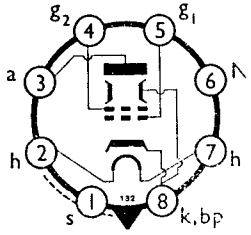
**Genalex**

# BEAM PENTODE
## 6·3V INDIRECTLY HEATED

**KT88**
**ISSUE 2**
**MARCH, 1959**

The KT88 has an anode dissipation of 35W and is primarily designed for the output stage of an a.f. amplifier for which two valves will provide up to 100W output. Under intermittent conditions, an output of 150W is obtainable in Class B (see Circuit Supplement). It is also suitable for use as a series valve in a stabilised power supply.

## BASE CONNECTIONS AND VALVE DIMENSIONS




View from underside of base.

Base : Metal shell wafer octal.
Bulb : Tubular
Max. overall length : 125 mm.
Max. seated length : 110 mm.
Max. diameter : 52 mm.

## HEATER

| | | |
|---|---|---|
| $V_h$ | 6·3 | V |
| $I_h$ | 1·6 | A |

## MAXIMUM RATINGS

| | | |
|---|---|---|
| $V_a$ | 600 | V |
| $V_{g2}$ | 600 | V |
| *$V_{a,g2}$ | 600 | V |
| $p_a$ | 35 | W |
| $p_{g2}$ | 6 | W |
| *$p_{a+g2}$ | 40 | W |
| $I_k$ | 175 | mA |
| $V_{h-k}$ | 150 | V |
| $R_{g-k}$ (cathode bias) | 220† | kΩ |
| $R_{g-k}$ (fixed bias) | 100† | kΩ |

*Triode connection.
†Resistors of 20% tolerance may be used.

## CAPACITANCES

$c_{g-a}$ 1·2 pF $c_{in}$ 16 pF $c_{out}$ 12 pF

## CHARACTERISTICS

| | Pentode Connection | | | Triode Connection | |
|---|---|---|---|---|---|
| $V_a$ | 250 | V | $V_{a,g2}$ | 250 | V |
| $V_{g2}$ | 250 | V | $I_h$ | 160 | mA |
| $I_a$ | 140 | mA | $g_m$ | 12 | mA/V |
| $g_m$ | 11 | mA/V | $r_a$ | 670 | Ω |
| $r_a$ | 12 | kΩ | $\mu$ | 8 | — |
| $\mu_{g1-g2}$ | 8 | | | | |

## TYPICAL OPERATION

**Push-Pull Ultra-Linear. Cathode Bias.**

| | | |
|---|---|---|
| $V_{a(b)}$ | 500 | V |
| $V_{a,g2}$ | 425 | V |
| $I_{a+g2(o)}$ | 2×87 | mA |
| $I_{a+g2(max\ sig)}$ | 2×100 | mA |
| $p_{a+g2(o)}$ | 2×40 | W |
| $p_{a+g2(max\ sig)}$ | 2×18 | W |
| *$R_k$ | 2×525±5% | Ω |
| $V_{g1}$ (approx) | −50 | V |
| $V_{in(g-g)}$ | 90 | V |
| $R_{L(a-a)}$ | 6 | kΩ |
| $z_{out}$ | 4·5 | kΩ |
| $P_{out}$ | 50 | W |
| †D | 1 | % |
| †Intermodulation | 5 | % |

*Separate bias resistors are essential.

†Average pair.

**Push-Pull Ultra-Linear. Fixed Bias.**

| | | |
|---|---|---|
| $V_{a(b)}$ | 560 | V |
| $V_{a,g2}$ | 550 | V |
| $I_{a+g2(o)}$ | 2×50 | mA |
| $I_{a+g2(max\ sig)}$ | 2×150 | mA |
| $p_{a+g2(o)}$ | 2×30 | W |
| $p_{a+g2(max\ sig)}$ | 2×33 | W |
| *$V_{g1}$ (approx) | −80 | V |
| $V_{in(g-g)}$ | 120 | V |
| $R_{L(a-a)}$ | 4·5 | kΩ |
| $z_{out}$ | 6·5 | kΩ |
| $P_{out}$ | 100 | W |
| †D | 3—6 | % |
| Intermodulation | 12 | % |

*A negative bias range of 70±25% is recommended.

†The distortion will vary according to the degree of matching.

