

51 mm (2") photomultiplier

9250B series data sheet

1 description

The 9250B is a 51mm (2") diameter, end window photomultiplier with blue-green sensitive bialkali photocathode on a sandblasted window for enhanced cathode sensitivity, 10 high gain, high stability, SbCs dynodes of linear focused design. The 9250QB is a variant for applications requiring UV sensitivity.

2 applications

- spectroscopy

3 features

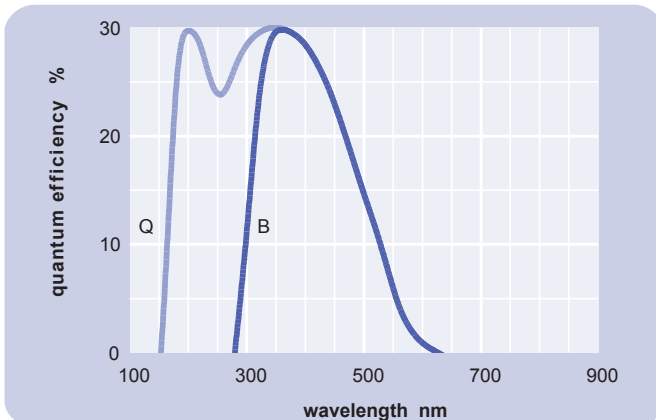
- good pulse height resolution

4 window characteristics

	9250B borosilicate	9250QB* fused silica
spectral range**(nm)	290 - 630	160 - 630
refractive index (n_e)	1.49	1.46
K (ppm)	300	<10
Th (ppb)	250	<10
U (ppb)	100	<10

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

5 typical spectral response curves

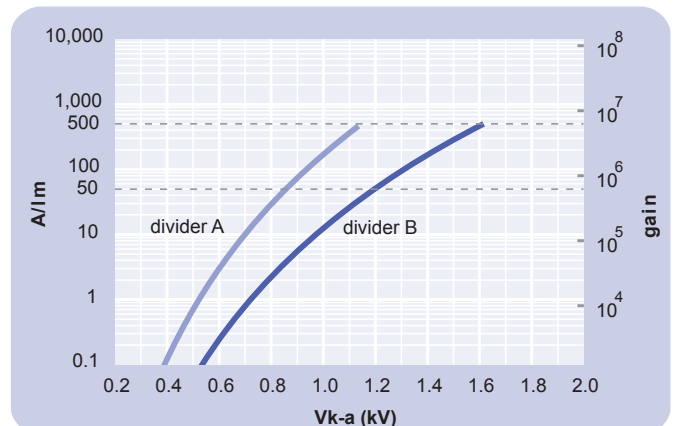


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		48	
quantum efficiency at peak	%		30	
luminous sensitivity	$\mu\text{A}/\text{lm}$		80	
with CB filter		9	12.5	
with CR filter			2	
dynodes: 10LFSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		500	
overall V for nominal A/lm	V		850	1150
overall V for max. rated A/lm	V		1150	
gain at nominal A/lm	$\times 10^6$		0.6	
dark current at 20 °C:				
dc at nominal A/lm	nA		0.3	1.5
dc at max. rated A/lm	nA		3	
dark count rate	s^{-1}		300	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
pulse height resolution:				
single electron peak to valley	ratio		2	
rate effect (I_a for $\Delta g/g=1\%$):				
	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	$\text{T} \times 10^{-4}$			
temperature coefficient:	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
single electron rise time	ns		2	
single electron fwhm	ns		3.5	
single electron jitter (fwhm)	ns		6	
multi electron rise time	ns		4	
multi electron fwhm	ns		6.5	
transit time	ns		40	
weight:				
	g		105	
maximum ratings:				
anode current	μA			100
cathode current	nA			100
gain	$\times 10^6$			6
sensitivity	A/lm			500
temperature	$^\circ\text{C}$	-30		60
V (k-a) ⁽¹⁾	V			1800
V (k-d1)	V			300
V (d-d) ⁽²⁾	V			300
ambient pressure (absolute)	kPa			202

