

QUICK REFERENCE DATA (nominal values)

Maintaining voltage	78	V
Cathode current range	2 to 60	mA
Regulation voltage	5	V
Ignition delay time	10	ms

This data should be read in conjunction with GENERAL OPERATIONAL RECOMMENDATIONS—VOLTAGE STABILISER AND REFERENCE LEVEL TUBES which precede this section of the handbook.

CHARACTERISTICS AND RANGE VALUES FOR EQUIPMENT DESIGN measured at an ambient temperature of between 20 and 30°C unless otherwise stated.

The values given state the range over which the tube will operate both initially and during life. No allowance has been made for supply voltage and component variations. (note 1)

Initial values

Minimum voltage necessary for ignition (note 2)	115	V
Ignition delay time	See page C1	
Maintaining voltage at 30mA		
Maximum	81	V
Minimum	75	V
Increase in maintaining voltage as cathode current is increased from 2 to 60mA (regulation voltage) note 3		
Maximum	8.0	V
Average	5	V
Temperature coefficient of maintaining voltage	See page C2	
Typical maximum voltage jumps in the current range		
2 to 20mA	100	mV
20 to 60mA	15	mV
Cathode current above which the incremental resistance is positive	7	mA
Incremental resistance in the current range 10 to 60mA (approx.) note 3	130	Ω

Life performance (note 4)

	$I_k = 30\text{mA}$	$I_k = 60\text{mA}$	
Minimum voltage necessary for ignition note 2	115	115	V
Typical maximum percentage variation of maintaining voltage (room temperature)			
In 1,000 hrs	-0.2 to +0.9	-0.7 to +0.2	%
In 10,000 hrs	-0.2 to +1.0	-0.7 to +1.4	%
In 30,000 hrs	-0.2 to +1.2	-0.7 to +2.0	%
Typical maximum increase in maintaining voltage as cathode current is increased over the range 2 to 60mA (note 3)	6.5	6.5	V

ABSOLUTE MAXIMUM RATINGS

Cathode current

Maximum for continuous operation	60	mA
Maximum surge (note 5)	100	mA
Minimum	2.0	mA

Maximum negative anode voltage 50 V

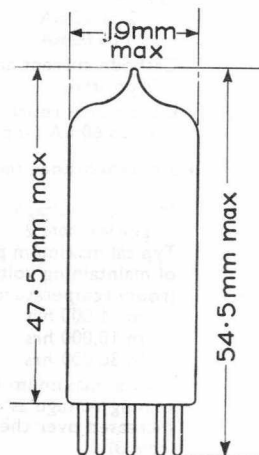
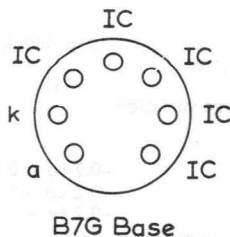
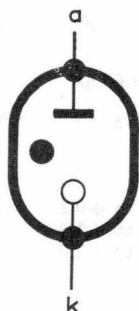
Minimum bulb temperature ($I_k = 0\text{mA}$) -55 °C

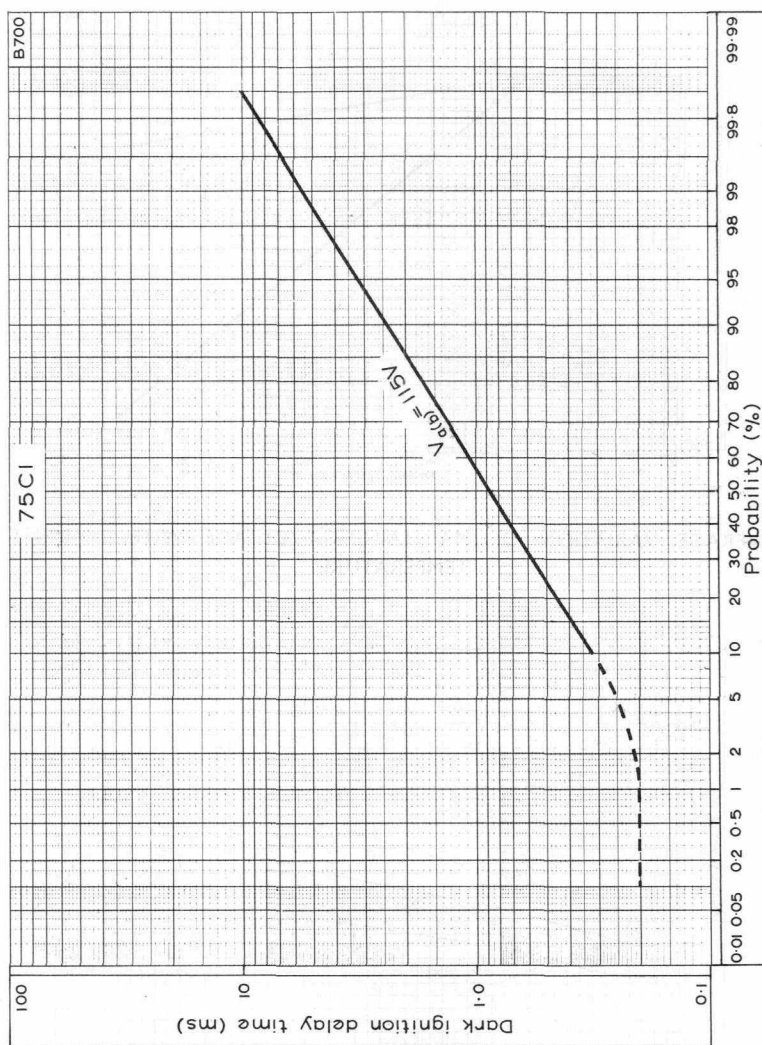
Maximum ambient temperature
 For operation (note 6) +90 °C
 For storage +70 °C

