from JEDEC release #4759E,
Feb. 14, 1966

6LQ8, 11LQ8

MEDIUM-MU TRIODE–SHARP-CUTOFF PENTODES

9-Pin Miniature Types

For Use in Low-B+ Black-and-White TV Receivers Having Low-Voltage Power Supplies

Triode μ = 46
Pentode gm = 21000 μmho

High Operating Efficiency
RCA Dark Heater

RCA-6LQ8* and 11LQ8 are multiunit tubes of the 9-pin miniature type, each containing a medium-mu triode and a sharp-cutoff pentode in one envelope. These types are especially useful in black-and-white television receivers operating at low-B+ voltages.

The triode unit of the 6LQ8 and 11LQ8 can be used in sync-separator and sound-if circuits and in general-purpose voltage-amplifier applications. The pentode unit is especially suited for use as a video output tube. The use of frame-grid construction in the pentode unit results in an exceptionally high value of transconductance. The pentode unit also has a plate current characteristic with controlled knee to provide good linearity at relatively low plate voltage. High operating efficiency is achieved in these tubes through advanced design of the tube electrode geometry.

Each unit of the 6LQ8 and 11LQ8 has its own cathode with an individual base-pin terminal, to provide flexibility of circuit connections. The heater of the 11LQ8 has controlled warm-up time for use in series-heater-string arrangements.

* Formerly Developmental Type A55244.

ELECTRICAL CHARACTERISTICS—Bogey Values[a]

		6LQ8	*11LQ8*	
Heater Voltage, ac or dc	E_h	6.3	10.9	V
Heater Current	I_h	775	450	mA
Heater Warm-up Time	t_h	-	11	s
Direct Interelectrode Capacitances:[b]				
Triode Unit:				
Grid to plate	c_{g-p}	2.8		pF
Input: GT to (KT, KP + G3P + IS, H)	c_i	4.2		pF
Output: PT to (KT, KP + G3P + IS, H)	c_o	2.4		pF
Pentode Unit:				
Grid No.1 to plate	c_{g1-p}	0.12 max.		pF
Input: G1P to (KP + G3P + IS, G2P, H)	c_i	14		pF
Output: PP to (KP + G3P + IS, G2P, H)	c_o	4.8		pF
Triode grid to pentode plate	-	0.015 max.		pF
Pentode plate to triode plate	-	0.17 max.		pF

For the following characteristics, see Conditions below:

		Triode Unit	*Pentode Unit*		
Amplification Factor	μ	46	-	-	
Plate Resistance (Approx.)	r_p	4400	55000	75000	Ω
Transconductance	g_m	10400	21000	23000	μmho
DC Plate Current	I_b	15	16.5	20	mA
DC Grid-No.2 Current	I_{c2}	-	3.1	3.5	mA
Cutoff DC Grid-No.1 Voltage for I_b = 100 μA	$E_{c1(co)}$	-6	-4.2	-4.2	V
Conditions:					
Heater Voltage	E_h	Bogey value			V
DC Plate Supply Voltage	E_{bb}	125	125	200	V
DC Grid-No.2 Supply Voltage	E_{cc2}	-	125	125	V
Grid No.1	-	Connected to negative end of R_k			
Cathode Resistor	R_k	68	82	68	Ω

MECHANICAL CHARACTERISTICS

Maximum Overall Length . . . . . 2.625 in
Maximum Seated Length . . . . . 2.375 in
Maximum Diameter . . . See *Dimensional Outline* . . . 0.875 in
Envelope . . . . . JEDEC Designation T6-1/2
Base . . Small-Button Noval 9-Pin (JEDEC Designation E9-1)
Dimensional Outline . . . . . JEDEC Designation 6-3
Terminal Diagram . . . . . JEDEC Designation 9DX
Type of Cathodes . . . . . Coated Unipotential
Operating Position . . . . . Any

MAXIMUM RATINGS—Design-Maximum Values[c]

For operation as a Class A1 Amplifier Tube

		Triode Unit	*Pentode Unit*	
DC Plate Voltage	E_b	300	300	V
DC Grid-No.2 (Screen-Grid) Supply Voltage	E_{cc2}	-	300	V
DC Grid-No.2 Voltage	E_{c2}	-	See GRID-No.2-INPUT RATING CHART	
DC Grid-No.1 (Control-Grid) Voltage:				
Positive-bias value	E_{c1}	0	0	V

