

78 mm (3") photomultiplier

9320KFLB data sheet (provisional)

6 characteristics

1 description

The 9320KFLB is a 78mm (3") active diameter, domed end-window photomultiplier with blue-green sensitive bialkali photocathode. It has 10 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing. A variant is available with water-resistant ultra-low background glass (9320UKFLB).

2 applications

- high energy physics

3 features

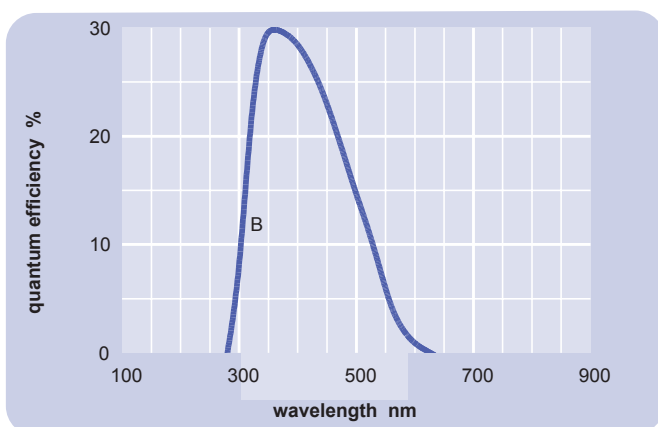
- compact length
- good pulse height resolution
- pressure resistant envelope
- low transit time jitter
- available in water-resistant ultra low background glass

4 window characteristics

	9320KFLB borosilicate	9320UKFLB borosilicate
spectral range *(nm)	295 - 630	270 - 630
refractive index (n_d)	1.49	1.49
K (ppm)	300	60
Th (ppb)	250	30
U (ppb)	100	30

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

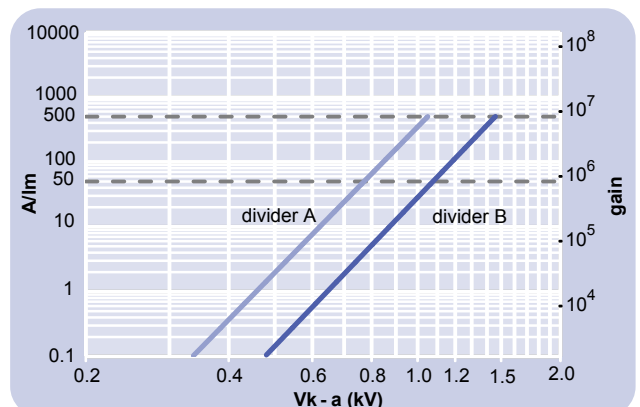
5 typical spectral response curves



	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		78	
quantum efficiency at peak	%		30	
luminous sensitivity	$\mu\text{A/lm}$		75	
with CB filter		8	11	
with CR filter			2	
dynodes: 10LFSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		500	
overall V for nominal A/lm	V		750	1100
overall V for max. rated A/lm	V		1050	
gain at nominal A/lm	$\times 10^6$		0.7	
dark current at 20 °C:				
dc at nominal A/lm	nA		0.5	10
dc at max. rated A/lm	nA		5	
dark count rate	s^{-1}		600	
afterpulse rate:				
afterpulse time window	μs	0.1		10
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
pulse height resolution:				
single electron peak to valley	ratio		2.5	
rate effect (I_a for $\Delta g/g=1\%$):				
	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50 %				
most sensitive direction	$\text{T} \times 10^{-4}$		1.7	
temperature coefficient:				
	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
single electron rise time	ns		2.5	
single electron fwhm	ns		5	
single electron tts (fwhm)	ns		4.5	
multi electron fwhm	ns		8.5	
multi electron rise time	ns		5.5	
transit time	ns		47	
weight:				
	g		120	
maximum ratings:				
anode current	μA			100
cathode current	nA			100
gain	$\times 10^6$			7
sensitivity	A/lm			500
temperature	$^\circ\text{C}$	-60		60
V (k-a) ⁽¹⁾	V			1800
V (k-d1)	V			450
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



