

51 mm (2") photomultiplier

9658B series data sheet

1 description

The 9658B is a 51mm (2") diameter end window photomultiplier with a prismatic widow for enhanced cathode sensitivity, S20 infra-red sensitive photocathode, and 11 high gain, high stability, SbCs dynodes of the long established venetian blind design providing a low afterpulse rate.

2 applications

- photon counting of bio- and chemi-luminescent samples
- SO and NO pollution monitoring
- low light level detection

3 features

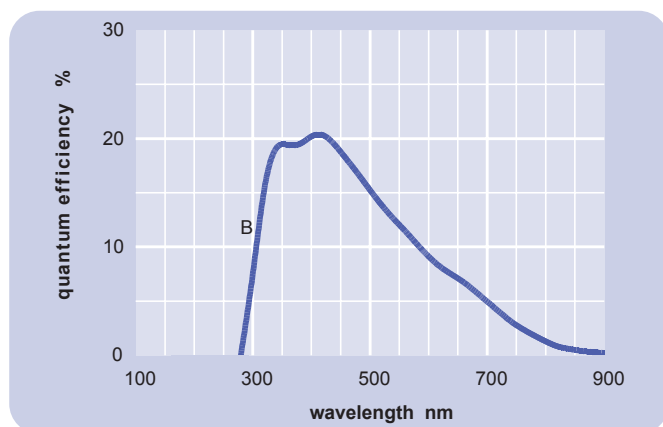
- extended infra-red sensitivity
- low operating voltage
- pin compatible with established type 9558B

4 window characteristics

9658B borosilicate	
spectral range*(nm)	290 - 900
refractive index (n_d)	1.49
K (ppm)	300
Th (ppb)	250
U (ppb)	100

* wavelength range over which quantum efficiency exceeds

5 typical spectral response curve

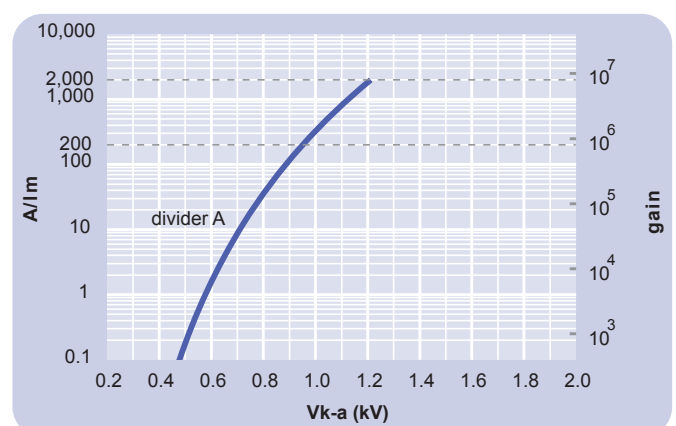


6 characteristics

	unit	min	typ	max
photocathode: S20				
active diameter	mm		46	
quantum efficiency at peak	%		21	
luminous sensitivity	$\mu\text{A/lm}$		250	
with CB filter			9	
with CR filter			90	
with IR filter		12	18	
dynodes: 11VBSbCs				
anode sensitivity in divider A:				
nominal anode sensitivity	A/lm		200	
max. rated anode sensitivity	A/lm		2000	
overall V for nominal A/lm	V		950	1400
overall V for max. rated A/lm	V		1200	
gain at nominal A/lm	$\times 10^6$		0.8	
dark current at 20 °C:				
dc at nominal A/lm	nA		2	20
dc at max. rated A/lm	nA		20	
dark count rate	s^{-1}		15000	
pulsed linearity (-5% deviation):				
divider A	μA		2	
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	$T \times 10^{-4}$		1.7	
temperature coefficient:	$\% \text{ } ^\circ\text{C}^{-1}$		± 0.5	
timing:				
single electron rise time	ns		10	
single electron fwhm	ns		22	
transit time	ns		65	
weight:	g		190	
maximum ratings:				
anode current	μA			100
cathode current	nA			1000
gain	$\times 10^6$			8
sensitivity	A/lm			2000
temperature	$^\circ\text{C}$	-80		60
V (k-a) ⁽¹⁾	V			2300
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

