

76 mm (3.0") photomultiplier L76B17 series data sheet



1 description

The L76B17 is a 76mm (3") diameter, end window photomultiplier with a blue-green sensitive photocathode and 10 high gain, high stability, SbCs linear focused dynodes. It is electrically and mechanically interchangeable with the ADIT B76D01 but without the need for a separate focus connection.

The short base version (L76B17S) is a plug-in alternative to many other 10 stage photomultipliers having a 14 pin capped base. A flexible wire version is available (L76B17W) and this can also be supplied fitted with a voltage divider to a configuration agreed upon with the customer.

2 applications

- scintillation counting
- general purpose low light level detection

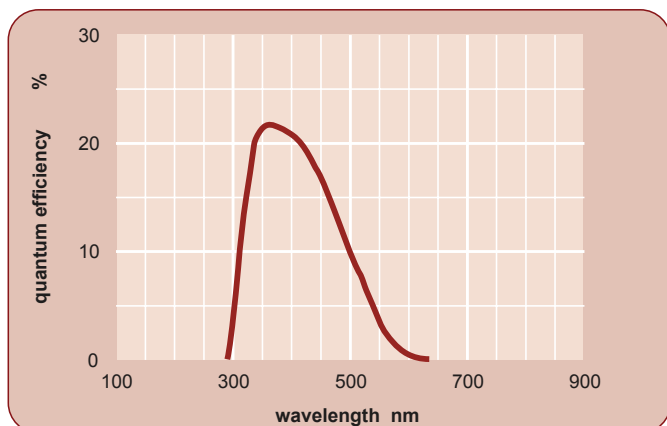
3 features

- low dark current
- good energy resolution
- high pulse linearity
- low rate effect
- helium resistant envelope

4 window characteristics

L76B17 soda lime	
spectral range*(nm)	290 - 620
refractive index (n _d)	1.52
K (ppm)	50,000
Th (ppb)	250
U (ppb)	200

5 typical spectral response curves

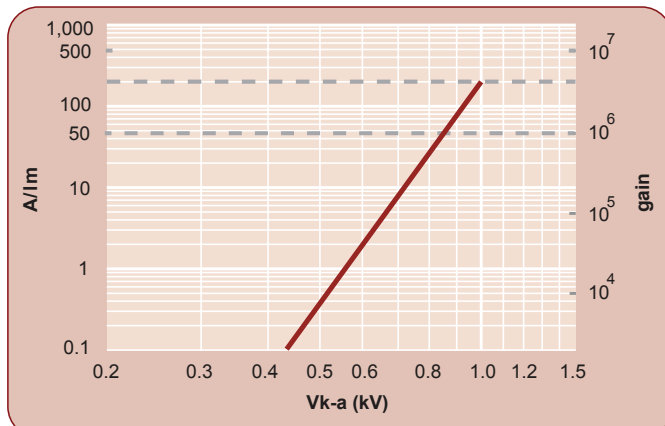


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		68	
quantum efficiency at peak	%	22		
luminous sensitivity	$\mu\text{A/lm}$		50	
with CB filter		5	9	
with CR filter			0.5	
dynodes: 10LFSbCs				
anode sensitivity:				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		200	
overall V for nominal A/lm	V		850	950
overall V for max. rated A/lm	V		1000	
gain at nominal A/lm	$\times 10^6$		1	
dark current at 20°C:				
dc at nominal A/lm	nA		0.5	3.0
dc at max. rated A/lm	nA		2	
dark count rate	s^{-1}		-	
pulsed linearity(-5% deviation)	mA		30	
rate effect(I for $\Delta g/g+1\%$):	μA		20	
magnetic field sensitivity:				
the field for which the output decreases by 50%				
most sensitive direction	$\text{T} \times 10^{-4}$		1.3	
temperature coefficient:	$\% \text{C}^{-1}$		± 0.5	
timing:				
multi electron rise time	ns		TBD	
multi electron (fwhm)	ns		TBD	
transit time	ns		TBD	
weight:	g		142	
maximum ratings:				
anode current	μA			100
cathode current	nA			100
gain	$\times 10^6$		10	
anode sensitivity	A/lm		200	
temperature	$^{\circ}\text{C}$	-30		60
V (k-a) ⁽¹⁾	V			2000
V (k-d1)	V			300
V (d-d) ⁽²⁾	V			300
ambient pressure (absolute)	kPa			101

