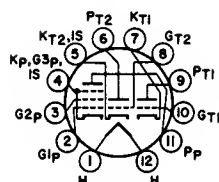


DUAL TRIODE— SHARP-CUTOFF PENTODE

14BR11

Duodecar type used in television receiver applications. The high-mu triode unit No. 1 is used for general-purpose use, the medium-mu triode unit No. 2 for sync separator service, and the pentode unit for video amplifier service. Outlines section, 8C; requires duodecar 12-contact socket. Heater: volts (ac/dc), 14.2; amperes, 0.45; warm-up time, 11 seconds; maximum heater-cathode volts, ± 200 peak, 100 average.



12GL

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

	Triode Unit No.1	Triode Unit No.2	Pentode Unit	
Plate Voltage	330	330	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	0	0	volts
Plate Dissipation	1.5	2	4	watts
Grid-No.2 Input:				
For grid-No.2 voltages up to 155 volts	—	—	1.1	watts
For grid-No.2 voltages between 155 and 330 volts	—	—	See curve page 98	

CHARACTERISTICS

Plate Voltage	200	200	35	135	volts
Grid-No.2 Voltage	—	—	135	135	volts
Grid-No.1 Voltage	—2	—	0	—	volts
Cathode-Bias Resistor	—	220	—	100	ohms
Amplification Factor	68	41	—	—	
Plate-Resistance (Approx.)	12400	9400	—	45000	ohms
Transconductance	5500	4400	—	10400	μ mhos
Plate Current	7	9.2	34	17	mA
Grid-No.2 Current	—	—	13	4	mA
Grid-No.1 Voltage (Approx.) for plate current of 100 μ A	—5.5	—5.5	—	—6	volts

MAXIMUM CIRCUIT VALUES

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

Refer to chart at end of section.

14C5

Refer to chart at end of section.

14C7

Refer to chart at end of section.

14E6

Refer to chart at end of section.

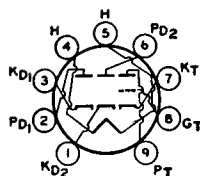
14E7

Refer to chart at end of section.

14F7

Refer to chart at end of section.

14F8



9KR

TWIN DIODE— HIGH-MU TRIODE

14GT8

Miniature type used as combined detector and voltage amplifier in radio receivers. Outlines section, 6B; requires miniature 9-contact socket.

Heater Voltage (ac/dc)	14	volts
Heater Current	0.15	ampere
Heater-Cathode Voltage:		
Peak value	± 200 max	volts
Average value	100 max	volts

Direct Interelectrode Capacitances:

Triode Unit:

Grid to Plate	1.8	pF
Grid to Cathode and Heater	1.6	pF
Plate to Cathode and Heater	0.24	pF

Diode Units:

Diode No.1 Plate to Triode Grid	0.09 max	pF
Diode No.2 Plate to Triode Grid	0.07 max	pF
Either Diode Cathode to All Other Tube Electrodes	6.5	pF
Diode Plate to Cathode and Heater (Each Unit)	2.4	pF

Triode Unit as Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

Plate Voltage	330	volts
Grid Voltage, Positive-bias value	0	volts
Plate Dissipation	1.1	watts

CHARACTERISTICS, Instantaneous Value

Plate Voltage	250	volts
Grid Voltage	-3	volts
Amplification Factor	72	
Plate Resistance (Approx.)	72000	ohms
Transconductance	1000	μmhos
Plate Current	0.7	mA

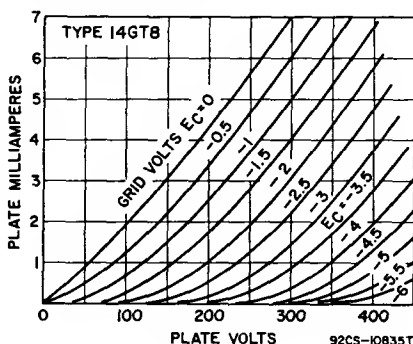
Diode Units (Each Unit)

MAXIMUM RATINGS (Design-Maximum Values)

Plate Current	5	mA
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CHARACTERISTICS, Instantaneous Value

Tube Voltage Drop for plate current of 18 mA	5	volts
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14H7 Refer to chart at end of section.

14J7 Refer to chart at end of section.

14JG8 Refer to chart at end of section.

14N7 Refer to chart at end of section.

14Q7 Refer to chart at end of section.

14R7 Refer to chart at end of section.

15 Refer to chart at end of section.

15AF11 Refer to type 6AF11.

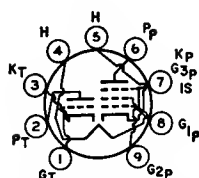
15BD11 Refer to type 6BD11.

15CW5 Refer to chart at end of section.

15CW5/PL84 Refer to type 6CW5/EL86.

HIGH-MU TRIODE— SHARP-CUTOFF PENTODE

15DQ8


9HX

Miniature type used in color and black-and-white television receiver applications. The triode unit is used as a sync-separator, sync-amplifier, keyed-agc, or noise-suppressor tube. The pentode unit is used as a video-output tube. Outlines section, 6E: requires miniature 9-contact socket.

Heater Voltage (ac/dc)	15	volts
Heater Current	0.3	ampere
Peak Heater-Cathode Voltage	±200 max	volts

Class A₁ Amplifier

MAXIMUM RATINGS (Design-Maximum Values)

	Triode Unit	Pentode Unit	
Plate Supply Voltage	550	550	volts
Peak Plate Voltage, with maximum plate current of 0.1 mA	600	—	volts
Plate Voltage	250	250	volts
Grid-No.2 (Screen-Grid) Supply Voltage	—	550	volts
Grid-No.2 Voltage	—	250	volts
Cathode Current	12	40	mA
Plate Dissipation	1	4	watts
Grid-No.2 Input	—	1.7	watts

CHARACTERISTICS

	Triode Unit	Pentode Unit	
Plate Voltage	200	170	200
Grid-No.2 Voltage	—	170	200
Grid-No.1 Voltage	—1.7	—2.1	—2.9
Amplification Factor	65	—	—
Mu-Factor, Grid-No.2 to Grid-No.1	—	36	36
Plate Resistance (Approx.)	—	0.1	0.13
Transconductance	4000	11000	10400
Plate Current	3	18	18
Grid-No.2 Current	—	3	3

TYPICAL OPERATION OF PENTODE UNIT AS VIDEO OUTPUT TUBE

Plate Supply Voltage	170	200	220
Series Plate Resistor	3000	3000	3000
Grid-No.2 Voltage	170	200	220
Grid-No.1 Voltage	—2	—2.8	—3.3
Transconductance	10400	10000	9700
Plate Current	18	18	18
Grid-No.2 Current	3.2	3.1	3.1

MAXIMUM CIRCUIT VALUES

	Triode Unit	Pentode Unit	
Grid-No.1-Circuit Resistance:			
For fixed-bias operation	1	1	megohm
For cathode-bias operation	3	2	megohms

* With maximum duty factor of 0.18 and maximum pulse duration of 18 microseconds.

Refer to type 6EW7.

15EW7

Refer to type 6FM7.

15FM7

Refer to type 6FY7.

15FY7

Refer to chart at end of section.

15HB6

Refer to chart at end of section.

15KY8

Refer to type 6KY8A.

15KY8A

Refer to type 6LE8.

15LE8