

51 mm (2") photomultiplier

9829B series data sheet

1 description

The 9829B is a 51 mm (2") diameter, end window photomultiplier with a thin domed window, sandblasted for enhanced cathode sensitivity, blue-green sensitive bialkali photocathode and 12 BeCu dynodes of linear focused design for good linearity and timing. The 9829QB is a variant for applications requiring uv sensitivity.

2 applications

- liquid scintillation counting
- photon counting of bio- and chemi-luminescent samples
- low light level detection

3 features

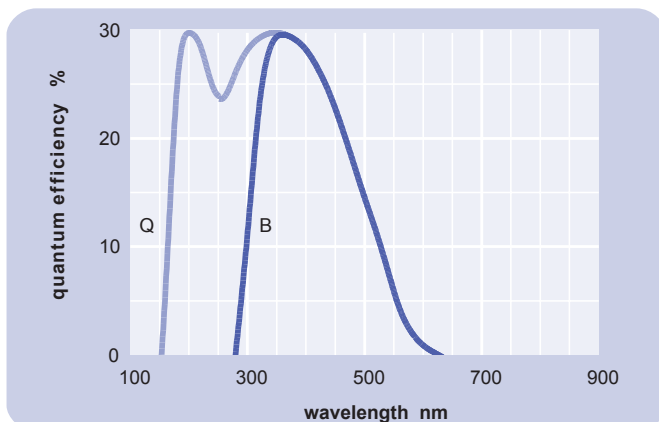
- good SER

4 window characteristics

	9829B borosilicate	9829QB* fused silica
spectral range**(nm)	290 - 630	160 - 630
refractive index (n _d)	1.49	1.46
K (ppm)	300	<10
Th (ppb)	250	<10
U (ppb)	100	<10

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

5 typical spectral response curves

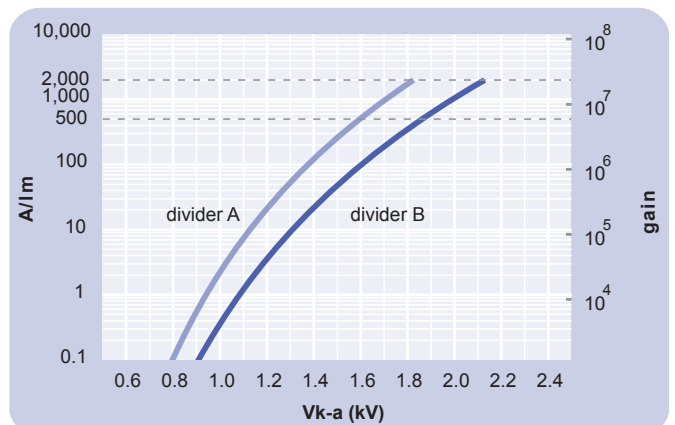


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		46	
quantum efficiency at peak	%		30	
luminous sensitivity	μA/lm		85	
with CB filter		9.5	12.5	
with CR filter			2	
dynodes: 12LFBcCu				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		500	
max. rated anode sensitivity	A/lm		2000	
overall V for nominal A/lm	V		1600	1900
overall V for max. rated A/lm	V		1800	
gain at nominal A/lm	x 10 ⁶		6	
dark current at 20 °C:				
dc at nominal A/lm	nA		3	10
dc at max. rated A/lm	nA		12	
dark count rate	s ⁻¹		300	
pulsed linearity (-5% deviation):				
divider A	mA		50	
divider B	mA		150	
rate effect (I_a for Δg/g=1%):				
	μA		1	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 ⁻⁴		1	
temperature coefficient:	% °C ⁻¹		± 0.5	
timing:				
single electron rise time	ns		2	
single electron fwhm	ns		3	
single electron jitter (fwhm)	ns		2.2	
multi electron rise time	ns		3.2	
multi electron fwhm	ns		4.5	
transit time	ns		41	
weight:	g		130	
maximum ratings:				
anode current	μA			100
cathode current	nA			100
gain	x 10 ⁶		25	
sensitivity	A/lm		2000	
temperature	°C	-30		60
V (k-a) ⁽¹⁾	V			2800
V (k-d1)	V			500
V (d-d) ⁽²⁾	V			450
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