OPERATING NOTES

1. Thermal equilibrium is reached within 3 minutes of igniting the tube.
2. This value holds good over life in light or darkness. See graph on page C1.
3. Following a sudden large change in the tube current the change in maintaining voltage may be up to 2.5 volts greater than that given until tube thermal equilibrium is re-established (within 3 minutes).
4. These figures apply only when the tube is operated continuously at the currents stated.
5. To be restricted for long life to approximately 30 seconds in each 8 hours use.
6. This tube will operate satisfactorily at ambient temperatures up to 90°C, provided the tube is not used at either extreme of the current range.

4716

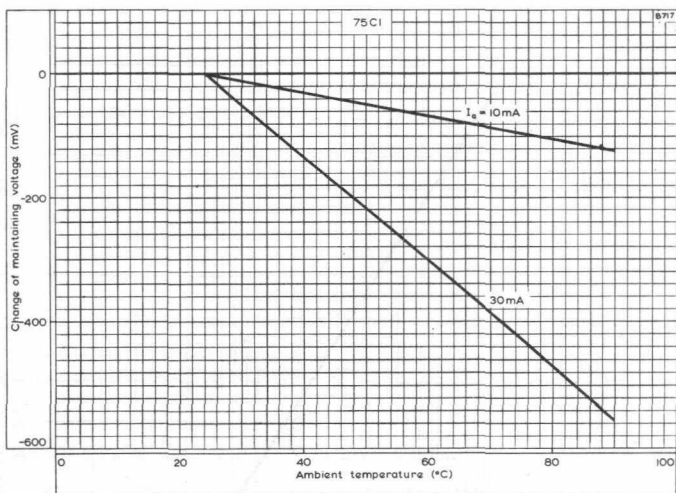




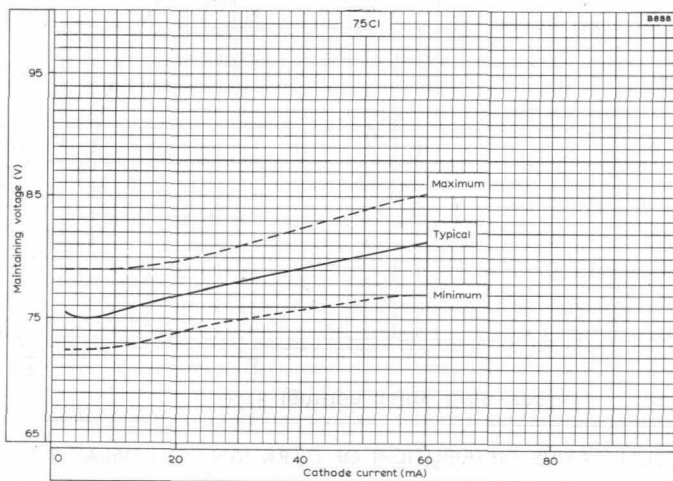
CUMULATIVE DISTRIBUTION OF DARK IGNITION DELAY TIME

This curve shows the probability that a tube will ignite in less than the time shown. This will be to some extent dependent on the supply voltage. In general an increase in the supply voltage will reduce the ignition delay time.





AVERAGE VARIATION OF MAINTAINING VOLTAGE WITH AMBIENT TEMPERATURE



MAINTAINING VOLTAGE PLOTTED AGAINST CATHODE CURRENT
(Initial values)