TUNG-SOL

PRODUCT BULLETIN

INDUSTRIAL ELECTRON TUBE TYPE 8150

FEBRUARY, 1963

BEAM POWER VHF PENTODE



DESCRIPTION—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.

A similar tube in a single-ended design is registered as type 8149.

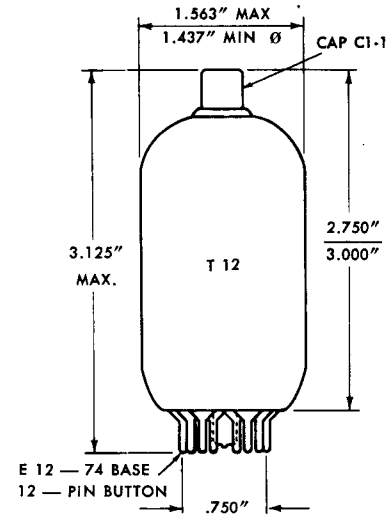
MECHANICAL DATA

Cathode	Coated Unipotential	
Outline	JEDEC 12-86	
Maximum Diameter	1.563	Inches
Maximum Seated Height	3.000	Inches
Maximum Overall Length	3.375	Inches
Bulb	T-12	Glass
Base — Button 12 Pin	JEDEC E12-74	
Cap — Small	JEDEC C 1-1	

Pin Connections — Basing Diagram JEDEC 12DU

Pin 1 — Heater End B	Pin 7 — No Connection
Pin 2 — Cathode, Grid 3, Internal Shield	Pin 8 — Grid 2
Pin 3 — Internal Connection, Do Not Use	Pin 9 — Cathode, grid 3, Internal Shield
Pin 4 — Cathode, Grid 3, Internal Shield	Pin 10 — Grid 1
Pin 5 — Grid 2	Pin 11 — Heater Center Tap
Pin 6 — Cathode, Grid 3, Internal Shield	Pin 12 — Heater End A
	Top Cap — Plate

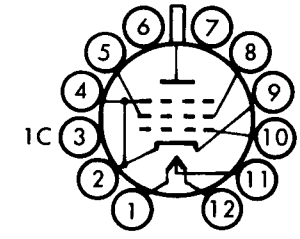
Mounting Position ..... Any



CIRCLE OF PIN CENTERS

Ø MINIMUM DIAMETER DOES NOT APPLY IN THE AREA OF THE SEAL.

OUTLINE DRAWING



BASING DIAGRAM
BOTTOM VIEW

ELECTRICAL DATA

Heater Characteristics and Ratings — Absolute Maximum System — See EIA Standard RS-239

Supply Connected to Pins	1 and 12	11 and 1 + 12	
Average Values — Voltage	13.0	6.5	Volts
Average Values — Current	0.60	1.20	Amps
Limits of Applied Heater Voltage	11.0-15.0	5.5-7.5	Volts
Maximum Heater-Cathode Voltage Either Polarity		135	Volts

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

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 ICAS — Intermittent Commercial and Amateur Service