**Push-Pull Triode Connection. Cathode Bias.**

| | | | |
|---|---|---|---|
| $V_{a(b)}$ | 400 | 485 | V |
| $V_{a,g2}$ | 350 | 425 | V |
| $I_{a+g2(o)}$ | 2×67 | 2×85 | mA |
| $I_{a+g2(max\ sig)}$ | 2×72 | 2×90 | mA |
| $p_{a+g2(o)}$ | 2×24 | 2×40 | W |
| *$R_k$ | 2×525±5% | 2×525±5% | Ω |
| $V_{g1}$ (approx) | −38 | −48 | V |
| $V_{in(g-g)}$ | 60 | 70 | V |
| $R_{L(a-a)}$ | 4 | 4 | kΩ |
| $z_{out}$ | 2·5 | 2·5 | kΩ |
| $P_{out}$ | 15 | 27 | W |
| †D | 1—3 | 1—3 | % |
| Intermodulation | 6 | 6 | % |

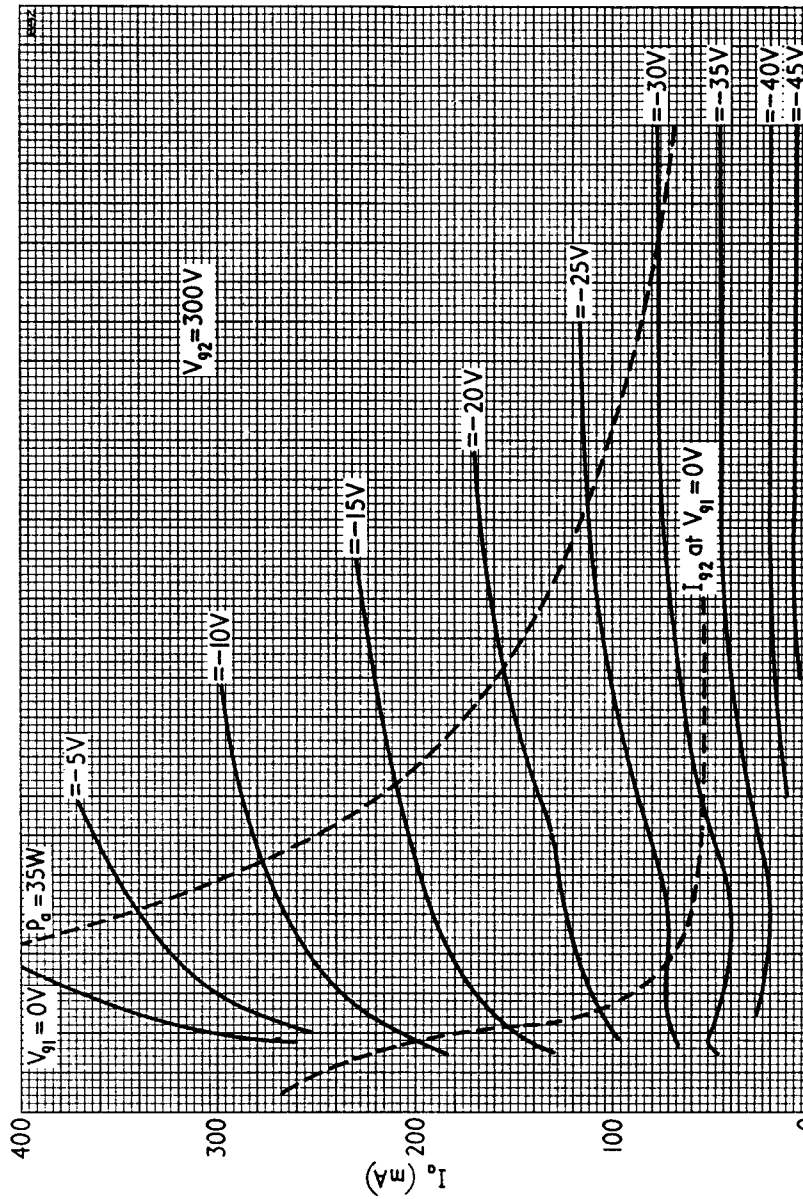
*Separate bias resistors are essential.

†The distortion will vary according to the degree of matching.

