

Unit No.2:

Plate to All Other Elements (except grid No.1)	11	pF
Grid No.1 to All Other Elements (except plate)	10	pF
Plate to Grid No.1	140	fF
Grid No.1 to Heater	<100	fF
Plate to Plate	<150	fF
Grid to Grid	<10	fF
Plate (Unit No.1) to Grid No.1 (Unit No.2)	<100	fF
Plate (Unit No.2) to Grid No.1 (Unit No.2)	<5	fF

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

	Unit No.1	Unit No.2	
Plate Supply Voltage	550	550	volts
Plate Voltage	250	250	volts
Grid-No.2 (Screen-Grid) Supply Voltage	550	550	volts
Grid-No.2 Voltage	250	250	volts
Cathode Current	60	15	mA
Plate Dissipation	5	1.5	watts
Grid-No.2 Input	2.5	0.5	watts

CHARACTERISTICS

Plate Voltage	170	150	volts
Grid-No.2 Voltage	170	150	volts
Grid-No.1 (Control-Grid) Voltage	-2.6	-2.3	volts
Mu Factor, Grid-No.1 to Grid-No.2	38	35	
Internal Resistance	40	160	kohms
Transconductance	21000	8500	μmhos
Plate Current	30	10	mA
Grid-No.2 Current	6.5	3	mA

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance	1	1	megohm
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Refer to chart at end of section.

6Z5

Refer to chart at end of section.

6Z7G

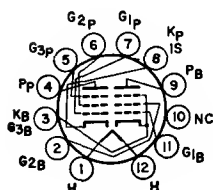
6Z10

PENTODE—
BEAM POWER TUBE

6Z10/6J10

13Z10, 13Z10/13J10

Duodecar types used as a combined limiter, discriminator, and audio power-output tube in FM radio and television receivers. Outlines section, 8C; require duodecar 12-contact socket. Types 13Z10 and 13J10 are identical with type 6Z10 except for heater ratings.



12BT

	6Z10 6Z10/6J10	13Z10 13Z10/13J10	
Heater Voltage (ac/dc)	6.3	13.2	volts
Heater Current	0.95	0.45	ampere
Heater Warm-up Time (Average)	—	11	seconds
Heater-Cathode Voltage:			
Peak value	±200 max	±200 max	volts
Average value	100 max	100 max	volts
Direct Inter-electrode Capacitances:			
Pentode Unit:			
Grid No.1 to Grid No.3		0.009	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, Plate, and Internal Shield		4.4	pF
Grid No.3 to Cathode, Heater, Grid No.1, Grid No.2, Plate, and Internal Shield		3.2	pF
Beam Power Unit:			
Grid No.1 to Plate		0.22	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3		11	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3		7.5	pF

Pentode Unit As Class A₁ Amplifier

CHARACTERISTICS

Plate Voltage	135	135	135	volts
Grid-No.3 (Suppressor-Grid) Voltage	4	4	0	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	280	280	volts

Grid-No.2 Voltage	75	—	—	volts
Grid No. 1 (Control-Grid) Voltage	0	0	0	volts
Grid-No.2 Resistor	—	33	33	kohms
Transconductance, Grid No.1 to Plate	—	—	360	μ mhos
Transconductance, Grid No.3 to Plate	—	—	700	μ mhos
Average Plate Current	—	5	—	mA
Grid-No.2 Current	4.5	—	—	mA
Grid No.1 Voltage (Approx.) for plate current of 20 μ A	—	—	—4	volts
Grid No.3 Voltage (Approx.) for plate current of 20 μ A	—	—	—4	volts

Beam Power Unit as Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	275	volts
Grid-No.2 (Screen-Grid) Voltage	275	volts
Plate Dissipation	10	watts
Grid-No.2 Input	2	watts

TYPICAL OPERATION

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	—8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	mA
Maximum-Signal Plate Current	39	mA
Zero-Signal Grid-No.2 Current	3	mA
Maximum-Signal Grid-No.2 Current	13	mA
Plate Resistance (Approx.)	0.1	megohm
Transconductance	6500	μ mhos
Load Resistance	5000	ohms
Total Harmonic Distortion (Approx.)	8.5	per cent
Maximum-Signal Power Output	4.2	watts

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.25	megohm
For cathode-bias operation	0.5	megohm

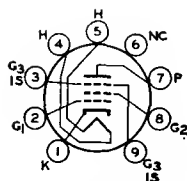
Pentode Unit as Limiter and Discriminator

MAXIMUM RATINGS (Design-Maximum Values)

Plate Supply Voltage	330	volts
Grid-No.2 Voltage	330	volts
Grid-No.1 Voltage, Peak positive value	60	volts
Average Cathode Current	13	mA

6ZY5G	Refer to chart at end of section.
7A4	Refer to chart at end of section.
7A5	Refer to chart at end of section.
7A6	Refer to chart at end of section.
7A7	Refer to chart at end of section.
7A8	Refer to chart at end of section.
7AD7	Refer to chart at end of section.
7AF7	Refer to chart at end of section.
7AG7	Refer to chart at end of section.
7AH7	Refer to chart at end of section.
7AU7	Refer to type 12AU7A.
7B4	Refer to chart at end of section.
7B5	Refer to chart at end of section.
7B6	Refer to chart at end of section.

Refer to chart at end of section.	7B7
Refer to chart at end of section.	7B8
Refer to chart at end of section.	7C5
Refer to chart at end of section.	7C6
Refer to chart at end of section.	7C7
Refer to chart at end of section.	7E6
Refer to chart at end of section.	7E7
Refer to chart at end of section.	7EY6
Refer to chart at end of section.	7F7
Refer to chart at end of section.	7F8
Refer to chart at end of section.	7G7
Refer to chart at end of section.	7H7
Refer to chart at end of section.	7HG8
Refer to type 6HG8/ECF86.	7HG8/PCF86
Refer to chart at end of section.	7J7
Refer to chart at end of section.	7K7
Refer to type 6KY6.	7KY6

**9GK****SHARP-CUTOFF PENTODE****7KZ6**

Miniature type with frame grid used for video-output-amplifier service in color and black-and-white television receivers. Outlines section, 6E; requires miniature 9-contact socket.

Heater Voltage (ac/dc)	7.3	volts
Heater Current	0.45	ampere
Heater Warm-up Time	11	seconds
Heater-Cathode Voltage:		
Peak value	±200 max	volts
Average value	100 max	volts
Direct Interelectrode Capacitances:		
Grid No.1 to Plate	0.16 max	pF
Grid No.1 to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	13	pF
Plate to Cathode, Heater, Grid No.2, Grid No.3, and Internal Shield	6	pF

Class A₁ Amplifier**MAXIMUM RATINGS (Design-Maximum Values)**

Plate Voltage	330	volts
Grid-No.2 (Screen-Grid) Supply Voltage	330	volts
Grid-No.2 Voltage	See curve page 98	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	volts
Plate Dissipation	9	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts	1	watt
For grid-No.2 voltages between 165 and 330 volts	See curve page 98	