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DISC SEAL TRIODE with low operating voltages for use as broad-band amplifier or oscillator at frequencies up to 4000 Mc/s; the tube is capable of delivering an output power of 5.3 W at 4200 Mc/s with a power gain of 6 dB at a 0.1 dB band width of 50 Mc/s. The L cathode of the tube can withstand severe ionic and electronic bombardment and combines a high current density with a very long life.

HEATING

Indirect by A.C. or D.C.; parallel supply

Heater voltage $V_f = 6.3$ V
Heater current $I_f = 900$ mA

With due observance of the limiting values all supply voltages may be switched on at the same time and no pre-heating will be necessary.

CAPACITANCES

Measured at $V_f = 6.3$ V and $I_k = 0$ mA

Anode to grid	$C_{ag} = 1.7$ pF [1])
Anode to cathode	$C_{ak} = 0.036$ pF
Grid to cathode	$C_{gk} = 3.5$ pF [2])

TYPICAL CHARACTERISTICS

Anode voltage	V_a =	180 V	
Anode current	I_a =	140 mA	
Grid bias	V_g =	0 V	> -2 V $< +1.5$ V

Anode voltage	V_a =	180 V	
Anode current	I_a =	60 mA	
Grid bias	V_g =	-3.5 V	> -5.5 V < -1.5 V
Mutual conductance	S =	22 mA/V	> 17 mA/V < 27 mA/V
Amplification factor	μ =	30	> 20 < 40

[1]) Measured with a shield of 1 mm thick with a hole of 15 mm diameter
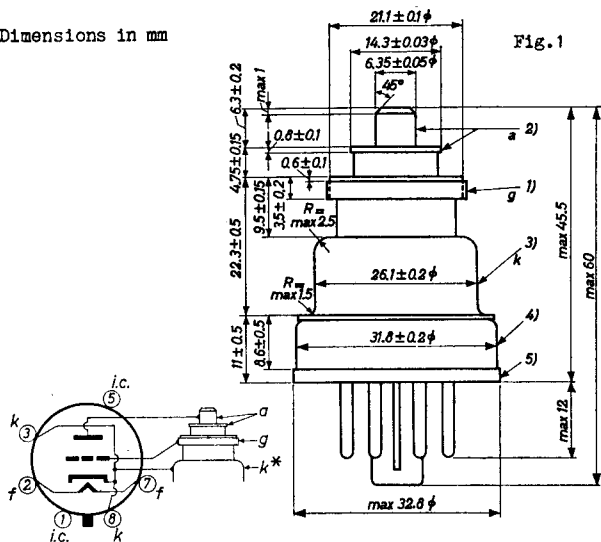[2]) Measured with a shield of 1 mm thick with a hole of 23 mm diameter

Dimensions in mm — Fig.1

21.1 ± 0.1 ⌀
14.3 ± 0.03 ⌀
6.35 ± 0.05 ⌀
45°
6.3 ± 0.2 — max 1
0.8 ± 0.1
0.6 ± 0.1
4.75 ± 0.15
5 ± 0.5
3.5 ± 0.2
R = max 2.5
9.5 ± 0.5
22.3 ± 0.5
R = max 1.5
26.1 ± 0.2 ⌀
11 ± 0.5
8.6 ± 0.5
31.8 ± 0.2 ⌀
max 45.5
max 60
max 12
max 32.8 ⌀

a 2)
g 1)
k 3)
4)
5)

i.c. (5)
k (3)
f (2)
(1) i.c.
(7) f
(8) k
a
g
k *

Base: Octal
*A.C. and D.C. connection of the cathode. Pins 3 and 8 are connected internally to this terminal
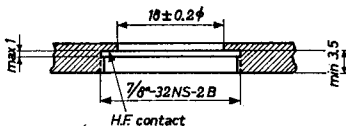
Mounting position: any

18 ± 0.2 ⌀
max 1
min 3.5
7/8"-32NS-2B
H.F contact

Fig.2
Recommended mount

Data of the thread of the grid disc and of the recommended mount. 32 turns per inch; thread angle 60°