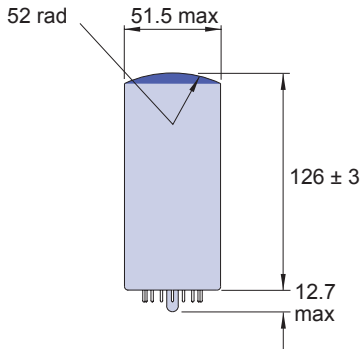
8 voltage divider distribution

	k	d ₁	d ₂	.....	d ₈	d ₉	d ₁₀	d ₁₁	d ₁₂	a	
A	300V	R	.....		R	R	R	R	R	R	Standard
B	300V	R	.....		R	R	1.25R	1.5R	2R	3R	High Pulsed Linearity

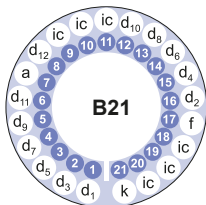
note: focus connected to d₁

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

9 external dimensions mm



10 base configuration (viewed from below)



'ic' indicates an internal connection
note: connect f to d₁

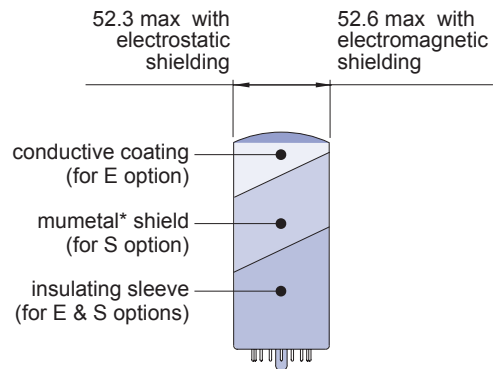
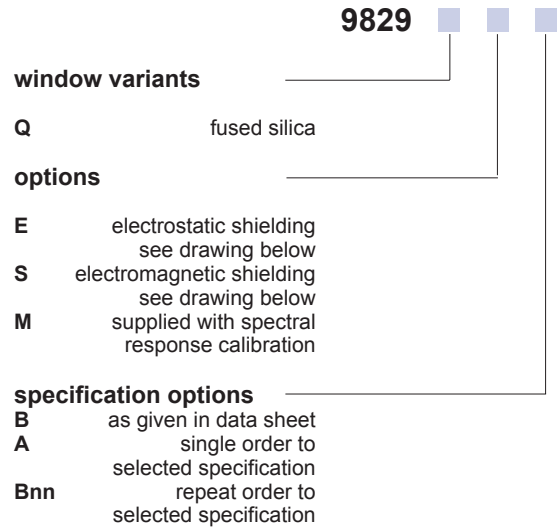
Our range of B21 sockets, available for this series, includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 handling instructions

The window of this pmt has been specially cleaned to give maximum efficiency. It should not be touched with fingers or allowed to come into contact with oil or grease. The window can be cleaned with isopropyl alcohol to remove oil deposits.

12 ordering information

The 9829B 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 9829A. 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.



14 voltage dividers

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

	k	d ₁	d ₂	d ₃	.....	d ₈	d ₉	d ₁₀	d ₁₁	d ₁₂	a
C628A	3R	R	R	.....		R	R	R	R	R	
C628B	3R	R	R	.....		R	1.25R	1.5R	2R	3R	
C628C	300 V	R	R		R	R	R	R	R	
C628D	300 V	R	R		R	1.25R	1.5R	2R	3R	

note: focus connected to d₁

R = 330 kΩ

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DS_9829B Issue 8 (21/09/10)