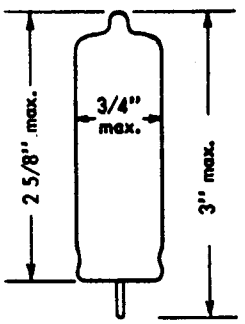
TYPE CK1026

The CK1026 is a low-cost glass, heavy-wall, halogen-quenched counter tube for use in detecting gamma radiation. A halogen quenched counter tube has a marked superiority over conventional organic quenched counters.

The major improvements are:

1. Relatively unlimited life (Note 1).
2. Not damaged by accidental over voltages (Note 2).
3. Increased pulse height.
4. Operation over a wider temperature range (Note 3).
5. Sturdy construction (Note 4).

The CK1026 is used in inexpensive prospectors units and demonstration units.



MECHANICAL DATA

ENVELOPE: T-5½ Glass Heavy wall. Nominal: 175 mg. per sq. cm.

BASE: None (.030" pin. Length: 3/8")

TERMINAL CONNECTIONS:

Anode: Pin at end of tube
Cathode: Connect to coating on outside of bulb (Note 5).

MOUNTING POSITION: Any

ELECTRICAL DATA

Ratings and Normal Operation	Absolute Minimum	Normal Operation	Absolute Maximum	Units
Starting Voltage (Note 6)	700	750	800	Vdc
Operating Voltage	------	900	----	Vdc
Plateau Length (Note 7)	200	------	----	Vdc
Plateau Slope (Note 7)	------	0.10	0.20	%/V
Background at 900 V (Note 8)	------	60	100	cpm
Operating Temperature	-55	------	+75	°C
Life	Unaffected by operation			

Note 1 The life of organic quenched counters is limited because the quenching mechanism results in the dissociation of a definite number of organic molecules per pulse. The end of life in an organic quenched tube is reached when the amount of quenching gas is exhausted. This does not happen in a halogen quenched tube because the halogen gas is not consumed during life.

Note 2 When overvoltages are accidentally applied, the halogen quenched tube will not be damaged even when the tube goes into a continuous discharge.

Note 3 Halogen quenched counters will operate satisfactorily over a temperature range of -50°C to +75°C. The organic quenched tubes operate over a much narrower range because the quenching gas condenses out of the filling mixture.

Note 4 Wall thickness is the same as used in conventional miniature tube types so the CK1026 will stand much greater shock and vibration conditions than conventional thin wall glass and aluminum cathode tubes.

Note 5 The cathode is an externally applied film of colloidial graphite, which will not scratch or peel off. Connection may be made by any type of spring clamp or wire strap which can contact the cathode area.

Note 6 Starting voltage for this tube is that voltage at which uniform pulses of 1/4 volt amplitude appear across a 1 megohm series resistor (500 $\mu\mu$fs coupling condenser).

Note 7 The characteristics of a counter tube can be seriously affected by the associated circuit. The following conditions were used in obtaining the above data.

A scaler was used having a resolving time of 1 microsecond, series resistor of 1 megohm, and a coupling condenser of 500 micromicrofarads. Average counting rate was 100 counts per second.

Note 8 No shielding. Ambient light - 5-50 ft. candles. The CK1026 is non-photosensitive, so it is not generally necessary to enclose the tube in a light-tight box or shield.

Tentative Data

Printed in U.S.A.