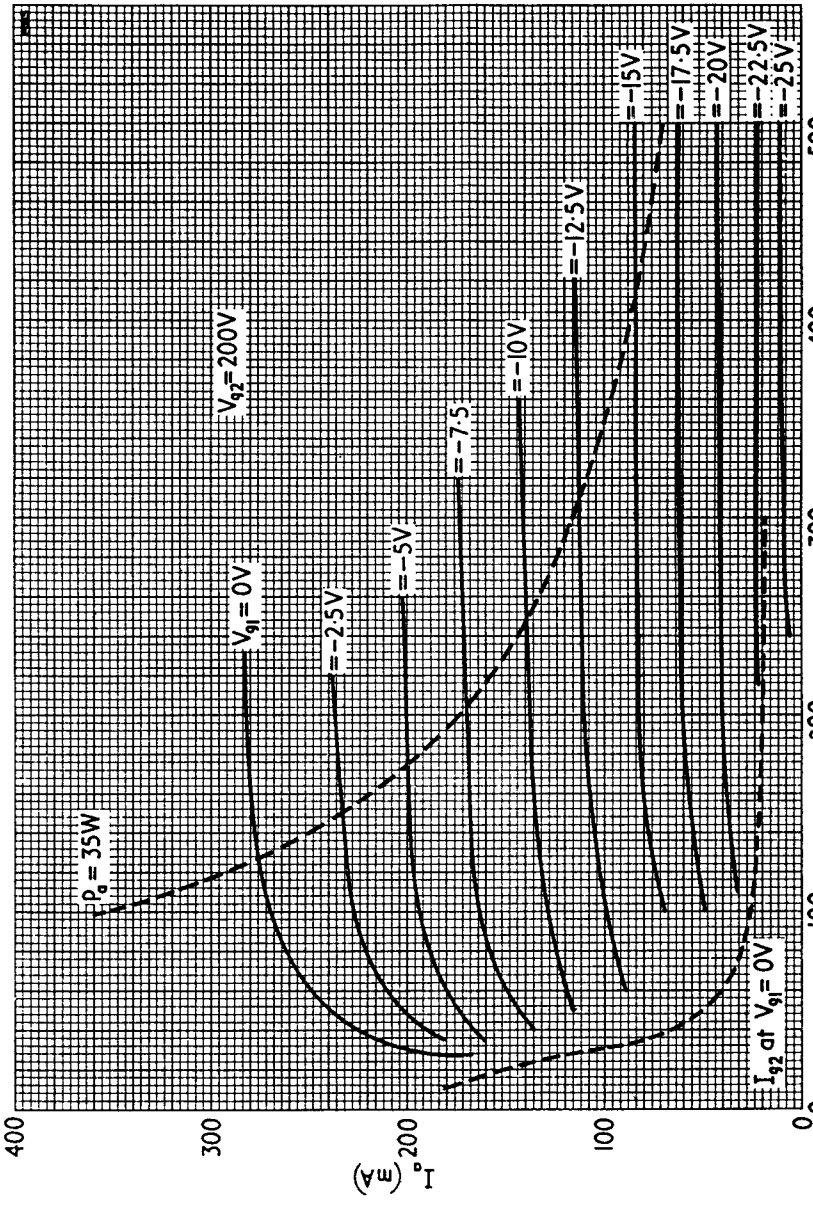
## INSTALLATION

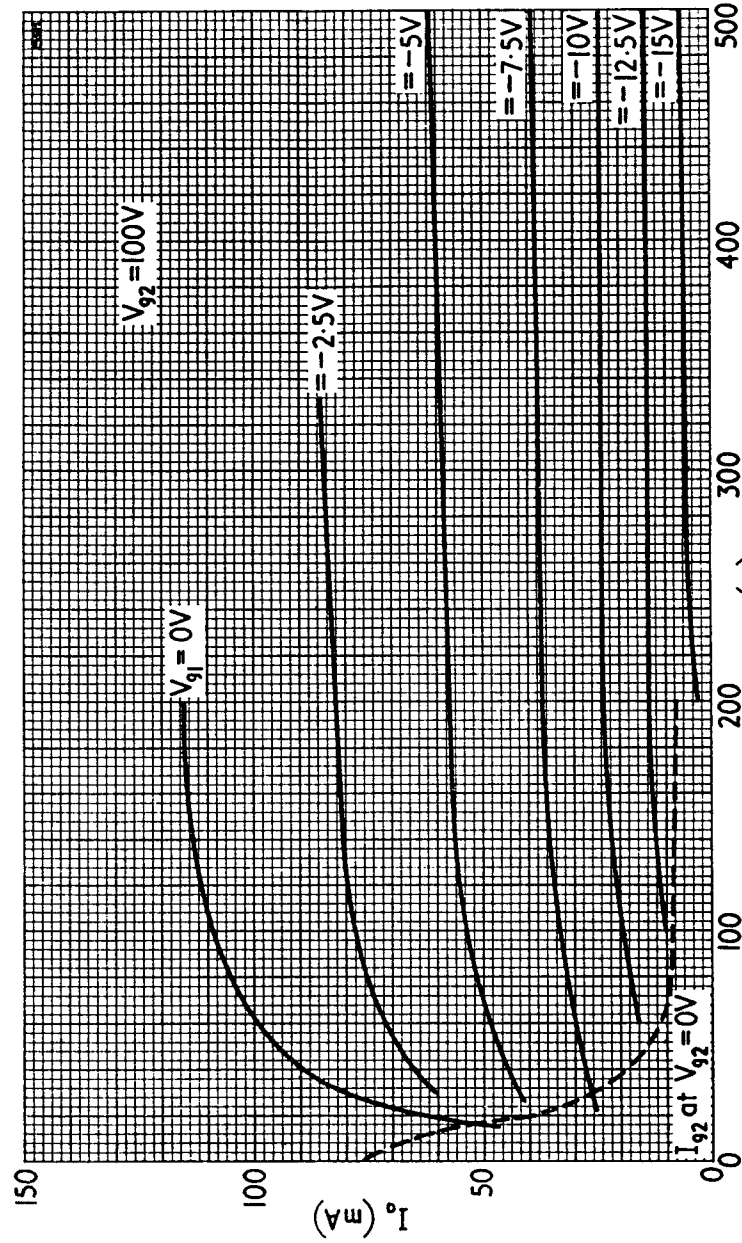
The valve may be mounted horizontally only if pins 4 and 8 are in a vertical plane.

Free air circulation round the valve is desirable ; the hottest part of the bulb should not exceed 250°C.

