

133mm (5.0") photomultiplier L133D29 series data sheet



1 description

The L133D29 is a 133mm (5") 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

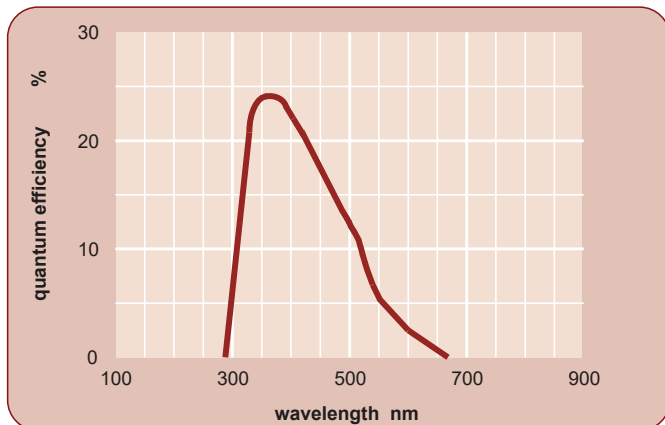
3 features

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

4 window characteristics

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

5 typical spectral response curves

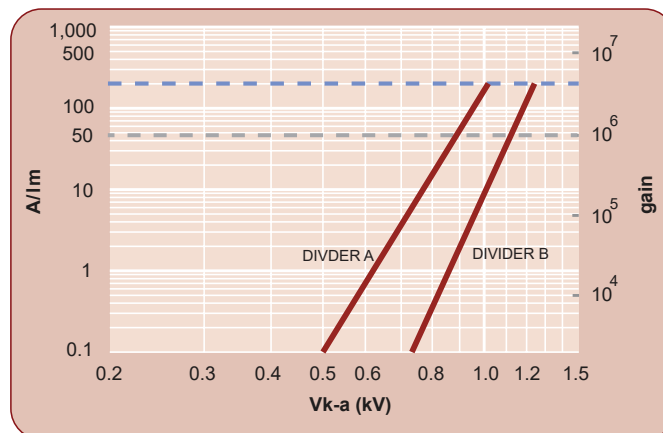


6 characteristics

	unit	min	typ	max
photocathode: bialkali				
active diameter	mm		115	
quantum efficiency at peak	%		24	
luminous sensitivity	$\mu\text{A/lm}$		60	
with CB filter			9	
with CR filter			1.5	
dynodes: 10LFSbCs				
anode sensitivity: divider A				
nominal anode sensitivity	A/lm		50	
max. rated anode sensitivity	A/lm		200	
overall V for nominal A/lm	V		950	1400
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		1	20
dc at max. rated A/lm	nA		4	
dark count rate	s^{-1}		TBD	
pulsed linearity(-5% deviation)				
divider A	TBD		TBD	
pulse height resolution:				
single electron peak to valley	ratio		TBD	
Cs with 5" x 5" NaI(Tl)	%		TBD	
rate effect(I_a for $\Delta g/g+1\%$):				
	μA		TBD	
magnetic field sensitivity:				
the field for which the output decreases by 50%				
most sensitive direction	$\text{T} \times 10^{-4}$		1	
temperature coefficient:				
	$\% ^\circ\text{C}^{-1}$		0.5	
timing:				
multi electron rise time	ns		TBD	
multi electron (fwhm)	ns		TBD	
transit time	ns		TBD	
weight:				
	g		490	
maximum ratings:				
anode current	μA			100
cathode current	nA			500
gain	$\times 10^6$			2.7
anode sensitivity	A/lm			200
temperature	$^\circ\text{C}$	-30		60
V (k-a) ⁽¹⁾	V			2000
V (k-d1)	V			600
V (d-d) ⁽²⁾	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



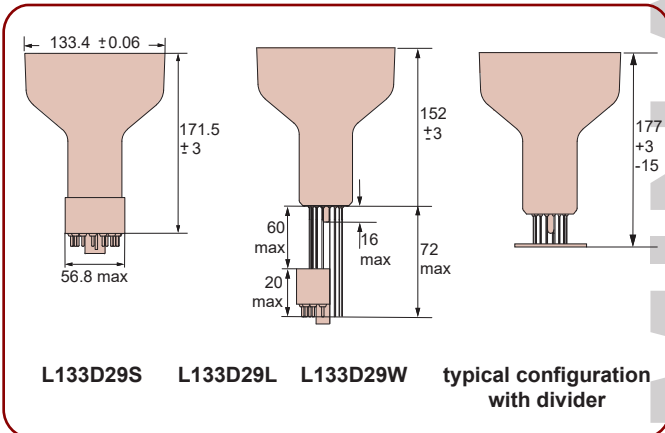
8 voltage divider distribution

	k	d ₁	d ₆	d ₇	d ₈	d ₉	d ₁₀	a	
A	2R			R	R	R	R	R	Standard
B	450V R			R	R	R	R	R	High Pulsed Linearity

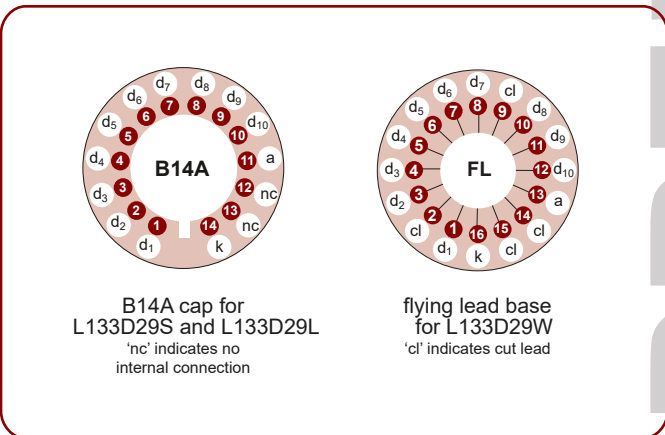
Characteristics contained in this data sheet refer to standard divider.

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.



10 base configuration (viewed from below)



A range of B14A sockets is available 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

* A formed magnetic shield is available. Part Number: 03-5543

12 voltage dividers

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

L133		k	d ₁	d ₂	d ₆	d ₇	d ₈	d ₉	d ₁₀	a
S/L	W									
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.

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