Permanent Sensitivity ALPHA-BETA GEIGER COUNTER

AMPEREX ELECTRONIC CORPORATION
230 DUFFY AVE., HICKSVILLE, N.Y.

TENTATIVE DATA

Description

The type ***230N*** Geiger counter is a small, end window tube with optimum dimensions for medical isotopes work. It has a low background count and a thin mica window (1. to 2 mg/cm²)[6]. It is filled with Neon and an infinite-life, halogen quench admixture for low voltage operation. The absence of external flanges and the uniformity of electrical characteristics enables this tube to be bundled in multiple arrangements for greater directional sensitivity.

General Data

Operating temperature range	—55° to +75°C
Gas filling	Neon plus halogen admixture
Cathode material	stainless steel (28% chromium, 72% iron)
Mica window[6]	1.4 to 2 mg/cm²
Mica window diameter	13/32"
Effective cathode dimensions	1¼" long x .603" I.D. x .010" wall

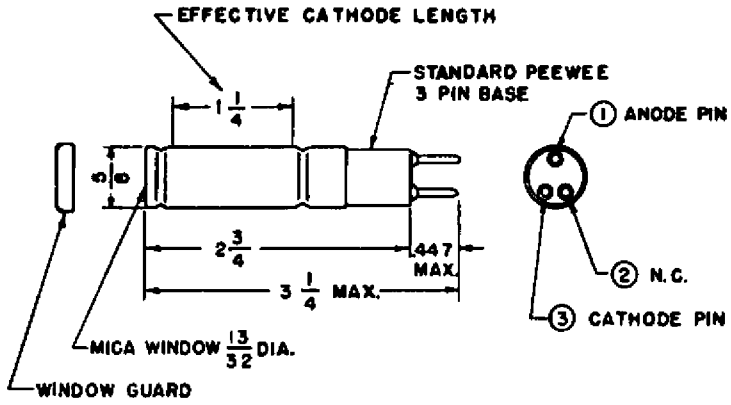
Performance Data

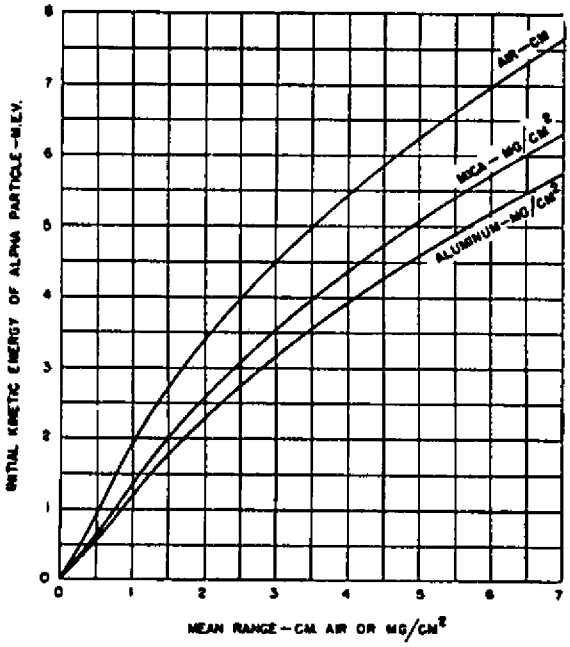
Operating voltage[1,3]	850 volts D.C.
Plateau length[1]	in excess of 150 volts
Slope of plateau[1,4]	less than 15% per 100 volts
Starting voltage (0.3 volt pulses)[1]	775 volts max.
Capacity at terminals	1.5 mmf
Radial sensitivity, beta (through mica window)	99%
Radial sensitivity, gamma (approx.)	80%
Photosensitivity & hysteresis	none
Dead time (approx.)	100 microseconds
Maximum counting rate[5]	1700 counts per second
Background (Shielded with 2" lead and ⅛" aluminum)	15 counts per minute max.
Life expectancy in counts[2]	unlimited by use

Notes

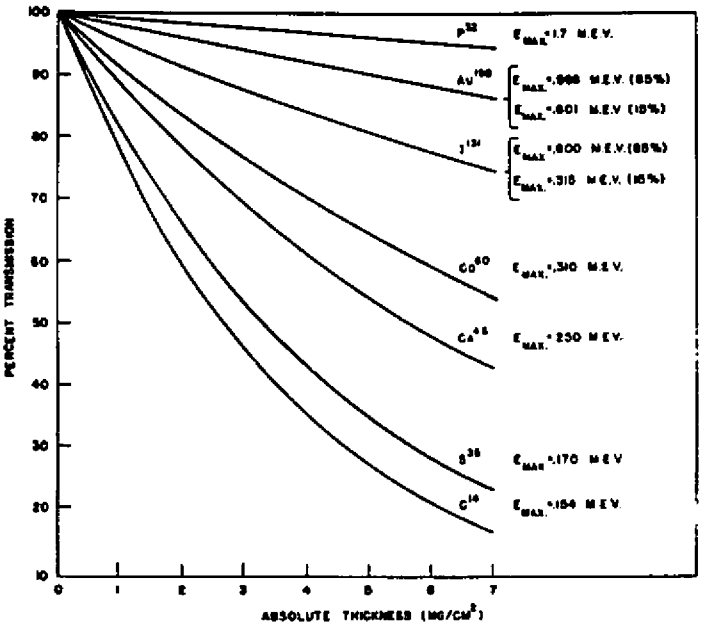
[1] This data is obtained from an automatic plateau trace run on each tube. A print of this trace is shipped with each tube.
[2] Guaranteed 5 x 10^{10} counts minimum.
[3] These tubes will operate satisfactorily anywhere on the plateau.
[4] At an average counting rate of 100 counts per second.
[5] For 20% dead time correction (approx.).
[6] 1.4 mg/cm² mica = .0002 inch = 5.08 microns.

from RTMA release #1128, Jan. 30, 1953





ALPHA PARTICLE MEAN RANGES.



CALCULATED TRANSMISSION OF BETA SPECTRUM FROM SOME COMMON RADIOISOTOPES

Adapted from G. I. Gleason, et al — Nucleonics, Vol. 8, No. 5, 18 (1951)