

78 mm (3") photomultiplier 9318B series data sheet

1 description

The 9318B is a 78mm (3") diameter end window photomultiplier with blue-green sensitive bialkali photocathode and 8 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing.

2 applications

- x ray and gamma ray spectroscopy
- high light level

3 features

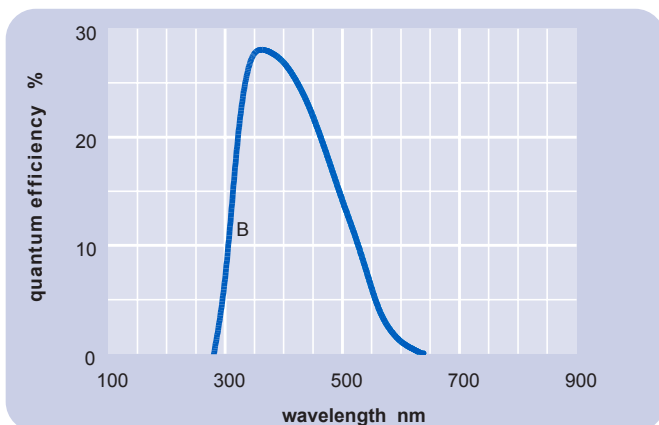
- good pulse height resolution
- high pulse linearity

4 window characteristics

	9318B/KB borosilicate
spectral range *(nm)	295 - 630
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

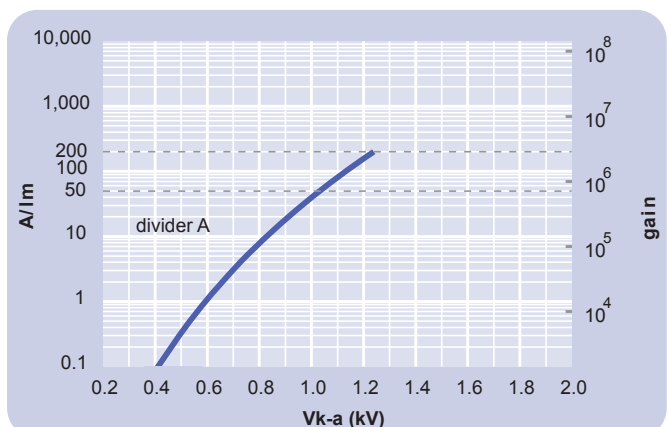


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		70	
quantum efficiency at peak	%		30	
luminous sensitivity	μA/lm		75	
with CB filter		8	12	
with CR filter			2	
dynodes: 8LFSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		10	
max. rated anode sensitivity	A/lm		50	
overall V for nominal A/lm	V		900	1150
overall V for max. rated A/lm	V		1400	
gain at nominal A/lm	x10 ⁶		0.13	
dark current at 20° C:				
dc at nominal A/lm	nA		0.05	2
dc at max. rated A/lm	nA		0.5	
pulsed linearity (-5% deviation):				
divider A	mA		30	
pulse height resolution:				
single electron peak to valley	ratio			
¹³⁷ Cs with 1" x 1" NaI(Tl)	%		7.5	
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		1.7	
temperature coefficient:	% °C ⁻¹		± 0.5	
timing:				
single electron rise time	ns		4	
single electron (fwhm)	ns		6.5	
transit time	ns		36	
weight:	g		120	
maximum ratings:				
anode current	μA			100
cathode current	nA			200
gain	x 10 ⁶			1.3
sensitivity	A/lm			100
temperature	°C	-30		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

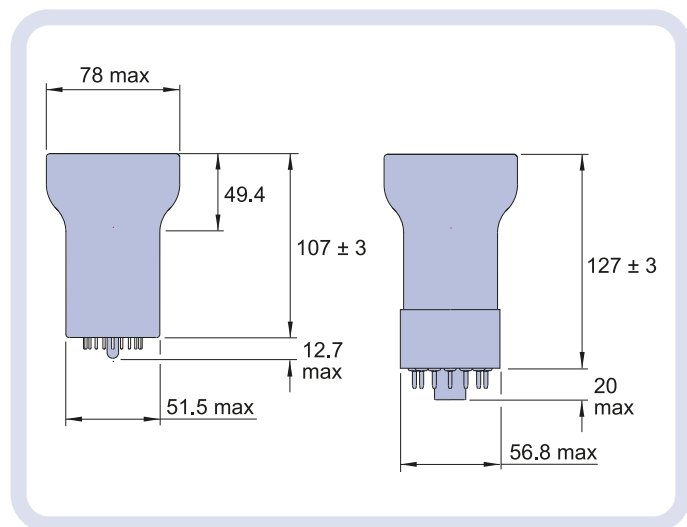
k	d ₁	d ₂	.....	d ₇	d ₈	a	
A	3R	R	.....	R	R	R	Standard

note: $V(k-f) = 50\%$ of $V(k-d_1)$

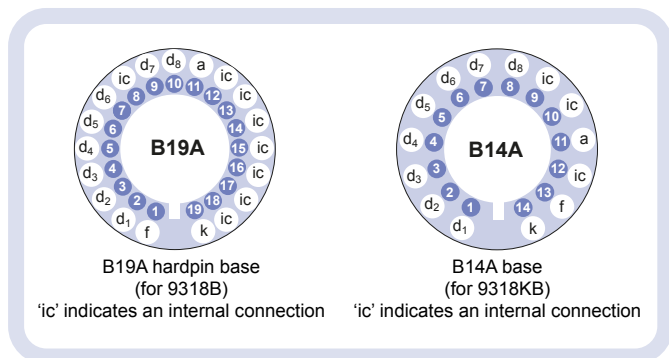
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

The drawings below show the 9318B in hardpin format and the 9318KB variant fitted with the B14A cap.



10 base configuration (viewed from below)



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 9318B 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 9318A. 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.

9318

base options

K capped

options

E electrostatic 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

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

9318B	9318KB	k	f	d ₁	d ₂	.....	d ₄	d ₅	d ₆	d ₇	d ₈	a
C684P	C633P	1.5R	1.5R	R	.....		R	R	R	R	R	R
C684R	C633R	1.5R	1.5R	R	.....		R	2R	3R	4R	3R	
C684S	C633S	150V	150V	R		R	R	R	R	R	
C684T	C633T	150V	150V	R		R	2R	3R	4R	3R	

R = 330kΩ note: $V(k-f) = 50\%$ of $V(k-d_1)$

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