

# SPECIAL QUALITY V.H.F. TRIODE

# EC1000

Special quality subminiature triode primarily intended  
for use as an input valve in measurement probes.

This data should be read in conjunction with GENERAL NOTES - SPECIAL  
QUALITY VALVES which precede this section of the handbook, and the index  
numbers are used to indicate where reference should be made to a specific note.

## HEATER

Suitable for parallel supply a.c. or d.c.

$V_h^1$	6.3	V
$I_h$	185	mA

## MOUNTING POSITION

Note - Direct soldered connections to the leads of this valve must be at least  
5mm from the seal and any bending of the valve leads must be at least 2mm  
from the seal.

## CAPACITANCES<sup>2</sup> (unshielded)

	Min.	Av.	Max.	
$c_{a-g}$	1.4	1.7	2.0	pF
$c_{a-h}$	185	270	355	mpF
$c_{a-k}$	325	450	575	mpF
$c_{g-k}$	2.9	3.5	4.1	pF
$c_{g-h}$	23	33	43	mpF
$c_{h-k}$	2.3	2.8	3.3	pF

## CHARACTERISTICS<sup>3</sup>

$V_a$	80	V
$I_a$	14	mA
$V_g$	-2.0	V
$g_m$	14.5	mA/V
$\mu$	27.5	
$r_{g1}$ ( $f = 250Mc/s$ )	300	$\Omega$



CHARACTERISTIC RANGE VALUES FOR EQUIPMENT DESIGN

	Av.	Initial range	End of life	
<b>Anode current</b>				
$V_{a(b)} = 90V$ $R_k = 680\Omega$				
$V_g(b) = 7.5V$	14	-	-	mA
$V_{a(b)} = 82V$ $R_k = 143\Omega$				
$V_g(b) = 0V$	14	11.2 to 16.8	8.2	mA
<b>Mutual conductance</b>				
$V_{a(b)} = 90V$ $R_k = 680\Omega$				
$V_g(b) = 7.5V$	14.5	12.9 to 16.1	9.2	mA/V
$V_{a(b)} = 82V$ $R_k = 143\Omega$				
$V_g(b) = 0V$	14.5	-	-	mA/V
<b>Negative grid current</b>				
$V_{a(b)} = 92V$ $R_k = 680\Omega$				
$V_g(b) = 7.5V$	-	<10	<10	nA ←
<b>Heater current</b>				
$V_h = 6.3V$	185	175 to 195	-	mA
<b>Heater-cathode insulation</b>				
$V_{h-k} = 55V$	-	<5.0	<10	$\mu A$

SHOCK AND VIBRATION

The EC1000 can withstand vibrations of 2.5g and 50c/s for 96 hours and is proof against impact accelerations of approximately 500g.

ABSOLUTE MAXIMUM RATINGS<sup>4</sup>

$V_{a(b)} \text{ max.}$	275	V
$V_a \text{ max.}$	110	V
$p_a \text{ max.}$	1.5	W
$I_k \text{ max.}$	22	mA
$-V_g \text{ max.}$	55	V
$*R_{g-k} \text{ max.}$	48	M $\Omega$
$V_{h-k} \text{ max.}$	55	V
$V_h \text{ max.}$	6.6	V

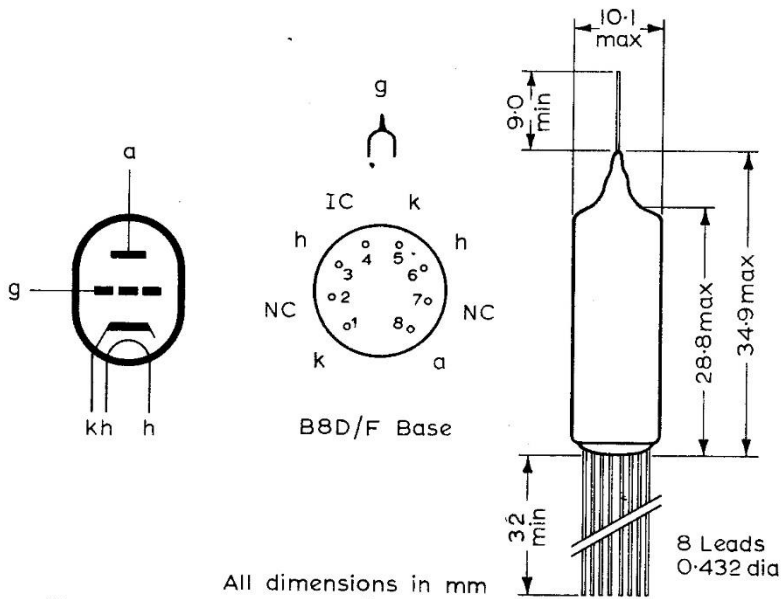
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$V_h$ min.	6.0	V
$T_{bulb}$ max.	170	°C

\* $R_{g-k}$  max. should be restricted to that value at which no absolute maximum rating is exceeded at  $-I_g = 10nA$ . In practice the maximum  $R_{g-k}$  will also be determined by the required current stability and the permissible hum level.