	Minor diameter	Major diameter	Effective diameter
grid disc	21.22 +0 −0.15 mm	22.2 +0 −0.15 mm	21.68 +0 −0.09 mm
mount fig.2	21.51 +0 −0.15 mm	min. 22.23 mm	21.83 +0 −0.12 mm

[1][2][3][4][5]) See page 3

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REMARKS

Special attention should be paid to the mounting of the tube in those cases where it is used in transportable equipment. Shocks especially in a direction perpendicular to the axis of the tube should be avoided

For screwing the tube into the cavity a key with a slip torque of max. 15 kg cm is recommended. This should be a key with studs which fit into the notches in the tube base. It is inadvisable to use a device which utilises the pins of the tube

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[1]) The eccentricities are given with respect to the axis of the threaded hole (see fig.2) in which the tube is screwed firmly against the flange with inner diameter of 18 mm

[2]) Eccentricity of the axis of the anode max. 0.15 mm

[3]) Eccentricity of the axis of the cathode max. 0.20 mm

[4]) The tolerance of the eccentricity of the axis of the base is such, that this base fits into a hole with a diameter of 32.5 mm, provided this hole is correctly centred with respect to the axis of the threaded hole specified in fig.2

[5]) The tolerance of the eccentricity of the axis of the base flange is such, that this flange fits into a hole with a diameter of 33.5 mm, provided this hole is correctly centred with respect to the axis of the threaded hole specified in fig.2

OPERATING CHARACTERISTICS as an amplifier at a frequency of 4200 Mc/s

Anode supply voltage	V_{b_a}	=	200 V	
Grid supply voltage	V_{b_g}	=	+20 V	
Cathode resistor	R_k	=	[1])	
Anode current	I_a	=	140 mA	
Band width	B	=	50 Mc/s[2])	
Output power at a gain of 6 dB	$W_o(G=6\ dB)$	=	5.3 W	> 4.5 W
Gain (driving power 10 mW)	$G(W_{1g}=10\ mW)$	=	11.5 dB	> 9.5 dB

[1]) Recommended D.C. circuit
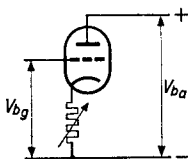
A variable resistor of max. 200 Ω is to be employed. It should be adjusted for the desired anode current

[2]) The quoted value is the band width between the 0.1 dB points of the flattened response curve
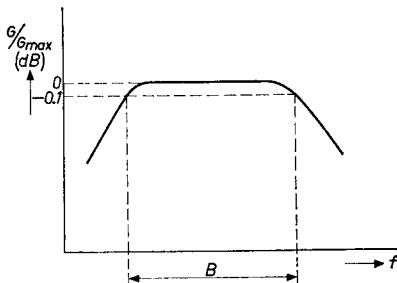
LIMITING VALUES (Absolute max. values)

Anode voltage in cold condition	V_{ao}	= max.	500 V
Anode voltage	V_a	= max.	300 V
Anode dissipation	W_a	= max.	30 W [1]
Negative grid voltage	$-V_g$	= max.	50 V
Peak negative grid voltage	$-V_{gp}$	= max.	100 V
Positive grid voltage	$+V_g$	= max.	10 V
Peak positive grid voltage	$+V_{gp}$	= max.	30 V
Grid current	I_g	= max.	25 mA
Grid dissipation	W_g	= max.	350 mW
Driving power	W_{1g}	= max.	2.0 W [2]
Cathode current	I_k	= max.	170 mA
Voltage between cathode and heater	V_{kf}	= max.	50 V
Heater voltage	V_f	=	6.3 V ± 2%
Anode seal temperature		= max.	150 °C [1]
Grid seal temperature		= max.	75 °C [1]
Cathode seal temperature		= max.	75 °C [1]

Max. circuit values

External resistance between heater and cathode	R_{kf}	= max.	20 kΩ
Grid resistor	R_g	= max.	3 kΩ [3]

