25 mm (1") photomultiplier
9116B series data sheet

ET Enterprises electron tubes

1 description

The 9116B is a compact 25mm (1") diameter, end window photomultiplier with a hemispherical window for 2π detection, enhanced green sensitive bialkali photocathode and 6 high gain, high stability, SbCs dynodes of circular focused design for fast timing. The 9116WB is a variant for applications requiring UV sensitivity. The effective photocathode area is approximately twice that of a 25 mm plano-planar type.

2 applications

- high energy physics studies
- astrophysics

3 features

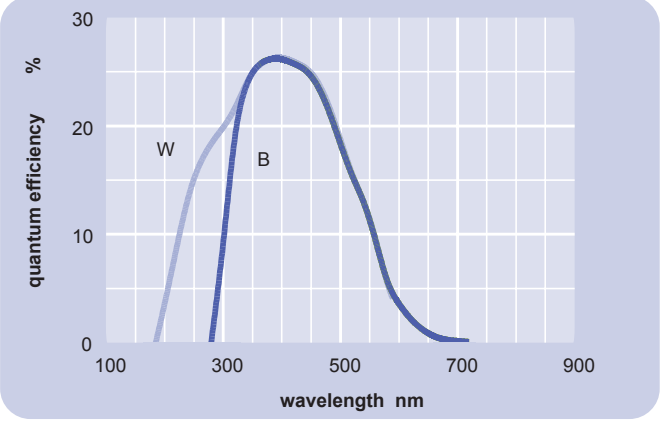
- compact
- 2π detection
- fast time response

4 window characteristics

	9116B borosilicate	9116WB UV glass
spectral range (nm)*	295 - 680	170 - 630
refractive index (n_d)	1.49	1.48
radio purity content:		
K (ppm)	1400	8500
Th (ppb)	900	30
U (ppb)	1100	30

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

5 typical spectral response curves

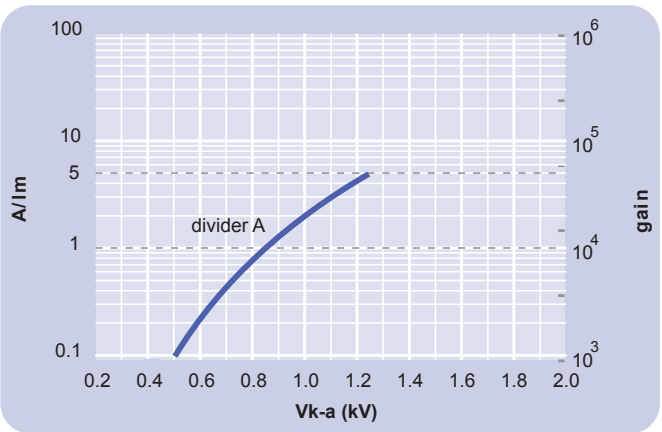


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		22 (2π)	
quantum efficiency at peak	%		26	
luminous sensitivity	μA/lm		90	
with CB filter		7	11	
with CR filter			5	
dynodes: 6CFSbCs				
anode sensitivity in divider A:				
nom. anode sensitivity	A/lm		1	
max. rated anode sensitivity	A/lm		5	
overall V for nom. A/lm	V		850	1200
overall V for max. rated A/lm	V		1300	
gain at nom. A/lm	x 10^6		0.01	
dark current at 20 °C:				
dc at nom. A/lm	nA		0.3	5
dc at max. rated A/lm	nA		1.5	
pulsed linearity (-5% deviation):				
divider A	mA		2	
rate effect (I_a for Δ g/g=1%):	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10^{-4}		2.5	
temperature coefficient:	% °C^{-1}		± 0.5	
timing:				
multi electron rise time	ns		1.8	
multi electron fwhm	ns		3.1	
transit time delay	ns		17	
weight:	g		15	
maximum ratings:				
anode current	μA			100
cathode current	nA			30
gain	x 10^6			0.06
sensitivity	A/lm			5
temperature	°C	-30		60
V (k-a)(1)	V			1800
V (k-d1)	V			400
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

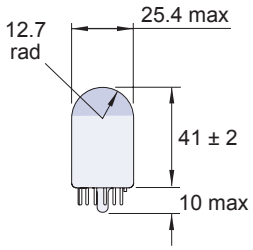


8 voltage divider distribution

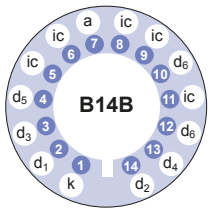
	k	d_1	d_2	.....	d_6	a	
A	2R	R	.....		R	R	Standard

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 internal connection

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 9116B 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 9116A. 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.

9116 □ □ □

window variant
W UV glass

selection options
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 all variants of this pmt are tabulated below:

	k	d_1	d_2	.....	d_4	d_5	d_6	a
C617A	2R	R	.....		R	R	R	
C617B	2R	R	.....		R	2R	4R	

R = 330 kΩ

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