

# SUBMINIATURE ELECTROMETER TRIODE

# MEI404

Subminiature electrometer triode for linear and logarithmic use with a controlled logarithmic relationship between positive grid current and anode current, and a grid current of  $2 \times 10^{-13}$ A.

## FILAMENT

Suitable for d.c. operation only

$V_f$	1.25	V
$I_f$	14	mA

## CAPACITANCES

$C_{a-g}$	2.0	pF
$C_{in}$	0.5	pF
$C_{out}$	0.8	pF

## CHARACTERISTICS (for linear operation with all voltages measured with respect to the negative end of the filament)

Measured at  $V_f = 1.25$ V,  $V_a = 9.0$ V,  $I_a = 100$  $\mu$ A

	Minimum	Typical	Maximum	
$V_g$	-2.0	-2.7	-3.75	V
$g_m$	60	80	90	$\mu$ A/V
$\mu$	1.6	2.0	2.7	
$I_g$	—	$-1.6 \times 10^{-13}$	$-10 \times 10^{-13}$	A
$\dagger V_g$ (crossover)	—	-1.4	-1.7	V
$\dagger I_a$ (crossover)	145	—	—	$\mu$ A

$\dagger$ 'Crossover', measured at  $V_a = 9.0$ V, is the point at which the polarity of the grid current is reversed.

## LIMITING VALUES

$V_a$ max.	25	V
$I_a$ max.	250	$\mu$ A
$V_f$ limits	1.1 to 1.5	V

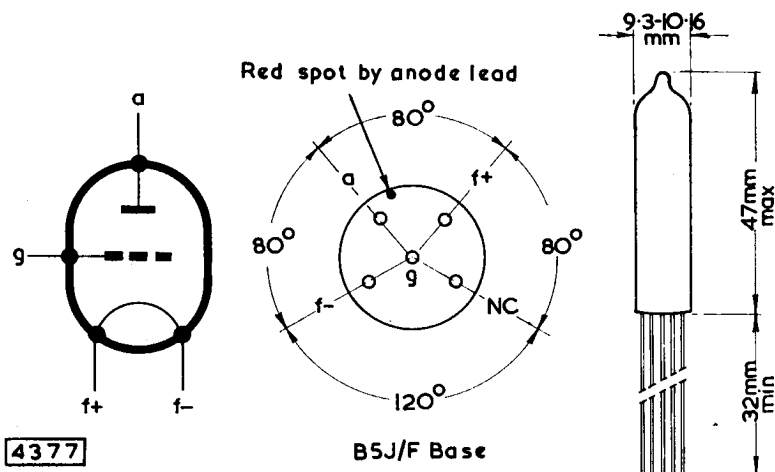
## Notes for operation with logarithmic characteristic

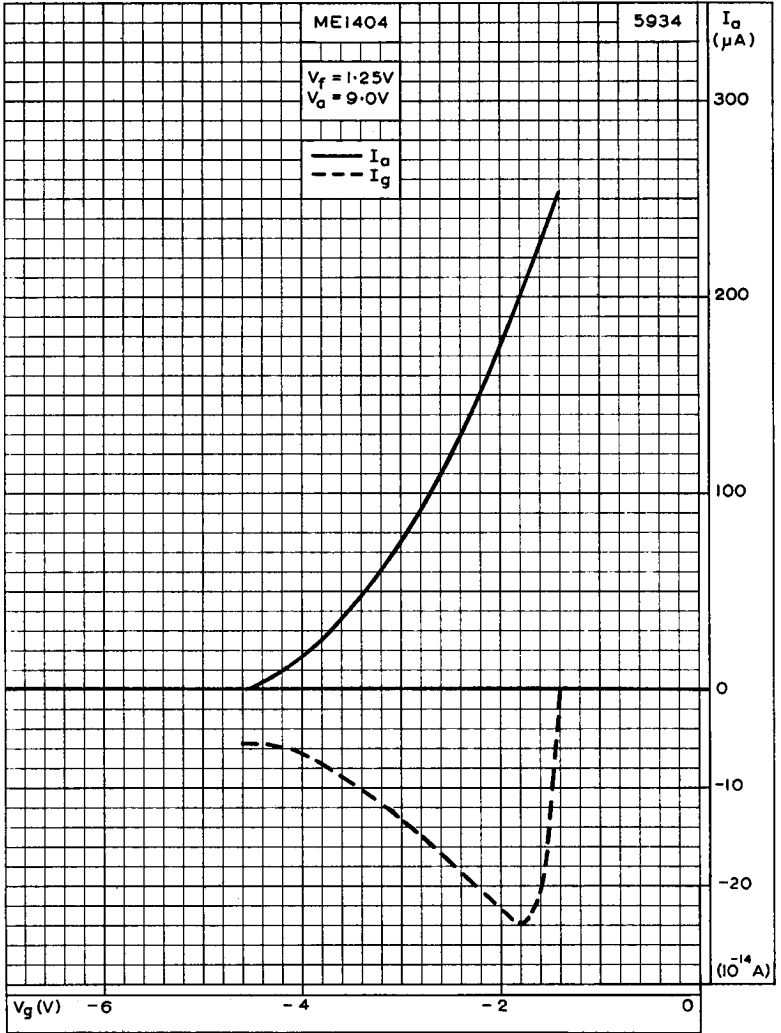
This valve has a controlled linear relationship between the anode current and the logarithm of the positive grid current. This relationship holds good over a range of at least three decades of positive grid current i.e. from  $3 \times 10^{-12}$ A to  $3 \times 10^{-9}$ A. Conditions can be established such that this change in grid current always produces a fall in anode current of  $50$  $\mu$ A.

