

# 89 mm (3.5") photomultiplier

## L89B26 series data sheet



### 1 description

The L89B26 is a 89mm (3.5") 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 B89D01 but without the need for a separate focus connection.

The short base version (L89B26S) is a plug-in alternative to many other 10 stage photomultipliers having a 14 pin capped base. A flexible wire version is available (L89B26W) 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

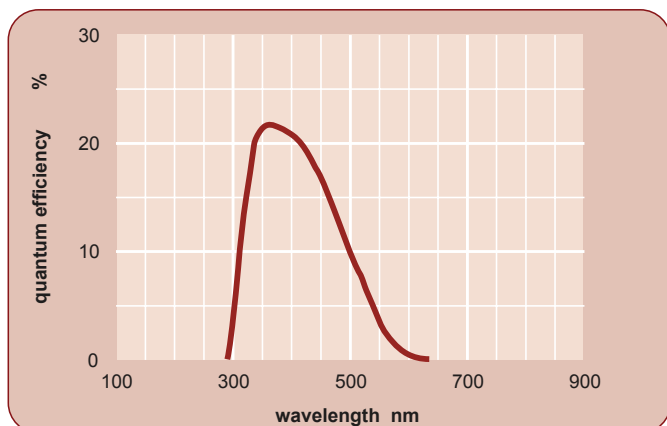
### 3 features

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

### 4 window characteristics

L89B26 soda lime	
spectral range*(nm)	290 - 620
refractive index (n <sub>d</sub> )	1.52
K (ppm)	50,000
Th (ppb)	250
U (ppb)	200

### 5 typical spectral response curves

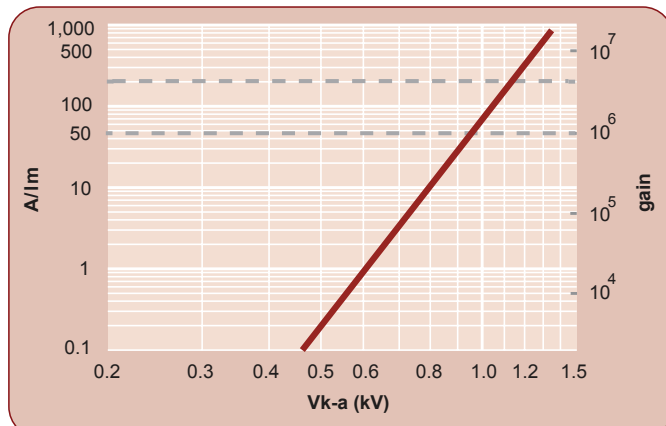


### 6 characteristics

	unit	min	typ	max
<b>photocathode: bialkali</b>				
active diameter	mm		83	
quantum efficiency at peak	%	22		
luminous sensitivity	$\mu\text{A/lm}$		50	
with CB filter		5	9	
with CR filter			0.5	
<b>dynodes: 10LFSbCs</b>				
<b>anode sensitivity:</b>				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		200	
overall V for nominal A/lm	V	850	950	1300
overall V for max. rated A/lm	V		1130	
gain at nominal A/lm	$\times 10^6$		1	
<b>dark current at 20°C:</b>				
dc at nominal A/lm	nA		0.5	3.0
dc at max. rated A/lm	nA		2.0	
dark count rate	$\text{s}^{-1}$		-	
<b>pulsed linearity(-5% deviation)</b>	mA		30	
<b>rate effect(I for <math>\Delta g/g+1\%</math>):</b>	$\mu\text{A}$		20	
<b>magnetic field sensitivity:</b>				
the field for which the output decreases by 50%				
most sensitive direction	$\text{T} \times 10^{-4}$		1.3	
<b>temperature coefficient:</b>	$\% \text{C}^{-1}$		$\pm 0.5$	
<b>timing:</b>				
multi electron rise time	ns		7	
multi electron (fwhm)	ns		15	
transit time	ns		49	
<b>weight:</b>	g		162	
<b>maximum ratings:</b>				
anode current	$\mu\text{A}$			100
cathode current	nA			100
gain	$\times 10^6$		10	
anode sensitivity	A/lm		200	
temperature	$^{\circ}\text{C}$	-30		60
V (k-a) <sup>(1)</sup>	V			2000
V (k-d1)	V			300
V (d-d) <sup>(2)</sup>	V			300
ambient pressure (absolute)	kPa			101

