

25 mm (1") photomultiplier

9112B series data sheet

1 description

The 9112B is a compact 25 mm (1") diameter, end window photomultiplier with plano-concave window, enhanced green sensitive bialkali photocathode and 10 high gain, high stability, SbCs dynodes of circular focused design for fast timing. The 9112WB is a variant for applications requiring UV sensitivity.

2 applications

- wide range of applications
- x-ray & gamma-ray spectroscopy
- photon counting of bio- and chemi-luminescent samples
- high energy physics studies

3 features

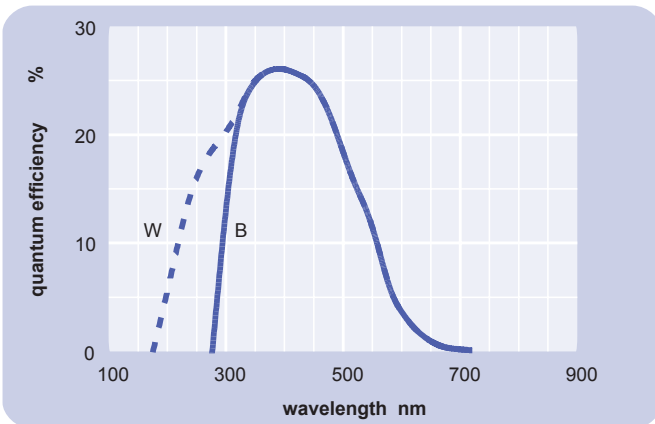
- compact
- low operating voltage

4 window characteristics

	9112B borosilicate	9112WB UV glass
spectral range*(nm)	280 - 630	170 - 630
refractive index (n_d)	1.49	1.48
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

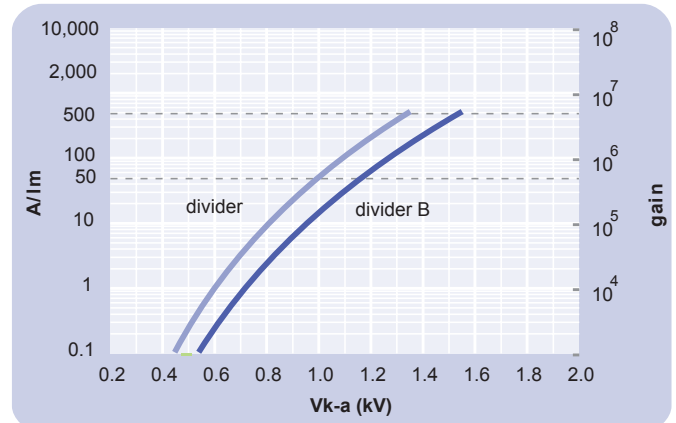


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		22	
quantum efficiency at peak	%		25	
luminous sensitivity	$\mu\text{A/lm}$		90	
with CB filter		7	11	
with CR filter			5	
dynodes: 10CFSbCs				
anode sensitivity in divider A:				
nom. anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		500	
overall V for nom. A/lm	V		1000	1300
overall V for max. rated A/lm	V		1300	
gain at nom. A/lm	$\times 10$		0.6	
dark current at 20 °C:				
dc at nom. A/lm	nA		0.2	2
dc at max. rated A/lm	nA		2	
dark count rate	-^1		200	
pulsed linearity (-5% deviation):				
divider A	mA		2	
divider B	mA		20	
pulse height resolution:				
single electron peak to valley	ratio		1.3	
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	$\times 10$		2.5	
temperature coefficient:				
	% °C		± 0.5	
timing:				
single electron rise time	ns		1.8	
single electron fwhm	ns		3.1	
single electron jitter fwhm	ns		1.2	
transit time delay	ns		20	
weight:				
	g		20	
maximum ratings:				
anode current	μA			100
cathode current	nA			30
gain	$\times 10$			5.6
sensitivity	A/lm			500
temperature	°C	-30		60
V (k-a) ⁽¹⁾	V			1800
V (k-d1)	V			300
V (d-d) ⁽²⁾	V			200
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