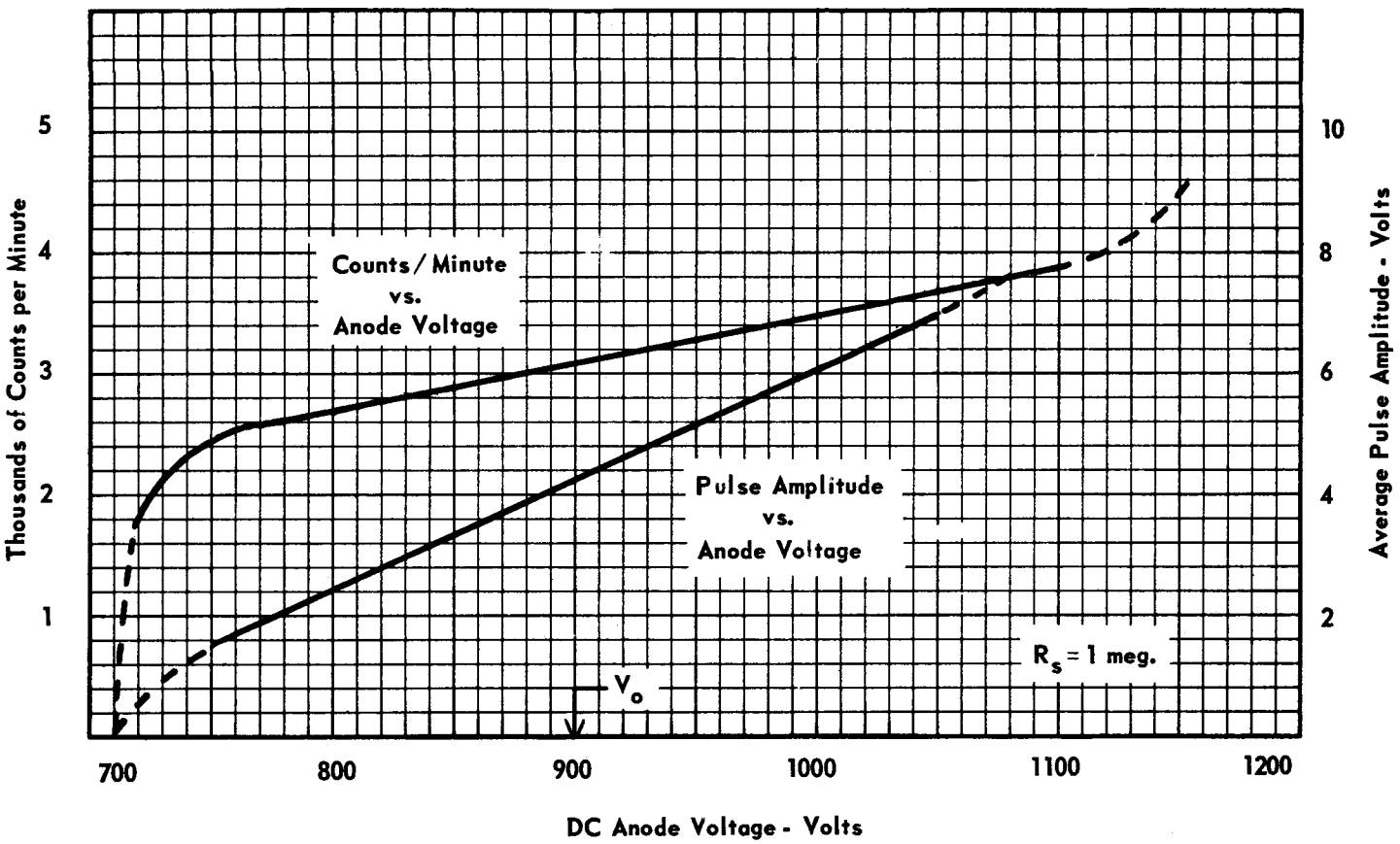
RAYTHEON MANUFACTURING COMPANY

RECEIVING TUBE AND SEMICONDUCTOR OPERATIONS

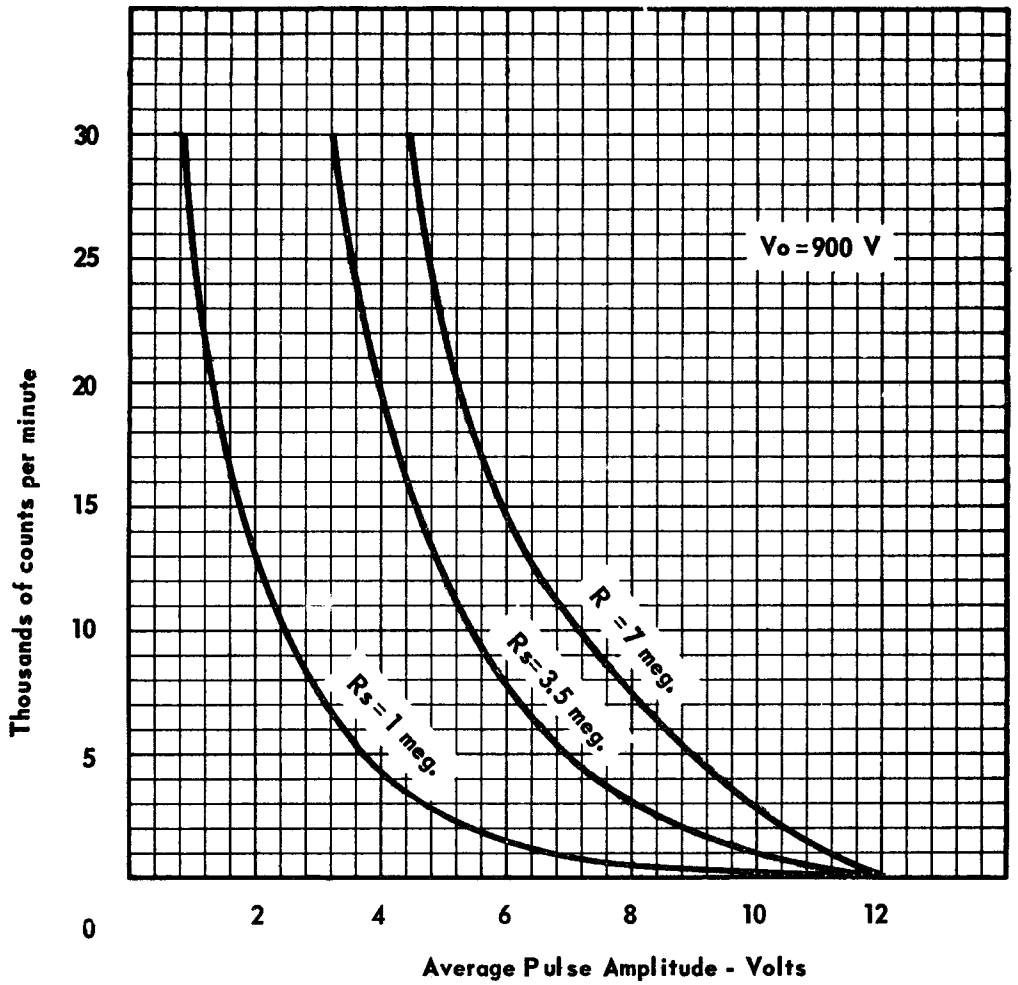
August 15, 1955 NEWTON 58, MASS.

RAYTHEON

RADIATION COUNTER TUBE



RADIATION COUNTER TUBE



TEST CIRCUIT