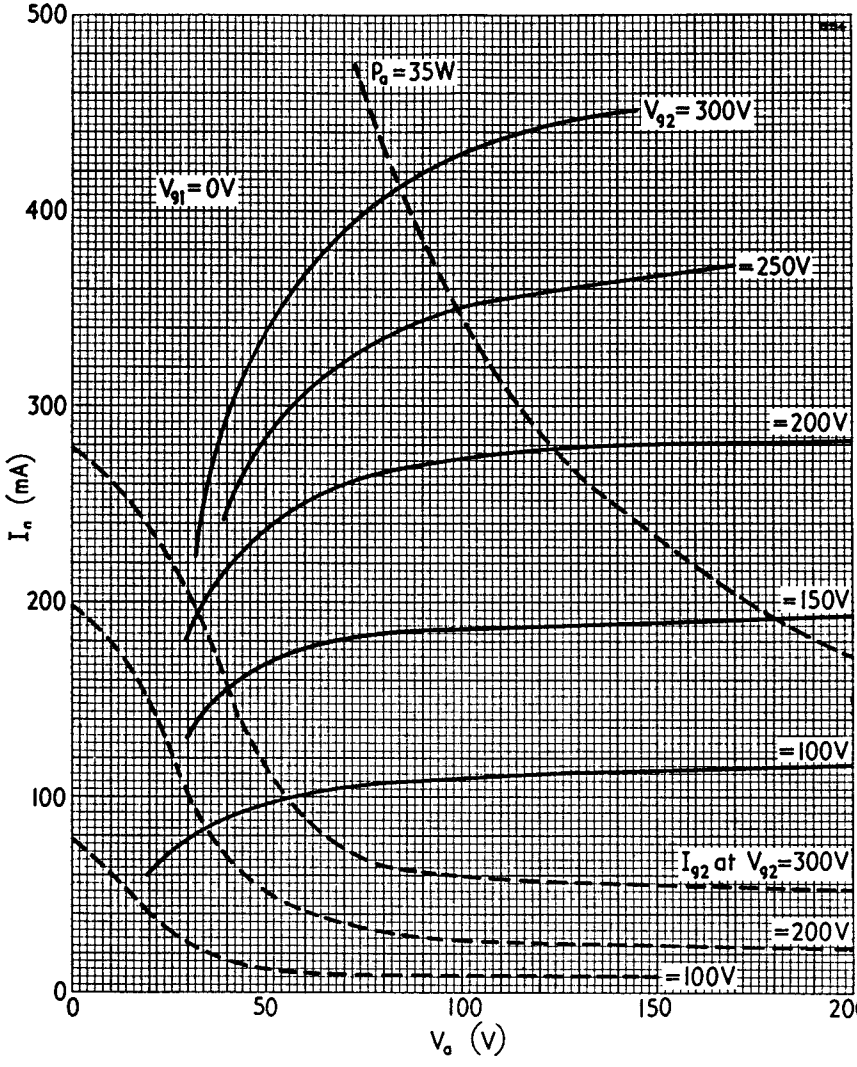

$V_{g2}$=300V
$V_{g1}$ = 0V
$P_a$ =35W
=-5V
=-10V
=-15V
=-20V
=-25V
=-30V
=-35V
=-40V
=-45V
$I_{g2}$ at $V_{g1}$ =0V
$I_a$ (mA)
$V_a$ (V)
0
100
200
300
400
500