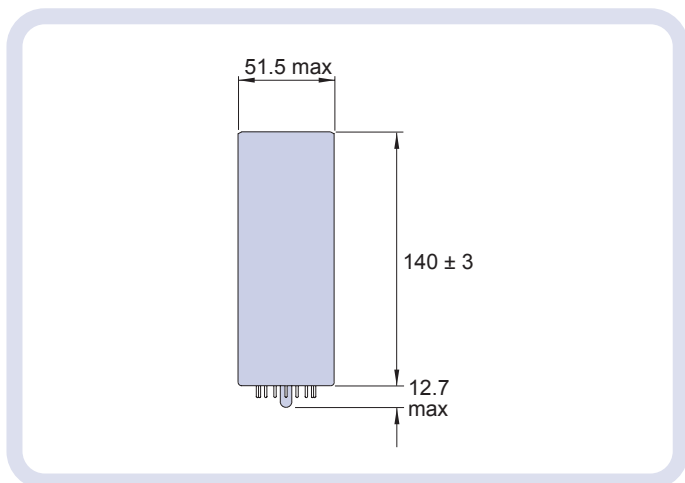


8 voltage divider distribution

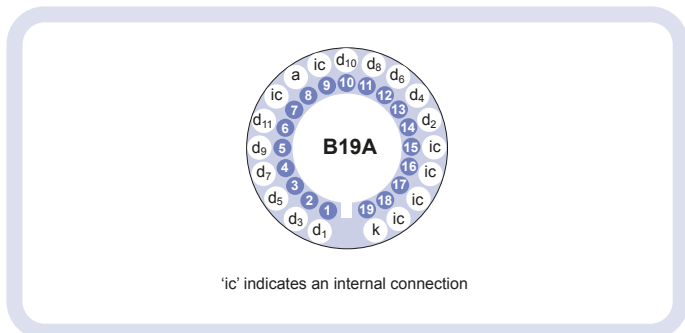
k	d ₁	d ₂	.....	d ₈	d ₉	d ₁₀	d ₁₁	a
A	150V	R	.....	R	R	R	2R	R
Standard								

Characteristics contained in this data sheet refer to divider A unless stated otherwise.

9 external dimensions mm



10 base configuration (viewed from below)



Our range of B19A sockets is available to suit the B19A hardpin base. The range includes versions with or without a mounting flange, and versions with contacts for mounting directly onto printed circuit boards.

11 ordering information

The 9658B 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 a one-off order, then the product will be referred to as 9658A. For a repeat order, ET Enterprises Limited will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

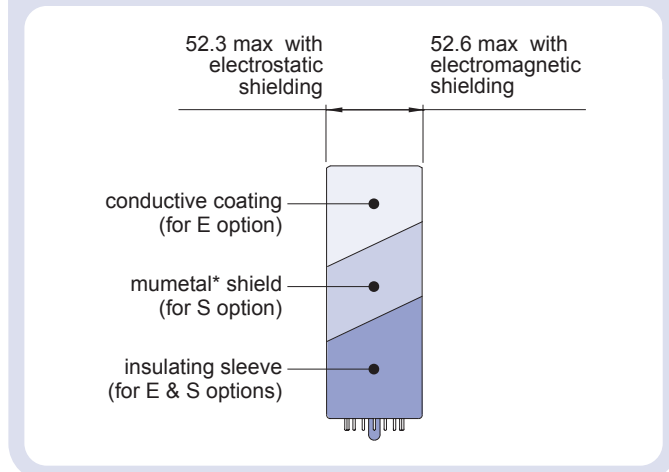
9658

options

- E** electrostatic shielding
see drawing below
- S** electromagnetic shielding
see drawing below
- M** supplied with spectral response calibration

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:

	k	d ₁	d ₂	d ₇	d ₈	d ₉	d ₁₀	d ₁₁	a
C625E	2R	R	R	R	R	2R	R		
C625G	150V	R	R	R	R	2R	R		

R = 330kΩ

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