

# 51 mm (2") photomultiplier

## 9256B series data sheet

### 1 description

The 9256B is a 51mm (2") diameter end window photomultiplier, with enhanced green sensitive bialkali photocathode, and 10 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing.

### 2 applications

- scintillation spectroscopy
- wide range of applications

### 3 features

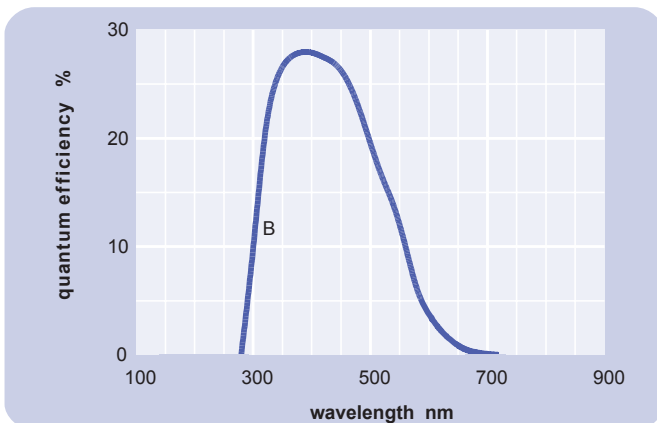
- good pulse height resolution

### 4 window characteristics

	9256B borosilicate
spectral range *(nm)	290 - 680
refractive index (n <sub>e</sub> )	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

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

### 5 typical spectral response curves

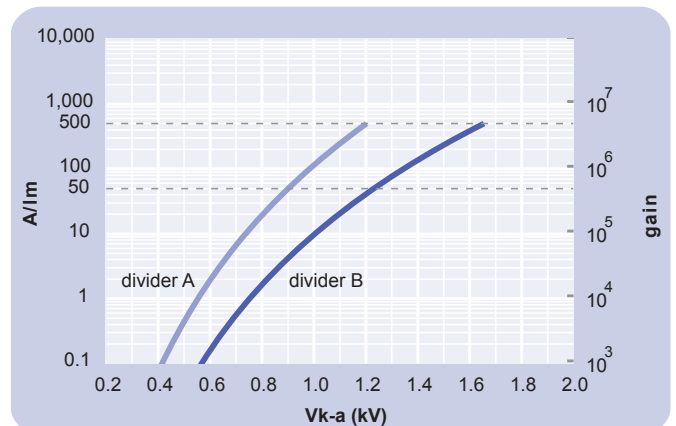


### 6 characteristics

	unit	min	typ	max
<b>photocathode: bialkali</b>				
active diameter	mm		46	
quantum efficiency at peak	%		28	
luminous sensitivity	μA/lm		110	
with CB filter		8	12	
with CR filter			9	
<b>dynodes: 10LFSbCs</b>				
<b>anode sensitivity in divider A:</b>				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		500	
overall V for nominal A/lm	V		900	1000
overall V for max. rated A/lm	V		1200	
gain at nominal A/lm	x 10 <sup>6</sup>		0.5	
<b>dark current at 20 °C:</b>				
dc at nominal A/lm	nA		0.3	3
dc at max. rated A/lm	nA		3	
dark count rate	s <sup>-1</sup>		800	
<b>pulsed linearity (-5% deviation):</b>				
divider A	mA		30	
divider B	mA		100	
<b>pulse height resolution:</b>				
<sup>137</sup> Cs with 2" x 2" NaI(Tl)			7.5	
rate effect (I <sub>a</sub> for Δg/g=1%):	μA		20	
<b>magnetic field sensitivity:</b>				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 <sup>-4</sup>		1.4	
temperature coefficient:	% °C <sup>-1</sup>		± 0.5	
<b>timing:</b>				
multi electron rise time	ns		4	
multi electron fwhm	ns		6.5	
transit time	ns		40	
weight:	g		100	
<b>maximum ratings:</b>				
anode current	μA			100
cathode current	nA			200
gain	x 10 <sup>6</sup>			5
sensitivity	A/lm			500
temperature	°C	-30		60
V (k-a) <sup>(1)</sup>	V			1500
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