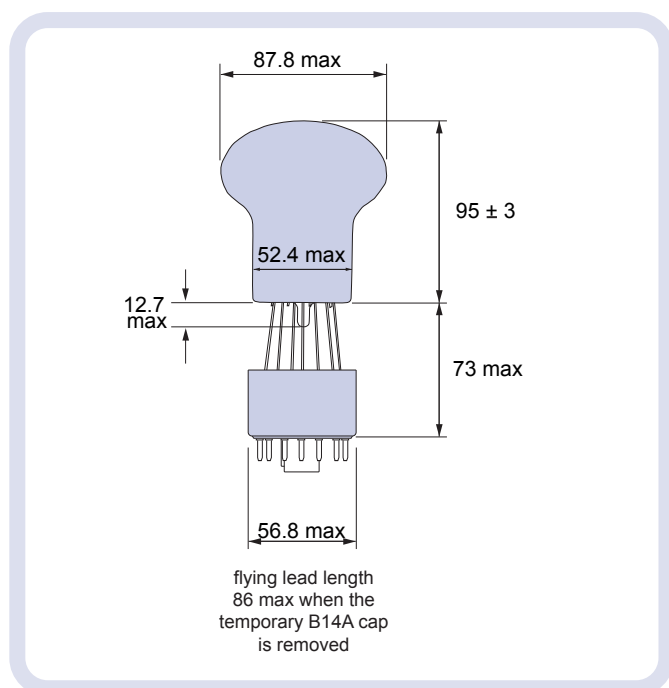
8 voltage divider distribution

k	f ₁	f ₂	d ₁	d ₂	.....	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
A	0.2R	1.8R	R	R	.....	R	R	R	R	R	Standard
B	0.2R	1.8R	R	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 drawing below shows the 9320KFLB in flying lead format with the temporary B14A cap fitted. The cap is attached as agreed with the customer.



11 ordering information

The 9320KFLB 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 a one-off order, then the product will be referred to as 9320KFLA. For a repeat order, ET Enterprises Limited will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

9320

glass options

- U** ultra low background glass

base options

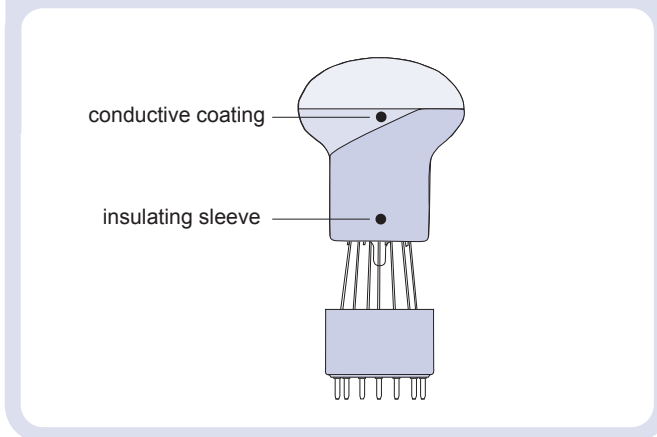
- KFL** flying lead base with temporary B14A cap

options

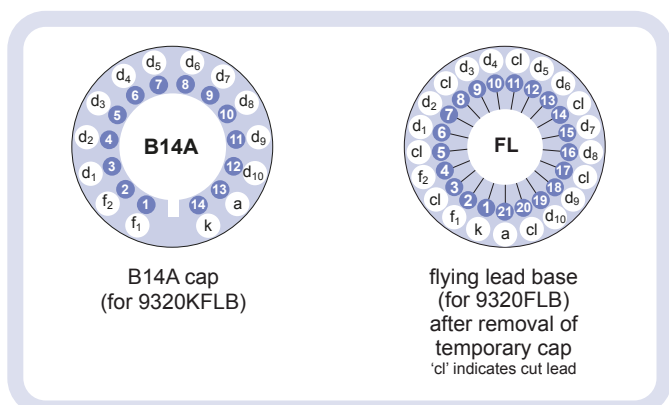
- M** supplied with spectral response calibration

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)



Our range of B14A sockets is available for this series and to suit the B14A cap. This includes versions with or without a mounting flange and with contacts for mounting directly onto printed circuit boards.

12 voltage dividers

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

9320KFLB	9320FLB	k	f ₁	f ₂	d ₁	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
C687A		0.2R	1.8R	R	R	R	R	R	R		
C687B		0.2R	1.8R	R	R	2R	3R	4R	3R		

R = 330kΩ

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choose accessories for this pmt on our website

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