ELECTRONICS

6B10

COMPACTRON DUPLEX-DIODE TWIN TRIODE

FOR TV HORIZONTAL PHASE-DETECTOR AND HORIZONTAL OSCILLATOR APPLICATIONS

DESCRIPTION AND RATING

The 6B10 is a compactron containing two diodes and two triodes. The triode sections have separate cathodes and the diode sections have a common cathode. The diodes are intended for horizontal phase-detector service and the triodes for horizontal oscillator* service.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

	Series Circuit‡	Parallel Circuit§	
Heater Voltage, AC or DC	6.3	6.3±0.6¶	Volts
Heater Current	0.6±0.04¶	0.6#	Amperes
Heater Warm-up Time, AverageΔ	11	---	Seconds

Direct Interelectrode Capacitances**

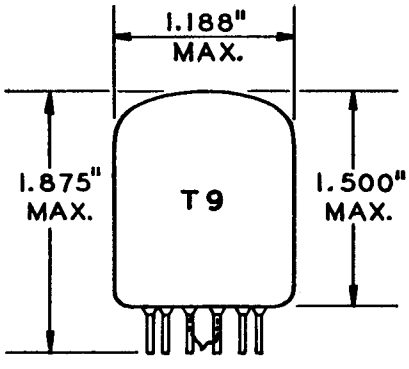
	Section 1	Section 2	
Triode Grid to Plate: (Tg to Tp)	1.5	1.5	pf
Triode Input: Tg to (h + Tk + i.s.)	1.7	1.8	pf
Triode Output: Tp to (h + Tk + i.s.)	1.6	0.6	pf
Triode Grid to Diode-Number 1 Plate: (Tg to D1p)	0.015	0.005	pf
Triode Grid to Diode-Number 2 Plate: (Tg to D2p)	0.02	0.005	pf
Triode Plate to Plate: (T1p to T2p)	0.9		pf
Diode-Number 1 Plate to Diode Cathode, Heater, and Internal Shield: D1p to (Dk + h + i.s.)	1.9		pf
Diode-Number 2 Plate to Diode Cathode, Heater, and Internal Shield: D2p to (Dk + h + i.s.)	1.8		pf
Diode-Number 1 Plate to Diode-Number 2 Plate: (D1p to D2p)	0.7		pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Outline Drawing - EIA 9-56

Maximum Diameter	1.188	Inches
Maximum Over-all Length	1.875	Inches
Maximum Seated Height	1.500	Inches

PHYSICAL DIMENSIONS

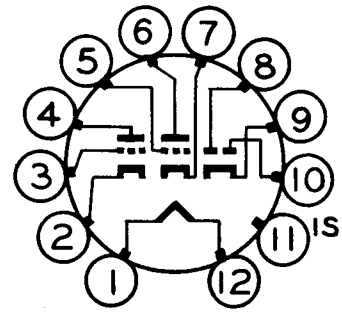


EIA 9-56

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Triode Cathode (Section 2)
Pin 3 - Triode Grid (Section 2)
Pin 4 - Triode Plate (Section 2)
Pin 5 - Triode Grid (Section 1)
Pin 6 - Triode Plate (Section 1)
Pin 7 - Tride Cathode (Section 1)
Pin 8 - Diode Number 2 Plate
Pin 9 - Diode Cathode
Pin 10 - Diode Number 1 Plate
Pin 11 - Internal Shield
Pin 12 - Heater

BASING DIAGRAM



EIA 12BF

GENERAL ELECTRIC

Supersedes ET-T1646 dated 11-60

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES, Each Section

Plate Voltage	330	Volts
Plate Dissipation	2.5	Watts
DC Cathode Current	20	Milliamperes
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	0.25	Megohm
With Cathode Bias	1.0	Megohm
Diode Current for Continuous Operation, Each Diode	5.0	Milliamperes

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.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS, Each Section

Plate Voltage	250	Volts
Grid Voltage	-9.5	Volts
Amplification Factor	18	
Plate Resistance, approximate	9750	Ohms
Transconductance	1850	Micromhos
Plate Current	7.0	Milliamperes
Grid Voltage, approximate		
Ib = 50 Microamperes	-20	Volts
Average Diode Current, Each Diode		
With 5 Volts DC Applied	20	Milliamperes

NOTES

* In horizontal oscillator service, output should be taken from Section 1.

‡ Operated with the heater in series with the heaters of other tubes having the same bogey heater current.

§ Operated with the heater in parallel with the heaters of other tubes having the same bogey heater voltage.

¶ For parallel heater operation, the equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance; for series heater operation, 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.

