

NUMERAL INDICATOR TUBES

5870S : 5870SF
5870ST : 5870TF
5870L

Display: Digits 0 to 9 and two decimal points

Ultra-long-life tubes intended for d.c. operation and for pulsed current operation with peak cathode current values up to 10mA nominal.

The five types have identical electrical characteristics but differ in minor physical features, referred to in "Mechanical Data" section.

ABSOLUTE RATINGS

Anode supply voltage, d.c.	(V)	min. 170	max. —
Cathode current peak	(mA)	digit 12	d.p. 0.9
average	(mA)	2.5	0.1
Cathode pre-bias voltage (Note 1)	(V)	60	120
Ambient temperature operating (Note 2)	(°C)	-20	+70
storage	(°C)	-55	+80
Altitude	(m)	21 400	70 000
	(ft)		

CHARACTERISTICS

Discharge maintaining voltage	(V)	min. 135	nom. 145	max. 157
at $I_k=2.5\text{mA}$ (d.p. on)	(V)			180
at $I_k=3.0\text{mA}$ (d.p. on)	(V)			
at $I_k=4.0\text{mA}$ (d.p. off)	(V)	153	—	—

TYPICAL OPERATING CONDITIONS (Note 3)

Anode supply voltage	(V)	170	200	250
Anode current limiting resistor	(k Ω)	7.5	18	36
Cathode current	(mA)	3.0	3.0	3.0
digits (d.p. off)	(mA)	0.2	0.2	0.2
decimal point				
Decimal point cathode resistor (Note 4)	(k Ω)	150	270	560
Cathode pre-bias voltage	(V)	67	67	67
Luminance, approx.	(cd/m ²)	280	280	280

Note 1. Pre-bias voltage is that between the operating and non-operating cathodes. At lower values of pre-bias, current to non-operating cathodes is increased and display legibility will be impaired by background haze; for this reason a minimum pre-bias of 60V is recommended.

Note 2. If a tube is operated with its bulb temperature below 0°C, variation of characteristics will increase and tube life will be shortened. For d.c. operation when large temperature variations occur a high supply voltage and appropriate anode series resistor should be used.

Note 3. To prolong tube life, the discharge should be stepped frequently from one cathode to another. Where a static condition exists, it is desirable to step the discharge at least once in 100 hours; the decimal point may be run continuously.

Note 4. This resistor essential only when no digit cathode is conducting; if a decimal point is never used without a digit cathode, the resistor is not necessary.

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Mechanical Data

Dimensions for 5870S and 5870SF

	mm	in.
A	13.0 max.	0.510 max.
B*	7.62	0.300
C	34.0 max.	1.330 max.
D	30.5 max.	1.200 max.
E	12.7 max.	0.500 max.
F	15.00	0.590
G	4.06 min.	0.160 min.
H	4.83 max.	0.190 max.
J	5.10	0.200
K	7.47	0.294
K*	13.5	0.530
L	6.48	0.255
M	24.4 max.	0.960 max.
N	0.46	0.018
P	2.46	0.097
Q	2.29	0.090
R	0.35 min.	0.014 min.
S	0.43 max.	0.017 max.
T	6.50	0.256
U	0.61 max.	0.024 max.
	3.07 min.	0.121 min.
	3.28 max.	0.129 max.

* luminous size

Metric dimensions derived from original inch dimensions

Dimensions of 5870ST, 5870TF and 5870L are as above with following exceptions:

5870ST	U = 5.69mm max.
5870TF	C = 36.41mm max.
5870L	G = 7.24mm max.
	G = 34mm max.

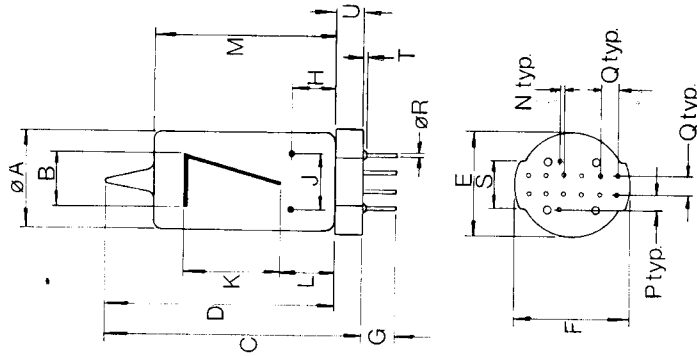
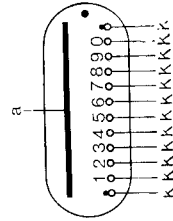
Bulbs

5870S, 5870ST, 5870L—C clear

5870SF, 5870TF—Red-lacquer filter

Tube weight 3.3g

Base 14 leads



Display aperture

ao ok₆

k₇₀ ok₅

dp₀ ok₄ odp

left right

ao ok₃

k₉₀ ok₂

k₀₀ ok₁

Basing—bottom view