



ELECTRONIC
INNOVATIONS
IN ACTION

TUBES

Diode

19DK3

FOR TV DAMPING DIODE APPLICATIONS

■ COLOR TV TYPE

■ LOW TUBE DROP

■ 6,500 VOLTS DC AND PEAK

■ 400 MILLIAMPERES DC

The 19DK3 is a heater-cathode type diode intended for service as the damping diode in the horizontal-deflection circuit of color television receivers. It utilizes a unique heater-cathode insulating system making possible a rating of 6,500 volts peak. The 19DK3 also features a top cap connection to the cathode, a T-9 bulb and a 9-pin glass button base with a 0.687-inch pin circle.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC ★..... 19 Volts

Heater Current ●..... 0.6±0.04 Amperes

Heater Warm-up Time, average ▲..... 11 Seconds

Direct Interelectrode Capacitances, approximate ◆

Cathode to Plate and Heater: k to (p+h)..... 22 pf

Plate to Cathode and Heater: p to (k+h)..... 13.6 pf

Heater to Cathode: (h to k)..... 1.10 pf

MECHANICAL

Operating Position - Any

Envelope - T-9, Glass

Base - E9-89, Button 9-Pin

Top Cap - C1-2, Skirted Miniature

Outline Drawing - EIA 9-117

Maximum Diameter..... 1.188 Inches

Minimum Diameter..... 1.062 Inches

Maximum Over-all Length..... 3.880 Inches

Maximum Seated Height..... 3.500 Inches

Minimum Seated Height..... 3.250 Inches

MAXIMUM RATINGS

TV DAMPER SERVICE §—DESIGN-MAXIMUM VALUES

Peak Inverse Plate Voltage..... 6,500 Volts

Plate Dissipation..... 9.0 Watts

Steady-State Peak Plate Current..... 1,200 Milliamperes

DC Output Current..... 400 Milliamperes

Heater-Cathode Voltage

Heater Positive with Respect to Cathode

DC Component..... 100 Volts

Total DC and Peak..... 300 Volts

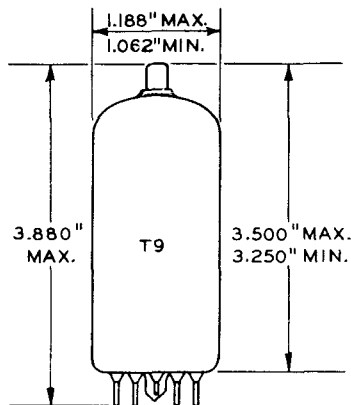
Heater Negative with Respect to Cathode

DC Component..... 900 Volts

Total DC and Peak..... 6,500 Volts

Bulb Temperature □..... 220 °C

PHYSICAL DIMENSIONS

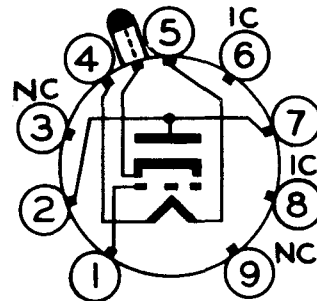


EIA 9-117

TERMINAL CONNECTIONS ®

- Pin 1 - Heater Insulation Coil
- Pin 2 - Plate
- Pin 3 - No Connection
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Internal Connection - Do Not Use
- Pin 7 - Plate
- Pin 8 - Internal Connection - Do Not Use
- ® Pin 9 - No Connection
- Cap - Cathode

BASING DIAGRAM



EIA 9SG

MAXIMUM RATINGS (Cont'd)

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 tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

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.

AVERAGE CHARACTERISTICS

Tube Voltage Drop

I _b = 400 Milliamperes	16	Volts
I _b = 800 Milliamperes	25	Volts

NOTES

- ★ Heater voltage for a bogey tube at I_f = 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.

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

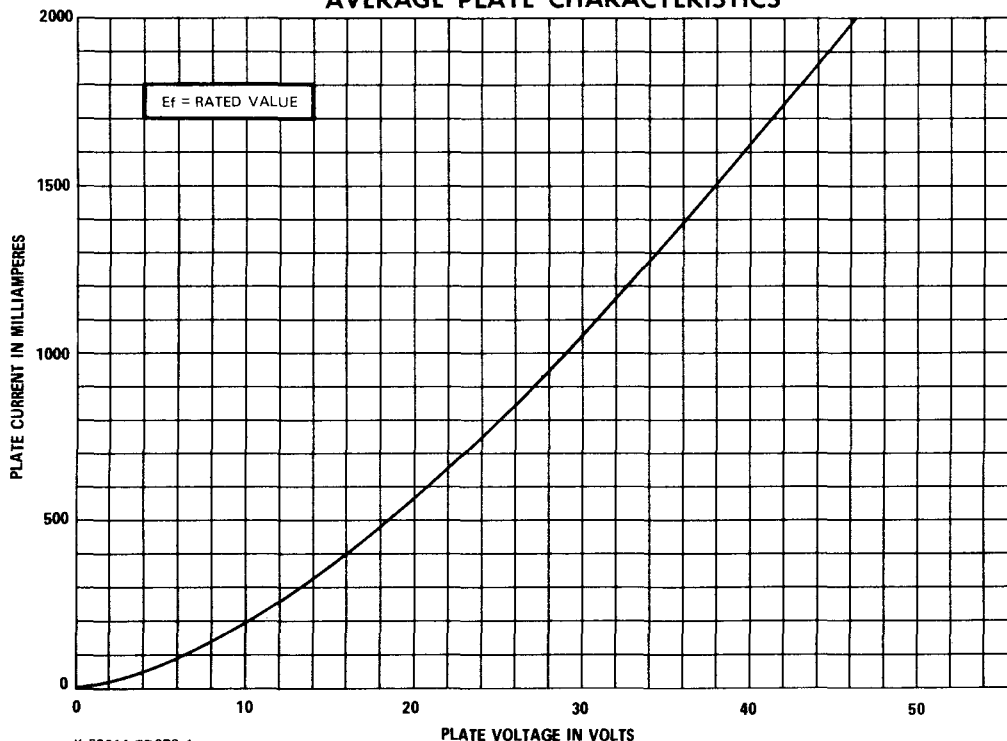
♦ Without external shield.

§ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations", Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

□ Measured with an infrared thermometer, Ircon Model 700 BC or equivalent

Ⓢ May be used as tie point for components at or near heater potential

express written agreement to the contrary, General Electric Company assumes no liability for patent infringement arising out of any use of the tubes with other devices or elements by any purchaser of tubes or others.

AVERAGE PLATE CHARACTERISTICS

K-55611-TD378-1

GENERAL  ELECTRIC

**TUBE PRODUCTS DEPARTMENT
OWENSBORO, KENTUCKY 42301**