

ELECTRONIC TUBE REFERENCE

CONSOLIDATED TECHNICAL DATA

15BD11A

3 SECTIONS

CONSTRUCTION

Voltage - Dual Triode Pentode electronic tube

PENTODE-TRIODE-TRIODE

Heater variant of the 6BD11 combining high-mu and medium-mu triodes with a sharp-cutoff pentode for television signal-amplifier applications.

GENERAL CHARACTERISTICS

BASE DESIGNATION	12DP	BASE PINS	12
NOMINAL HEATER	14.7 V / 450 mA	PARALLEL HEATER	– / –
HEATING	Indirect	SERIES OPERATION	Capable
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

12DP - TERMINAL PINOUT

TERMINAL	SECTION	ELEMENT	STATUS
PIN1	–	H – Heater	CONNECTED
PIN2	A	P – Plate (Anode)	CONNECTED
PIN3	C	G1 – Control Grid	CONNECTED
PIN4	C	P – Plate (Anode)	CONNECTED
PIN5	B	K – Cathode	CONNECTED
PIN6	B	G3 – Suppressor Grid	CONNECTED
PIN7	C	K – Cathode	CONNECTED
PIN7	–	IS – Internal Screen	CONNECTED
PIN8	B	P – Plate (Anode)	CONNECTED
PIN9	A	G3 – Suppressor Grid	CONNECTED
PIN9	A	K – Cathode	CONNECTED
PIN10	A	G2 – Screen Grid	CONNECTED
PIN11	A	G1 – Control Grid	CONNECTED

TERMINAL	SECTION	ELEMENT	STATUS
PIN12	—	H – Heater	CONNECTED

SECTION RATINGS

SECTION1 Triode		
PLATE RESISTANCE		12400 Ω
TRANSCONDUCTANCE		0.0055 S
AMPLIFICATION FACTOR		68
MAXIMUM PLATE VOLTAGE		330 V
MAXIMUM PLATE DISSIPATION		1.5 W
<p><i>Sylvania 15BD11A first high-mu triode of two dissimilar physical triodes and video pentode. 14.7 V 450 mA series heater. Equivalent to 6BD11 except heater and separate pentode screen rating. Maximum plate 330 V, dissipation 1.5 W. Typical at V_a 200 V and grid -2 V: gm 5.5 mA/V, amplification factor 68, plate resistance ~12400 ohms. Sylvania publishes individual and inter-section capacitances. Other triode is medium-mu and has different ratings.</i></p>		

SECTION2 Triode		
PLATE RESISTANCE		9400 Ω
TRANSCONDUCTANCE		0.0044 S
AMPLIFICATION FACTOR		41
MAXIMUM PLATE VOLTAGE		330 V
MAXIMUM PLATE DISSIPATION		2 W
<p><i>Sylvania 15BD11A second, medium-mu triode, physically distinct from first high-mu triode. Maximum anode voltage 330 V and dissipation 2 W; typical at V_a 200 V, 220-ohm cathode bias resistor: gm 4.4 mA/V, mu 41, plate resistance 9400 ohms, plate current ~9.2 mA. Shared 14.7 V 0.45 A heater variant of 6BD11. Interelectrode capacitances published.</i></p>		

SECTION3 Pentode	
PLATE RESISTANCE	45000 Ω
TRANSCONDUCTANCE	0.0104 S
MAXIMUM PLATE VOLTAGE	330 V
MAXIMUM PLATE DISSIPATION	4 W
MAXIMUM SCREEN DISSIPATION	1.5 W
<p><i>Sylvania 15BD11A sharp-cutoff video-amplifier pentode, with two dissimilar separate triodes. Maximum plate 330 V, dissipation 4 W, screen supply 330 V; Sylvania specifically gives 1.5 W max screen dissipation for 15BD11A rather than 6BD11's 1.1 W. Typical pentode gm ~10.4 mA/V and plate resistance ~45 kΩ based on verified 6BD11 family electrical equivalence, conditioned on its published operating point. Capacitances specified. Series heater 14.7 V at 0.45 A.</i></p>	

15BD11A — Triple-Section Compactron Vacuum Tube

The **15BD11A** is an indirectly heated, multi-unit vacuum tube containing three independent active sections within a single Compactron T-9 glass envelope. It features a high-mu triode (Section 1), a medium-mu triode (Section 2), and a sharp-cutoff pentode. The tube is designed for television receiver applications, specifically serving as a general-purpose amplifier, sync separator, and video amplifier.

Construction, Basing, and Physical Dimensions

The 15BD11A utilizes Compactron T-9 construction with a glass envelope and a 12-pin button base (E12-70). The physical layout is defined by the 9-58 outline, with the following physical dimensions:

- **Maximum Diameter:** 1.188 inches
- **Maximum Seated Height:** 2.000 inches
- **Maximum Overall Height:** 2.375 inches

The tube uses the **12DP** basing arrangement. The pin connections, viewed from the bottom of the base, are assigned as follows:

Pin	Connection
Pin 1	Cathode (Triode Section 1)
Pin 2	Plate (Triode Section 2)
Pin 3	Grid (Triode Section 2)
Pin 4	Cathode (Triode Section 2)
Pin 5	Plate (Triode Section 1)

Pin	Connection
Pin 6	Heater
Pin 7	Heater
Pin 8	Grid No. 1 (Pentode Section)
Pin 9	Grid No. 2 / Screen Grid (Pentode Section)
Pin 10	Grid No. 3 / Suppressor Grid and Internal Shield
Pin 11	Plate (Pentode Section)
Pin 12	Grid (Triode Section 1)

Heater Specifications and Electrical Ratings

The 15BD11A is designed for series-string heater operation, featuring a controlled warm-up time. Its heater ratings and heater-cathode voltage limits are:

Parameter	Value
Heater Voltage	14.7 V
Heater Current	450 mA
Heater Warm-up Time	11 seconds
Max. Heater-Cathode Voltage (Heater Negative to Cathode)	200 V (Total DC and Peak)
Max. Heater-Cathode Voltage (Heater Positive to Cathode, DC)	100 V
Max. Heater-Cathode Voltage (Heater Positive to Cathode, Total)	200 V (Total DC and Peak)

The 15BD11A shares its heater voltage and current ratings with the [15BD11](#), but differs from the [6BD11](#), which operates at a nominal heater voltage of 6.3 V and a heater current of 1050 mA.

