

29 mm (1.13") photomultiplier 9828B series data sheet

1 description

The 9828B is a 29 mm (1.13") diameter, end window photomultiplier with prismatic window, S20 infra-red sensitive photocathode and 11 high gain, high stability SbCs dynodes of box and grid design. The 9828WB is a variant for applications requiring uv sensitivity.

2 applications

- photon counting of bio- and chemi-luminescent samples
- SQ NQ pollution monitoring
- spectroscopy

3 features

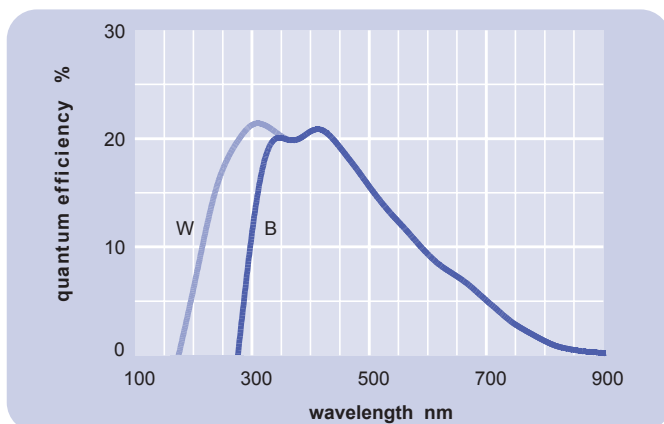
- high gain
- low operating voltage
- extended red sensitivity

4 window characteristics

	9828B borosilicate	9828WB uv glass
spectral range *(nm)	280 - 870	170 - 870
refractive index (n_s)	1.49	1.48
radiopurity:		
K (ppm)	300	8500
Th (ppb)	250	30
U (ppb)	100	30

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

5 typical spectral response curves

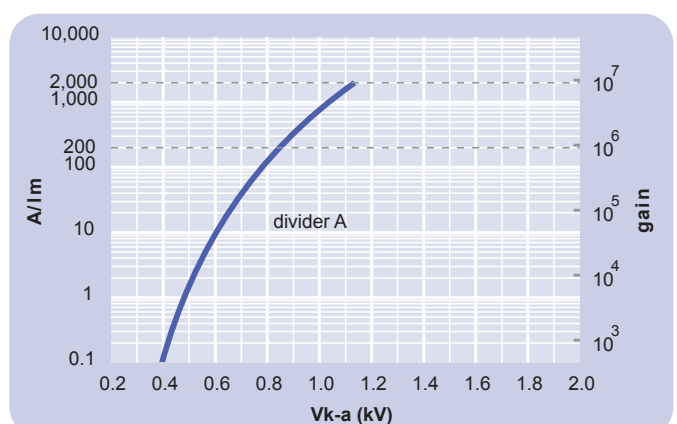


6 characteristics

	unit	min	typ	max
photocathode: S20				
active diameter	mm		25	
quantum efficiency at peak	%		21	
luminous sensitivity	$\mu\text{A/lm}$		220	
with CB filter			8	
with CR filter		6	100	
with IR filter			12	
dynodes: 11BGSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		200	
max. rated anode sensitivity	A/lm		2000	1100
overall V for nominal A/lm	V		850	
overall V for max. rated A/lm	V		1100	
gain at nominal A/lm	$\times 10^6$		0.9	
dark current at 20 °C:				
dc at nominal A/lm	nA		2	10
dc at max. rated A/lm	nA		20	
dark count rate	$^{-1}$		10000	
pulsed linearity (-5%) deviation):				
divider A	mA		0.1	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	$T \times 10^{-4}$		2	
temperature coefficient:	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
single electron rise time	ns		15	
single electron (fwhm)	ns		30	
transit time	ns		80	
weight:				
	g		55	
maximum ratings:				
anode current	μA			100
cathode current	nA			500
gain	$\times 10^6$			9
sensitivity	A/lm			2000
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

