

# 51 mm (2") photomultiplier 9558B series data sheet

## 1 description

The 9558B is a 51mm (2") diameter end window photomultiplier, with 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. The 9558QB is a variant for applications requiring uv sensitivity.

## 2 applications

- wide range of applications

## 3 features

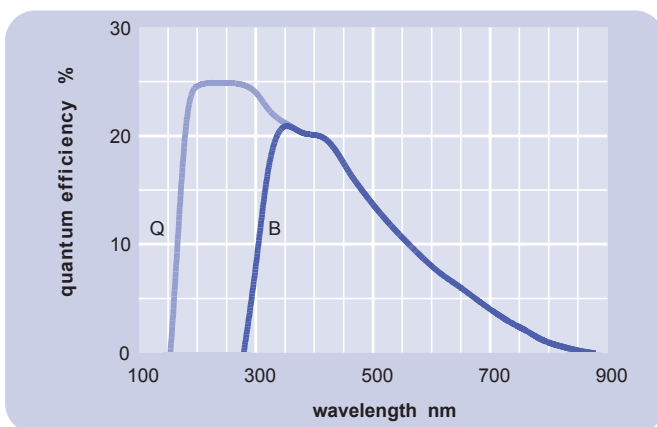
- high gain
- low afterpulsing

## 4 window characteristics

	9558B borosilicate	9558QB* fused silica
spectral range**(nm)	290 - 870	160 - 870
refractive index (n <sub>d</sub> )	1.49	1.46
K (ppm)	300	<10
Th (ppb)	250	<10
U (ppb)	100	<10

\* note that the sidewall of the envelope contains graded seals of high K content  
\*\* wavelength range over which quantum efficiency exceeds 1 % of peak

## 5 typical spectral response curve

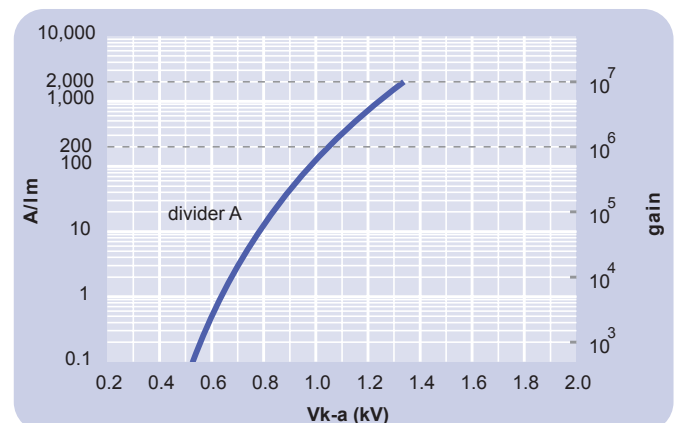


## 6 characteristics

	unit	min	typ	max
<b>photocathode: S20</b>				
active diameter	mm		46	
quantum efficiency at peak	%		21	
luminous sensitivity	μA/lm		200	
with CB filter			9	
with CR filter			90	
with IR filter		7	13	
<b>dynodes: 11VBSbCs</b>				
<b>anode sensitivity in divider A:</b>				
nominal anode sensitivity	A/lm		200	
max. rated anode sensitivity	A/lm		2000	
overall V for nominal A/lm	V		1050	1500
overall V for max. rated A/lm	V		1400	
gain at nominal A/lm	x 10 <sup>6</sup>		1	
<b>dark current at 20 °C:</b>				
dc at nominal A/lm	nA		2	20
dc at max. rated A/lm	nA		20	
dark count rate	s <sup>-1</sup>		15000	
<b>pulsed linearity (-5% deviation):</b>				
divider A	mA		2	
<b>rate effect (I<sub>a</sub> for Δg/g=1%):</b>				
	μA		20	
<b>magnetic field sensitivity:</b>				
the field for which the output decreases by 50 %				
most sensitive direction	T x 10 <sup>-4</sup>		1.7	
<b>temperature coefficient:</b>				
	% °C <sup>-1</sup>		± 0.5	
<b>timing:</b>				
single electron rise time	ns		10	
single electron fwhm	ns		22	
transit time	ns		65	
<b>weight:</b>				
	g		180	
<b>maximum ratings:</b>				
anode current	μA			100
cathode current	nA			1000
gain	x 10 <sup>6</sup>			10
sensitivity	A/lm			2000
temperature	°C	-80		60
V (k-a) <sup>(1)</sup>	V			2300
V (k-d1)	V			450
V (d-d) <sup>(2)</sup>	V			300
ambient pressure (absolute)	kPa			202

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

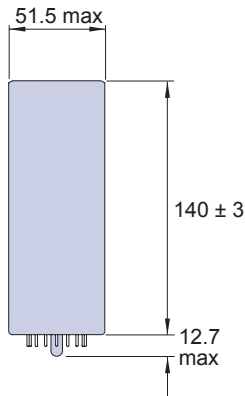
## 7 typical voltage gain characteristics



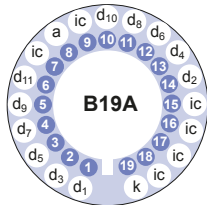
## 8 voltage divider distribution

k	d <sub>1</sub>	d <sub>2</sub>	.....	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	d <sub>11</sub>	a	
A	150V	R	.....	R	R	R	2R	R	Standard

## 9 external dimensions mm



## 10 base configuration (viewed from below)



'ic' indicates an internal connection

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 9558B 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 one-off order, then the product will be referred to as 9558B. For a repeat order, ET Enterprises will give the product a two digit suffix after the letter B, for example B21. This identifies your specific requirement.

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### window variants

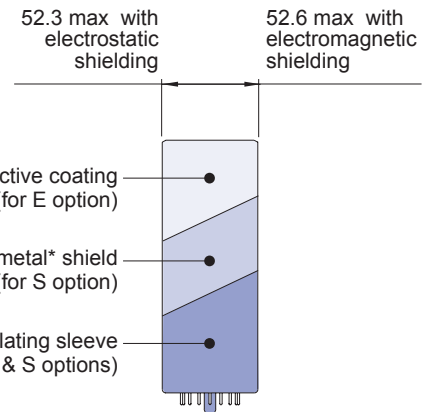
- W** UV glass
- Q** fused silica

### 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 <sub>1</sub>	d <sub>2</sub>	.....	d <sub>7</sub>	d <sub>8</sub>	d <sub>9</sub>	d <sub>10</sub>	d <sub>11</sub>	a
C625E	2R	R	.....	R	R	R	2R	R		
C625F	150V	R	.....	R	R	R	2R	R		

R = 330kΩ

\*mumetal is a registered trademark of Magnetic Shield Corporation

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**ET Enterprises Limited**  
45 Riverside Way  
Uxbridge UB8 2YF  
United Kingdom  
tel: +44 (0) 1895 200880  
fax: +44 (0) 1895 270873  
e-mail: sales@et-enterprises.com  
web site: www.et-enterprises.com

**ADIT Electron Tubes**  
300 Crane Street  
Sweetwater TX 79556 USA  
tel: (325) 235 1418  
toll free: (800) 399 4557  
fax: (325) 235 2872  
e-mail: sales@electron tubes.com  
web site: www.electrontubes.com