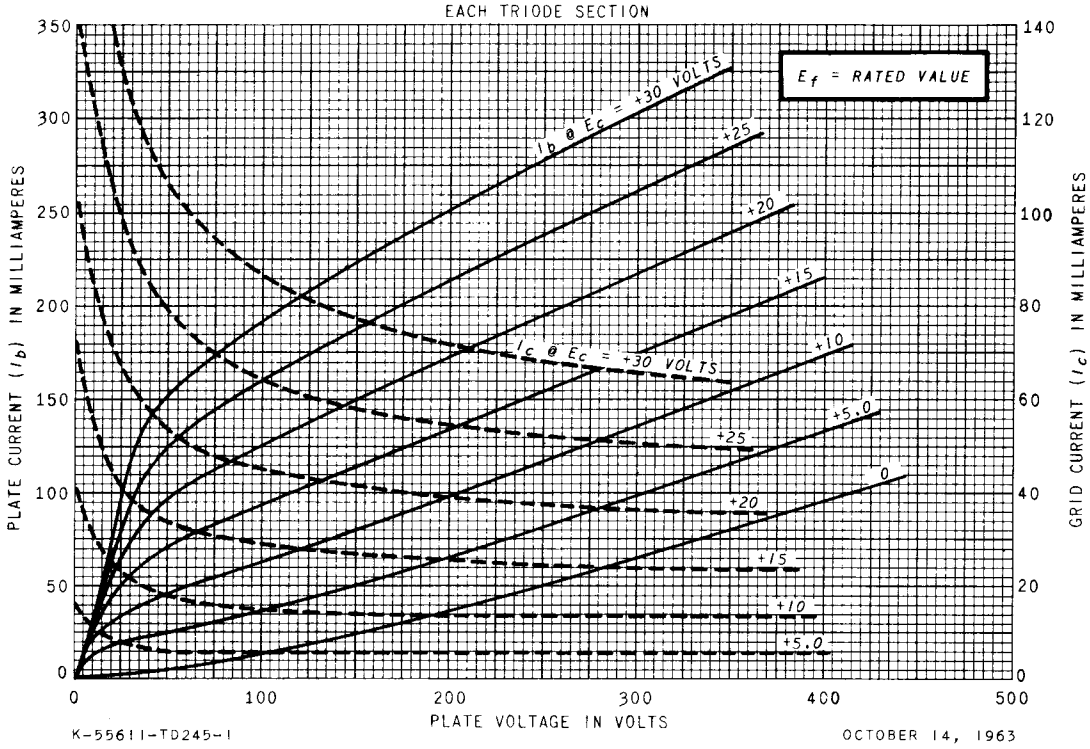
\# Heater current of a bogey tube at Ef = 6.3 volts.