RF Power Amplifier and Oscillator — Class C Telegraphy

RF Power Amplifier — Class C FM Telephony

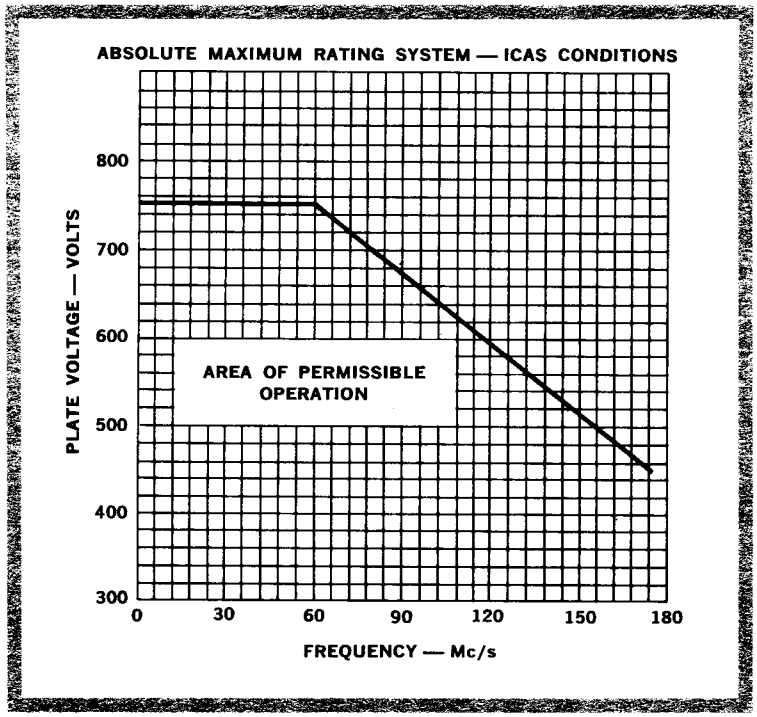
For Frequencies Up to	60	175	Mc/s
Plate Voltage-DC	750	450	Volts
Grid 2 Voltage	250	250	Volts
Grid .1 Voltage-DC	−150	−150	Volts
Cathode Current-DC	220	220	mA
Plate Dissipation	35	35	Watts
Grid 2 Dissipation	3.3	3.3	Watts
Bulb Temperature	240	240	°C

For Voltage vs Frequency Rating Chart See Page 3.

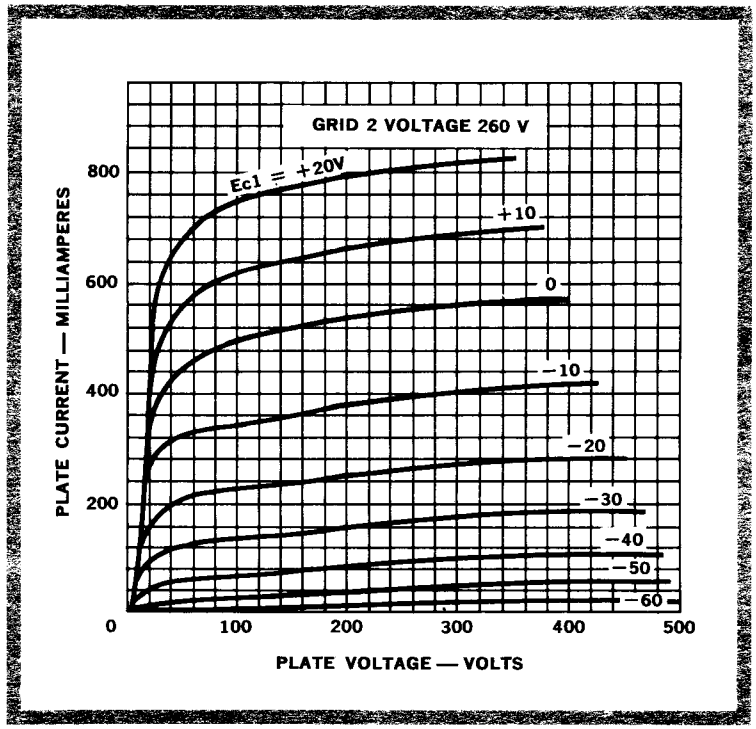
Typical Operation — Class C Amplifier at 175 Mc/s