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

7 typical voltage gain characteristics



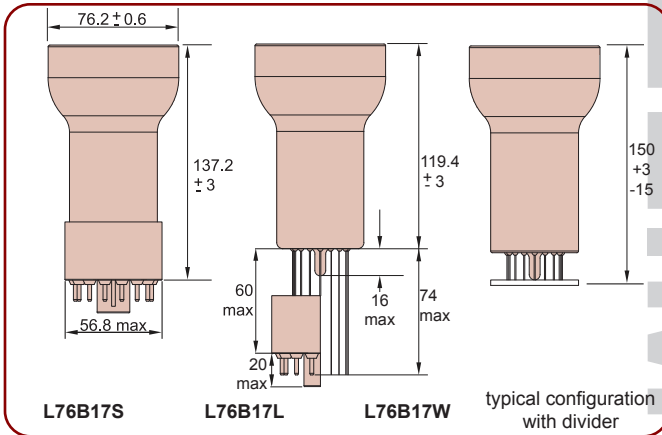
8 voltage divider distribution

k	d ₁	d ₂	d ₇	d ₈	d ₉	d ₁₀	a
3R	R			R	R	R	R	Standard

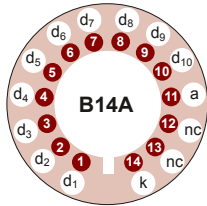
Characteristics contained in this data sheet refer to standard divider.

9 external dimensions mm

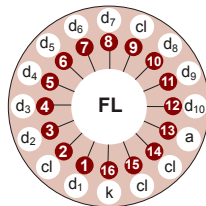
The drawings below show the L76B17S and L76B17L with the B14A cap fitted, the L76B17W in flying lead format and the L76B17W with a factory fitted voltage divider.



10 base configuration (viewed from below)



B14A cap for L76B17S and L76B17L
'nc' indicates no internal connection



flying lead base for L76B17W
'cl' indicates cut lead

A range of B14A sockets is available to suit the B14A cap of the L76B17S and L76B17L. The socket range includes versions with or without a mounting flange, and with contacts for mounting directly onto printed circuit boards. The L76B17 can be supplied with a custom designed voltage divider installed.

11 ordering information

The L76B17 meets the specifications given in this data sheet. The desired basing option must be specified when ordering by appending the W, S or L suffix to the part number. Custom specifications are available.

Product with special test requirements, integral voltage divider network or with one or more of the shielding options below will be assigned a suffix with the letter A followed by a unique 3 digit number to designate the requirement.

L76B17

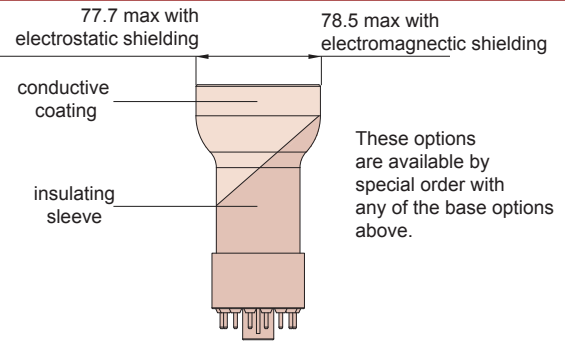
base options

W flying leads, no cap
S capped
L temporary B14 cap

L76B17

specification options

A nnn special requirements unique designator



12 voltage dividers

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

L76B17S	k	d ₁	d ₂	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
L76B17L										
TBD										

R=330 kΩ

Custom dividers available for all base options.

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