Δ 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 PLATE CHARACTERISTICS

EACH TRIODE SECTION

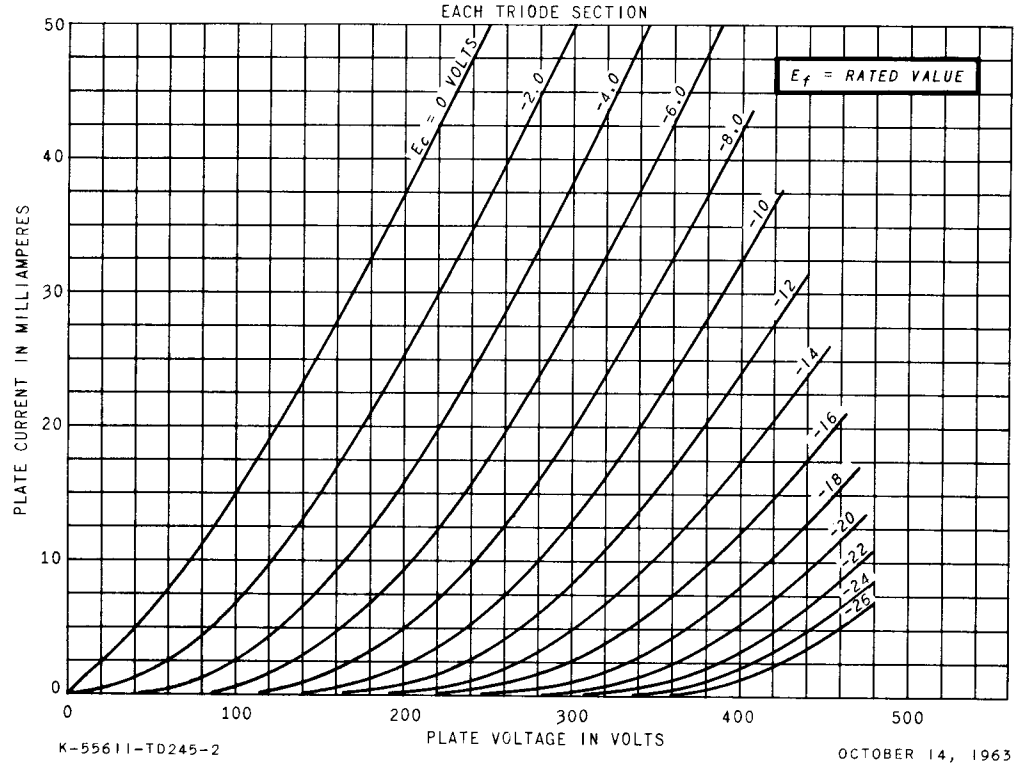


K-55611-TD245-1

OCTOBER 14, 1963

AVERAGE PLATE CHARACTERISTICS

