**Compactron**

**Dissimilar-Double-Triode Pentode**

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**NEW PRODUCT INFORMATION**

**TUBES**

- COLOR TV TYPE
- FRAME-GRID VIDEO AMPLIFIER
- MULTI-FUNCTION
- HIGH TRANSCONDUCTANCE TRIODES
- 21200 MICROMHOS

The 11CF11 is a multi-function compactron containing a high-gain, frame-grid video amplifier pentode which is particularly well suited for color television use. It also contains two high-mu, high-transconductance triodes designed for cathode follower and video amplifier applications.

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**GENERAL**

**ELECTRICAL**

- Cathode - Coated Unipotential
- Heater Characteristics and Ratings
  - Heater Voltage, AC or DC .............................................. 10.7 Volts
  - Heater Current ......................................................... 0.6 + 0.04 Amperes
  - Heater Warm-up Time, Average ..................................... 11 Seconds
  - Direct Interelectrode Capacitances ▲

**Triode (Section 1)**
- Grid to Plate: (T1g to T1p) ........................................... 2.7 pf
- Input: T1g to (T1k + T2k + Pg3 + h + i.s.) ............................. 4.7 pf
- Output: T1p to (T1k + T2k + Pg3 + h + i.s.) ......................... 4.0 pf

**Triode (Section 2)**
- Grid to Plate: T2g to T2p) ........................................... 2.1 pf
- Input: T2g to (T2k + T1k + Pg3 + h + i.s.) ......................... 2.8 pf
- Output: T2p to (T2k + T1k + Pg3 + h + i.s.) ......................... 2.0 pf

**Pentode Section**
- Grid-Number 1 to Plate: (Pg1 to Pp) ................................ 0.13 pf
- Input: Pg1 to (Pp + T2k + Pg2 + Pg3 + h + i.s.) ............... 12.3 pf
- Output: Pp to (Pp + T2k + Pg2 + Pg3 + h + i.s.) ............. 4.6 pf

**COUPLING**

- Pentode Plate to Triode Plate (Section 2): (Pp to T2p), maximum ........................................... 0.04 pf
- Triode Plate (Section 1) to Triode Plate (Section 2): (T1p to T2p), maximum ........................................... 0.10 pf

**MECHANICAL**

- Operating Position - Any
- Envelope - T9, Glass
- Base - E12-70, Button 12-Pin
- Outline Drawing - EIA 9-58
  - Maximum Diameter ................................................... 1.188 Inches
  - Minimum Diameter .................................................... 1.062 Inches
  - Maximum Over-all Length ........................................... 2.375 Inches
  - Maximum Seated Height .............................................. 2.000 Inches
  - Minimum Seated Height .............................................. 1.750 Inches

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**PHYSICAL DIMENSIONS**

- **T9**
  - 2.375" MAX.
  - 1.750" MIN.
  - 1.062" MIN.
  - 1.188" MAX.

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**TERMINAL CONNECTIONS**

- Pin 1 - Heater
- Pin 2 - Triode Plate (Section 2)
- Pin 3 - Pentode Plate
- Pin 4 - Pentode Grid Number 2 (Screen)
- Pin 5 - Pentode Grid Number 1
- Pin 6 - Pentode Cathode and Beam Plate
- Pin 7 - Triode Cathode (Section 2)
- Pin 8 - Triode Cathode (Section 1)
- Pin 9 - Triode Grid (Section 1)
- Pin 10 - Triode Plate (Section 1)
- Pin 11 - Triode Grid (Section 2)
- Pin 12 - Heater

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**BASING DIAGRAM**

- EIA 12HW

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The tubes and arrangements disclosed herein may be covered by patents of General Electric Company or others. Neither the disclosure of any information herein nor the sale of tubes by General Electric Company conveys any license under patent claims covering combinations of tubes with other devices or elements. In the absence of an express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of use of the tubes with other devices or elements by any purchaser of tubes or others.
## MAXIMUM RATINGS

