

27

Refer to chart at end of section.

27GB5/PL500

Refer to type 6GB5/EL500.

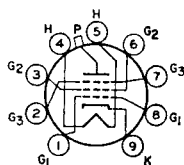
29KQ6/PL521

Refer to chart at end of section.

29LE6

BEAM POWER TUBE

Magnoval type used as horizontal-deflection amplifier in television receivers. Outlines section, 40A; requires magnoval 9-contact socket.



9RJ

Heater Voltage	29	volts
Heater Current	0.3	ampere
Heater-Cathode Voltage:		
Peak value	±240	volts
Average value	±240	volts

Class A₁ Amplifier

CHARACTERISTICS

Plate Voltage	40	50	volts
Grid-No.3 (Suppressor-Grid) Voltage	0	0	volts
Grid-No.2 (Screen-Grid) Voltage	135	200	volts
Grid-No.1 (Control-Grid) Voltage	0	-12	
Plate Current	450	550‡	mA
Grid-No.2 Current	35	50‡	mA
Grid-No.1 Voltage for plate current of 50 μ A	-55 max.	-	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.

Horizontal-Deflection Amplifier

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

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	275	volts
Peak Positive-Pulse Plate Voltage#	6500	volts
Peak Negative-Pulse Plate Voltage#	1650	volts
Grid-No.3 Voltage	70	volts
Grid-No.2 Voltage	275	volts
Peak Negative-Pulse Grid-No.1 Voltage	330	volts
Average Cathode Current	275	mA

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance	0.5	megohm
Grid-No.1-Circuit Resistance, for horizontal-deflection circuit	2.2	megohms

Pulse duration must not exceed 22% of a horizontal scanning cycle (18 microseconds).

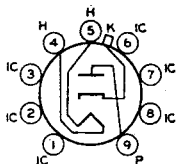
30

Refer to chart at end of section.

30AE3/
PY88

DIODE

Miniature type used as booster diodes in line-time-base circuits of transformerless television receivers. Outlines section, 7D; requires miniature 9-contact socket. Heater: volts (ac/dc), 30; amperes, 0.3; maximum heater-cathode volts, 6600 peak.



9CB

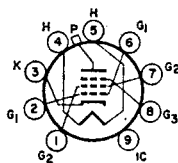
MAXIMUM RATINGS (Design-Center Values)

Supply Voltage at zero current	550	volts
Supply Voltage	250	volts
Peak Plate Current	550	mA

Average Plate Current	220	mA
Plate Dissipation	5	watts
Peak Negative-Pulse Plate Voltage*	6000#	volts

* Under no conditions should an absolute maximum value of 7500 volts be exceeded.
 # The pulse duration must not exceed 22 per cent of a cycle, or a maximum of 18 micro-seconds.

Refer to chart at end of section.	30AG11
Refer to chart at end of section.	30JZ6
Refer to type 6KD6.	30KD6
Refer to chart at end of section.	30MB6
Refer to chart at end of section.	31
Refer to chart at end of section.	31AL10
Refer to chart at end of section.	31JS6A
Refer to type 6JS6C.	31JS6C
Refer to type 6MJ6/6LQ6/6JE6C.	31LQ6
Refer to type 6LRS.	31LR8



9QL

BEAM POWER TUBE

31LZ6

Novar type used for horizontal-deflection amplifier in color television receivers. Outlines section, 32C; requires novar 9-contact socket.

Heater Voltage (ac/dc)	31	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	0.6	pF
Grid No.1 to Cathode, Heater, Grid No.2, and Grid No.3	22	pF
Plate to Cathode, Heater, Grid No.2, and Grid No.3	11	pF

Class A₁ Amplifier

CHARACTERISTICS	Triode† Connection		Pentode Connection		
	125	5000	55	175	
Plate Voltage	125	5000	55	175	volts
Peak Positive-Pulse Plate Voltage#	—	—	—	—	volts
Grid No.3 (Suppressor Grid)	—	30	30	30	volts
Grid-No.2 (Screen-Grid) Voltage	125	130	125	125	volts
Grid-No.1 (Control-Grid) Voltage	-25	—	0	-25	volts
Amplification Factor	3	—	—	—	—
Plate Resistance (Approx.)	—	—	—	6000	ohms
Transconductance	—	—	—	11000	μmhos
Plate Current	—	—	800††	140	mA
Grid-No.2 Current	—	—	56††	2	mA
Grid-No.1 Voltage for plate current of 1 mA	—	-125	—	-50	volts

Horizontal-Deflection Amplifier

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

MAXIMUM RATINGS (Design-Maximum Values)

DC Plate Supply Voltage	990	volts
Peak Positive-Pulse Plate Voltage#	7500	volts
Peak Negative-Pulse Plate Voltage	1100	volts
DC Grid-No.3 Voltage#	75	volts

DC Grid-No.2 Voltage	220	volts
Peak Negative-Pulse Grid-No.1 Voltage	330	volts
Peak Cathode Current	1200	mA
Average Cathode Current	350	mA
Grid-No.2 Input	5	watts
Plate Dissipation ■■	30	watts
Bulb Temperature (At hottest point)	240	°C