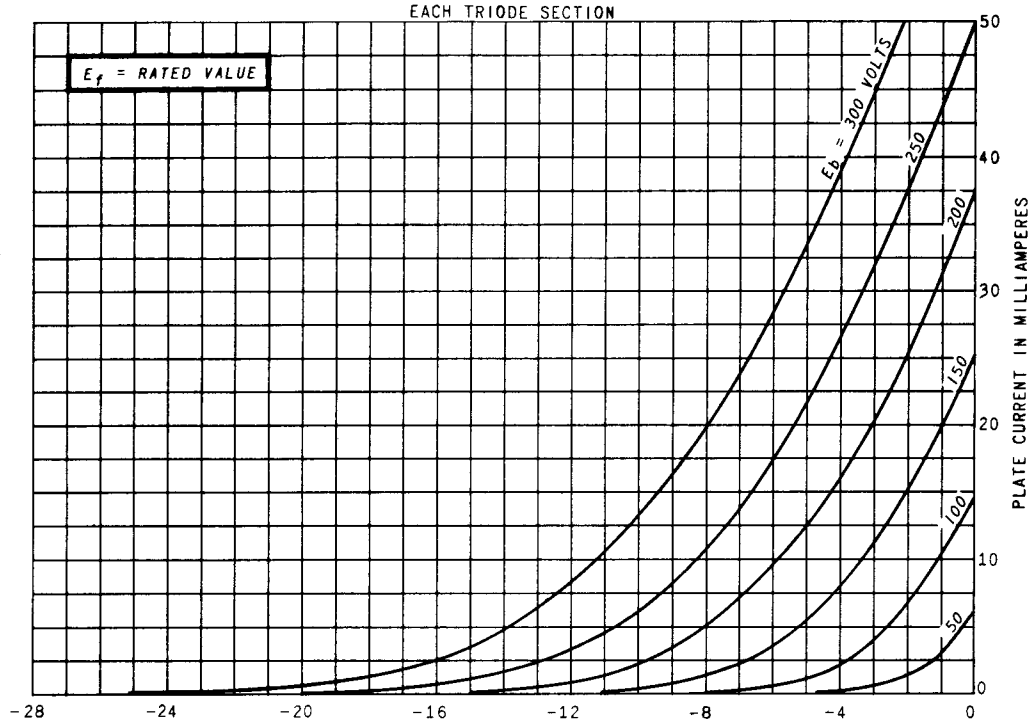
EACH TRIODE SECTION



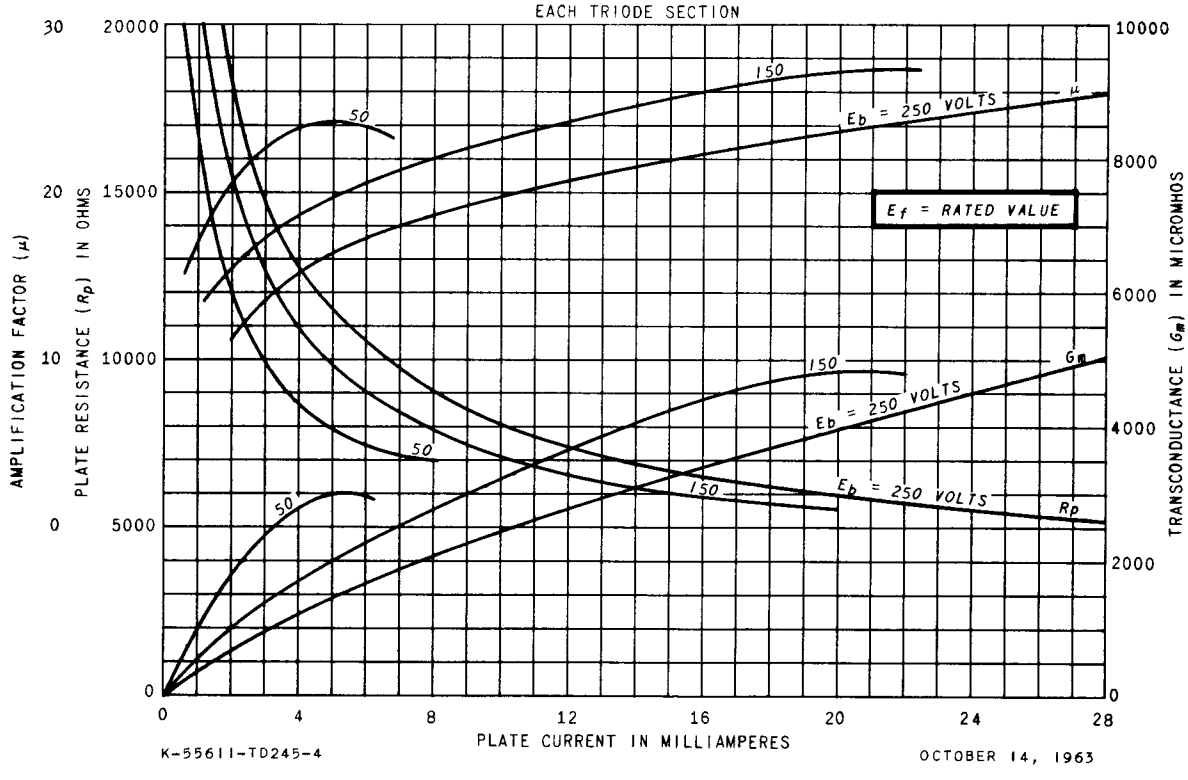
K-55611-TD245-2

OCTOBER 14, 1963

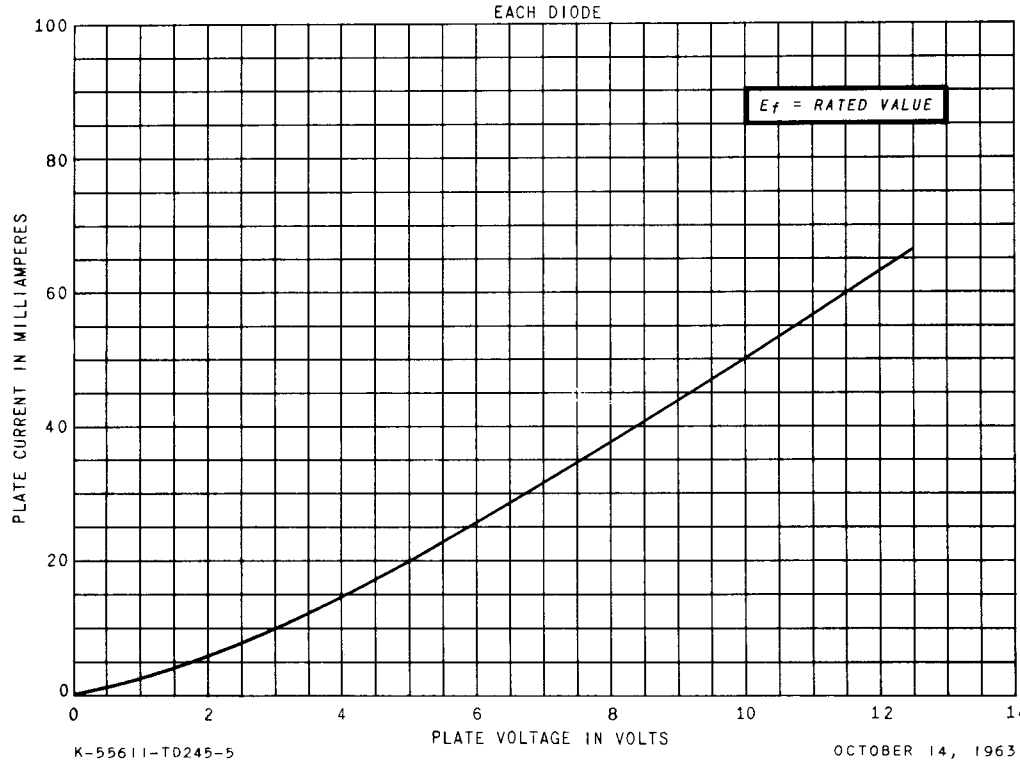
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky