51 mm (2") photomultiplier
9727B series data sheet

ET Enterprises electron tubes

1 description

The 9727B is a 51mm (2") diameter, end window photomultiplier with high temperature bialkali 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

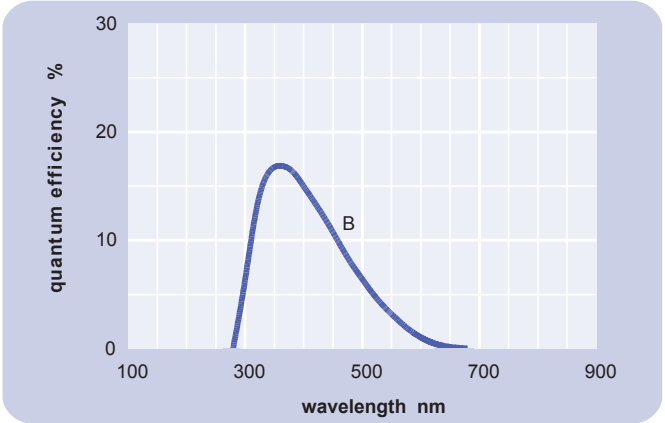
- will operate up to 150 °C
- tarnish-free gold plated base pins

4 window characteristics

	9727B borosilicate
spectral range*(nm)	290 - 630
refractive index (n_d)	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

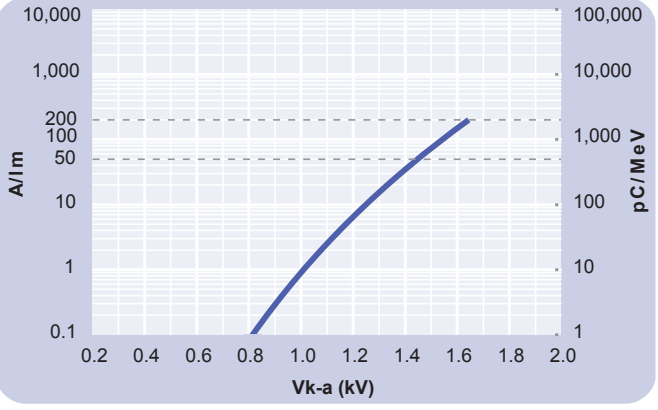
	unit	min	typ	max
photocathode:				
high temperature bialkali				
active diameter	mm		46	
quantum efficiency at peak	%		17	
luminous sensitivity	µA/lm		50	
with CB filter		4	6	
with CR filter			5	
dynodes: 13VBBeCu				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		50	
max. rated 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 10^6		1	
dark current at 20 ºC:				
dc at nominal A/lm	nA		0.5	5
dc at max. rated A/lm	nA		2	
pulsed linearity (-5% deviation):				
divider A	mA		4	
rate effect (I_a for $\Delta g/g$=1%):	µA		1	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10^{-4}		1.4	
temperature coefficient:	% $°C^{-1}$		± 0.5	
timing:				
multi electron rise time	ns		10	
multi electron fwhm	ns		22	
transit time	ns		65	
weight:	g		190	
maximum ratings:				
anode current	µA			100
cathode current	nA			100
gain	x 10^6			4
sensitivity	A/lm			200
temperature	°C	-55		150
V (k-a)[1]	V			2300
V (k-d1)	V			300
V (d-d)[2]	V			300
ambient pressure (absolute)	kPa			202

[1] subject to not exceeding max. rated sensitivity [2] subject to not exceeding max rated V(k-a)

spectral data	unit	20 °C typ	150 °C typ	150 °C max
operating voltage for 50 pC/MeV	V	1200	1300	-
pulse height resolution[3]	%	9	12	-

[3] measured with ^{137}Cs/NaI(Tl) crystal

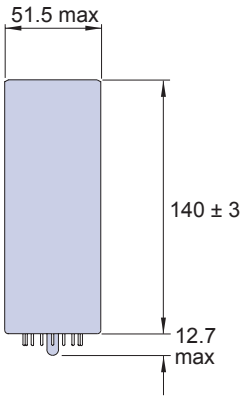
7 typical voltage gain characteristics



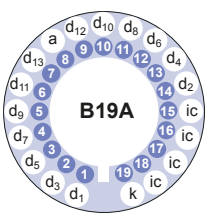
8 voltage divider distribution

	k	d_1	d_2	.....	d_{10}	d_{11}	d_{12}	d_{13}	a	
A	150V	R	.....		R	R	R	2R	R	Standard

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection

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.

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

12 voltage dividers

The voltage divider available for this pmt is tabulated below:

	k	d_1	d_2	.....	d_{12}	d_{13}	a
C679E*	2R	R		.....	R	R	
C679F*	2R	R		.....	R	R	

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

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