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance:

For cathode-bias operation	1	megohm
For grid-leak-bias operation	10	megohms
For fixed-bias operation	0.47	megohm

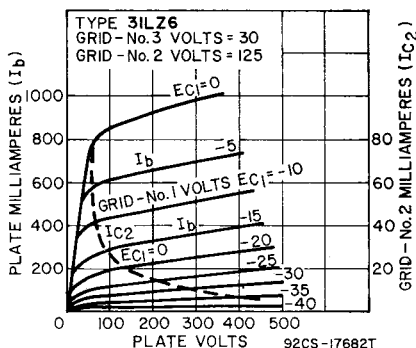
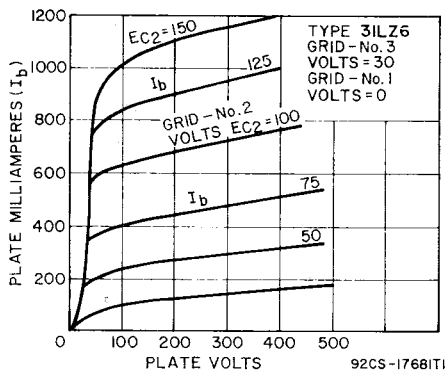
Pulse duration must not exceed 15% of one horizontal scanning cycle (10 microseconds).

† Grid No.2 connected to plate.

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

■ In this service, a positive value may be applied to grid No.3 to minimize "snivets" interference; a typical value for this voltage is 30 volts.

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



32
32ET5
32ET5A
32HQ7
32L7GT

Refer to chart at end of section.

Refer to chart at end of section.

Refer to chart at end of section.

Refer to chart at end of section.

33
33GT7
33GY7

Refer to chart at end of section.

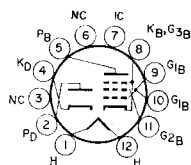
Refer to chart at end of section.

Refer to chart at end of section.

33GY7A DIODE-BEAM POWER TUBE

50GY7A

Duodecar type used as combined damper diode and horizontal-deflection amplifier in television receivers. Socket terminals 1, 3, 6 and 7 should not be used as tie points. Outlines section, 15A; requires duodecar 12-contact socket. Type 50GY7A is identical with type 33GY7A except for heater ratings.



12FN

	33GY7A	50GY7A	
Heater Voltage (ac/dc)	33.6	50	volts
Heater Current	0.45	0.3	ampere
Heater Warm-up Time (Average)	11	11	seconds
Heater-Cathode Voltage:			
Peak value	±200 max	±200 max	volts
Average value	100 max	100 max	volts

Beam Power Unit as Class A₁ Amplifier

CHARACTERISTICS	Pentode Connection			Triode* Connection	
Plate Voltage	5000	60	130	130	volts
Grid-No.2 (Screen-Grid) Voltage	130	130	130	130	volts
Grid-No.1 (Control-Grid) Voltage	—	0	-22.5	-22.5	volts
Amplification Factor	—	—	—	4	
Plate Resistance (Approx.)	—	—	10000	—	ohms
Transconductance	—	—	6500	—	μmhos
Plate Current	—	320 [■]	48	—	mA
Grid-No.2 Current	—	22 [■]	2.9	—	mA
Grid-No.1 Voltage (Approx.) for plate current of 1 mA	-80	—	-40	—	volts

* Grid No.2 tied to plate.

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

Beam Power Unit as Horizontal-Deflection Amplifier

For operation in a 525-line, 50-frame system

MAXIMUM RATINGS (Design-Maximum Values)

DC Plate Supply Voltage	400	volts
Peak Positive-Pulse Plate Voltage#	5000	volts
Peak Negative-Pulse Plate Voltage	0	volts
DC Grid-No.2 Voltage	150	volts
DC Grid-No.1 Voltage	-55	volts
Peak Negative-Pulse Grid-No.1 Voltage	330	volts
Peak Cathode Current	540	mA
Average Cathode Current	155	mA
Plate Dissipation†	9	watts
Grid-No.2 Input	3	watts

MAXIMUM CIRCUIT VALUE

Grid-No.1-Circuit Resistance	1	megohm
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Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

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

Damper Service (Diode Unit)

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

MAXIMUM RATINGS (Design-Maximum Values)

Peak Inverse Plate Voltage#	4200	volts
Peak Plate Current	810	mA
Average Plate Current	135	mA
Plate Dissipation	3.8	watts
Heater-Cathode Voltage:		
Peak value	+200	-4200
Average value	+100	-400
Bulb Temperature (At hottest point)	200	°C

CHARACTERISTICS, Instantaneous Value

Tube Voltage Drop for plate current of 250 mA	21	volts
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Pulse duration must not exceed 15% of a horizontal scanning cycle (10 microseconds).

Refer to type 6JR6. **33JR6**

Refer to chart at end of section. **33JV6**

Refer to chart at end of section. **34**

Refer to type 6CE3/6CD3/6DT3. **34CE3**

Refer to chart at end of section. **34CM3**