Heater-Cathode Voltage:				
Peak	e_{hkm}	±200		V
Average[d]	$E_{hk(av)}$	100		V
Heater Voltage, ac or dc *(6LQ8)*	E_h	5.7 to 6.9		V
Heater Current *(11LQ8)*	I_h	420 to 480		mA
Grid-No.2 Input:	P_{g2}			
For $E_{c2} \leq$ 150 V	-	-	1	W
For $E_{c2} >$ 150 V and $\leq$ 300 V	-	-	See GRID-No.2-INPUT RATING CHART	
Plate Dissipation	P_b	2	5	W

MAXIMUM CIRCUIT VALUES

		Triode Unit	*Pentode Unit*	
Grid-No.1 Circuit Resistance:	$R_{g1(ckt)}$			
For fixed-bias operation	-	0.5	0.1	MΩ
For cathode-bias operation	-	1	0.25	MΩ

[a] Unless otherwise specified.

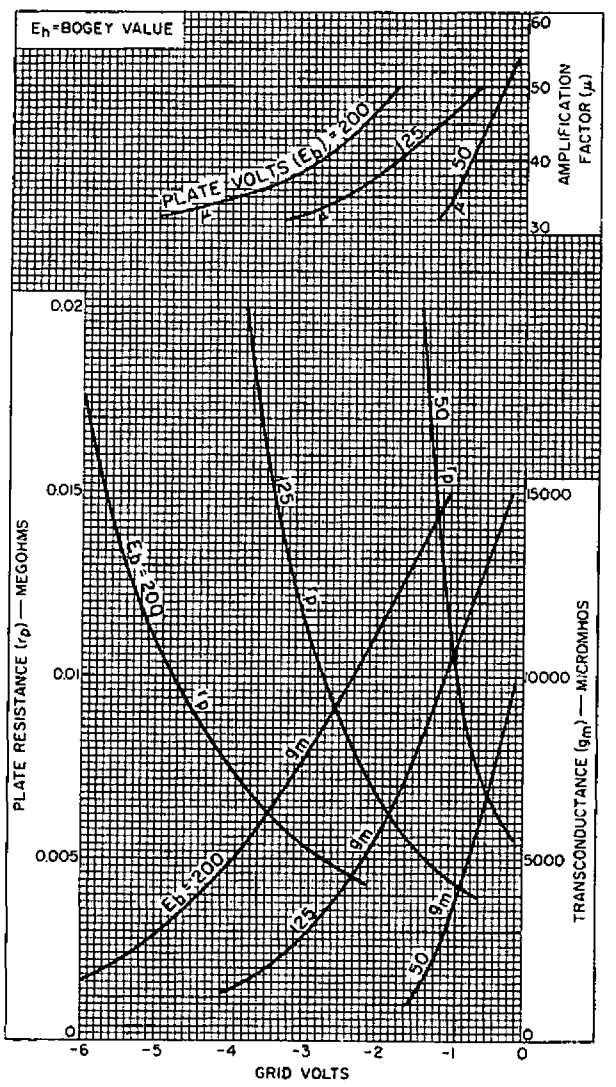
[b] Measured without external shield in accordance with the current issue of EIA Standard RS-191.

[c] As defined in the current issue of EIA Standard RS-239.

[d] Measured with a dc meter.

