133mm (5”series) photomultiplier
L133D29 series data sheet

1 description

The L133D29 is a 133mm (5.240”) diameter, 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.

2 applications

- radiation monitoring
- scintillation spectroscopy

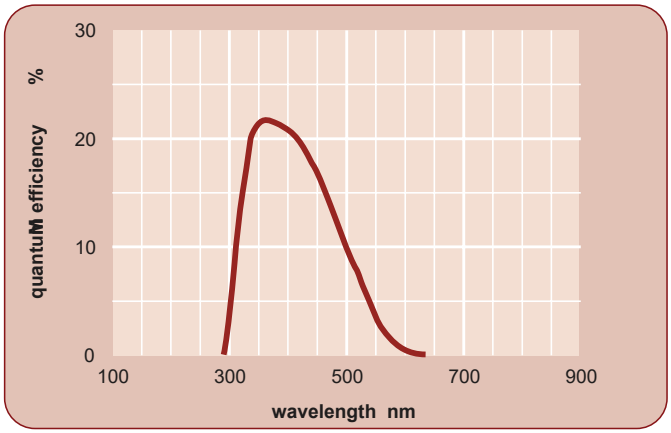
3 features

- good SER
- high pulsed linearity
- good pulse height resolution
- large active area

4 window characteristics

	borosilicate
spectral range*(nm)	300-630
refractive index (n_d)	1.47
K (ppm)	TBD
Th (ppb)	TBD
U (ppb)	TBD

5 typical spectral response curves

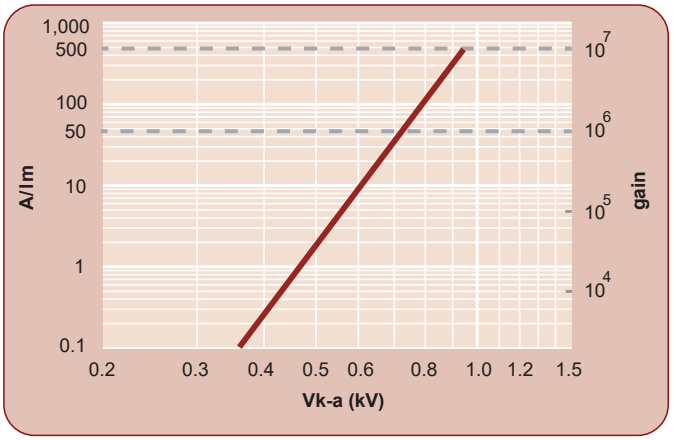


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		115	
quantum efficiency at peak	%		28	
luminous sensitivity	μA/lm		75	
with CB filter			12	
with CR filter			2	
dynodes: 10LFSbCs				
anode sensitivity:				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		20	
overall V for nominal A/ml	V		1000	1500
overall V for max. rated A/ml	V		1100	
gain at nominal A/ml	$x10^6$		0.7	
dark current at 20 C:				
dc at nominal A/lm	nA		1	20
dc at max. rated A/lm	nA		4	
dark count rate	s^{-1}		1500	
pulsed linearity(-5% deviation)				
divider A	TBD		TBD	
pulse height resolution:				
single electron peak to valley	ratio		1.35	
Cs with 5” x 3” Nai(Tl)	%		8.4	
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	$Tx10^{-4}$		1	
temperature coefficient:	$\%^{\circ}C^{-1}$		0.5	
timing:				
multi electron rise time	ns			
multi electron (fwhm)	ns			
transit time	ns			
weight:	g			
maximum ratings:				
anode current	μA			100
cathode current	nA			500
gain	$x\ 10^{-6}$			2.7
anode sensitivity	A/lm			200
temperature	$^{\circ}C$	-30		60
V (k-a)	V			2000
V (k-d1)	V			600
V (d-d)	V			350
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



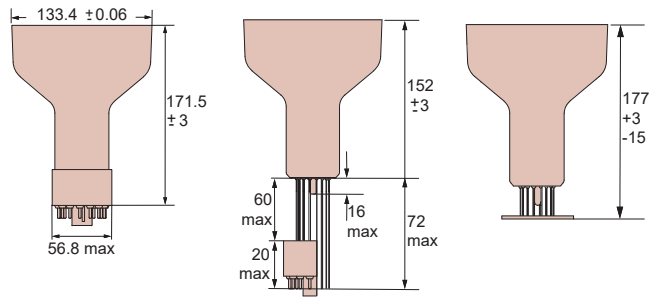
8 voltage divider distribution

	k	d_1	d_2	d_7	d_8	d_9	d_{10}	a	
A	2R	R	..... R	R	R	R	R	R	Standard
B	450V	R	..... R	R	R	R	R	R	High Pulsed Linearity

Characteristics contained in this data sheet refer to standard divider.

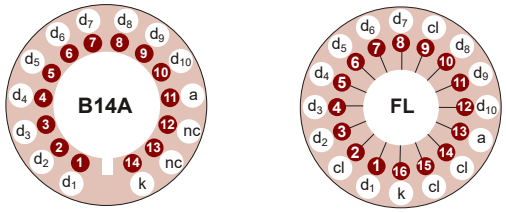
9 external dimensions mm

The drawings below show the L133D29S and L133D29L with the B14A cap fitted, the L133D29W in flying lead format and the L133D29W with a factory fitted voltage divider.



L133D29S **L133D29L** **L133D29W** **typical configuration with divider**

10 base configuration (viewed from below)



B14A cap for L133D29S and L133D29L
'nc' indicates no internal connection

flying lead base for L133D29W
'cl' indicates cut lead

A range of B14A sockets is availible to suit the B14A cap of the L133D29S and L133D29L. The socket range includes versions with or without a mounting flange, and with contacts for mounting directly onto printed circuit boards.
The L133D29 can be supplied with a custom designed voltage divider installed.

11 ordering information

The L133D29 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.

L133D29

base options

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

L133D29

specification options

A nnn	special requirements unique designator

12 voltage dividers

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

L133 S/L	W	k	d_1	d_2	d_6	d_7	d_8	d_9	d_{10}	a
C636A	C655A	2R	R	.....	R	R	R	R	R	R
C636M	C655I	450V	R	.....	R	R	R	R	R	R

R=330 kΩ

Custom dividers available for all base options.

ADIT Electron Tubes
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