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

7 typical voltage gain characteristics



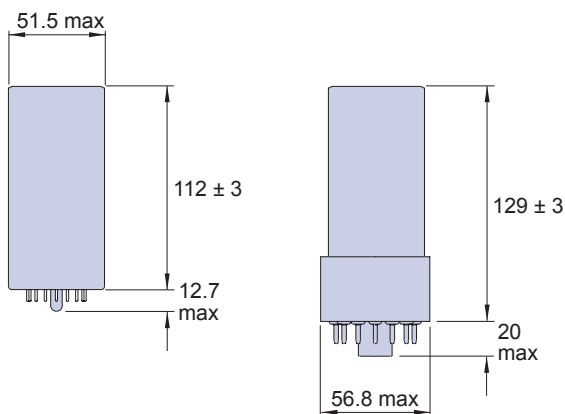
8 voltage divider distribution

	k	d ₁	d ₂	.....	d ₇	d ₈	d ₉	d ₁₀	a	
A	2R	R	.....	R	R	R	2R	R		Standard
B	2R	R	.....	R	2R	3R	4R	3R		High Pulsed linearity

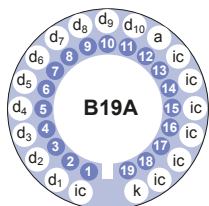
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

The drawings below show the 9250B in hardpin format and the 9250KB with the B14A cap fitted.

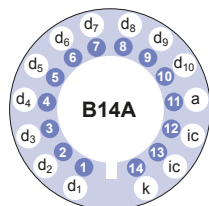


10 base configuration (viewed from below)



B19A hardpin base
(for 9250B)

'ic' indicates an internal connection



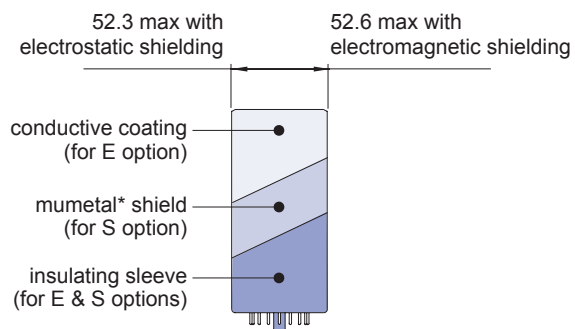
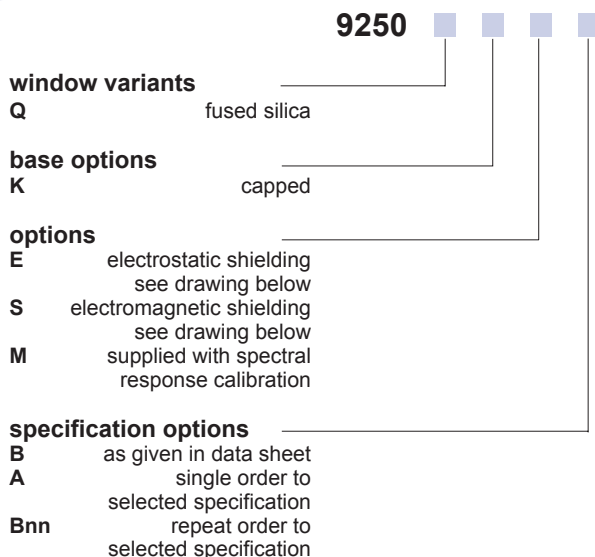
B14A cap
(for 9250KB)

'ic' indicates an internal connection

Our range of B19A sockets is available to suit the hardpin base. Our range of B14A sockets is available to suit the B14A cap. Both socket ranges include versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9250B meets the specification given in this data sheet. You may order **variants** by adding a suffix to the type number. You may also 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 9250A. For a repeat order, ET Enterprises will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.



12 voltage dividers

The standard voltage dividers available for these pmts are tabulated below:

9250B	9250KB	k	d ₁	d ₂	.....	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
C647A	C636A	2R	R	.....	R	R	R	R	R	R	
C647B	C636B	2R	R	.....	R	2R	3R	4R	3R		
C647C	C636C	150 V	R	.....	R	R	R	R	R		
C647D	C636D	150 V	R	.....	R	2R	3R	4R	3R		

R = 330 kΩ

*mumetal is a registered trademark of Magnetic Shield Corporation

ET Enterprises Limited
45 Riverside Way
Uxbridge UB8 2YF
United Kingdom
tel: +44 (0) 1895 200880
fax: +44 (0) 1895 270873
e-mail: sales@et-enterprises.com
web site: www.et-enterprises.com

ADIT Electron Tubes
300 Crane Street
Sweetwater TX 79556 USA
tel: (325) 235 1418
toll free: (800) 399 4557
fax: (325) 235 2872
e-mail: sales@electron tubes.com
web site: www.electrontubes.com

choose accessories for this pmt on our website

an ISO 9001 registered company

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.



© ET Enterprises Ltd, 2010
DS_ 9250B Issue 7 (06/09/10)