

78 mm (3") photomultiplier

9269B series data sheet

1 description

The 9269B is a 78mm (3 ") diameter end window photomultiplier with enhanced green sensitive bialkali photocathode and 9 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing.

2 applications

- scintillation spectroscopy with CsI and BGO

3 features

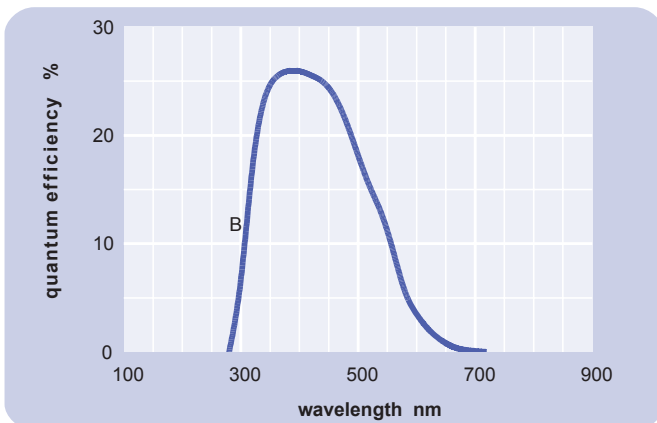
- enhanced green sensitivity
- good pulse height resolution for gamma spectroscopy

4 window characteristics

	9269B borosilicate
spectral range *(nm)	295 - 680
refractive index (n _v)	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

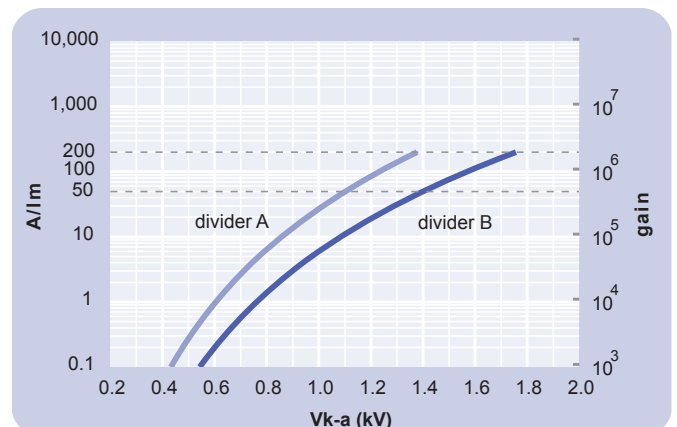


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		70	
quantum efficiency at peak	%		26	
luminous sensitivity	μA/lm		110	
with CB filter		7	11	
with CR filter			9	
dynodes: 9LFSbCs				
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		1100	1400
overall V for max. rated A/lm	V		1400	
gain at nominal A/lm	x 10 ⁶		0.5	
dark current at 20 °C:				
dc at nominal A/lm	nA		1	10
dc at max. rated A/lm	nA		4	
dark count rate	s ⁻¹		2000	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
pulse height resolution:				
single electron peak to valley	ratio		1.8	
¹³⁷ Cs with 3 " x 3 " NaI(Tl)			7.5	
⁵⁷ Co with 3 " x 3 " NaI(Tl)			11	
rate effect (I_a for Āg/g=1%):	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 ⁻⁴		1.7	
temperature coefficient:	% °C ⁻¹		± 0.5	
timing:				
single electron rise time	ns		7.5	
single electron (fwhm)	ns		15	
transit time	ns		42	
weight:	g		125	
maximum ratings:				
anode current	μA			100
cathode current	nA			200
gain	x 10 ⁶			1.8
sensitivity	A/lm			200
temperature	°C	-30		60
V (k-a) ⁽¹⁾	V			2100
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)

7 typical voltage gain characteristics



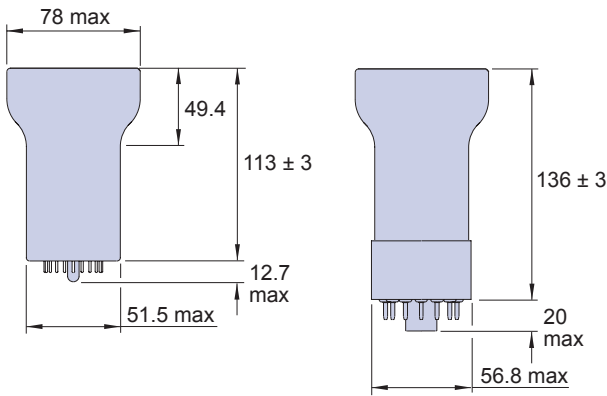
8 voltage divider distribution

	k	d ₁	d ₂	.....	d ₆	d ₇	d ₈	d ₉	a	
A	3R	R	.....		R	R	R	R	R	Standard
B	3R	R	.....		R	2R	3R	4R	3R	High Pulsed Linearity

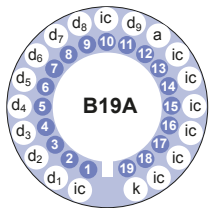
Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm

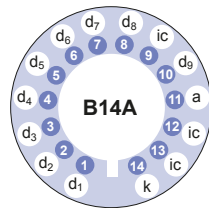
The drawings below show the 9269B in hardpin format and the 9269KB variant fitted with the B14A cap.



10 base configuration (viewed from below)



B19A hardpin base (for 9269B)
"ic" indicates an internal connection

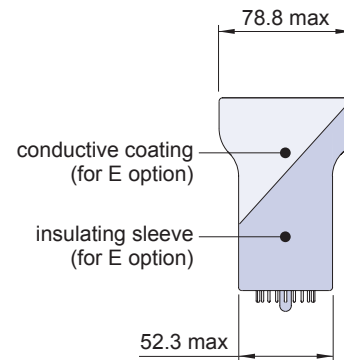
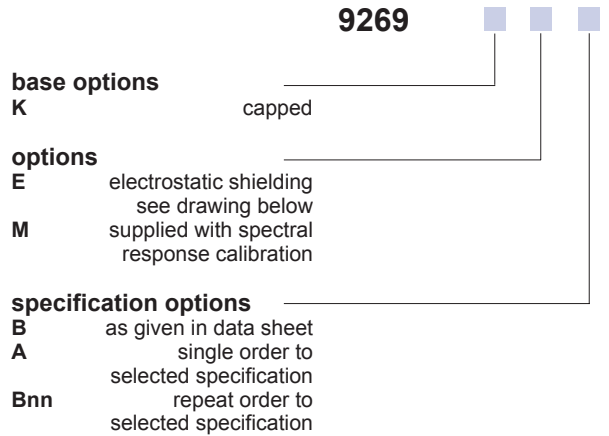


B14A base (for 9269KB)
"ic" indicates an internal connection

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 when the capped variant is selected. Both socket ranges include versions with or without a mounting flange, and versions with contacts for mounting directly onto

11 ordering information

The 9269B 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 9269A. 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 these pmts are tabulated below:

9269B	9269KB	k	d ₁	d ₂	.....	d ₅	d ₆	d ₇	d ₈	d ₉	a
C648A	C634A	3R	R	.....		R	R	R	R	R	
C648B	C634B	3R	R		R	2R	3R	4R	3R	
C648C	C634C	450 V	R		R	R	R	R	R	
C648D	C634D	450 V	R		R	2R	3R	4R	3R	

R = 330 kΩ

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