# KT88

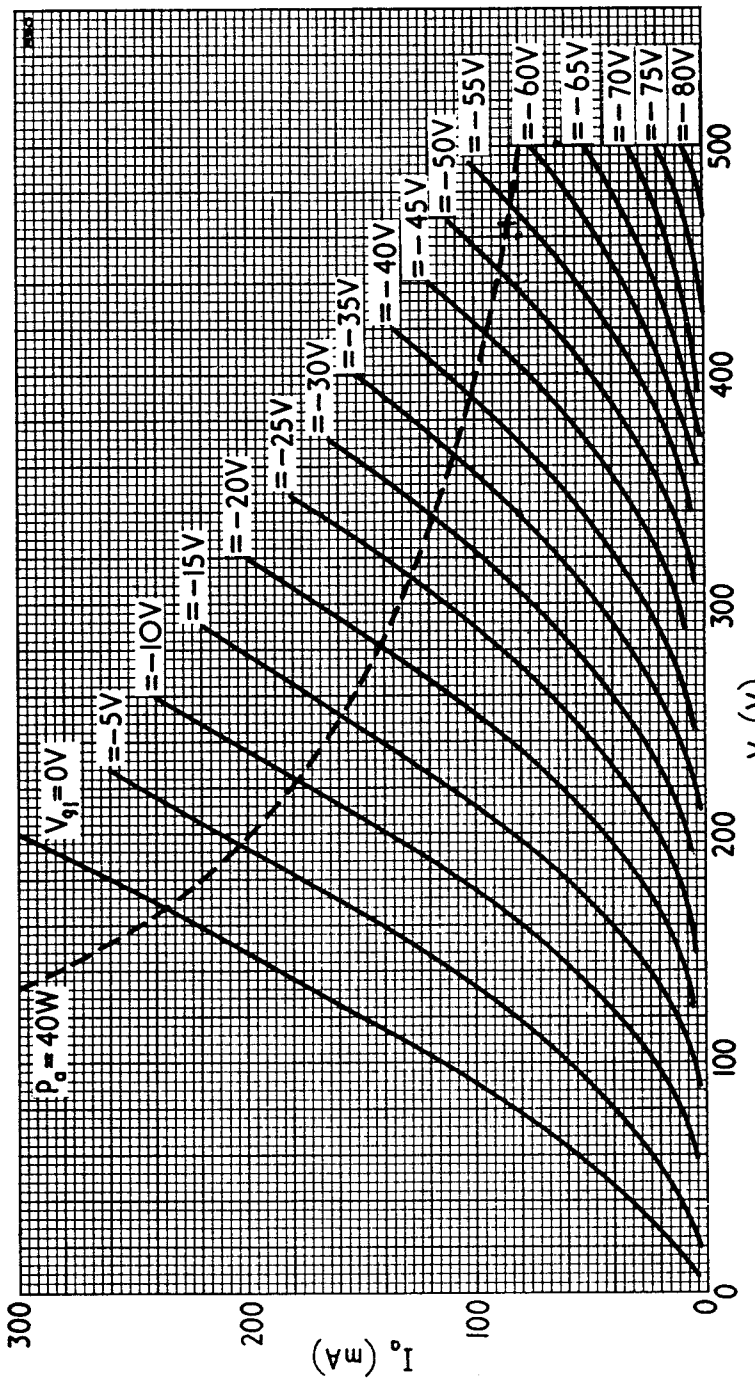

$I_a$ (mA)
$V_a$ (V)
$P_a$ = 35W
$V_{g2}$ = 200V
$V_{g1}$ = 0V
= −2·5V
= −5V
= −7·5
= −10V
= −12·5V
= −15V
= −17·5V
= −20V
= −22·5V
= −25V
$I_{g2}$ at $V_{g1}$ = 0V
0
100
200
300
400
500