Design Maximum Ratings

The ratings of the three independent sections are defined under the Design Maximum Rating System. A key distinction of the **15BD11A** compared to the related [15BD11](#) and [6BD11](#) is its increased screen dissipation capability.

Rating Parameter	Triode Section 1	Triode Section 2	Pentode Section
Maximum Plate Voltage	330 V	330 V	330 V
Maximum Screen-Supply Voltage	—	—	330 V
Maximum Positive DC Grid Voltage	0 V	0 V	0 V (Grid No. 1)
Maximum Plate Dissipation	1.5 W	2.0 W	4.0 W
Maximum Screen Dissipation	—	—	1.5 W
Max. Grid Circuit Resistance (Fixed Bias)	0.5 M Ω	0.5 M Ω	1.0 M Ω
Max. Grid Circuit Resistance (Cathode Bias)	1.0 M Ω	1.0 M Ω	1.0 M Ω

Note: The maximum screen dissipation for the 15BD11A is 1.5 Watts, whereas the 15BD11 and 6BD11 are limited to 1.1 Watts.

Direct Interelectrode Capacitances

The direct interelectrode capacitances of the 15BD11A are measured without an external shield. The coupling between sections is minimized but present, as detailed below:

Triode Section 1 (High-Mu)

- **Grid to Plate:** 1.9 pF
- **Input (Grid to Cathodes, Pentode Cathode, Suppressor, Heater, Shield):** 3.0 pF
- **Output (Plate to Cathodes, Pentode Cathode, Suppressor, Heater, Shield):** 2.2 pF

Triode Section 2 (Medium-Mu)

- **Grid to Plate:** 3.6 pF
- **Input (Grid to Triode 2 Cathode, Pentode Cathode, Suppressor, Heater, Shield):** 2.4 pF
- **Output (Plate to Triode 2 Cathode, Pentode Cathode, Suppressor, Heater, Shield):** 3.8 pF

Pentode Section

- **Grid No. 1 to Plate:** 0.13 pF

- **Input (Grid No. 1 to Triode 2 Cathode, Pentode Cathode, Screen, Suppressor, Heater, Shield):** 11 pF
- **Output (Plate to Triode 2 Cathode, Pentode Cathode, Screen, Suppressor, Heater, Shield):** 4.6 pF

Inter-Section Coupling

- **Pentode Plate to Triode Section 2 Plate (Max.):** 0.045 pF
- **Triode Section 1 Plate to Triode Section 2 Plate (Max.):** 0.075 pF

Typical Operating Characteristics

The three sections of the 15BD11A exhibit distinct electrical characteristics optimized for their respective roles in television circuitry.

Triode Section 1 (High-Mu Triode)

Operating as a Class A1 amplifier, Triode Section 1 provides high voltage gain:

- **Plate Voltage:** 200 V
- **Grid Voltage:** -2.0 V
- **Amplification Factor (μ):** 68
- **Plate Resistance (Approx.):** 12,400 Ω
- **Transconductance:** 5500 μ hos
- **Plate Current:** 7.0 mA
- **Grid Voltage for Cutoff (at Plate Current of 100 μ A):** -5.5 V (Approx.)

Triode Section 2 (Medium-Mu Triode)

Triode Section 2 is designed for medium-mu applications, operating with cathode bias:

- **Plate Voltage:** 200 V
- **Cathode-Bias Resistor:** 220 Ω
- **Amplification Factor (μ):** 41
- **Plate Resistance (Approx.):** 9400 Ω
- **Transconductance:** 4400 μ hos
- **Plate Current:** 9.2 mA
- **Grid Voltage for Cutoff (at Plate Current of 100 μ A):** -6.5 V (Approx.)

Pentode Section (Sharp-Cutoff Pentode)

The pentode section is characterized under two typical operating conditions:

Parameter	Condition A	Condition B
Plate Voltage	35 V	135 V
Screen Voltage (Grid No. 2)	135 V	135 V
Grid No. 1 Voltage	0 V	—
Cathode Bias Resistor	—	100,

Technical Summary

The **15BD11A** is a versatile Compactron triple-section tube containing a high-mu triode, a medium-mu triode, and a sharp-cutoff pentode. Operating with a 14.7 V, 450 mA heater and an 11-second controlled warm-up time, it is optimized for series-string television receiver designs. Its unique design maximum ratings, particularly the 1.5 W screen dissipation limit, distinguish it from the closely related [15BD11](#) and [6BD11](#). With its independent cathodes and low inter-section coupling capacitances, the 15BD11A provides a highly integrated solution for amplification, sync separation, and video processing.



SOURCE OPERATING CONDITIONS

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterOrFilamentVoltageNominal	14.7 V	—
HeaterOrFilamentCurrentNominal	450 mA	—

1968 GENERAL ELECTRIC CO

Section 3 · Pentode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Screen Dissipation	1.6 W	PentodeSection

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes, and their source documents.

[Catalog](#) [Tube types](#) [Full books](#) [Blog](#) [Feedback & corrections](#)

© 2026 Tube Tinker