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

### 7 typical voltage gain characteristics



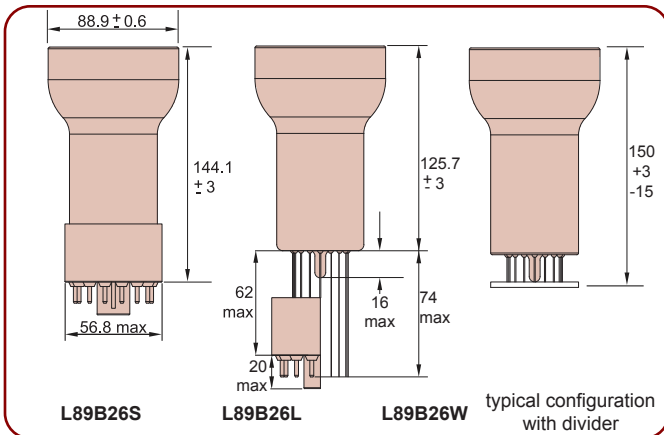
## 8 voltage divider distribution

	k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>7</sub>	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	a	
A	3R	R	.....	R	R	R	R	R	R	Standard
B	3R	R	.....	R	2R	3R	4R	3R		High Pulsed linearity

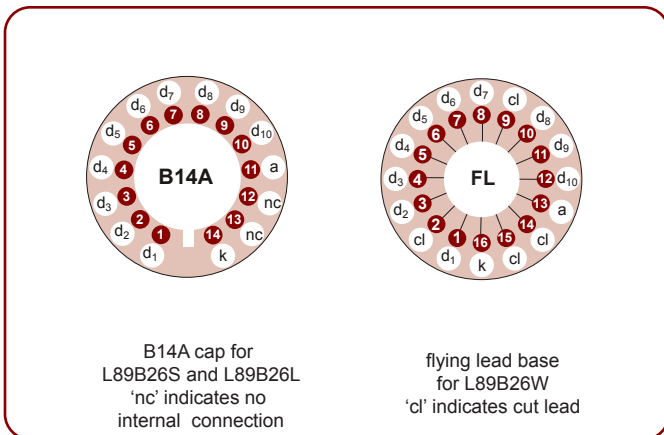
Characteristics contained in this data sheet refer to standard divider.

## 9 external dimensions mm

The drawings below show the L8926BS and L89B26L with the B14A cap fitted, the L89B26W in flying lead format and the L89B26W with a factory fitted voltage divider.



## 10 base configuration (viewed from below)



A range of B14A sockets is available to suit the B14A cap of the L89B26S and L89B26L. The socket range includes versions with or without a mounting flange, and with contacts for mounting directly onto printed circuit boards. The L89B26 can be supplied with a custom designed voltage divider installed.

## 11 ordering information

The L89B26 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.

**L89B26**

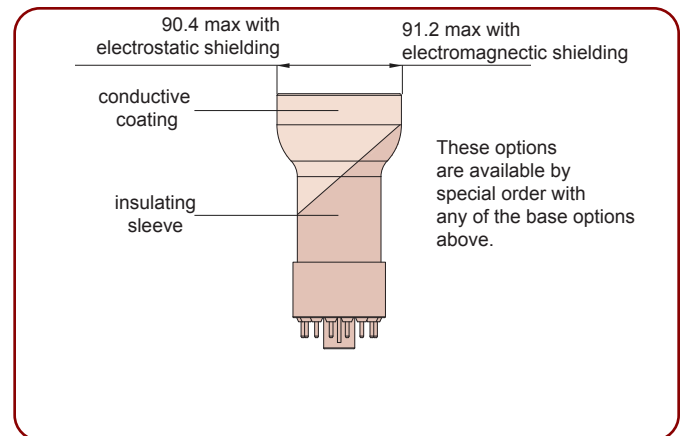
**base options**

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

**L89B26**

**specification options**

- A nnn special requirements  
unique designator



## 12 voltage dividers

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

L89B26S	L89B26L L89B26W	k	d <sub>1</sub>	d <sub>2</sub>	.....d <sub>6</sub>	d <sub>7</sub>	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	a
C636P	C655P	3R	R			R	R	R	R	R
C636R	C655R	3R	R			R	2R	3R	4R	3R
C636S	C655S	150V	R			R	R	R	R	R
C636T	C655T	150V	R			R	2R	3R	4R	3R

R=330 kΩ

Custom dividers available for all base options.

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