19 mm (0.75") photomultiplier
9078B series data sheet

ET Enterprises electron tubes

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

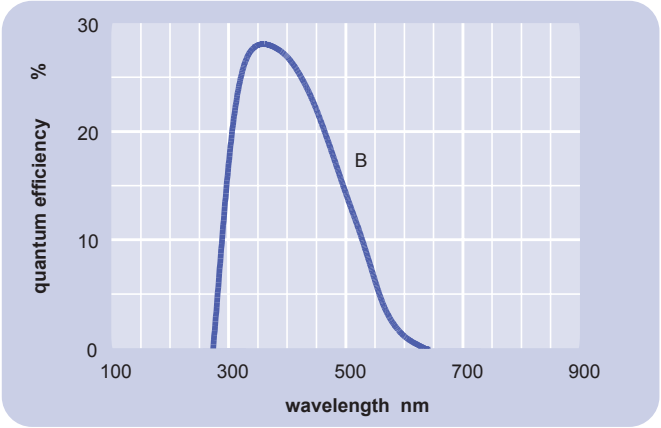
- high gain
- fast time response
- good SER

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

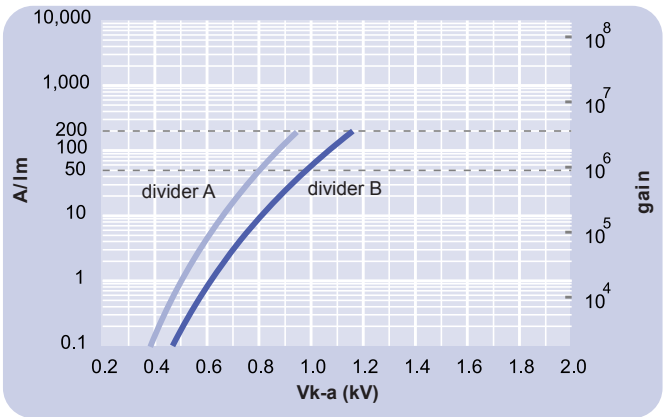


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		15	
quantum efficiency at peak	%		28	
luminous sensitivity	µA/lm		65	
with CB filter		9	11	
with CR filter			1	
dynodes: 10FSbCs				
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	x 10^6		0.8	
dark current at 20 oC:				
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 (Ia 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}		2.4	
temperature coefficient:	% $°C^{-1}$		± 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	x 10^6			3.1
sensitivity	A/lm			200
temperature	°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

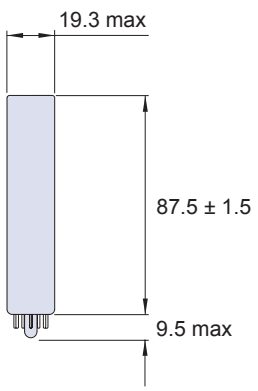


8 voltage divider distribution

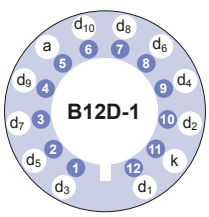
	k	d_1	d_2	.....	d_7	d_8	d_9	d_{10}	a	
A	1.5R	R		.....	R	R	R	R	R	Standard
B	2R	R		.....	R	1.5R	2R	4R	2R	High Pulsed Linearity

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.

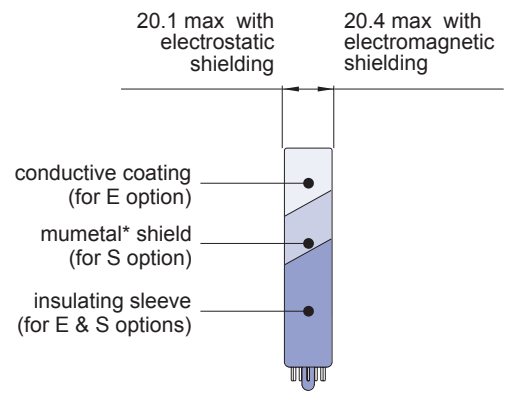
11 ordering information

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 a one-off order, then the product will be referred to as 9078A. For a repeat order, ET Enterprises Limited will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

9078 □ □

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 this pmt are tabulated below:

	k	d_1	d_2	d_3	.....	d_6	d_7	d_8	d_9	d_{10}	a
C669A	1.5R	R	R		.....	R	R	R	R	R	
C669B	2R	R	R		.....	R	1.5R	2R	4R	2R	
C669C	150 V	R	R		.....	R	R	R	R	R	
C669D	150 V	R	R		.....	R	1.5R	2R	4R	2R	

R = 330 kΩ

*mumetal is a registered trademark of Magnetic Shield Corporation

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