$V_{92}$=100V
$V_{91}$ = 0V
= −2·5V
= −5V
= −7·5V
= −10V
= −12·5V
= −15V
$I_{92}$ at $V_{92}$=0V
$I_a$ (mA)
$V_a$ (V)
0
50
100
150
200
300
400
500

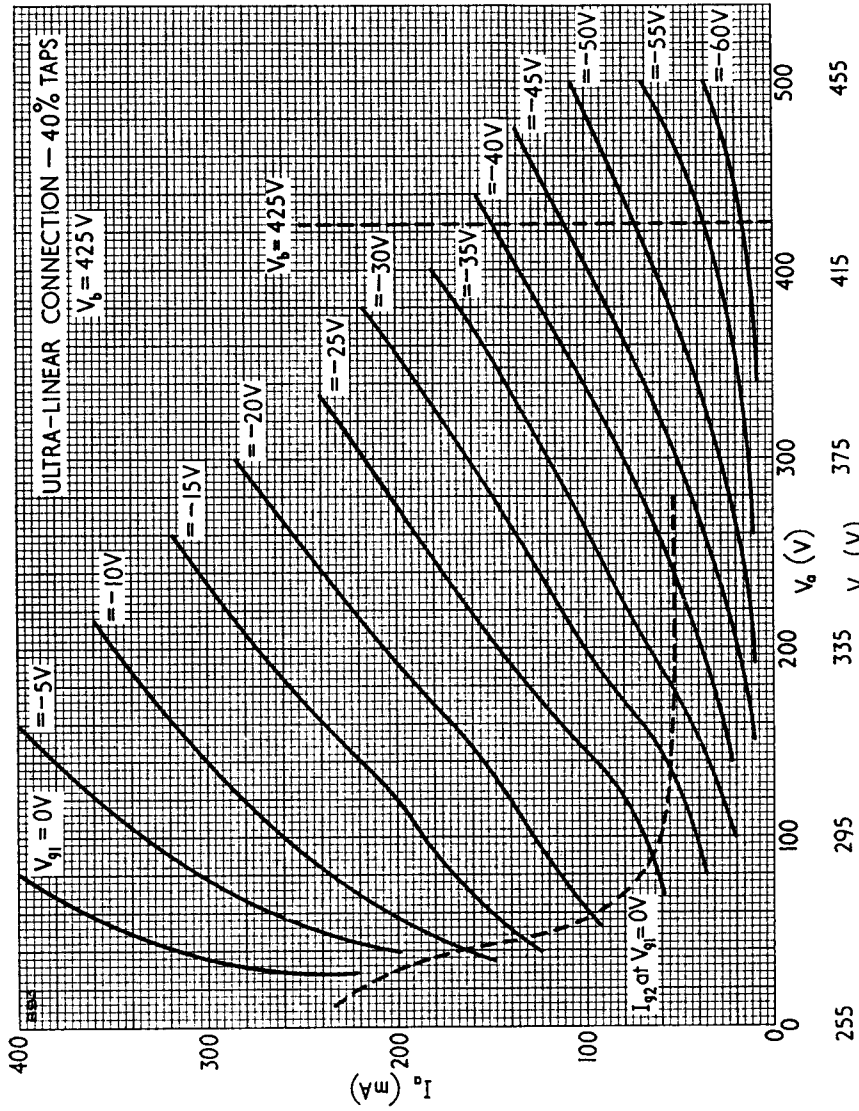
# KT88


500
400
300
200
100
0
0
50
100
150
200
$I_a$ (mA)
$V_a$ (V)
$P_a$=35W
$V_{g2}$=300V
$V_{g1}$=0V
=250V
=200V
=150V
=100V
$I_{g2}$ at $V_{g2}$=300V
=200V
=100V

TRIODE CONNECTION



# KT88






Printed in England. C.