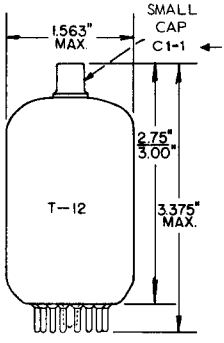
TUNG-SOL

PENTODE

COMPACTRON



GLASS BULB

BUTTON
12 PIN BASE E12-74
OUTLINE DRAWING
JEDEC 12-86

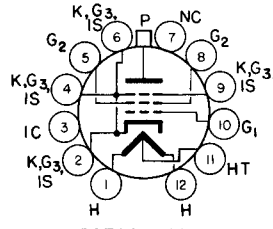
BEAM POWER VHF PENTODE

FOR

RF POWER AMPLIFIER

AND OSCILLATOR APPLICATIONS

ANY MOUNTING POSITION



BOTTOM VIEW

BASING DIAGRAM
JEDEC 12DU

THE 8150 IS A BEAM POWER AMPLIFIER PENTODE IN THE DOUBLE-ENDED T-12 COMPACTRON DESIGN. IT IS INTENDED FOR USE AS AN RF POWER AMPLIFIER AND OSCILLATOR AT FREQUENCIES UP TO 175 MEGACYCLES, WITH A MAXIMUM PLATE DISSIPATION RATING OF 35 WATTS UNDER ICAS CONDITIONS. IT FEATURES A CENTER-TAPPED HEATER SO IT MAY BE OPERATED FROM EITHER A 3-CELL OR A 6-CELL STORAGE BATTERY SYSTEM. THE 8150 IS SIMILAR TO THE SINGLE-ENDED TYPE 8149.

→ DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

GRID 1 TO PLATE: G1 TO P	0.2	pf
INPUT: G1 TO (H+K+G2+G3+I.S.)	13.0	pf
OUTPUT: P TO (H+K+G2+G3+I.S.)	6.5	pf

HEATER CHARACTERISTICS AND RATINGS

ABSOLUTE MAXIMUM SYSTEM - SEE EIA STANDARD RS-239

SUPPLY CONNECTED TO PINS	1 & 12	11 & 1+12	
AVERAGE VALUES - VOLTAGE	13.0	6.5	VOLTS
- CURRENT	0.60	1.20	AMPS.
LIMITS OF APPLIED HEATER VOLTAGE	11.0 - 15.0	5.5 - 7.5	VOLTS
MIXIMUM HEATER-CATHODE VOLTAGE EITHER POLARITY	135		VOLTS

CONTINUED ON FOLLOWING PAGE

CONTINUED FROM PRECEDING PAGE

AVERAGE STATIC CHARACTERISTICS

PLATE VOLTAGE	200	VOLTS
GRID 2 VOLTAGE	200	VOLTS
PLATE CURRENT	100	MA.
TRANSCONDUCTANCE	7500	μMHOS
AMPLIFICATION FACTOR, TRIODE CONNECTED	4.5	

MAXIMUM RATINGS

ABSOLUTE MAXIMUM SYSTEM - SEE EIA STANDARD RS-239

RF POWER AMPLIFIER AND OSCILLATOR - CLASS C TELEGRAPHY

RF POWER AMPLIFIER - CLASS C TELEPHONY

ICAS INTERMITTENT COMMERCIAL AND AMATEUR SERVICE

FOR FREQUENCIES UP TO	175	60	MC
PLATE VOLTAGE -DC	450	750	VOLTS
GRID 2 VOLTAGE	250	250	VOLTS
GRID 1 VOLTAGE - DC	-150	150	VOLTS
CATHODE CURRENT-DC	→ 220	→ 220	MA.
PLATE DISSIPATION	35	35	WATTS
GRID 2 DISSIPATION	3.3	3.3	WATTS
BULB TEMPERATURE	240		°C

