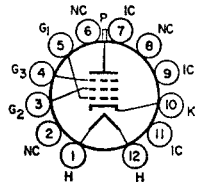


12GH

BEAM POWER TUBE — 21KA6

Duodecar type used as horizontal-deflection amplifier in television receivers. **Outlines section, 16A;** requires duodecar 12-contact socket. A separate connection is provided for grid No.3 to minimize "snivets."

Heater Voltage	21	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

Class A_1 Amplifier

CHARACTERISTICS

Plate Voltage	5000	60	60	130	volts
Grid-No.3 (Suppressor-Grid) Voltage	0	0	25	0	volts
Grid-No.2 (Screen-Grid) Voltage	130	130	130	130	volts
Grid-No.1 (Control-Grid) Voltage	—	0	0	—20	volts
Plate Resistance (Approx.)	—	—	—	11000	ohms
Transconductance	—	—	—	9100	μmhos
Plate Current	—	410*	410*	50	mA
Grid-No.3 Current	—	—	2	—	mA
Grid-No.2 Current	—	24*	23*	1.75	mA
Grid-No.1 Voltage (Approx.) for plate current of 1 mA	—66	—	—	—33	volts
Triode Amplification Factor	—	—	—	4.7	

* This value may 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

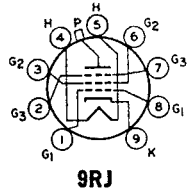
MAXIMUM RATINGS (Design-Maximum Values)

DC Plate Supply Voltage	770	volts
Peak Positive-Pulse Plate Voltage#	6500	volts
Peak Negative-Pulse Plate Voltage	1500	volts
Grid-No.3 Voltage, Positive-bias value	70	volts
Grid-No.2 Voltage	220	volts
Grid-No.1 Voltage, Negative-bias value	55	volts
Peak Negative-Pulse Grid-No.1 Voltage	330	volts
Average Cathode Current	230	mA
Peak Cathode Current	800	mA
Plate Dissipation	18	watts
Grid-No.2 Input	3.5	watts
Bulb Temperature (At hottest point)	220	°C

MAXIMUM CIRCUIT VALUE

Grid-No.1-Circuit Resistance	1	megohm

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



9RJ

BEAM POWER TUBE — 21KQ6

29KQ6/PL521

Magnoval type used as horizontal-deflection amplifier in television receivers. **Outlines section,** 40A; requires magnoval 9-contact socket. Type 29KQ6/PL521 is identical with type 21KQ6 except for heater ratings.

	21KQ6	29KQ6/PL521	
Heater Voltage	21.5	29	volts
Heater Current	0.45	0.3	ampere

Heater-Cathode Voltage:			
Peak value	±240	±240	volts
Average value	±240	±240	volts

Class A_1 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 μA	—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

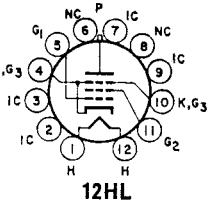
MAXIMUM CIRCUIT VALUES

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).

21LG6 Refer to chart at end of section.

21LG6A BEAM POWER TUBE



12HL

Duodecar type used as horizontal-deflection amplifier in color television receivers. **Outlines section,** 16B; requires duodecar 12-contact socket. **Heater:** volts, 21; ampere, 0.6; maximum heater-cathode volts, ±200 peak, 100 average.

Class A_1 Amplifier

CHARACTERISTICS	Triode* Connection	Pentode Connection			
Plate Voltage	125	6000	50	175	volts
Grid-No.2 (Screen-Grid) Voltage	125	125	125	125	volts
Grid-No.1 (Control-Grid) Voltage	—25	—	0	—23	volts
Plate Resistance (Approx.)	—	—	—	7500	ohms
Transconductance	—	—	—	11500	μmhos
Plate Current	—	—	600	90	mA
Grid-No.2 Current	—	—	42	1.7	mA
Grid-No.1 Voltage (Approx.) for plate current of 1 mA	—	—115	—	—45	volts
Amplification Factor	3.6	—	—	—	

Horizontal-Deflection Amplifier

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

MAXIMUM RATINGS (Design-Maximum Values)

DC Plate Supply Voltage	900	volts
Peak Positive-Pulse Plate Voltage#	7500	volts
Peak Negative-Pulse Plate Voltage	100	volts

Grid-No.2 Voltage	250	volts
Grid-No.1 Voltage, Negative-bias value	300	volts
Plate Dissipation■	28	watts
Grid-No.2 Input	5	watts
Average Cathode Current	315	mA
Peak Cathode Current	1100	mA
Bulb Temperature	250	°C

MAXIMUM CIRCUIT VALUES

Grid-No.1 Circuit Resistance:		
With feedback type high voltage regulation	1.8	megohms
With shunt-type high voltage regulation (switching mode)	2.2	megohms

* Grid-No. 2 tied to plate.
# 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.

Refer to type 6LR8. **21LR8**

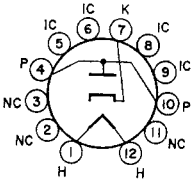
Refer to type 6LU8. **21LU8**

Refer to chart at end of section. **21MY8**

Refer to chart at end of section. **22**

Refer to chart at end of section. **22BH3**

Refer to chart at end of section. **22BH3A**



12FX

HALF-WAVE VACUUM RECTIFIER

22BW3

17BW3

Duodecar type used as damper tube in horizontal-deflection circuits of television receivers. **Outlines section, 8D;** requires duodecar 12-contact socket. Type 17BW3 is identical with type 22BW3 except for heater ratings.

	17BW3	22BW3	
Heater Voltage (ac/dc)	16.8	22.4	volts
Heater Current	0.6	0.45	ampere
Heater Warm-up Time	11	11	seconds
Direct Interelectrode Capacitances:			
Cathode to Heater and Plate		8.5	pF
Plate to Cathode and Heater		6	pF
Heater to Cathode		3.8	pF

Damper Service

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

MAXIMUM RATINGS (Design-Maximum Values)			
Peak Inverse Plate Voltage#		5000	volts
Peak Plate Current		1100	mA
Average Plate Current		175	mA
Plate Dissipation		6.5	watts
Heater-Cathode Voltage:			
Peak value	+300	−5000	volts
Average value	+100	−900	volts
CHARACTERISTICS, Instantaneous Value			
Tube Voltage Drop for plate current of 350 mA		32	volts

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

Refer to type 6DE4/6CQ4. **22DE4**

Refer to type 6JF6. **22JF6**

Refer to chart at end of section. **22JG6**

Refer to type 6JG6A. **22JG6A**