

51 mm (2") photomultiplier

9201B series data sheet

1 description

The 9201B is a 51mm (2") diameter, end window photomultiplier with red sensitive S20 photocathode and 10 BeCu dynodes of linear focused design for good linearity and timing.

2 applications

- wide range of applications
- x-ray and gamma-ray spectroscopy

3 features

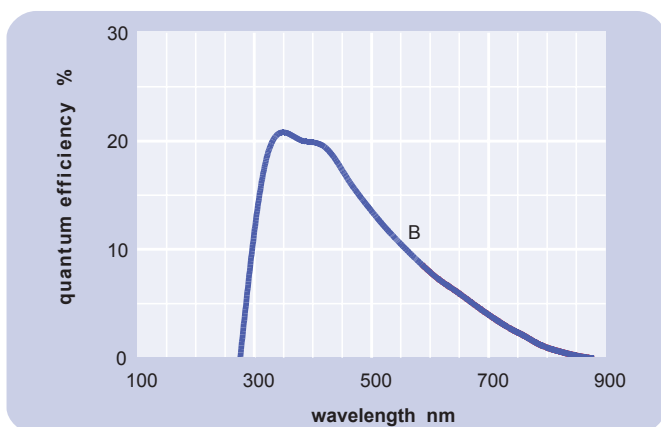
- high pulsed linearity
- high cathode current capability

4 window characteristics

9201B borosilicate	
spectral range (nm)*	280 - 850
refractive index (n_d)	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

* wavelength range over which quantum efficiency exceeds 1 % of peak

5 typical spectral response curves

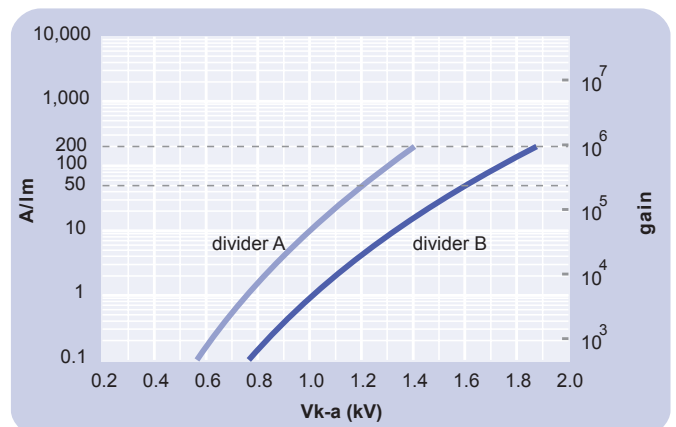


6 characteristics

	unit	min	typ	max
photocathode: S20				
active diameter	mm		48	
quantum efficiency at peak	%		21	
luminous sensitivity	$\mu\text{A}/\text{lm}$	150	200	
with CB filter			9	
with CR filter			90	
with IR filter			12	
dynodes: 10LFBcCu				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		200	
overall V for nominal A/lm	V		1200	1600
overall V for max. rated A/lm	V		1400	
gain at nominal A/lm	$\times 10^6$		0.25	
dark current at 20 °C:				
dc at nominal A/lm	nA		1	10
dc at max. rated A/lm	nA		4	
dark count rate	s^{-1}		15000	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
rate effect (I_a for $\Delta g/g=1\%$):	μA		1	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	$\text{T} \times 10^{-4}$		1.3	
temperature coefficient:				
timing:	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
multi electron rise time	ns		4	
multi electron fwhm	ns		6.5	
transit time	ns		40	
weight:	g		100	
maximum ratings:				
anode current	μA			100
cathode current	nA			1000
gain	$\times 10^6$			1
sensitivity	A/lm			200
temperature	$^\circ\text{C}$	-80		60
V (k-a) ⁽¹⁾	V			2000
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



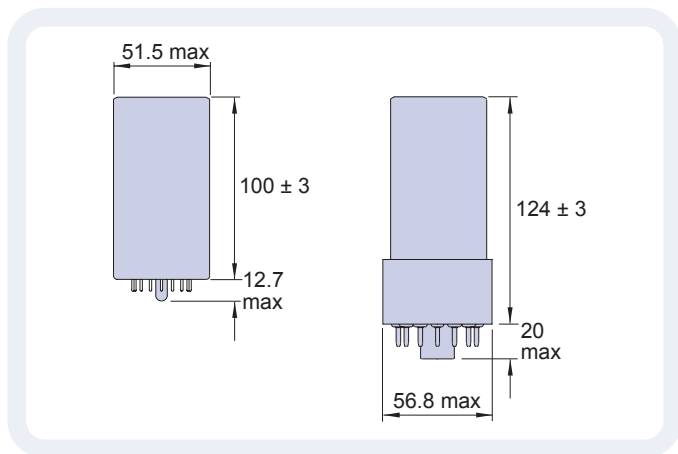
8 voltage divider distribution

	k	d ₁	d ₆	.....	d ₇	d ₈	d ₉	d ₁₀	a	
A	2R	R	.....	R	R	R	R	R	R	Standard
B	2R	R	.....	R	2R	3R	4R	3R		High Pulsed Linearity

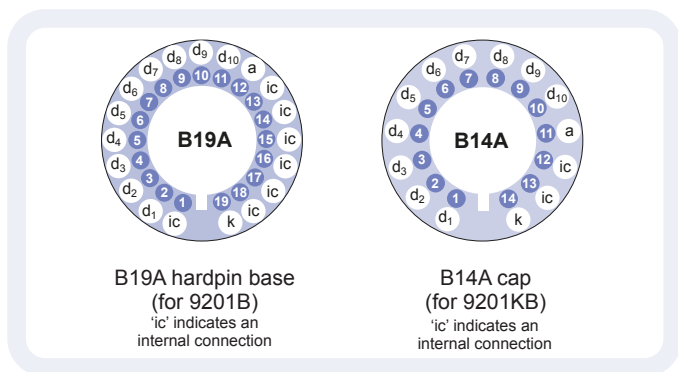
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

The drawings below show the 9201B in hardpin format and the 9201KB with the B14A cap fitted.



10 base configuration (viewed from below)



Our range of B19A sockets is available to suit the B19A hardpin base. The range includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9201B 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 9201A. 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.

9201

options

- E** electrostatic shielding
see drawing below
- S** electromagnetic shielding
see drawing below
- M** supplied with spectral response calibration

specification options

- B** as given in data sheet
- A** single order to selected specification
- Bnn** repeat order to selected specification

12 voltage dividers

12 voltage dividers

The standard voltage dividers available for this pmt are tabulated below:

9201B	9201KB	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 = 330k Ω

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