→ TYPICAL OPERATION

CLASS C AMPLIFIER AT 175 MC/S

PLATE VOLTAGE	380	VOLTS
GRID 2 SUPPLY VOLTAGE	380	VOLTS
GRID 2 DROPPING RESISTOR	10	KOHMS
GRID 1 VOLTAGE	-78	VOLTS
FROM GRID 1 RESISTOR	27	KOHMS
ADDITIONAL FIXED BIAS	-24	VOLTS
PEAK RF GRID 1 VOLTAGE	120	VOLTS
PLATE CURRENT	180	MA.
GRID 2 CURRENT	12	MA.
GRID 1 CURRENT	2.0	MA.
DRIVING POWER - APPROX.	2	WATTS
POWER OUTPUT	40	WATTS

→ INDICATES A CHANGE.

CONTINUED FROM FOLLOWING PAGE

LINEAR RF POWER AMPLIFIER, CLASS AB$_1$

SINGLE-SIDEBAND SUPPRESSED-CARRIER SERVICE

MAXIMUM RATINGS

ABSOLUTE MAXIMUM SYSTEM - SEE EIA STANDARD RS-239

FOR FREQUENCIES UP TO 60 M.C.

INTERMITTENT COMMERCIAL AND AMATEUR SERVICE

PLATE VOLTAGE - DC	750	VOLTS
GRID NO. 2 VOLTAGE - DC	250	VOLTS
GRID NO. 1 VOLTAGE - DC	-150	VOLTS
PLATE CURRENT - DC AT PEAK OF ENVELOPE	220	MA.
PLATE DISSIPATION	35	WATTS
GRID NO. 2 DISSIPATION	3.3	WATTS
BULB TEMPERATURE	240	° C
MAXIMUM GRID NO. 1 CIRCUIT RESISTANCE	30,000	OHMS

TYPICAL OPERATION

WITH TWO-TONE MODULATION

FREQUENCY	30	MC/S
DC PLATE VOLTAGE	750	VOLTS
DC GRID NO. 2 VOLTAGE (A)	215	VOLTS
DC GRID NO. 1 VOLTAGE (B)	-41	VOLTS
ZERO SIGNAL DC PLATE CURRENT	25	MA.
ZERO SIGNAL DC GRID NO. 2 CURRENT	0.3	MA.
EFFECTIVE R.F. LOAD RESISTANCE	3,200	OHMS
MAXIMUM SIGNAL PEAK R.F. GRID VOLTAGE (C)	41	VOLTS
DC PLATE CURRENT AT PEAK OF ENVELOPE	125	MA.
DC PLATE CURRENT - AVERAGE	86	MA.
DC GRID NO. 2 CURRENT AT PEAK OF ENVELOPE	8.5	MA.
DC GRID NO. 2 CURRENT - AVERAGE	4.5	MA.
DC GRID NO. 1 CURRENT - AVERAGE (D)	0.02	MA.
POWER OUTPUT AT PEAK OF ENVELOPE	61	WATTS
POWER OUTPUT - AVERAGE	30.5	WATTS
3rd ORDER INTERMODULATION PRODUCTS (E)	-24	db
5th ORDER INTERMODULATION PRODUCTS (E)	-37	db

(A) PREFERABLY OBTAINED FROM A WELL REGULATED SOURCE SUCH AS TWO 0B2 VOLTAGE REGULATOR TUBES CONNECTED IN SERIES.

(B) PREFERABLY OBTAINED FROM A SEPARATE, WELL REGULATED SOURCE. ADJUST FOR 25 MA. PLATE CURRENT WITH NO SIGNAL.

(C) THE PEAK SIGNAL VOLTAGE SHOULD BE EQUAL TO THE DC GRID VOLTAGE.

(D) THIS VALUE IS THE APPROXIMATE GRID NO.1 CURRENT DUE TO INITIAL ELECTRON VELOCITY EFFECTS WHEN THE GRID IS DRIVEN TO ZERO VOLTS AT MAXIMUM SIGNAL.

(E) REFERENCED TO EITHER OF THE TWO TONES AND WITHOUT THE USE OF FEEDBACK TO IMPROVE LINEARITY.