

# Genalex

## BEAM TETRODE

### BRIEF DATA

The KT88 has an absolute maximum anode dissipation rating of 42W and is designed for use in the output stage of an a.f. amplifier. Two valves in Class AB1 give a continuous output of up to 100W. The KT88 is also suitable for use as a series valve in a stabilised power supply.

The KT88 is a commercial version of the CV5220 and is similar to the 6550.

### HEATER

$V_h$ . . . . .	6.3	V
$I_h$ (approx) . . . . .	1.6	A

### MAXIMUM RATINGS

	Absolute	Design Maximum	
$V_a$ . . . . .	800	800	V
$V_{g2}$ . . . . .	600	600	V
$V_{a,g2}$ . . . . .	600	600	V
$-V_{g1}$ . . . . .	200	200	V
$P_a$ . . . . .	42	35	W
$P_{g2}$ . . . . .	8	6	W
$P_{a+g2}$ . . . . .	46	40	W
$I_k$ . . . . .	230	230	mA
$V_{h-k}$ . . . . .	250	200	V
$T_{bulb}$ . . . . .	250	250	°C
$R_{g1-k}$ (cathode bias)			
$P_{a+g2} \leq 35W$ . . . . .	470		k $\Omega$
$P_{a+g2} > 35W$ . . . . .	270		k $\Omega$
$R_{g1-k}$ (fixed bias)			
$P_{a+g2} \leq 35W$ . . . . .	220		k $\Omega$
$P_{a+g2} > 35W$ . . . . .	100		k $\Omega$

### CAPACITANCES (Measured on a cold unscreened valve)

#### Triode Connection

$C_{g1-a,g2}$ . . . . .	7.9	pF
$C_{g1-all \text{ less } a,g2}$ . . . . .	9.3	pF
$C_{a,g2-all \text{ less } g1}$ . . . . .	17	pF

#### Tetrode Connection

$C_{g1-a}$ . . . . .	1.2	pF
$C_{g1-all \text{ less } a}$ . . . . .	16	pF
$C_{a-all \text{ less } g1}$ . . . . .	12	pF

## CHARACTERISTICS

### Tetrode Connected

$V_a$	250	V
$V_{g2}$	250	V
$I_a$	140	mA
$I_{g2}$ (approx)	3	mA
$-V_{g1}$ (approx)	15	V
$g_m$	11.5	mA/V
$r_a$	12	k $\Omega$
$\mu_{g1-g2}$	8	

### Triode Connected

$V_{a,g2}$	250	V
$I_{a+g2}$	143	mA
$-V_{g1}$ (approx)	15	V
$g_m$	12	mA/V
$r_a$	670	$\Omega$
$\mu$	8	

## TYPICAL OPERATION

### Push-Pull. Class AB1. Cathode Bias. Tetrode Connection

$V_{a(b)}$	560	V
$V_{a(o)}$	521	V
$V_{g2}$	300	V
$I_{a(o)}$	2 x 64	mA
$I_a$ (max sig)	2 x 73	mA
$I_{g2(o)}$	2 x 1.7	mA
$I_{g2}$ (max sig)	2 x 9	mA
$R_{L(a-a)}$	9	k $\Omega$
$*R_k$	2 x 460	$\Omega$
$-V_{g1}$ (approx)	30	V
$P_{out}$	50	W
$D_{tot}$	3	%
$\pm I.M.$	11	%
$P_{a(o)}$	2 x 33	W
$P_{a(max sig)}$	2 x 12	W
$P_{g2(o)}$	2 x 0.5	W
$P_{g2}$ (max sig)	2 x 2.7	W
$V_{(g1-g1)(ac)} \text{ crest}$	60	V

\*It is essential to use two separate cathode bias resistors.

†Intermodulation distortion; measured using two input signals at 50 and 6000Hz (ratio of amplitudes 4:1).

### Push-Pull. Class AB1. Fixed Bias. Tetrode Connection

$V_{a(b)}$	560	V
$V_{a(o)}$	552	V
$V_{g2}$	300	V
$I_{a(o)}$	$2 \times 60$	mA
$I_a$ (max sig)	$2 \times 145$	mA
$I_{g2(o)}$	$2 \times 1.7$	mA
$I_{g2}$ (max sig)	$2 \times 15$	mA
$R_{L(a-a)}$	4.5	k $\Omega$
$-V_{g1}$ (approx)	34	V
$P_{out}$	100	W
$D_{tot}$	2.5	%
$\pm I.M.$	10	%
$P_{a(o)}$	$2 \times 33$	W
$P_a$ (max sig)	$2 \times 28$	W
$P_{g2(o)}$	$2 \times 0.5$	W
$P_{g2}$ (max sig)	$2 \times 4.5$	W
$V_{(g1-g1)(ac)}$ crest	67	V

\* It is essential to provide two separately adjustable bias voltage sources, having a voltage adjustment range of  $\pm 25\%$ .

‡ Intermodulation distortion; measured using two input signals at 50 and 6000Hz (ratio of amplitudes 4:1).

