

ELECTRONIC TUBE REFERENCE

11MS8

Power - Beam (NOT sweep) electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

BEAMPOWER-TRIODE

Multi-section receiving tube combining a beam-power audio-output stage with an additional small-signal section for television or radio receiver functions.

GENERAL CHARACTERISTICS

BASE DESIGNATION	9LY	BASE PINS	9
NOMINAL HEATER	11.6 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

9LY - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1	B	P – Plate (Anode)	CONNECTED
PIN2	B	G1 – Control Grid	CONNECTED
PIN3	B	K – Cathode	CONNECTED
PIN4	–	H – Heater	CONNECTED
PIN5	–	H – Heater	CONNECTED
PIN6	A	P – Plate (Anode)	CONNECTED
PIN7	A	G2 – Screen Grid	CONNECTED
PIN8	A	G3 – Suppressor Grid	CONNECTED
PIN8	A	K – Cathode	CONNECTED
PIN8	–	IS – Internal Screen	CONNECTED
PIN9	A	G1 – Control Grid	CONNECTED

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	11000 Ω
TRANSCONDUCTANCE	0.0055 S
AMPLIFICATION FACTOR	60
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM PLATE DISSIPATION	0.5 W
<i>Vertical-deflection oscillator triode.</i>	

SECTION2 Beam Power	
PLATE RESISTANCE	13000 Ω
TRANSCONDUCTANCE	0.0085 S
AMPLIFICATION FACTOR	5.8
MAXIMUM PLATE VOLTAGE	250 V
MAXIMUM SCREEN VOLTAGE	200 V
MAXIMUM PLATE DISSIPATION	6 W
MAXIMUM SCREEN DISSIPATION	1.5 W
MAXIMUM CATHODE CURRENT	70 mA
<i>Vertical-deflection beam-power amplifier.</i>	

11MS8 — High-Mu Triode and Beam Power Tube

The **11MS8** is a multi-unit miniature vacuum tube containing a high-mu triode and a beam power tube in a single envelope. It is designed primarily for use in combined vertical-deflection-oscillator and vertical-deflection-amplifier applications in black-and-white television receivers.

Heater and Physical Specifications

The 11MS8 is constructed as a miniature tube requiring a standard miniature 9-contact socket. It features a controlled heater warm-up time, making it suitable for series-string heater arrangements.

Heater and Physical Parameter	Value
Heater Voltage	11.6 V
Heater Current	0.45 A
Heater Warm-Up Time (Approximate)	11 seconds

Heater and Physical Parameter	Value
Maximum Heater-Cathode Voltage (Peak)	± 200 V
Maximum Heater-Cathode Voltage (Average)	100 V
Physical Outline Designation	6G
Base Type	Miniature 9-contact

Pinout and Electrode Connections

The 11MS8 uses the **9LY** basing arrangement. The connections, viewed from the bottom of the tube, are assigned as follows:

- **Pin 1:** Grid (Triode Unit) — GT
- **Pin 2:** Plate (Triode Unit) — PT
- **Pin 3:** Cathode (Triode Unit) — KT
- **Pin 4:** Heater — H
- **Pin 5:** Heater — H
- **Pin 6:** Grid No. 1 / Control Grid (Beam Power Unit) — G1P
- **Pin 7:** Cathode and Grid No. 3 / Beam Plates (Beam Power Unit) — KP, G3P
- **Pin 8:** Grid No. 2 / Screen Grid (Beam Power Unit) — G2P
- **Pin 9:** Plate (Beam Power Unit) — PP

Class A1 Amplifier Characteristics

The triode and beam power units can be operated as Class A1 amplifiers. The triode unit is characterized by a high amplification factor, while the beam power unit provides higher current capability and power output.

Triode Unit Characteristics

The triode unit has two documented operating points under Class A1 conditions:

Parameter	Operating Point 1	Operating Point 2
Plate Voltage	100 V	100 V
Grid-No. 1 (Control-Grid) Voltage	-0.85 V	0 V
Plate Current	5 mA	10 mA
Transconductance	5500 μ mhos	7000 μ mhos
Amplification Factor	60	63

Parameter	Operating Point 1	Operating Point 2
Plate Resistance (Approximate)	11,000 Ω	9,000 Ω

Beam Power Unit Characteristics

The beam power unit is characterized under the following Class A1 operating point:

- **Plate Voltage:** 120 V
- **Grid-No. 2 (Screen-Grid) Voltage:** 110 V
- **Grid-No. 1 (Control-Grid) Voltage:** -10 V
- **Plate Current:** 50 mA
- **Grid-No. 2 Current:** 3 mA
- **Transconductance:** 8500 μmhos
- **Amplification Factor (with Grid-No. 2 connected to plate at socket):** 5.8
- **Plate Resistance (Approximate):** 13,000 Ω

Vertical-Deflection Service and Maximum Ratings

For operation in a television receiver utilizing a 525-line, 30-frame system, the 11MS8 is rated under the Design-Maximum system. These ratings must not be exceeded under the worst-case operating conditions.

Design-Maximum Ratings

Rating Parameter	Triode Unit	Beam Power Unit
Maximum Plate Voltage	250 V	250 V
Maximum Peak Positive Pulse Plate Voltage	—	2000 V*
Maximum Grid-No. 2 Voltage	—	200 V
Maximum Grid-No. 1 Voltage	—	0 V
Maximum Plate Dissipation	0.5 W	6 W
Maximum Grid-No. 2 Input	—	1.5 W
Maximum Average Cathode Current	15 mA	70 mA

* *Note on Peak Positive Pulse Plate Voltage:* The pulse duration must not exceed 15% of a vertical scanning cycle, which corresponds to a maximum duration of 2.5 milliseconds.

Maximum Circuit Values

The maximum allowable grid-circuit resistance depends on the biasing method and the specific unit:

- **Triode Unit Grid-No. 1 Circuit Resistance:**
 - For fixed-bias operation: 1 megohm (maximum)
 - For cathode-bias operation: 3.3 megohms (maximum)
- **Beam Power Unit Grid-No. 1 Circuit Resistance:**
 - Maximum resistance: 2 megohms

Technical Summary

The **11MS8** is a versatile, space-saving television tube combining a **high-mu triode** and a **beam power unit** in a single 9-pin miniature envelope. With a heater rating of **11.6 V / 0.45 A** and a controlled **11-second warm-up time**, it is optimized for series-string television designs. The triode unit, featuring an amplification factor of up to 63, is well-suited for vertical-deflection oscillator service, while the beam power unit, capable of handling up to 2000 V peak positive plate pulses and 6 W of plate dissipation, is designed to drive the vertical-deflection amplifier stage.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1975 RCA RC30

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1975 RCA RC30

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	100 V	ClassA
Control-grid voltage	-0.85 V	ClassA
Transconductance	5500 μ S	ClassA

1975 RCA RC30

Section 2 · Beam Power

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	120 V	ClassA
Screen-grid voltage	110 V	ClassA
Control-grid voltage	-10 V	ClassA
Transconductance	8500 μ S	ClassA
Peak positive-pulse plate voltage	2000 V	VerticalDeflection
Average cathode current	70 mA	VerticalDeflection