

# 29 mm (1.13") photomultiplier

## 9106B series data sheet

### 1 description

The 9106B is a 29 mm (1.13") diameter end window photomultiplier with enhanced green sensitive bialkali photocathode and 7 high gain, high stability, SbCs dynodes of linear focused design. The 9106QB is a version with a quartz window for extended UV sensitivity.

### 2 applications

- scintillation spectroscopy
- colour film scanning
- high light level applications

### 3 features

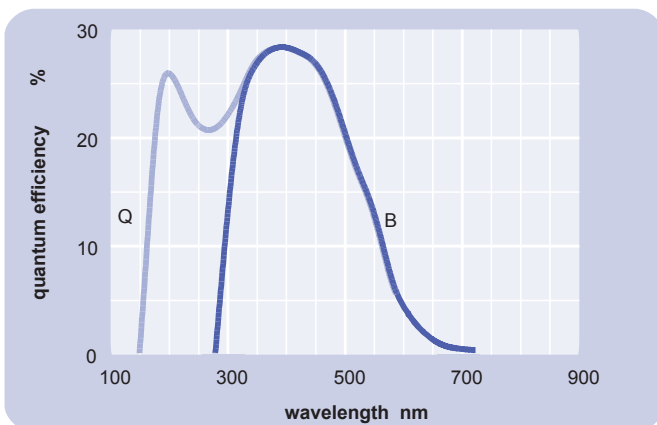
- compact
- good pulse height resolution
- low operating voltage

### 4 window characteristics

	9106B borosilicate	9106QB* fused silica
spectral range**(nm)	280 - 680	160 - 680
refractive index ( $n_d$ )	1.49	1.46
K (ppm)	300	<10
Th (ppb)	250	<10
U (ppb)	100	<10

\* note that the sidewall of the envelope contains graded seals of high K content  
\*\* wavelength over which quantum efficiency exceeds 1 % of peak

### 5 typical spectral response curves

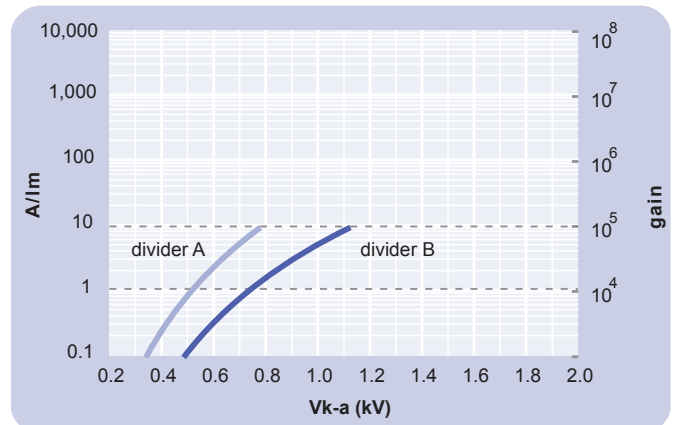


### 6 characteristics

	unit	min	typ	max
<b>photocathode: bialkali</b>				
active diameter	mm		25	
quantum efficiency at peak	%		28	
luminous sensitivity	$\mu\text{A}/\text{lm}$		110	
with CB filter		8	12	
with CR filter			10	
<b>dynodes: 7LFSbCs</b>				
<b>anode sensitivity in divider A:</b>				
nominal anode sensitivity	$\text{A}/\text{lm}$		1	
max. rated anode sensitivity	$\text{A}/\text{lm}$		10	
overall V for nominal $\text{A}/\text{lm}$	V		500	650
overall V for max. rated $\text{A}/\text{lm}$	V		750	
gain at nominal $\text{A}/\text{lm}$	$\times 10^6$		0.01	
<b>dark current at 20 °C:</b>				
dc at nominal $\text{A}/\text{lm}$	nA		0.02	0.8
dc at max. rated $\text{A}/\text{lm}$	nA		0.2	
<b>pulsed linearity (-5% deviation):</b>				
divider A	mA		25	
divider B	mA		100	
<b>rate effect (<math>I_a</math> for <math>\Delta g/g=1\%</math>):</b>	$\mu\text{A}$		20	
<b>magnetic field sensitivity:</b>				
the field for which the output decreases by 50 %				
most sensitive direction	$\text{T} \times 10^{-4}$		2	
<b>temperature coefficient:</b>	$\% \text{ } ^\circ\text{C}^{-1}$		$\pm 0.5$	
<b>timing:</b>				
multi electron rise time	ns		4.5	
multi electron (fwhm)	ns		7.5	
transit time	ns		26	
<b>weight:</b>	g		40	
<b>maximum ratings:</b>				
anode current	$\mu\text{A}$			100
cathode current	nA			100
gain	$\times 10^6$			0.1
sensitivity	$\text{A}/\text{lm}$			10
temperature	$^\circ\text{C}$	-30		60
V (k-a) <sup>(1)</sup>	V			1200
V (k-d1)	V			300
V (d-d) <sup>(2)</sup>	V			300
ambient pressure (absolute)	kPa			202

<sup>(1)</sup> subject to not exceeding max. rated sensitivity <sup>(2)</sup> subject to not exceeding max rated V(k-a)

### 7 typical voltage gain characteristics

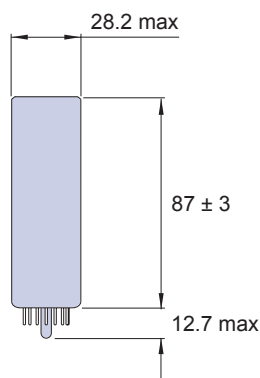


## 8 voltage divider distribution

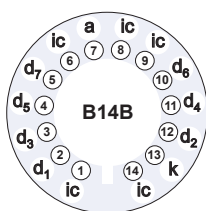
	k	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>6</sub>	d <sub>7</sub>	a	
A	2R	R	R	R	R	R	R	R	R	Standard
B	2R	R	R	R	2R	3R	4R	3R		High Pulsed Linearity

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

## 9 external dimensions mm



## 10 base configuration (viewed from below)

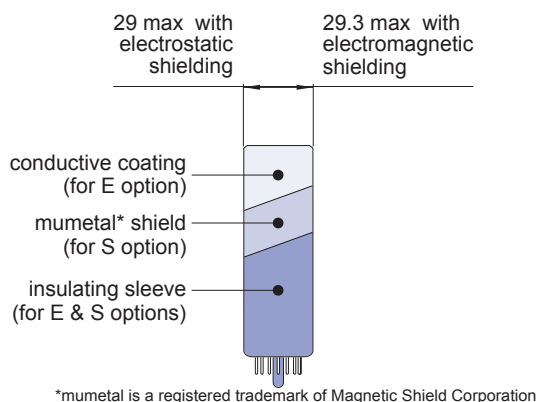


Our range of B14B sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

## 11 ordering information

The 9106B 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 9106A. 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.

	<b>9106</b>	■	■	■
<b>window variants</b>				
<b>Q</b>	fused silica			
<b>options</b>				
<b>E</b>	electrostatic shielding see drawing below			
<b>S</b>	electromagnetic shielding see drawing below			
<b>M</b>	supplied with spectral response calibration			
<b>specification options</b>				
<b>B</b>	as given in data sheet			
<b>A</b>	single order to selected specification			
<b>Bnn</b>	repeat order to selected specification			



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