-bias value	—40	—40	volts
Positive-bias value	0	0	volts
Plate Dissipation	1.7	—	watts
Plate-No.1A Dissipation	—	0.3	watt
Plate-No.1B Dissipation	—	0.3	watt
Plate-No.2 Dissipation	—	2.3	watts
Grid-No.2 Input:			
For grid-No.2 voltages up to 137.5 volts	—	0.45	watt
For grid-No.2 voltages between 137.5 and 275 volts	—	See curve page 98	

TYPICAL OPERATION WITH SEPARATE PLATE OPERATION

Tetrode Unit

Plates-No.1A, No.1B, and No.2 Voltage	100	volts
Grid-No.2 Voltage	50	volts
Grid-No.1 Voltage	—1	volts
Plate-No.1A Current	0.04	mA
Plate-No.1B Current	0.04	mA
Plate-No.2 Current	1.6	mA
Grid-No.2 Current	0.3	mA
Transconductance (Approx.):		
Grid No.1 to Plate No.1A	70	μ hos
Grid No.1 to Plate No.1B	70	μ hos
Grid No.1 to Plate No.2	2500	μ hos

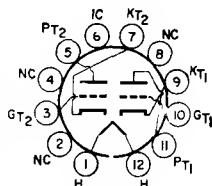
MAXIMUM CIRCUIT VALUES

	Triode Unit	Tetrode Unit	
Grid-No.1-Circuit Resistance, for fixed-bias operation	0.5	0.5	megohm

6FJ7

MEDIUM-MU DUAL TRIODE

Duodecar type used as combined vertical-deflection-oscillator and vertical-deflection-amplifier tube in color and black-and-white television receivers. Outlines section, 8B; requires duodecar 12-contact socket. Heater: volts (ac/dc), 6.3; amperes, 0.9; maximum heater-cathode volts, ± 200 peak, 100 average.



12BM

Class A₁ Amplifier

CHARACTERISTICS

	Unit No.1	Unit No.2	
Plate Voltage	250	250	volts
Grid Voltage	—8	0	volts
Amplification Factor	22.5	15.4	
Plate Resistance (Approx.)	9000	2000	ohms

	Unit No.1	Unit No.2	
Transconductance	2500	7700	μ mhos
Plate Current	8	68 ^a	mA
Grid Voltage (Approx.) for plate current of 10 μ A	-18	—	volts
Grid Voltage (Approx.) for plate current of 50 μ A	—	-23	volts

* This value can be measured by a method involving a recurrent waveform such that the maximum ratings of the tube will not be exceeded.

Vertical-Deflection Oscillator and Amplifier

For operation in a 525-line, 30-frame system

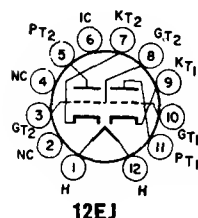
MAXIMUM RATINGS (Design-Maximum Values)

	Unit No.1 Oscillator	Unit No.2 Amplifier	
DC Plate Voltage	350	550	volts
Peak Positive-Pulse Plate Voltage [#]	—	2500	volts
Peak Negative-Pulse Grid Voltage	400	250	volts
Peak Cathode Current	—	150	mA
Average Cathode Current	—	50	mA
Plate Dissipation	1	10	watts

MAXIMUM CIRCUIT VALUES

Grid-Circuit Resistance:			
For fixed-bias operation	2.2	2.2	megohms
For cathode-bias operation	2.2	—	megohms

Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).



12EJ

DUAL TRIODE

6FM7

13FM7, 15FM7

Duodecar type used as combined vertical-deflection oscillator and vertical-deflection amplifier in color and black-and-white television receivers. Triode unit No.1 is used as an oscillator, and triode unit No.2 is used as an amplifier. Outlines section, 8C; requires duodecar 12-contact socket. Types 13FM7 and 15FM7 are identical with type 6FM7 except for heater ratings.

	6FM7	13FM7	15FM7	
Heater Voltage (ac/dc)	6.3	13	14.8	volts
Heater Current	1.05	0.45	0.45	amperes
Heater Warm-up Time (Average)	—	11	11	seconds
Heater-Cathode Voltage:				
Average value	± 200 max	± 200 max	± 200 max	volts
Peak value	100 max	100 max	100 max	volts

Class A₁ Amplifier

CHARACTERISTICS

	Unit No.1	Unit No.2	
Plate Voltage	250	175	volts
Grid Voltage	-3	-25	volts
Amplification Factor	66	5.5	
Plate Resistance (Approx.)	30000	920	ohms
Transconductance	2200	6000	μ mhos
Plate Current	2	40	mA
Grid Voltage (Approx.) for plate current of 20 μ A	-5.3	—	volts
Grid Voltage (Approx.) for plate current of 200 μ A	—	-45	volts

Vertical-Deflection Oscillator and Amplifier

For operation in a 525-line, 30-frame system

MAXIMUM RATINGS (Design-Maximum Values)

DC Plate Voltage	350	500	volts
Peak Positive-Pulse Plate Voltage [#]	—	1500	volts
Peak Negative-Pulse Plate Voltage	400	250	volts
Peak Cathode Current	—	175	mA
Average Cathode Current	—	50	mA
Plate Dissipation [†]	1	10	watts

MAXIMUM CIRCUIT VALUES

Grid-Circuit Resistance:			
For fixed-bias operation	1	1	megohm
For cathode-bias operation	2.2	2.2	megohms

Pulse duration must not exceed 15% of a vertical scanning cycle (2.5 milliseconds).

† A bias resistor or other means is required to protect the tube in absence of excitation.