PRODUCT INFORMATION

Compactron Diode
FOR TV DAMPING DIODE APPLICATIONS

- COLOR TV TYPE
- LOW TUBE DROP
- DIFFUSION BONDED CATHODE
- 5000 VOLTS DC
- 350 MILLIAMPERES DC

The 19DE3 is a compactron containing a single heater-cathode type diode. It is intended for service as the damping diode in the horizontal deflection circuit of color television receivers.

The diffusion bonded cathode practically eliminates one of the major failure mechanisms in damping diodes, which is plate-to-cathode arcing caused by emissive particles being pulled from the cathode by the high electrostatic field.

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 Inter-electrode Capacitance, approximate
Cathode to Plate and Heater: k to (p + h) ........ 21 pf
Plate to Cathode and Heater: p to (k + h) .......... 13 pf
Heater to Cathode: (h to k) .................................. 1.7 pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Top Cap - C1-1, Small
Outline Drawing - EIA 9-101

Maximum Diameter .............................................. 1.188 Inches
Minimum Diameter ................................................ 1.062 Inches
Maximum Over-all Length .................................. 3.875 Inches
Minimum Seated Height ....................................... 3.500 Inches
Maximum Seated Height ....................................... 3.250 Inches

MAXIMUM RATINGS

TV DAMPER SERVICE — DESIGN-MAXIMUM VALUES

Peak Inverse Plate Voltage .............................................. 5000 Volts
Plate Dissipation ...................................................... 9.0 Watts
Steady-State Peak Plate Current .................................. 1050 Milliamperes
DC Output Current .................................................... 350 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 .................................................. 5000 Volts

PHYSICAL DIMENSIONS

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Internal Connection - Do Not Use
Pin 3 - No Connection
Pin 4 - Plate
Pin 5 - Internal Connection - Do Not Use
Pin 6 - Internal Connection - Do Not Use
Pin 7 - Internal Connection - Do Not Use
Pin 8 - Internal Connection - Do Not Use
Pin 9 - Internal Connection - Do Not Use
Pin 10 - Plate
Pin 11 - No Connection
Pin 12 - Heater
Cap - Cathode

BASING DIAGRAM

EIA 9-101
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, approximate
\[ I_b = 700 \text{ Milliamperes DC} \]

\[ 25 \text{ Volts} \]

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.

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.

AVERAGE PLATE CHARACTERISTICS

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky 42301