

19 mm (0.75") photomultiplier

9078B series data sheet

1 description

The 9078B is a 19 mm (0.75") diameter end window photomultiplier with blue-green sensitive bialkali photocathode and 10 high gain, high stability SbCs dynodes of linear focused design.

2 applications

- wide range of applications
- high energy physics studies

3 features

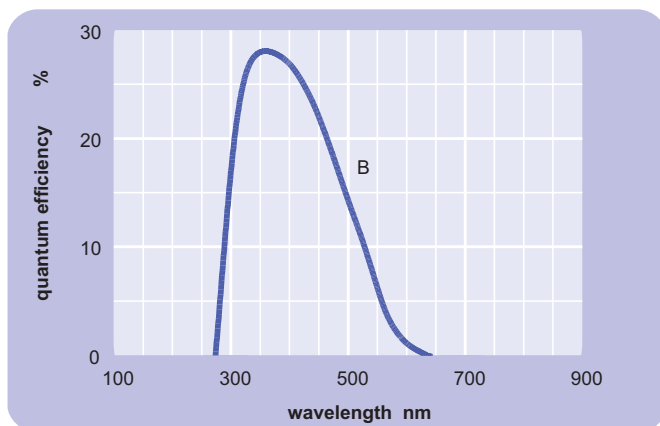
- high gain
- fast time response
- good SER

4 window characteristics

9078B borosilicate	
spectral range*(nm)	280 - 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

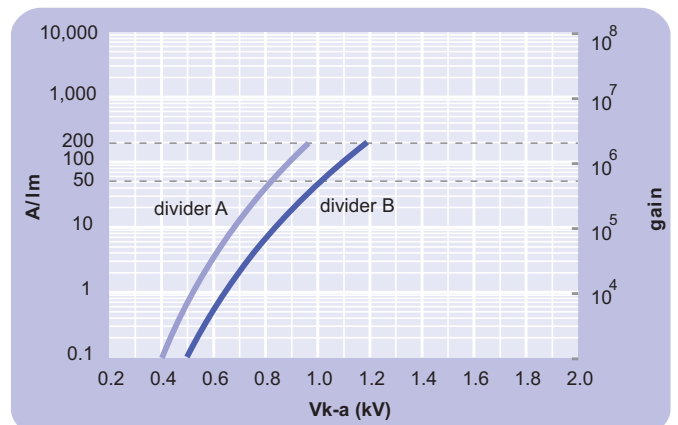


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		15	
quantum efficiency at peak	%		28	
luminous sensitivity	$\mu\text{A/lm}$		65	
with CB filter		9	11	
with CR filter			1	
dynodes: 10LFSbCs				
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		800	1200
overall V for max. rated A/lm	V		950	
gain at nominal A/lm	$\times 10^6$		0.8	
dark current at 20 °C:				
dc at nominal A/lm	nA		0.05	1
dc at max. rated A/lm	nA		0.2	
dark count rate	s^{-1}		50	
after pulse rate:			1	
afterpulse time window	μs	0.05		3.2
pulsed linearity (-5% deviation):				
divider A	mA		10	
divider B	mA		70	
pulse height resolution:				
single electron peak to valley	ratio		1.5	
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	$\text{T} \times 10^{-4}$		2.4	
temperature coefficient:				
	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
single electron rise time	ns		1.8	
single electron fwhm	ns		2.7	
single electron jitter fwhm	ns		3.9	
transit time delay	ns		20	
weight:	g		20	
maximum ratings:				
anode current	μA			100
cathode current	nA			10
gain	$\times 10^6$			3.1
sensitivity	A/lm			200
temperature	$^\circ\text{C}$	-30		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

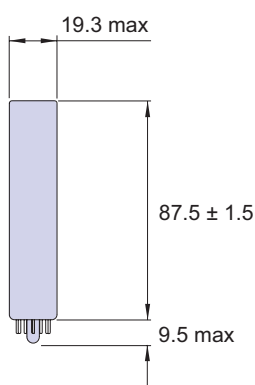


8 voltage divider distribution

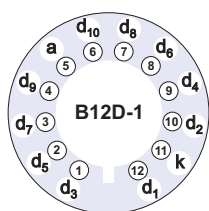
	k	d ₁	d ₂	.....	d ₇	d ₈	d ₉	d ₁₀	a	
A	1.5R	R	.....		R	R	R	R	R	Standard
B	2R	R	.....		R	1.5R	2R	4R	2R	High Pulsed Linearity

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

9 external dimensions mm



10 base configuration (viewed from below)



Our range of B12D-1 sockets is available to suit the B12D-1 hardpin base. The socket range includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9078B 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 9078A. For a repeat order, ET Enterprises Ltd. will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirements.

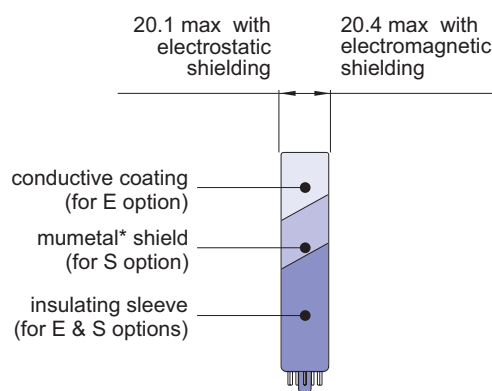
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options

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

specification

- 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:

	k	d ₁	d ₂	d ₃	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
C669	1.5R	R	R		R	R	R	R	R	
C664	2R	1.4R	1.4R		R	R	R	R	R	

For C669: R = 390 kΩ

For C664: R = 330 kΩ

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