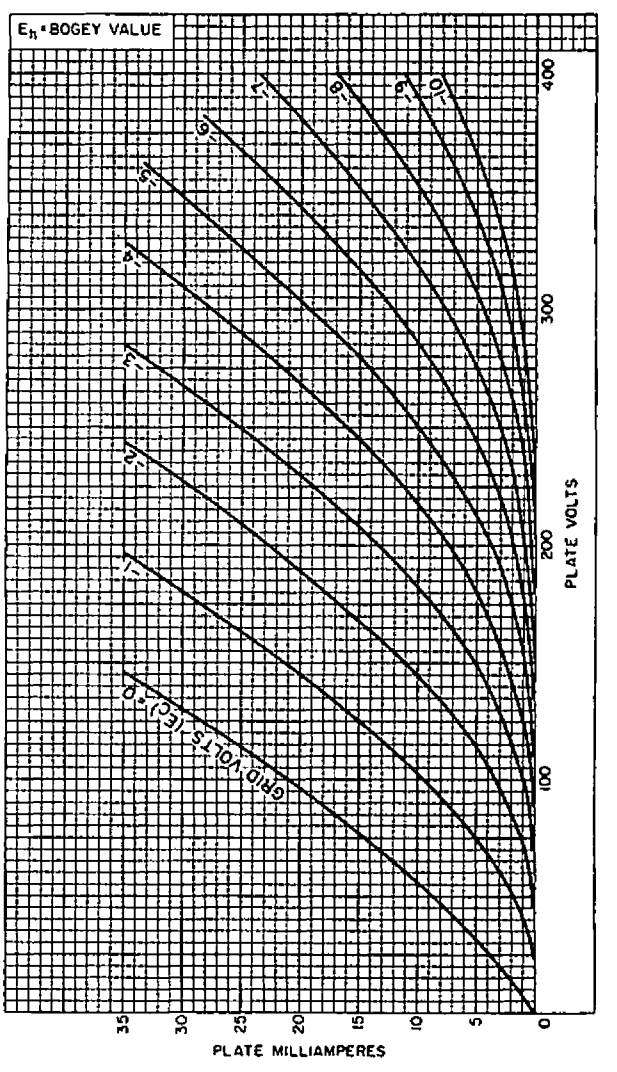
TYPICAL CHARACTERISTICS

Triode Unit



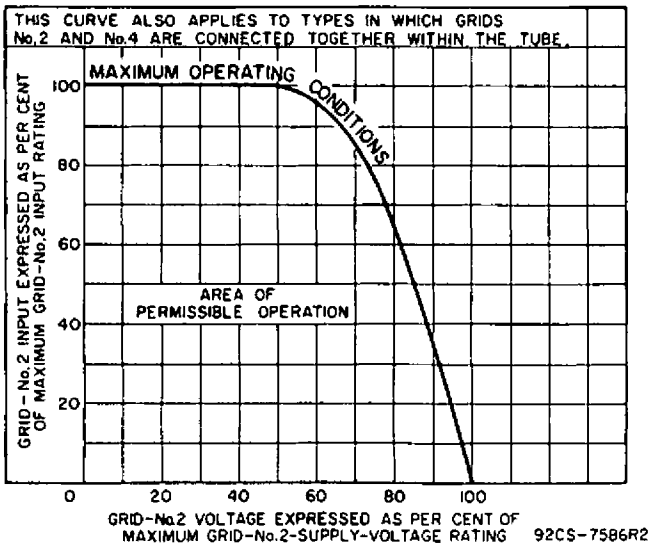
TYPICAL PLATE CHARACTERISTICS

Triode Unit



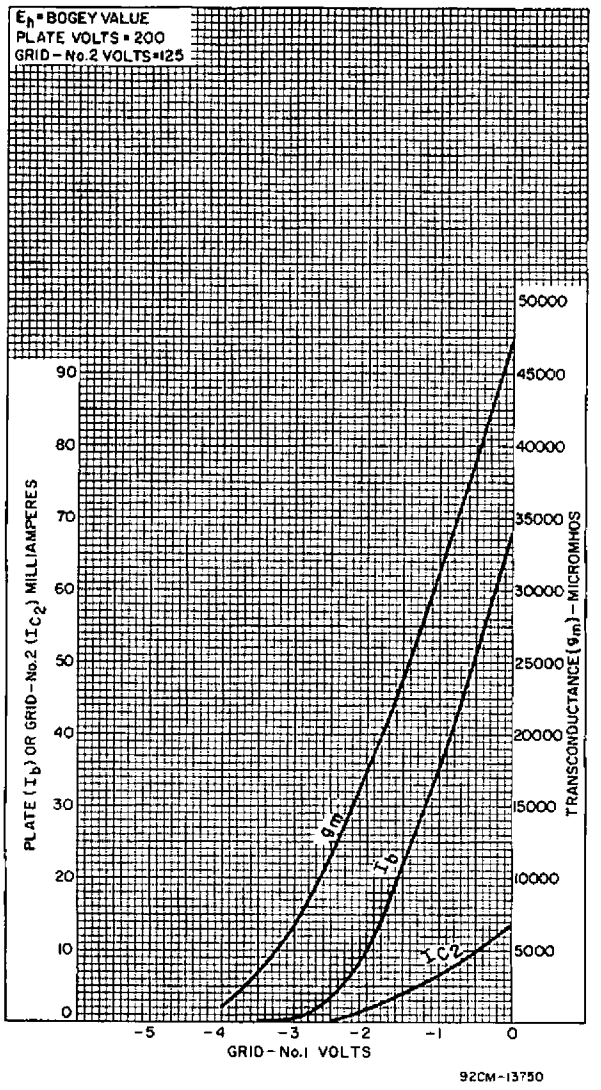
GRID-No.2-INPUT RATING CHART

Pentode Unit



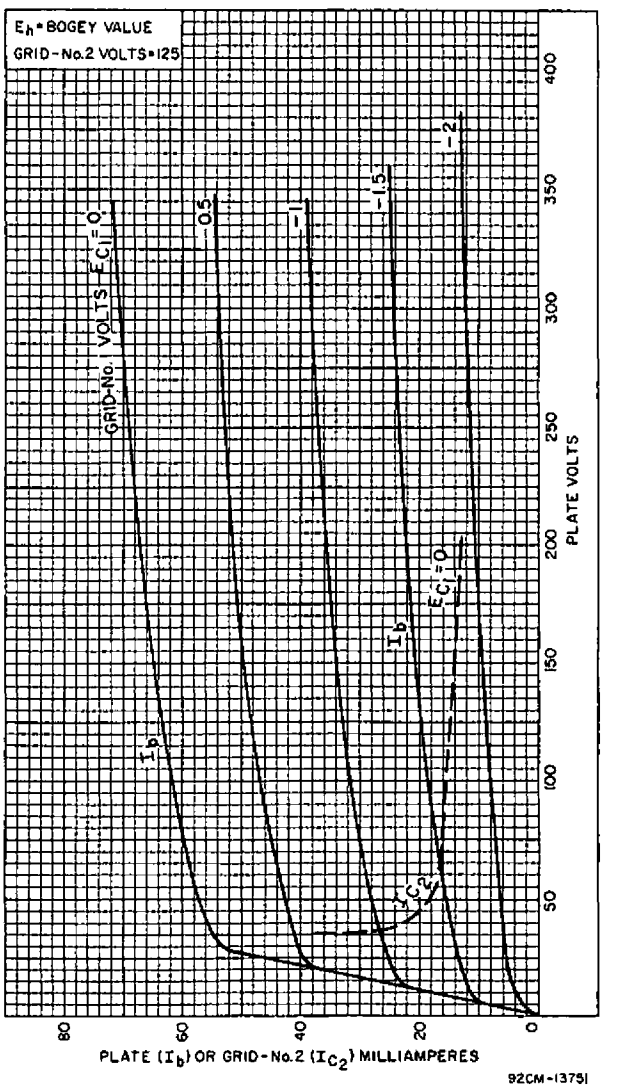
TYPICAL CHARACTERISTICS

Pentode Unit

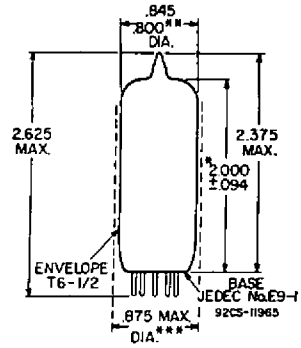


TYPICAL PLATE CHARACTERISTICS

Pentode Unit



DIMENSIONAL OUTLINE JEDEC 6-3



Dimensions in Inches

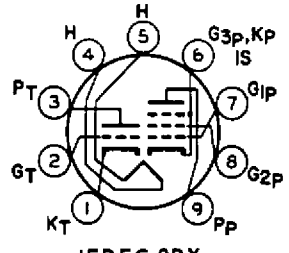
* Measured from base seat to bulb-top line as determined by ring gauge of 0.437" inside diameter.

** Major diameter as checked by ring gauges of 0.25" thickness. The maximum gauge should clear the bulb above 0.38" from the base seat and the minimum gauge should not.

*** The diameter of the boundary cylinder as defined by the barriers of the pin alignment gauge (Gauge No.GE9-1, Sheet 30, Section 3 of EIA Standard RS-209A).

TERMINAL DIAGRAM

Bottom View



JEDEC 9DX

Pin 1 - Triode Cathode
Pin 2 - Triode Grid
Pin 3 - Triode Plate
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Pentode Grid No.3, Pentode Cathode, Internal Shield
Pin 7 - Pentode Grid No.1
Pin 8 - Pentode Grid No.2
Pin 9 - Pentode Plate