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[1] Special attention must be paid with respect to the cooling

[2] In a grounded grid circuit at a frequency of 4200 Mc/s

[3] This value may be multiplied by the D.C. inverse feedback factor of the cathode current to a maximum of 25 kΩ

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$V_a=180V$

I_a (mA)

$V_g(V)$

A

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$V_g = 20V$ / -17.5 / $15V$ / $12.5V$ / $10V$ / $7.5V$ / $5V$ / $2.5V$ / $0V$ / $-2.5V$ / $-5V$ / $-7.5V$ / $-10V$

$V_a (V)$

I_a (mA)

600 — 400 — 200 — 0

0 — 100 — 200 — 300 — 400 — 500

B

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7Z00757
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$V_g =$
20V
17,5V
15V
12,5V
10V
7,5V
5V
2,5V
0V

$V_a(V)$

I_g (mA)

150

100

50

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7Z00759
EC158 2-11-1961

W_o (mW)

$f=4000Mc/s$
$B(0.1dB)=50Mc/s$
$V_a=180V$
$I_a=140mA$

G=12dB
10dB
8dB
6dB
4dB

$W_i(mW)$
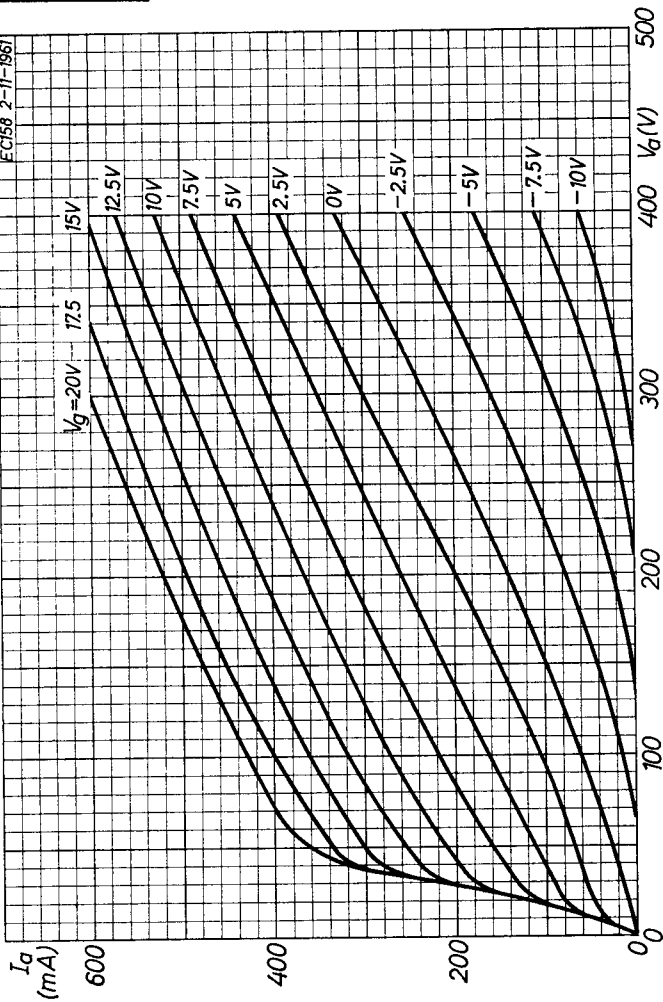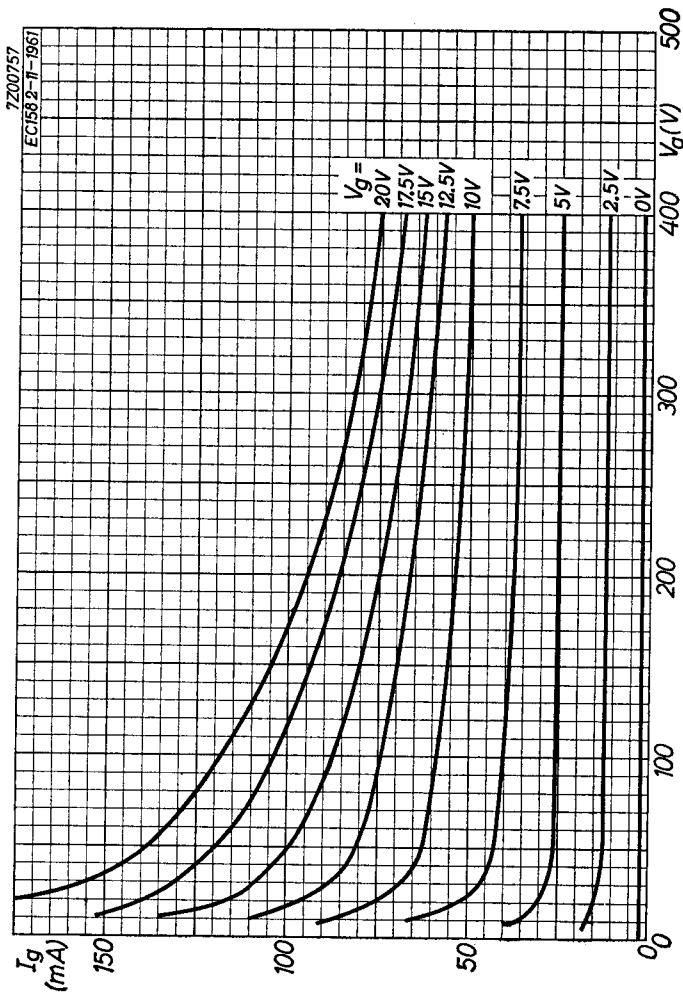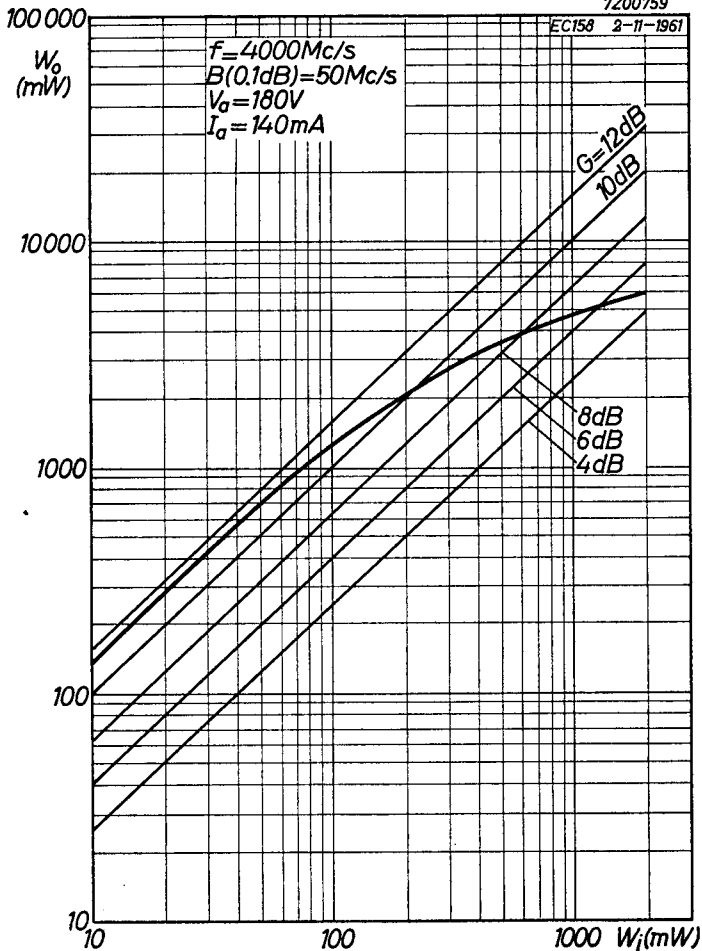
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