

Beam Power Tube

Duodecar Type

For Color-TV Horizontal-Deflection Amplifier
Circuits Using 240 V to over 400 V "B" Supplies

ELECTRICAL CHARACTERISTICS - Bogey Values

Heater Voltage, ac or dc. . .	E_h	6.3	V
Heater Current	I_h	2.25	A

Direct Interelectrode

Capacitances:^a

Grid No.1 to plate.	c_{g1-p}	0.44	pF
Input: G1 to (K, G3, G2, H). .	c_i	33	pF
Output: P to (K, G3, G2, H). .	c_o	18	pF

For the following characteristics, see Conditions below:

Amplification Factor

(Triode Connection) ^b . . .	μ	—	—	—	4 ^c
Plate Resistance (approx.)	r_p	—	—	—	6600 Ω
Transconductance	g_m	—	—	—	13400 μmho
DC Plate Current	I_b	—	900 ^d	560 ^d	105 mA
DC Grid-No.2 Current. . . .	I_{c2}	—	110 ^d	46 ^d	2.0 mA

Cutoff DC Grid-No.1 Volt-

age for $I_b = 1 \text{ mA}$	$E_{c1(co)}$	-125	—	—	-40 V
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Conditions:

Heater Voltage	E_h	← 6.3 →	V
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Peak Positive-Pulse

Plate Voltage ^e	e_{bm}	5000	—	—	— V
DC Plate Voltage	E_b	—	45	50	150 V
Grid No.3	Connected to cathode at socket				
DC Grid-No.2 Voltage . . .	E_{c2}	110	160	110	110 V
DC Grid-No.1 Voltage . . .	E_{c1}	—	0	—	-20 V

MECHANICAL CHARACTERISTICS

Maximum Overall Length.	4.375 in (111.12 mm)
Maximum Seated Length	4.000 in (101.6 mm)
Maximum Diameter.	1.563 in (39.7 mm)
Dimensional Outline	JEDEC No.12-90
Envelope.	JEDEC T12
Top Cap ^f	Small (JEDEC C1-1 or C1-34)

Base Large-Button Duodecar 12-Pin (JEDEC E12-74)
 Terminal Diagram JEDEC 12GJ
 Type of Cathode Coated Unipotential
 Operating Position Any

MAXIMUM RATINGS – Design-Maximum Values⁹

*For operation as a Horizontal-Deflection-Amplifier Tube
 in a 525-line, 30-frame system*

DC Plate Supply Voltage	E_{bb}	990	V
Peak Positive-Pulse Plate Voltage ^h . .	e_{bm}	7000 ^k	V
Peak Negative-Pulse Plate Voltage . .	$-e_{bm}$	100	V
DC Grid-No.3 Voltage	E_{c3}	0	V
DC Grid-No.2 (Screen-Grid) Voltage . .	E_{c2}	200	V
Peak Negative-Pulse Grid-No.1 (Control-Grid) Voltage	$-e_{c1m}$	300	V
Heater-Cathode Voltage:			
Peak	e_{hkm}	±200	V
Average ^m	E_{hk}	100	V
Heater Voltage, ac or dc	E_h	5.7 to 6.9	V
Cathode Current:			
Peak	i_{km}	1100	mA
Average ^m	$I_{k(av)}$	315	mA
Grid-No.2 Input	P_{g2}	5.0	W
Plate Dissipation ⁿ	P_b	30	W
Envelope Temperature	T_E	200 ^p	°C

MAXIMUM CIRCUIT VALUES

Grid-No.1-Circuit Resistance	R_{g1}	1.2	MΩ
With Feedback-Type High Voltage Regulation			
Grid-No.1-Circuit Resistance	R_{g1}	10	MΩ
With Shunt-Type High Voltage Regulation			
Grid-No.3-Circuit Resistance	R_{g3}	0	Ω

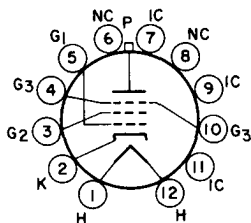
^a Measured without external shield in accordance with the current issue of EIA Standard RS-191.

^b With grid No.3 and grid No.2 connected, respectively, to cathode and plate at socket.

- ^c Conditions: $E_b = E_{c2} = 125 \text{ V}$, $E_{c1} = -25 \text{ V}$.
- ^d This value can be measured by a method involving a recurrent waveform such that the Maximum Ratings of the tube will not be exceeded.
- ^e Under pulse-duration condition specified in Footnote h.
- ^f Designed to mate with connector of 0.250-inch cap, generally available from your local RCA distributor.
- ^g As defined in the current issue of EIA Standard RS-239, unless otherwise specified.
- ^h This rating is applicable when the duration of the voltage pulse does not exceed 15% of one horizontal scanning cycle. In a 525-line, 30-frame system, 15% of one horizontal scanning cycle is 10 μs .
- ^k Absolute-Maximum Value.
- ^m Measured with a DC meter.
- ⁿ An adequate bias resistor or other means is required to protect the tube in the absence of excitation.
- ^p This rating is applicable when measurement is made using a thermocouple attached to a 0.1-inch wide phosphor-bronze ring placed at the hottest location on the envelope. A maximum rating of 220°C is applicable to direct thermocouple measurements taken at the hottest point on the envelope surface.

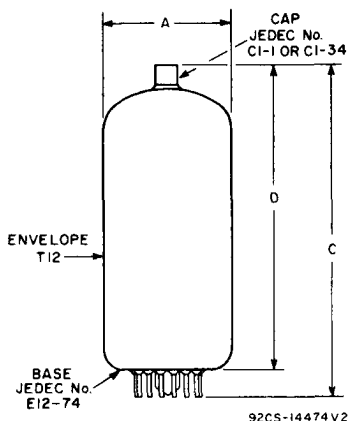
TERMINAL DIAGRAM (Bottom View)

- Pin 1 – Heater
 Pin 2 – Cathode
 Pin 3 – Grid No.2
 Pin 4 – Grid No.3
 Pin 5 – Grid No.1
 Pin 6 – No Internal Connection
 Pin 7 – Do Not Use
 Pin 8 – No Internal Connection
 Pin 9 – Do Not Use
 Pin 10 – Grid No.3
 Pin 11 – Do Not Use
 Pin 12 – Heater
 Cap – Plate



JEDEC 12GJ

DIMENSIONAL OUTLINE (JEDEC No.12-90)



DIMENSION	INCHES		MILLIMETERS	
	Min.	Max.	Min.	Max.
A	1.437*	1.563	36.5*	39.7
C	—	4.375	—	111.12
D	3.750	4.000	95.3	101.6
MILLIMETER DIMENSION DERIVED FROM INCH DIMENSION				
* Applies to the minimum diameter except in the area of the seal.				