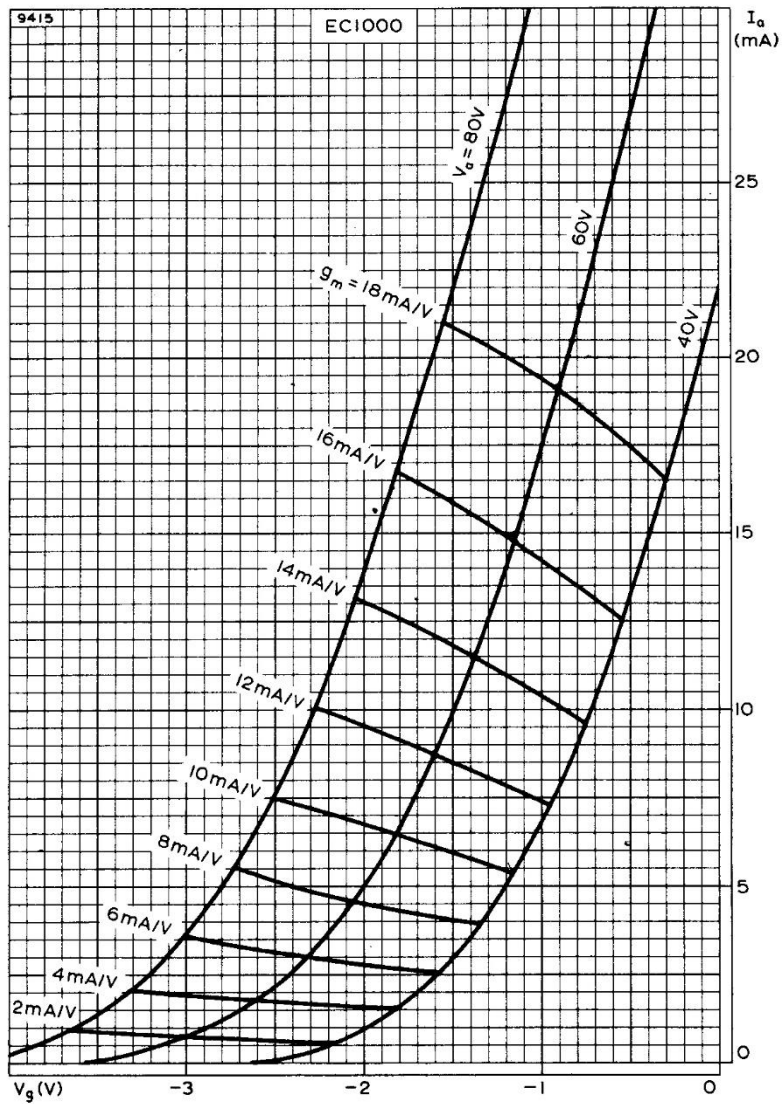
In calculating the maximum permissible  $R_{g-k}$  to be safe from thermal runaway, the d.c. feedback factor of the circuit should be taken into account.



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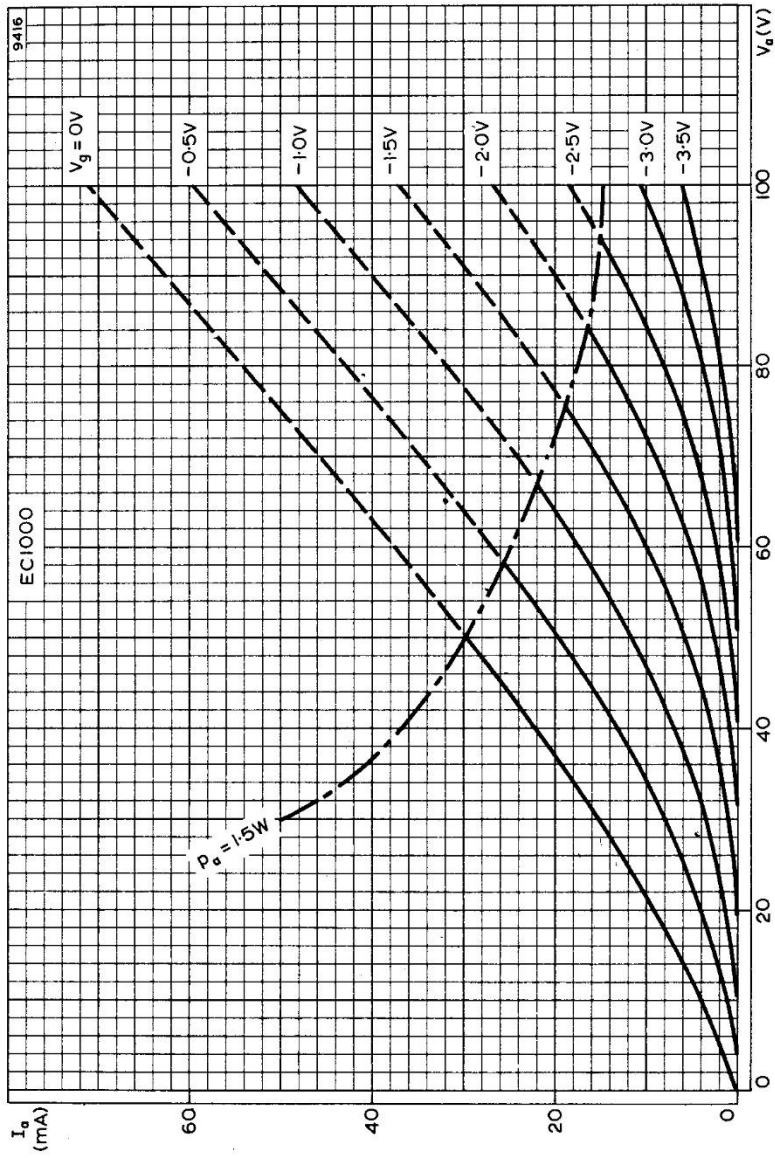
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**EC1000**



ANODE CURRENT PLOTTED AGAINST GRID VOLTAGE WITH ANODE VOLTAGE AS PARAMETER AND WITH MUTUAL CONDUCTANCE CONTOURS





ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER