SECONDARY EMITTER PENTODE

6·3 INDIRECTLY HEATED

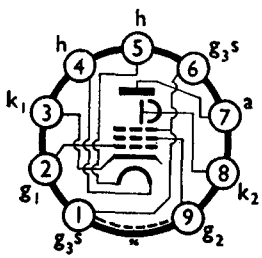
Z319

NOVEMBER, 1954

A high slope pentode for use as a wide-band R.F. amplifier, incorporating a single stage secondary emitter.

The Z319 is a commercial equivalent of CV2276.

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base : B9A
Bulb : Tubular

Overall length :	56·0 max.	mm.
Seated length :	49·0 max.	mm.
Diameter :	22·2 max.	mm.

HEATER

V_h	6·3	V
I_h	0·3	A

RATINGS

V_a	400 max.	V
V_{k2}	250 max.	V
V_{g2}	250 max.	V
V_{h-k1}	150 max.	V
p_a	2·5 max.	W
p_{k2}	2·0 max.	W
p_{g2}	0·8 max.	W

CHARACTERISTICS

V_a	350	V
V_{k2}	250	V
V_{g2}	250	V
I_a	15	mA
g_m	19	mA/V
r_a	50	kΩ
μ_{g1-g2}	100	

CAPACITANCES (of cold externally screened valve)

c_{g1-a} 0·003 pF c_{in} 8·0 pF c_{out} 3·0 pF

TYPICAL OPERATION

Class A. R.F. Amplifier.

V_a	350	V
V_{k2}	250	V
V_{g2}	250	V
I_a	15·5	mA
I_{k2}	−10·4	mA
I_{g2}	1·2	mA
I_{k1}	6·3	mA
R_{k1}	270	Ω
$r_{eq.\ noise}$ (ref. to g1)	5	kΩ
r_{in} at 45 Mc/s	6	kΩ
c_{in} at 45 Mc/s	11·4	pF

PRECAUTIONS

As the secondary cathode current is negative it is important, in order to prevent circuit instability, to ensure that the total current taken from the power supply is positive. This may be done by means of a suitable resistance load, or by utilising the screen grid or other positive currents in the circuit.

Careful consideration must be given to valve and circuit screening, and also to chassis layout as failure to do this may result in instability due to the high mutual conductance of the valve.

MOUNTING

Any position.

SCREENING

A separate external screening canister should be used. The internal and external surfaces of the canister should be blackened.

RETAINING

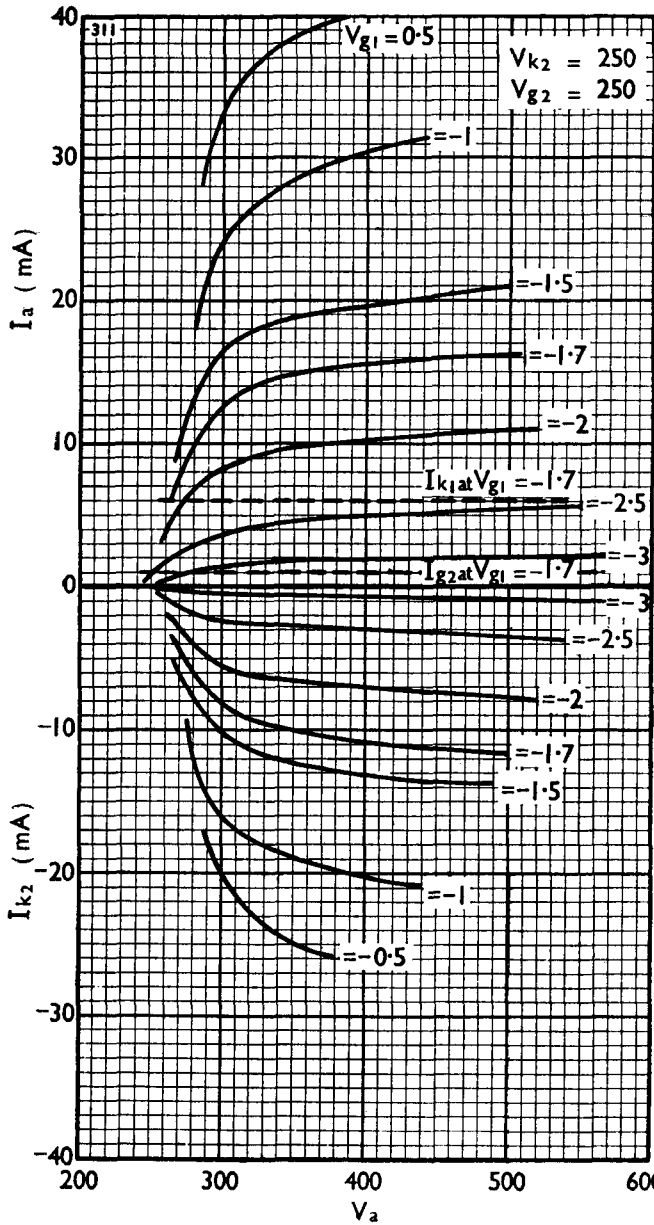
The use of a retaining device is recommended.