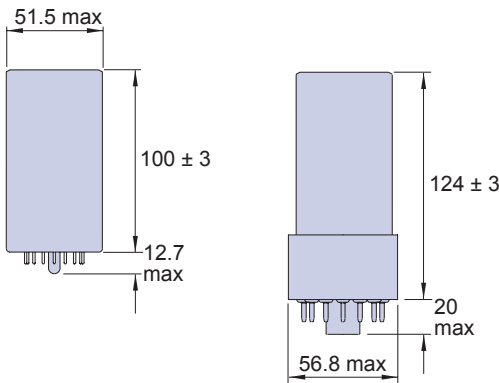
## 8 voltage divider distribution

	k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>7</sub>	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	a	
A	2R	R	.....	R	R	R	R	R	R	Standard
A	2R	R	.....	R	2R	3R	4R	3R		High Pulsed Linearity

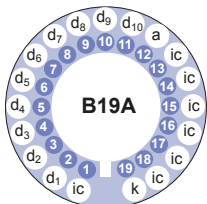
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

## 9 external dimensions mm

The drawings below show the 9256B in hardpin format and the 9256KB with the B14A cap fitted.

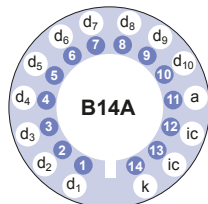


## 10 base configuration (viewed from below)



B19A hardpin base  
(for 9256B)

'ic' indicates an internal connection



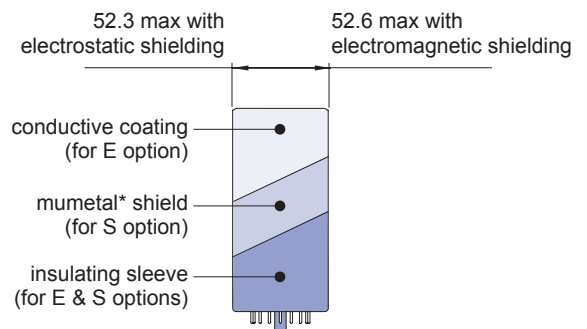
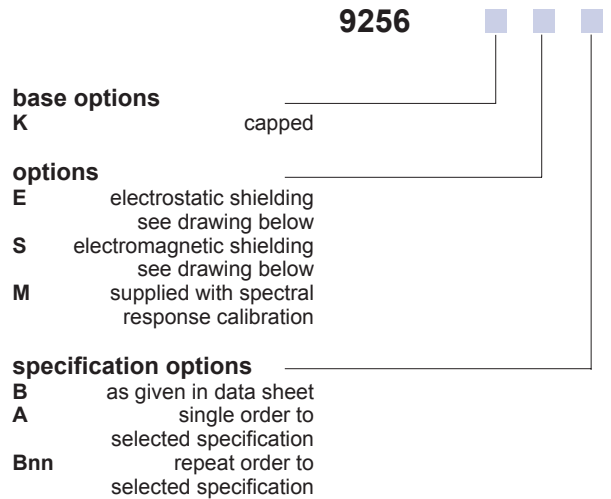
B14A cap  
(for 9256KB)

'ic' indicates an internal connection

Our range of B19A sockets is available to suit the B19A hardpin base. Our range of B14A sockets is available to suit the B14A cap. Both socket ranges include versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

## 11 ordering information

The 9256B 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 9256A. 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.



## 12 voltage dividers

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

9256B	9256KB	k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>6</sub>	d <sub>7</sub>	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	a
C647A	C636A	2R	R	.....	R	R	R	R	R	R	
C647B	C636B	2R	R	.....	R	2R	3R	4R	3R		
C647C	C636C	150 V	R	.....	R	R	R	R	R		
C647D	C636D	150 V	R	.....	R	2R	3R	4R	3R		

R = 330 kΩ

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