

Mu-Factor, Grid No.2 to Grid No.1	—	70	
Plate Resistance (Approx.)	—	0.35	megohm
Transconductance	5500	12000	μ mhos
Plate Current	14	10	mA
Grid-No.2 Current	—	3.3	mA

MAXIMUM CIRCUIT VALUES

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

6HJ5

Refer to chart at end of section.

6HJ8

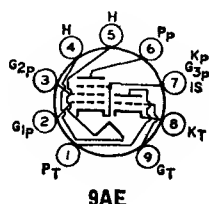
Refer to chart at end of section.

6HK5

Refer to chart at end of section.

6HL8**MEDIUM-MU TRIODE—
SHARP-CUTOFF PENTODE**

Miniature type used in color and black-and-white television receiver applications. The triode unit is used as a sync-separator or voltage-amplifier tube, and the pentode unit is used as a video if-amplifier, agc-amplifier, or reactance tube. Outlines section, 6B; requires miniature 9-contact socket. Heater: volts (ac/dc), 6.3; amperes, 0.6; warm-up time (average), 11 seconds; maximum heater-cathode volts, ± 200 peak, 100 average.

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

	Triode Unit	Pentode Unit	
Plate Voltage	330	330	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	330	volts
Grid-No.2 Voltage	—	See curve page 300	
Grid-No.1 (Control-Grid) Voltage, Positive-bias value	0	0	volts
Plate Dissipation	2.5	2.5	watts
Grid-No.2 Input:			
For grid-No.2 voltages up to 165 volts	—	0.55	watt
For grid-No.2 voltages between 165 and 330 volts	—	See curve page 300	

CHARACTERISTICS

Plate Voltage	125	125	volts
Grid-No.2 Voltage	—	125	volts
Grid-No.1 Voltage	—1	—1	volt
Amplification Factor	40	—	
Plate Resistance (Approx.)	5000	15000	ohms
Transconductance	7000	10000	μ mhos
Plate Current	12.5	12	mA
Grid-No.2 Current	—	4.5	mA
Grid-No.1 Voltage (Approx.) for plate current of 20 μ A	—	—7	volts

MAXIMUM CIRCUIT VALUE

Grid-No.1-Circuit Resistance	1	—	megohm
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6HM5

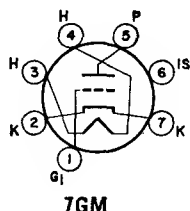
For replacement use type 6HM5/6HA5.

**6HM5/
6HA5**

2HM5/2HA5
3HM5/3HA5
4HM5/4HA5

HIGH-MU TRIODE

Miniature type used as rf-amplifier tube in vhf color and black-and-white television tuners. Outlines section, 5C; requires miniature 7-contact socket. Types 2HM5/2HA5, 3HM5/3HA5, and 4HM5/4HA5 are identical with type 6HM5/6HA5 except for heater ratings.



	2HM5/ 2HA5	3HM5/ 3HA5	4HM5/ 4HA5	6HM5/ 6HA5	
Heater Voltage (ac/dc)	2.0	2.7	4.0	6.3	volts
Heater Current	0.6	0.45	0.3	0.18	ampere
Peak Heater-Cathode Voltage	±110 max	±110 max	±110 max	±110 max	volts
Direct Interelectrode Capacitances:					
Grid to Plate				0.36	pF
Grid to Cathode, Heater, Internal Shield, and External Shield				4.3	pF
Plate to Cathode, Heater, Internal Shield, and External Shield				0.080	pF
Cathode to Plate				2.9	pF
Cathode to Heater, Grid, Internal Shield, and External Shield				3.1	pF
Heater to Cathode				2.3	pF
Heater to Grid				0.070 max	pF

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

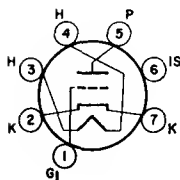
DC Plate Voltage	220	volts
DC Plate Supply Voltage	600	volts
Grid Voltage	—50	volts
Cathode Current	22	mA
Plate Dissipation	2.6	watts

CHARACTERISTICS AND TYPICAL OPERATION

	Fixed Bias		Cathode Bias		
DC Plate Supply Voltage	135	135	135	135	volts
Plate-Load Resistor	—	—	1000	5600	ohms
Internal-Shield Voltage	0	0	0	0	volts
DC Grid Voltage	—1	—2.7	—	—	volts
Cathode-Bias Resistor	—	—	0	87	ohms
Amplification Factor	72	—	80	72	
Transconductance	14500	1500	20000	14500	μmhos
Plate Current	11.5	—	19	11.5	mA
DC Grid Current	—	—	10	—	μA
Grid-No.1 Voltage for one-per-cent transconductance	—	—	—5.3	—8.1	volts

Refer to chart at end of section.