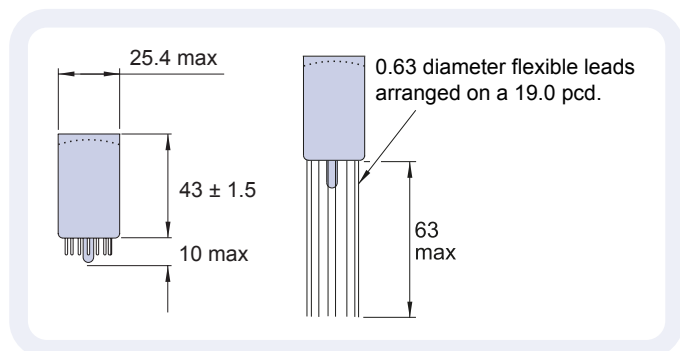
8 voltage divider distribution

	k	d ₁	d ₂	.....	d ₇	d ₈	d ₉	d ₁₀	a	
A	3R	R	.....		R	R	R	R	R	Standard
B	3R	R	.....		R	R	R	2R	4R	High Pulsed Linearity

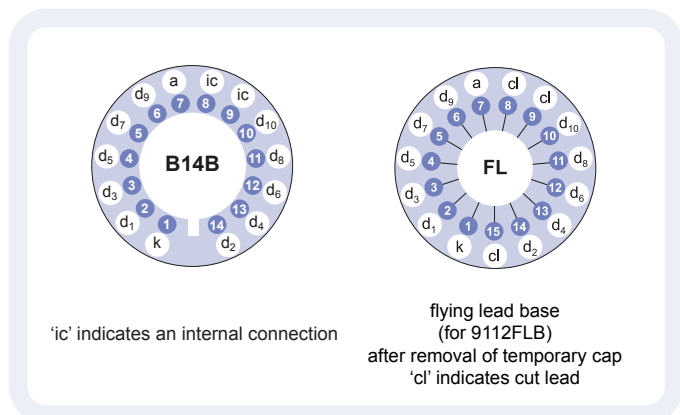
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

The drawings below show the 9112B in hardpin format and the 9112FLB in flying lead format.



10 base configuration (viewed from below)



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

11 ordering information

The 9112B meets the specification given in the 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 9112A. 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.

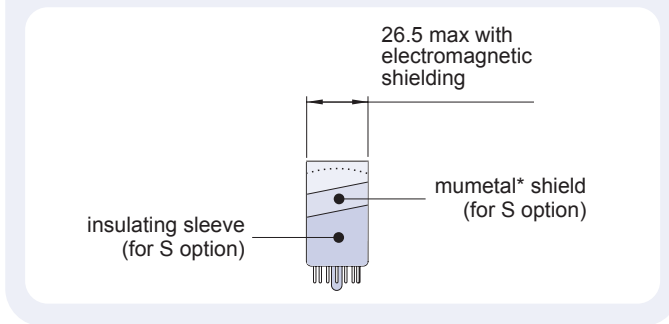
9112 [] [] [] []

window variant **W** UV glass

shielding option **S** electromagnetic shielding see drawing below

selection option **M** supplied with spectral response calibration

specification **B** as data sheet
A customer specific selection(s) single order
Bnn customer specific selection(s) repeat order



12 voltage dividers

The standard voltage dividers available for this pmt are tabulated below:

9112B	9112FLB	k	d ₁	d ₂	.....	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
C673A	C651A	3R	R	.....		R	R	R	R	R	
C673B	C651B	3R	R	.....		R	R	R	2R	4R	
	C651C	150 V	R	.....		R	R	R	R	R	
	C651D	150 V	R	.....		R	R	R	2R	4R	

R = 330 kΩ

*mumetal is a registered trademark of Magnetic Shield Corporation