90 mm (3.5") photomultiplier
9306KB series data sheet

ET Enterprises electron tubes

1 description

The 9306KB is a 90mm (3.5″) diameter, end window photomultiplier with blue-green sensitive bialkali photocathode and 10 high gain, high stability, SbCs dynodes of linear focused design for good linearity and timing.

2 applications

- radiometry
- scintillation spectroscopy

3 features

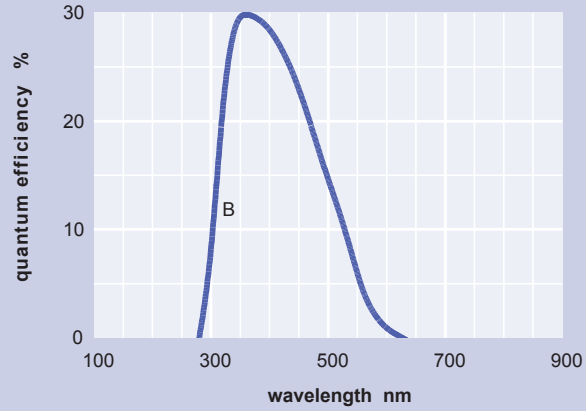
- good SER
- good pulse height resolution
- larger diameter version of 9305KB

4 window characteristics

	9306KB borosilicate
spectral range**(nm)	295 - 630
refractive index (n_d)	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

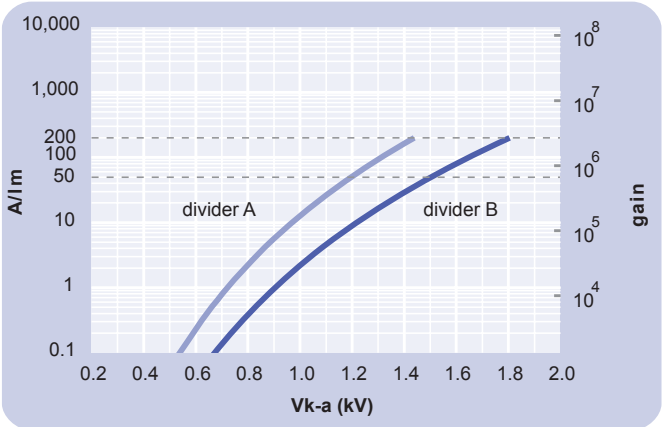


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		80	
quantum efficiency at peak	%		30	
luminous sensitivity	µA/lm		75	
with CB filter		8	12	
with CR filter			2	
dynodes: 10LFSbCs				
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		1200	1450
overall V for max. rated A/lm	V		1450	
gain at nominal A/lm	x 10^6		0.7	
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}		1000	
pulsed linearity (-5% deviation):				
divider A	mA		30	
divider B	mA		100	
pulse height resolution:				
single electron peak to valley	ratio		2	
^{137}Cs with 3 ″ x 3 ″ NaI(Tl)	%		7.5	
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	T x 10^{-4}			
temperature coefficient:	% °C^{-1}		± 0.5	
timing:				
multi electron fwhm	ns		15	
multi electron rise time	ns		7.5	
transit time	ns		45	
weight:	g		210	
maximum ratings:				
anode current	µA			100
cathode current	nA			300
gain	x 10^6			3
sensitivity	A/lm			200
temperature	°C	-30		60
V (k-a)[1]	V			2100
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



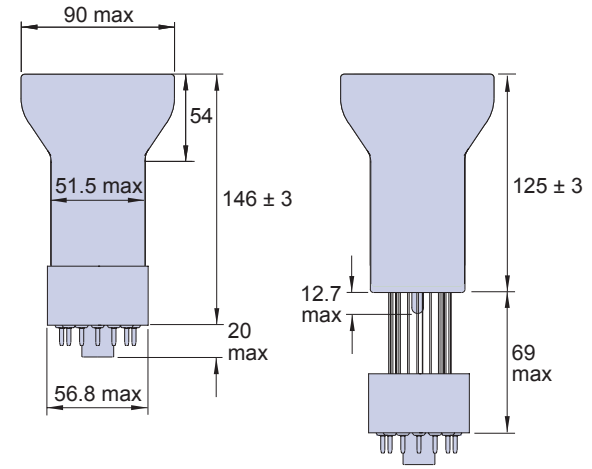
8 voltage divider distribution

	k	d_1	d_2	.....	d_7	d_8	d_9	d_{10}	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.

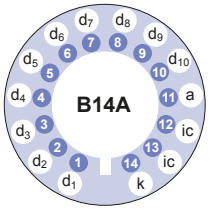
9 external dimensions mm

The drawings below show the 9306KB with the B14A cap fitted, and the 9306KFLB in flying lead format with the temporary B14A cap fitted. The cap is attached as agreed.

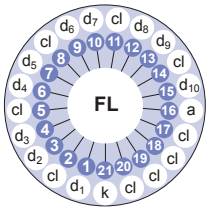


flying lead length
82 max when the
temporary B14A cap
is removed

10 base configuration (viewed from below)



B14A cap
(for 9306KB and 9306KFLB)
'ic' indicates an
internal connection



flying lead base
(for 9306FLB)
after removal of
temporary cap
'cl' indicates cut lead

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

11 ordering information

The 9306KB 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 9306KA. 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.

9306 □□

base options
KFL flying lead base with temporary B14A cap

specification options
B as given in data sheet
A single order to selected specification
Bnn repeat order to selected specification

12 voltage dividers

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

9305KB	9305FLB	k	d_1	d_2	.....	d_6	d_7	d_8	d_9	d_{10}	a
C636P	C655P	3R	R	.....		R	R	R	R	R	
C636R	C655R	3R	R	.....		R	2R	3R	4R	3R	
C636S	C655S	150 V	R	.....		R	R	R	R	R	
C636T	C655T	150 V	R	.....		R	2R	3R	4R	3R	

R = 330k Ω

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choose accessories for this pmt on our website

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