### DESIGN-MAXIMUM VALUES

#### Pentode Section
- **Plate Voltage**: 330 Volts
- **Screen Supply Voltage**: 330 Volts
- **Screen Voltage - See Screen Rating Chart**
- **Positive DC Grid-Number 1 Voltage**: 0 Volts
- **Plate Dissipation**: 5.0 Watts
- **Screen Dissipation**: 1.0 Watts
- **Heater-Cathode Voltage**
  - **Heater Positive with respect to Cathode**
    - DC Component: 100 Volts
    - Total DC and Peak: 200 Volts
  - **Heater Negative with respect to Cathode**
    - Total DC and Peak: 200 Volts
- **Grid-Number 1 Circuit Resistance**
  - With Fixed Bias: 500000 Ohms
  - With Cathode Bias: 1000000 Ohms

#### Triode (Section 1)
- **Plate Voltage**: 330 Volts
- **Positive DC Grid Voltage**: 0 Volts
- **Plate Dissipation**: 2.0 Watts
- **Heater-Cathode Voltage**
  - **Heater Positive with respect to Cathode**
    - DC Component: 100 Volts
    - Total DC and Peak: 200 Volts
  - **Heater Negative with respect to Cathode**
    - Total DC and Peak: 200 Volts
- **Grid-Circuit Resistance**
  - With Fixed Bias: 0.5 Megohms
  - With Cathode Bias: 1.0 Megohms

#### Triode (Section 2)
- **Plate Voltage**: 330 Volts
- **Positive DC Grid Voltage**: 0 Volts
- **Plate Dissipation**: 1.5 Watts
- **Heater-Cathode Voltage**
  - **Heater Positive with respect to Cathode**
    - DC Component: 100 Volts
    - Total DC and Peak: 200 Volts
  - **Heater Negative with respect to Cathode**
    - Total DC and Peak: 200 Volts
- **Grid-Circuit Resistance**
  - With Fixed Bias: 0.5 Megohms
  - With Cathode Bias: 1.0 Megohms

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Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.
CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Pentode Section
Plate Voltage ........................................... 40 Volts
Screen Voltage ........................................... 120 Volts
Grid-Number 1 Voltage .................................. 0 Volts
Cathode-Bias Resistor ................................... 65 Ohms
Plate Resistance, approximate ......................... 49000 Ohms
Transconductance .................................... 21200 Micromhos
Plate Current ........................................... 68 Milliamperes
Screen Current .......................................... 27.5 Milliamperes
Grid-Number 1 Voltage, approximate
lb = 100 Microamperes ................................ -5.0 Volts

Triode (Section 1)
Plate Voltage ........................................... 200 Volts
Cathode-Bias Resistor ................................... 270 Ohms
Amplification Factor ................................... 69
Plate Resistance, approximate ......................... 12400 Ohms
Transconductance .................................... 5500 Micromhos
Plate Current ........................................... 7.1 Milliamperes
Grid Voltage, approximate
lb = 100 Microamperes ................................ -5.5 Volts

Triode (Section 2)
Plate Voltage ........................................... 200 Volts
Cathode-Bias Resistor ................................... 270 Ohms
Amplification Factor ................................... 59
Plate Resistance, approximate ......................... 9200 Ohms
Transconductance .................................... 6300 Micromhos
Plate Current ........................................... 7.6 Milliamperes
Grid Voltage, approximate
lb = 100 Microamperes ................................ -6.3 Volts

NOTES

- Heater voltage for a bogey tube at If = 0.6 amperes.
- The equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.
- The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.
- Without external shield.
AVERAGE TRANSFER CHARACTERISTICS
PENTODE SECTION

\[ E_r = \text{RATED VALUE} \]
\[ E_g = 200 \text{ VOLTS} \]
\[ E_c = 0 \text{ VOLTS} \]

SCREEN CURRENT IN MILLIAMPERES

GRID NUMBER 1 VOLTAGE IN VOLTS

AVERAGE TRANSFER CHARACTERISTICS
PENTODE SECTION

\[ E_r = \text{RATED VALUE} \]
\[ E_g = 200 \text{ VOLTS} \]
\[ E_c = 0 \text{ VOLTS} \]

TRANSDUCITANCE IN MICROMOS

GRID NUMBER 1 VOLTAGE IN VOLTS