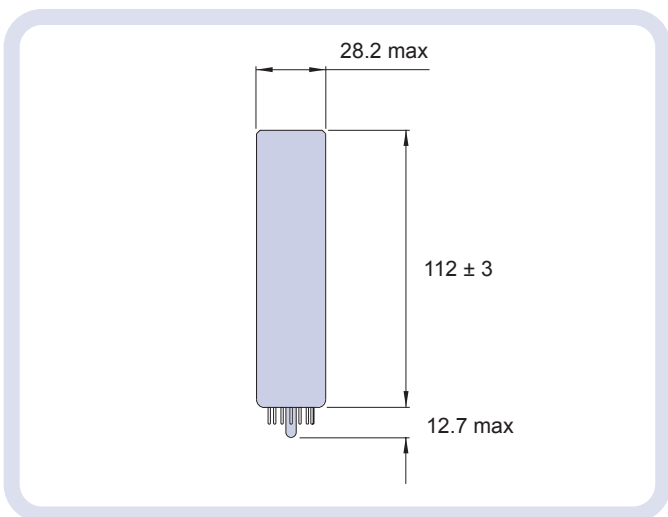


8 voltage divider distribution

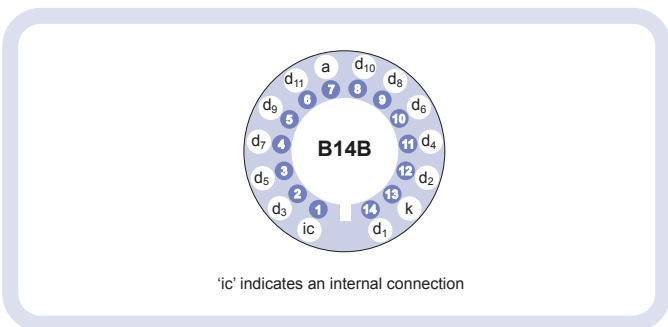
k	d ₁	d ₂	.....	d ₈	d ₉	d ₁₀	d ₁₁	a	
A	150V	R	.....	R	R	R	2R	R	Standard

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 B14B sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9828B 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 9828A. 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.

9828

window variants

W UV glass

options

E electrostatic shielding
see drawing below

S electromagnetic shielding
see drawing below

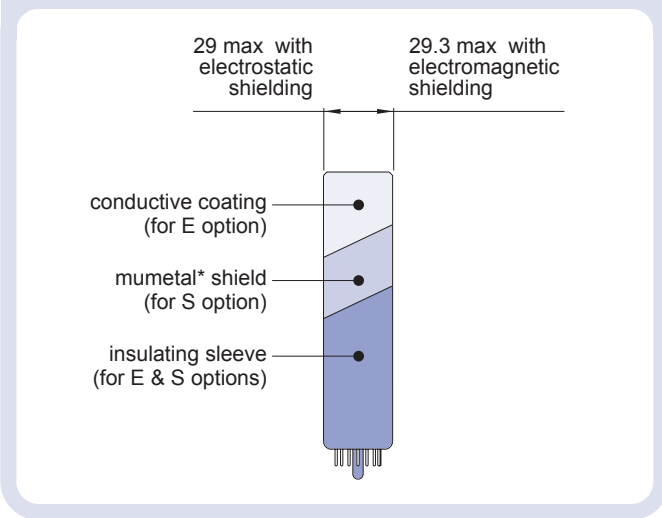
M supplied with spectral response calibration

specification options

B as given in data sheet

A single order to

Bnn selected specification repeat order to selected specification



*mumetal is a registered trademark of Magnetic Shield Corporation

12 voltage dividers

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

	k	d ₁	d ₂	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	a
C637E	2R	R	R	R	R	2R	R		
C637G	150V	R	R	R	R	2R	R		

R = 330 kΩ

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