### Push-Pull. Class AB1. Cathode Bias. Ultra-Linear Connection (40% Tapping Points)

$V_{a,g2(b)}$	500	375	V
$V_{a,g2(o)}$	436	328	V
$I_{a+g2(o)}$	$2 \times 87$	$2 \times 87$	mA
$I_{a+g2}$ (max sig)	$2 \times 99$	$2 \times 96$	mA
$R_{L(a-a)}$	6	5	k $\Omega$
$*R_k$	$2 \times 600$	$2 \times 400$	$\Omega$
$-V_{g1}$ (approx)	52	35	V
$P_{out}$	50	30	W
$D_{tot}$	1.5	1	%
$\pm I.M.$	4	3	%
$P_{a+g2(o)}$	$2 \times 38$	$2 \times 28.5$	W
$P_{a+g2}$ (max sig)	$2 \times 17$	$2 \times 16$	W
$V_{(g1-g1)(ac)}$ crest	104	71	V
$Z_{out}$	4.8	4.5	k $\Omega$

\* It is essential to use two separate cathode bias resistors.

‡ Intermodulation distortion; measured using two input signals at 50 and 6000Hz (ratio of amplitudes 4:1).

**Push-Pull. Class AB1. Fixed Bias. Ultra-Linear Connection.  
(40% Tapping Points)**

$V_{a,g2(b)}$	560	460	V
$V_{a,g2(o)}$	553	453	V
$I_{a+g2(o)}$	2 x 50	2 x 50	mA
$I_{a+g2}$ (max sig)	2 x 157	2 x 140	mA
$R_{L(a-a)}$	4.5	4	k $\Omega$
$-V_{g1}$ (approx)	75	59	V
$P_{out}$	100	70	W
$D_{tot}$	2	2	%
*I.M.	11	10	%
$P_{a+g2(o)}$	2 x 27.5	2 x 22.5	W
$P_{a+g2}$ (max sig)	2 x 33	2 x 27	W
$V_{(g1-g1)(ac)}$ crest	140	114	V
$Z_{out}$	7	6.5	k $\Omega$

\*It is essential to provide two separately adjustable bias voltage sources, having a voltage adjustment range of  $\pm 25\%$ .

†Intermodulation distortion; measured using two input signals at 50 and 6000Hz (ratio of amplitudes 4:1).

**Push-Pull. Class AB1. Cathode Bias. Triode Connection**

$V_{a,g2(b)}$	400	485	V
$V_{a,g2(o)}$	349	422	V
$I_{a+g2(o)}$	2 x 76	2 x 94	mA
$I_{a+g2}$ (max sig)	2 x 80	2 x 101	mA
$R_{L(a-a)}$	4	4	k $\Omega$
$-V_{g1}$ (approx)	40	50	V
$P_{out}$	17	31	W
$D_{tot}$	1.5	1.5	%
*I.M.	5.6	5.6	%
$P_{a+g2(o)}$	2 x 26.5	2 x 40	W
$P_{a+g2}$ (max sig)	2 x 19	2 x 27	W
$R_k$	2 x 525	2 x 525	$\Omega$
$V_{(g1-g1)(ac)}$ crest	78	114	V
$Z_{out}$	2	1.9	k $\Omega$

\*Intermodulation distortion; measured using two input signals at 50 and 6000Hz (ratio of amplitudes 4:1).

## INSTALLATION

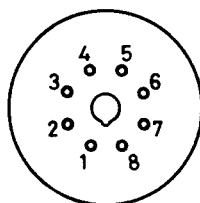
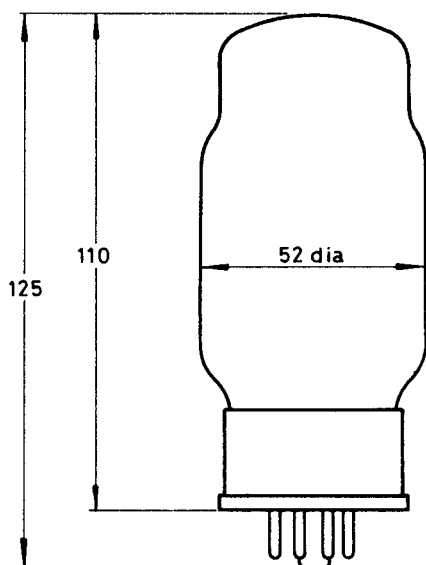
The tube may be mounted either vertically or horizontally.

When tubes are mounted vertically it is recommended that the centres of the tube sockets are not less than 4in. apart and that pins 4 and 8 of each tube are in line.

When tubes are mounted horizontally it is recommended that the centres of the tube sockets are not less than 4in. apart and that pins 4 and 8 of each tube are in the same vertical line. One tube should not be mounted directly above another.

Free air circulation around the tube is desirable.

## OUTLINE



1109

Base : Metal shell wafer octal

Pin: 1	base shell	5	g1
2	h	6	NP
3	a	7	h
4	g2	8	k, bp

Dimensions are in  
mm and are maximum

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