52 mm (2") photomultiplier 9869B series data sheet



1 description

The 9869B is a 52 mm (2") diameter, end window photomultiplier with a thin domed window, sandblasted for enhanced cathode sensitivity, blue-green sensitive bialkali photocathode and 8 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing. The 9869WB and 9869QB are variants for applications requiring uv sensitivity.

2 applications

• liquid scintillation counting

3 features

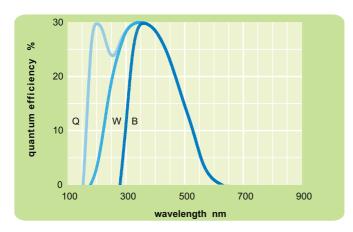
compact

4 window characteristics

	9869B	9869WB	9869QB*
	borosilicate	uv glass	fused silica
spectral range** (nm) refractive index (n_d)	290 - 630	185 - 630	160 - 630
	1.49	1.48	1.46
K (ppm)	300	8500	<10
Th (ppb)	250	30	<10
U (ppb)	100	30	<10

*note that the sidewall contains graded seals of high K content ** wavelength range over which quantum efficiency exceeds 1 % of peak

5 typical spectral response curves

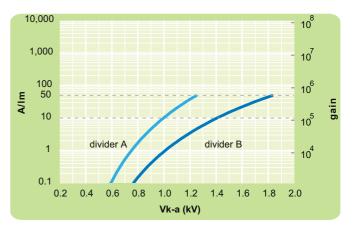


6 characteristics

	unit	min	typ	max
photocathode: bialkali active diameter quantum efficiency at peak luminous sensitivity with CB filter with CR filter dynodes: 8LFSbCs	mm % µA/Im	9.5	46 30 85 12.5 2	
anode sensitivity in divider A: nominal anode sensitivity max. rated anode sensitivity overall V for nominal A/Im overall V for max. rated A/Im gain at nominal A/Im	A/Im A/Im V V x 10 ⁶		10 50 1000 1250 0.1	1300
dark current at 20 °C: dc at nominal A/Im dc at max. rated A/Im pulsed linearity (-5% deviation) divider A divider B	nA nA : mA mA		0.05 0.2 30 100	1
rate effect (I _a for ∆g/g=1%): magnetic field sensitivity: the field for which the output decreases by 50 % most sensitive direction	μA T x 10 ⁻⁴		20	
temperature coefficient: timing: multi electron rise time multi electron fwhm transit time weight:	% °C ⁻¹ ns ns ns		± 0.5 3.3 5 30 70	
maximum ratings: anode current cathode current gain sensitivity temperature	g μA nA x 10 ⁶ A/Im °C	-30	10	100 100 0.6 50 60
V (k-a) ⁽¹⁾ V (k-d1) V (d-d) ⁽²⁾ ambient pressure (absolute)	V V V kPa			1800 300 300 202

(1) subject to not exceeding max. rated sensitivity (2) subject to not exceeding max rated V(k-a)

7 typical voltage gain characteristics

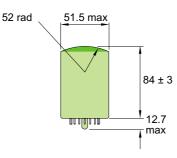


8 voltage divider distribution

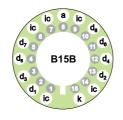
k	d ₁ d ₂	. d 5	d ₆	d ₇	d ₈	a	
A 30	00V R	 ·R	R	R	R	R	Standard
в 30	00V R	 · R	2R	3R	4R 3	R	High Pulsed Linearitv

Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection

Our range of B15B sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 handling instructions

The window of this pmt has been specially cleaned to give maximum efficiency. It should not be touched with fingers or allowed to come into contact with oil or grease. The window can be cleaned with isopropyl alcohol to remove oil deposits.

12 ordering information

The 9869B meets the specification given in this data sheet. You may order options by adding a suffix to the type number. You may order product with specification options by discussing your requirements with us. If your selection option is for one-off order, then the product will be referred to as 9869A. For a repeat order, Electron Tubes will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

	9869	
	uv glass ed silica	
options E electrostatic s see drawing S electromagnetic s see drawing M supplied with response car	ng below shielding ng below spectral	
selected spec	ta sheet order to cification order to	
elec	nax with trostatic shielding	52.6 max with electromagnetic shielding
conductive coa (for E opt mu-metal sh (for S opt insulating sle (for E & S optic	ion) iield ion) eve	

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Electron Tubes Inc. 100 Forge Way, Unit F Rockaway, NJ 07866, USA tel: (973) 586 9594 toll Free: (800) 521 8382 fax: (973) 586 9771 info@electron-tubes.co.uk e-mail: sales@electrontubes.com The company reserves the right to modify these designs and specifications without notice. Developmental devices are intended for evaluation and no obligation is assumed for future manufacture. While every effort is made to ensure accuracy of published information the company cannot be held responsible for errors or consequences arising therefrom.

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