6HM6



7GM

HIGH-MU TRIODE

6HQ5

2HQ5, 3HQ5, 4HQ5

Miniature type used as grounded-cathode rf-amplifier tube in vhf tuners of television receivers. Outlines section, 5C; requires miniature 7-contact socket. Types 2HQ5, 3HQ5, and 4HQ5 are identical with type 6HQ5 except for heater ratings.

	2HQ5	3HQ5	4HQ5	6HQ5	
Heater Voltage (ac/dc)	2.4	3	4.2	6.3	volts
Heater Current	0.6	0.45	0.3	0.2	ampere
Heater Warm-up Time (Average)	11	11	11	—	seconds
Peak Heater-Cathode Voltage	±100 max	±100 max	±100 max	±100 max	volts
Direct Interelectrode Capacitances (Approx.):*					
Grid to Plate				0.52	pF
Grid to Cathode, Heater, and Internal Shield				5	pF
Plate to Cathode, Heater, and Internal Shield				3.5	pF
Heater to Cathode				2.5	pF

* With external shield connected to cathode.

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	200	volts
Grid Voltage, Negative-bias Value	50	volts
Cathode Current	22	mA
Plate Dissipation	2.5	watts

CHARACTERISTICS

Plate Voltage	135	volts
Grid Voltage	-1	volt
Amplification Factor	78	
Plate Resistance	5400	ohms
Transconductance	15000	μ mhos
Plate Current	11.5	mA
Input Resistance**	275	ohms
Input Capacitance**	11.2	pF
Noise Figure#	4.7	dB
Grid Voltage (Approx.) for transconductance of 150 μ mhos	-4.2	volts
Grid Voltage (Approx.) for transconductance of 1500 μ mhos	-2.5	volts

MAXIMUM CIRCUIT VALUE

Grid-Circuit Resistance, for cathode-bias operation 1 megohm

** Measured at 200 MHz with heater volts = 6.3 volts and plate effectively grounded for rf voltages.

For a neutralized triode amplifier at a frequency of 200 MHz with signal source impedance adjusted for minimum noise output.

6HR5

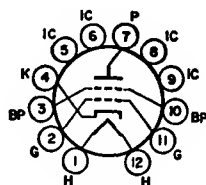
Refer to chart at end of section.

6HR6

Refer to chart at end of section.

6HS5**BEAM TRIODE**

Duodecar type used as a pulse-type regulator in the high-voltage power supply of color television receivers. Outlines section, 15F; requires duodecar 12-contact socket. Heater: volts (ac/dc), 6.3; amperes, 1.5.

**12GY****Class A₁ Amplifier****CHARACTERISTICS**

Pulse Plate Voltage*	3500	volts
Grid No.2 (Beam Plate)	Connected to cathode at socket	
Grid-Voltage, Negative-bias value	4.4	volts
Peak Plate Current	300	mA
Amplification Factor	300	
Transconductance	65000	μ mhos
Plate Resistance (Approx.)	4600	ohms
Grid Voltage (Approx.) for plate current of 1 mA	-13	volts

* Duty cycle of the pulse must be less than 2.5%.

High-Voltage Regulator Service

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

MAXIMUM RATINGS (Design-Maximum Values)

Peak Plate Voltage#	5500	volts
Plate Dissipation	30	watts
Peak Plate Current	325	mA
Heater-Cathode Voltage:		
Peak value	+200	-450
Average value		100
Bulb Temperature (At hottest point)		220

MAXIMUM CIRCUIT VALUE

Grid-Circuit Resistance^A 0.1 megohm

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

^A Larger values of grid-circuit resistance may be used if provisions are made to protect the tube.