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

ET Enterprises electron tubes

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
- SO_x NO_x pollution monitoring
- spectroscopy

3 features

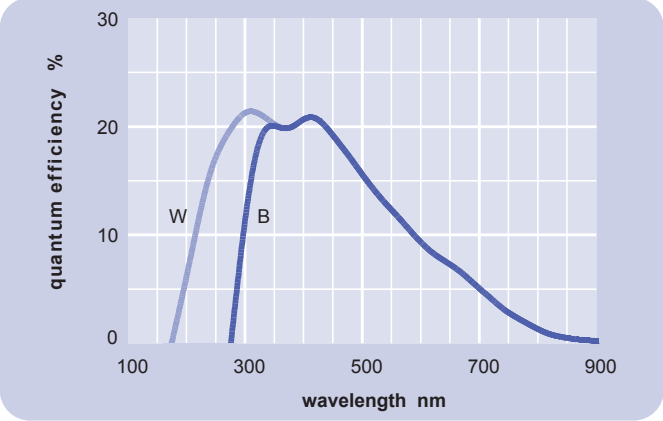
- high gain
- low operating voltage
- extended red sensitivity

4 window characteristics

	9828B borosilicate	9828WB uv glass
spectral range *(nm)	280 - 870	170 - 870
refractive index (n_d)	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

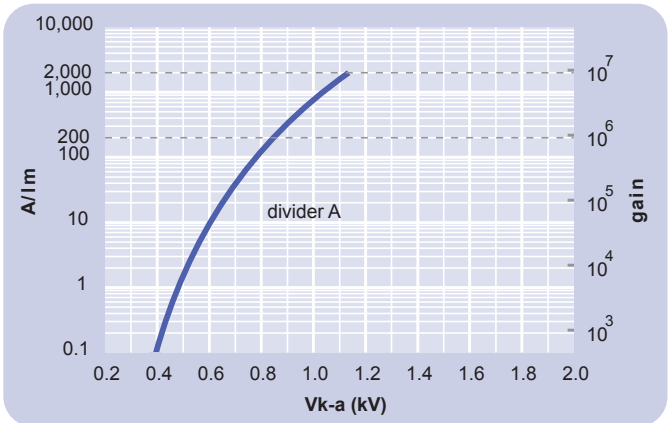


6 characteristics

	unit	min	typ	max
photocathode: S20				
active diameter	mm		25	
quantum efficiency at peak	%		21	
luminous sensitivity	µA/lm		220	
with CB filter			8	
with CR filter			100	
with IR filter		6	12	
dynodes: 11BGSbCs				
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		850	1100
overall V for max. rated A/lm	V		1100	
gain at nominal A/lm	x 10^6		0.9	
dark current at 20 ºC:				
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 x 10^{-4}		2	
temperature coefficient:	% $ºC^{-1}$		± 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	x 10^6			9
sensitivity	A/lm			2000
temperature	°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

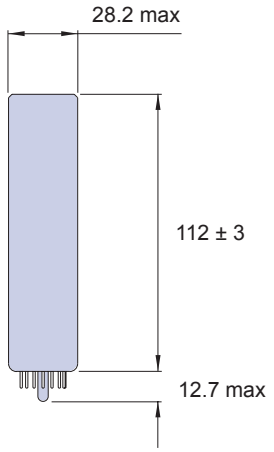


8 voltage divider distribution

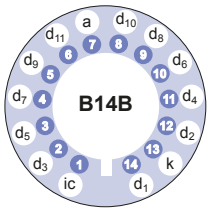
	k	d_1	d_2	.....	d_8	d_9	d_{10}	d_{11}	a	
A	150V	R	.....		R	R	R	2R	R	Standard

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

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection

Our range of B14B sockets is available to suit the B14B 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

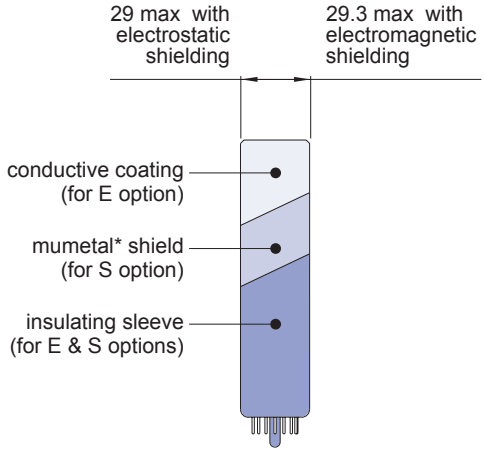
The 9828B meets the specification given in this data sheet. You may order **variants** by adding a suffix to the type number. You may also order **options** by adding a suffix to the type number. You may order product with **specification options** by discussing your requirements with us. If your selection 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 selected specification
Bnn 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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choose accessories for this pmt on our website

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