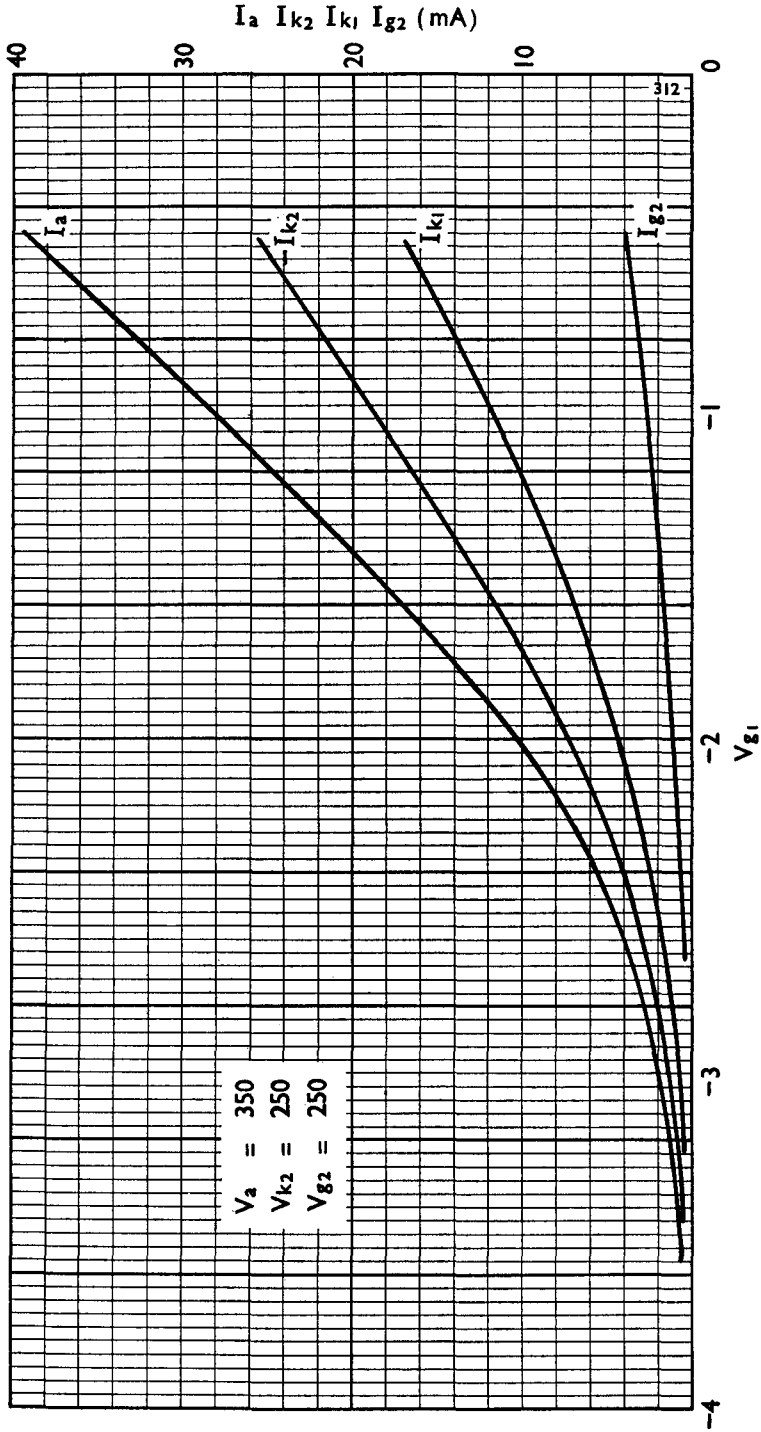
VENTILATION

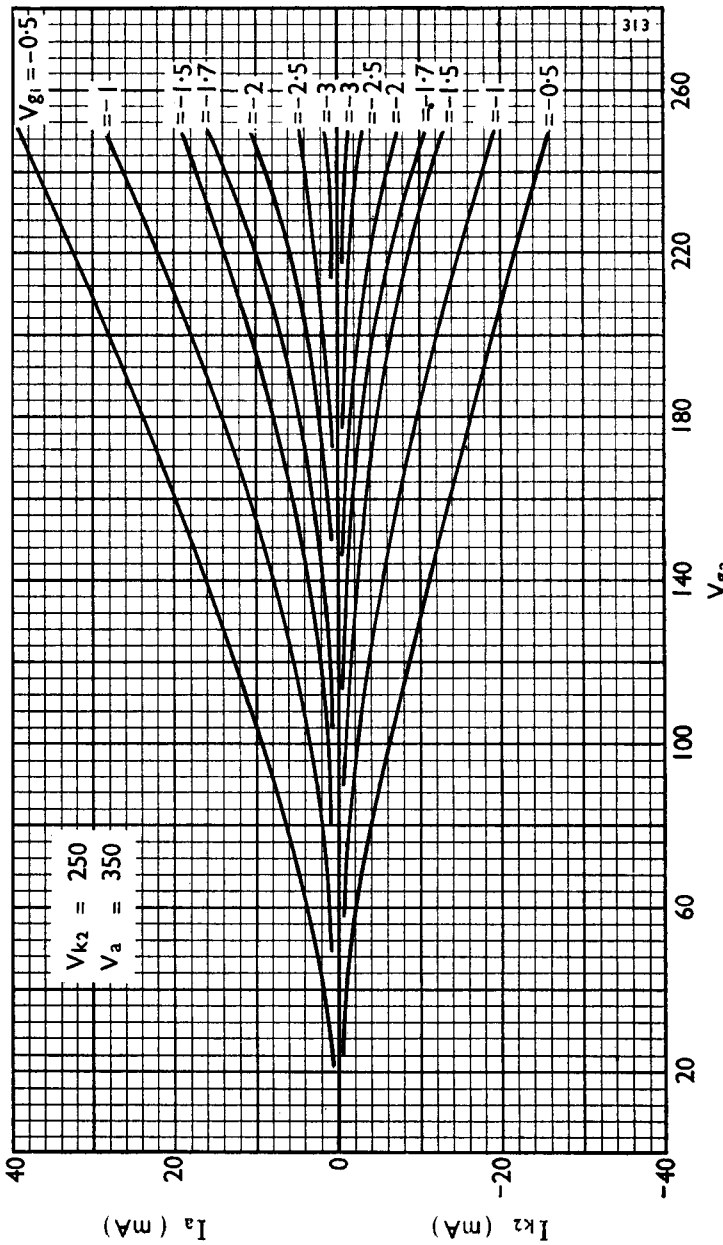
Free air circulation around the bulb is preferable. The temperature of the hottest part of the bulb must not exceed 220°C.

MICROPHONY

This type is free from microphony in normal receiver applications, but checks should be made under maximum gain conditions of the equipment.


311
V_{g1} = 0·5
V_{k2} = 250
V_{g2} = 250
=−1
=−1·5
=−1·7
=−2
I_{k1} at V_{g1} = −1·7
=−2·5
=−3
I_{g2} at V_{g1} = −1·7
=−3
=−2·5
=−2
=−1·7
=−1·5
=−1
=−0·5
I_a (mA)
I_{k2} (mA)
40
30
20
10
0
−10
−20
−30
−40
200
300
400
500
600
V_a


Ia Ik2 Ik1 Ig2 (mA)
40
30
20
10
0
312
Ia
Ik2
Ik1
Ig2
-1
-2
-3
-4
Vg1
Va = 350
Vk2 = 250
Vg2 = 250


313
$V_{g1} = -0{\cdot}5$
$= -1$
$= -1{\cdot}5$
$= -1{\cdot}7$
$= -2$
$= -2{\cdot}5$
$= -3$
$= -3$
$= -2{\cdot}5$
$= -2$
$= -1{\cdot}7$
$= -1{\cdot}5$
$= -1$
$= -0{\cdot}5$
$V_{k2} = 250$
$V_a = 350$
V_{g2}
20
60
100
140
180
220
260
I_a (mA)
40
20
0
I_{k2} (mA)
-20
-40

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