

# 51 mm (2") photomultiplier

## 9727B series data sheet

### 1 description

The 9727B is a 51mm (2") diameter, end window photomultiplier with high temperature alkali photocathode and 13 BeCu dynodes of the long-established venetian blind design providing a low afterpulse rate.

### 2 applications

- oil well logging
- high temperature applications

### 3 features

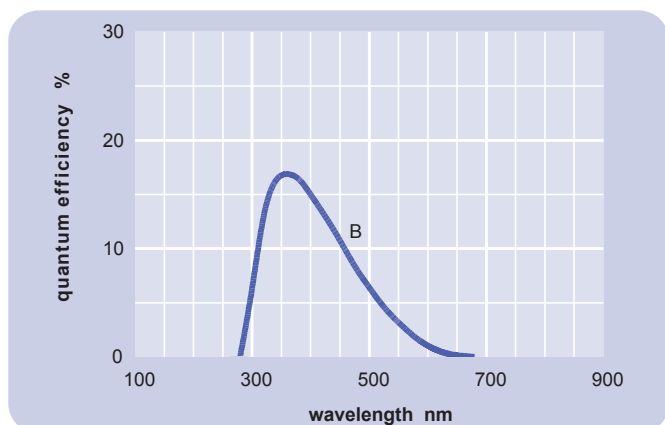
- will operate up to 150 °C
- tarnish-free gold plated base pins (hard pin version only)

### 4 window characteristics

9727B borosilicate	
spectral range*(nm)	290 - 630
refractive index (n <sub>d</sub> )	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

\* wavelength range over which quantum efficiency exceeds

### 5 typical spectral response curve



### 6 characteristics

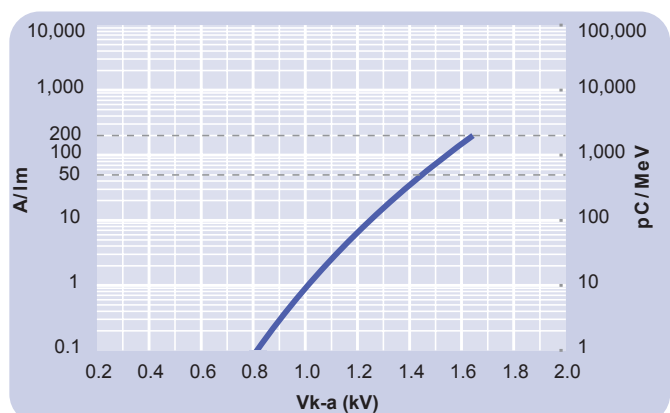
	unit	min	typ	max
<b>photocathode:</b>				
<b>high temperature alkali</b>				
active diameter	mm		46	
quantum efficiency at peak	%		17	
luminous sensitivity	μA/lm		50	
with CB filter		4	6	
with CR filter			5	
<b>dynodes: 13VBBeCu</b>				
<b>anode sensitivity in divider A:</b>				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		200	
overall V for nominal A/lm	V		1450	1900
overall V for max. rated A/lm	V		1700	
gain at nominal A/lm	x 10 <sup>6</sup>		1	
<b>dark current at 20 °C:</b>				
dc at nominal A/lm	nA		0.5	5
dc at max. rated A/lm	nA		2	
<b>pulsed linearity (-5% deviation):</b>				
divider A	mA		4	
<b>rate effect (I<sub>a</sub> for Δg/g=1%):</b>				
	μA		1	
<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	
<b>temperature coefficient:</b>				
	% °C <sup>-1</sup>		± 0.5	
<b>timing:</b>				
multi electron rise time	ns		10	
multi electron fwhm	ns		22	
transit time	ns		65	
	g		190	
<b>weight:</b>				
<b>maximum ratings:</b>				
anode current	μA			100
cathode current	nA			100
gain	x 10 <sup>6</sup>			4
sensitivity	A/lm			200
temperature	°C	-55		150
V (k-a) <sup>(1)</sup>	V			2300
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)

spectral data	unit	20 °C typ	150 °C typ	max
operating voltage for 50 pC/MeV	V	1200	1300	-
pulse height resolution <sup>(3)</sup>	%	9	12	-

<sup>(3)</sup> measured with <sup>137</sup>Cs/NaI(Tl) crystal

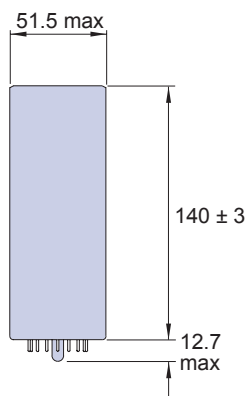
### 7 typical voltage gain characteristics



## 8 voltage divider distribution

k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>10</sub>	d <sub>11</sub>	d <sub>12</sub>	d <sub>13</sub>	a	
A	150V	R	.....	R	R	R	2R	R	Standard

## 9 external dimensions mm



## 11 ordering information

The 9727B 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 9727A. 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.

9727

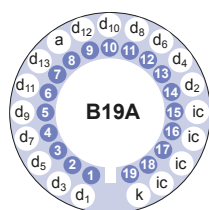
### options

**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

## 10 base configuration (viewed from below)



'ic' indicates an internal connection

## 12 voltage dividers

The voltage divider available for this pmt is tabulated below:

	k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>12</sub>	d <sub>13</sub>	a
C679E*	2R	R	.....	.....	2R	R	
C679G*	150V	R	.....	.....	2R	R	

Our range of B19A sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

\* for operation up to maximum of +70 °C  
 R = 330 kΩ

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