With a positive grid current of  $3 \times 10^{-9}$ A, the anode voltage should be set to some value (nominal 4.4V) such that when the grid current is reduced to  $3 \times 10^{-12}$ A the anode current falls by  $50$  $\mu$ A. It will be found that the anode voltage lies in the approx. range 3 to 6V, whilst the initial anode current is in the range 65 to  $100$  $\mu$ A.

## OPERATING NOTES

1. In order to avoid excessive drift of characteristics the filament voltage must be applied before the anode voltage.
2. To avoid contamination of the glass the valve should not be removed from its protective envelope until it is fitted into the equipment. Great care should be taken not to handle the valve within 13mm of the base.
3. Direct soldered connections to the leads of the valve must be at least 13mm from the seal and any bending of the leads must be 1.5mm from the seal.
4. To prevent photoemission from the grid, the valve should be operated in darkness or at a low ambient light level.

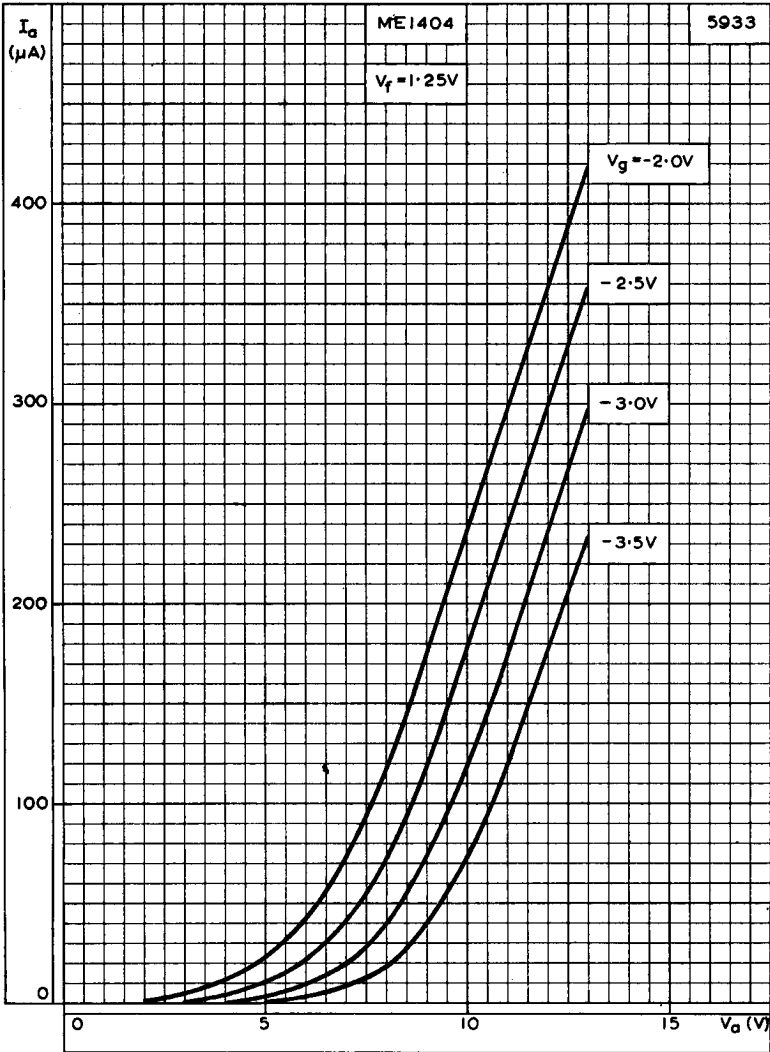




ANODE AND GRID CURRENTS PLOTTED AGAINST GRID VOLTAGE

# ME1404

# SUBMINIATURE ELECTROMETER TRIODE



ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH GRID VOLTAGE AS PARAMETER

