

51 mm (2") photomultiplier

9202B series data sheet

1 description

The 9202B is a 51mm (2") diameter end window photomultiplier, with S20 infra-red sensitive photocathode on a plano-concave window, and 11 high gain, high stability SbCs dynodes of linear focused design for good linearity and timing. The 9202QB is a variant for applications requiring uv sensitivity.

2 applications

- photon counting of bio- and chemi-luminescent samples
- SO_x NO_x pollution monitoring
- low light level detection

3 features

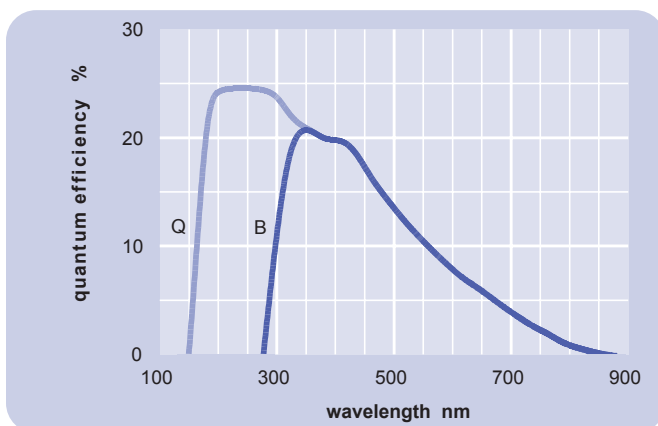
- extended infra-red sensitivity
- low operating voltage

4 window characteristics

	9202B borosilicate	9202QB* fused silica
spectral range**(nm)	290 - 870	160 - 870
refractive index (n _d)	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

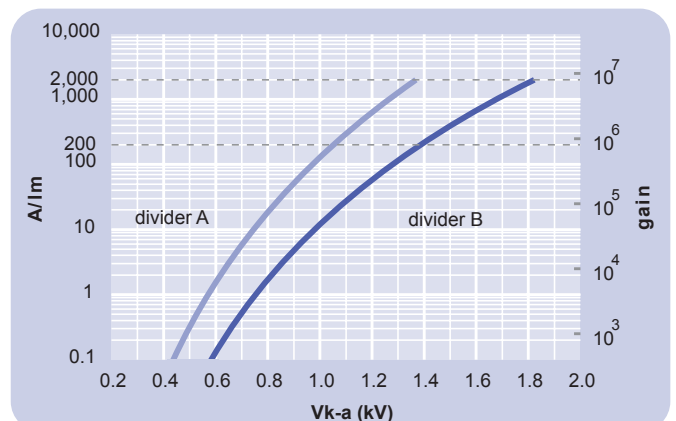


6 characteristics

	unit	min	typ	max
photocathode: S20				
active diameter	mm		46	
quantum efficiency at peak	%		21	
luminous sensitivity	μA/lm		250	
with CB filter			9	
with CR filter		7	90	
with IR filter			12	
dynodes: 11LFSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		200	
max. rated anode sensitivity	A/lm		2000	
overall V for nominal A/lm	V		1050	1500
overall V for max. rated A/lm	V		1350	
gain at nominal A/lm	x 10 ⁶		0.8	
dark current at 20 °C:				
dc at nominal A/lm	nA		2	20
dc at max. rated A/lm	nA		20	
dark count rate	s ⁻¹		15000	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
rate effect (I_a for Δg/g=1%):				
	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 ⁻⁴		1	
temperature coefficient:				
	% °C ⁻¹		± 0.5	
timing:				
single electron rise time	ns		3.5	
single electron fwhm	ns		5	
transit time	ns		45	
weight:				
	g		180	
maximum ratings:				
anode current	μA			100
cathode current	nA			1000
gain	x 10 ⁶			8
sensitivity	A/lm			2000
temperature	°C	-80		60
V (k-a) ⁽¹⁾	V			2000
V (k-d1)	V			450
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

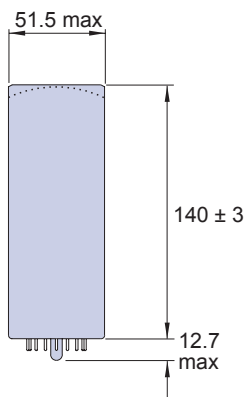


8 voltage divider distribution

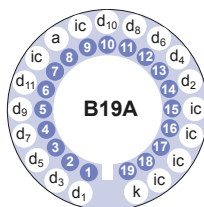
	k	d ₁	d ₂	.....	d ₈	d ₉	d ₁₀	d ₁₁	a	
A	2R	R	.....	R	R	R	2R	R		Standard
B	2R	R	.....	R	2R	3R	4R	3R		High Pulsed Linearity

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

9 external dimensions mm



10 base configuration (viewed from below)

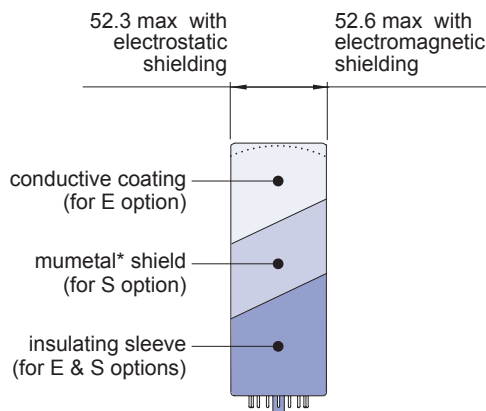
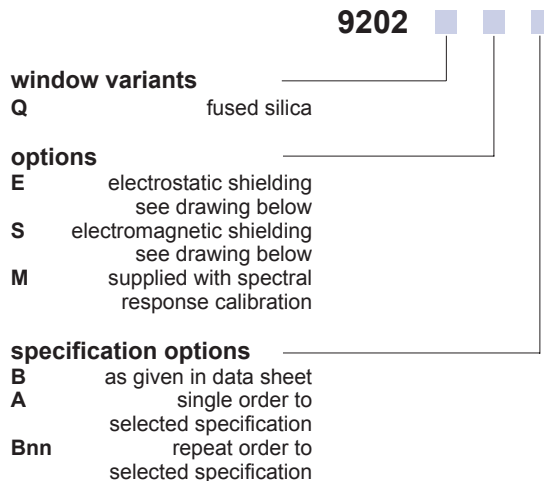


'ic' indicates an internal connection

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 9202B 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 9202A. 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 all variants of this pmt are tabulated below:

	k	d ₁	d ₂	.....	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	a
C625A	2R	R	R	R	R	R	R		
C625B	2R	R	R	2R	3R	4R	3R		
C625C	300 V	R	R	R	R	R	R		
C625D	300 V	R	R	2R	3R	4R	3R		

R = 330k Ω

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