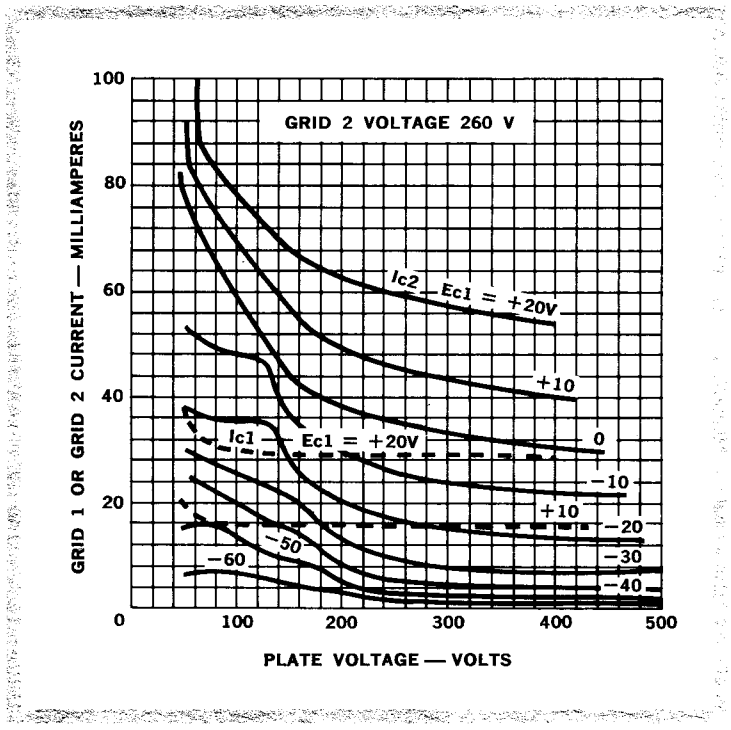
Plate Voltage	380	Volts
Grid 2 Supply Voltage	380	Volts
Grid 2 Dropping Resistor	10k	Ohms
Grid 1 Voltage	−78	Volts
from Grid 1 Resistor	27k	Ohms
Additional Fixed Bias	−24	Volts
Peak R.F. Grid 1 Voltage	120	Volts
Plate Current	180	mA
Grid 2 Current	12	mA
Grid 1 Current	2.0	mA
Driving Power — Approx.	2	Watts
Power Output	40	Watts

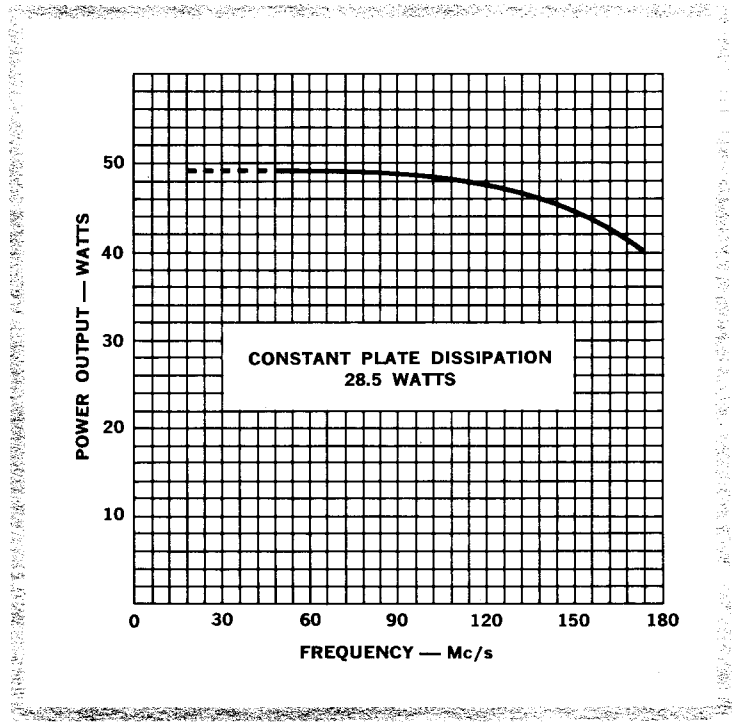
RATING CHART



CHARACTERISTIC CURVES




GRID 2 VOLTAGE 260 V
GRID 1 OR GRID 2 CURRENT — MILLIAMPERES
PLATE VOLTAGE — VOLTS
Ic2
Ec1 = +20V
+10
0
Ic1
Ec1 = +20V
−10
+10
−20
−50
−30
−60
−40
100
80
60
40
20
0
100
200
300
400
500


POWER OUTPUT — WATTS
CONSTANT PLATE DISSIPATION
28.5 WATTS
FREQUENCY — Mc/s
50
40
30
20
10
0
30
60
90
120
150
180