

# B51B03 Photomultiplier Tube

The B51B03 is a 2" diameter 10-stage high gain end-on photomultiplier. Designed for scintillation counting and other applications where high quantum efficiency, low dark current, good collection efficiency, gain stability and high count rate are of paramount importance.

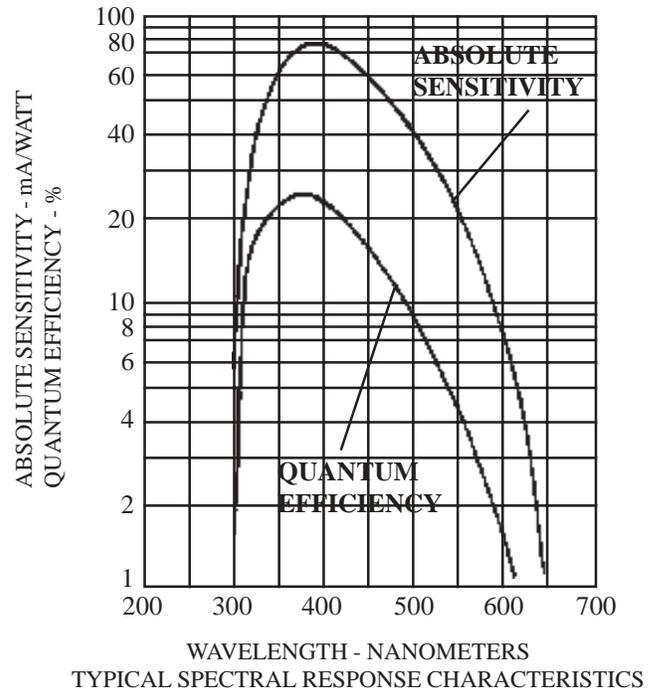
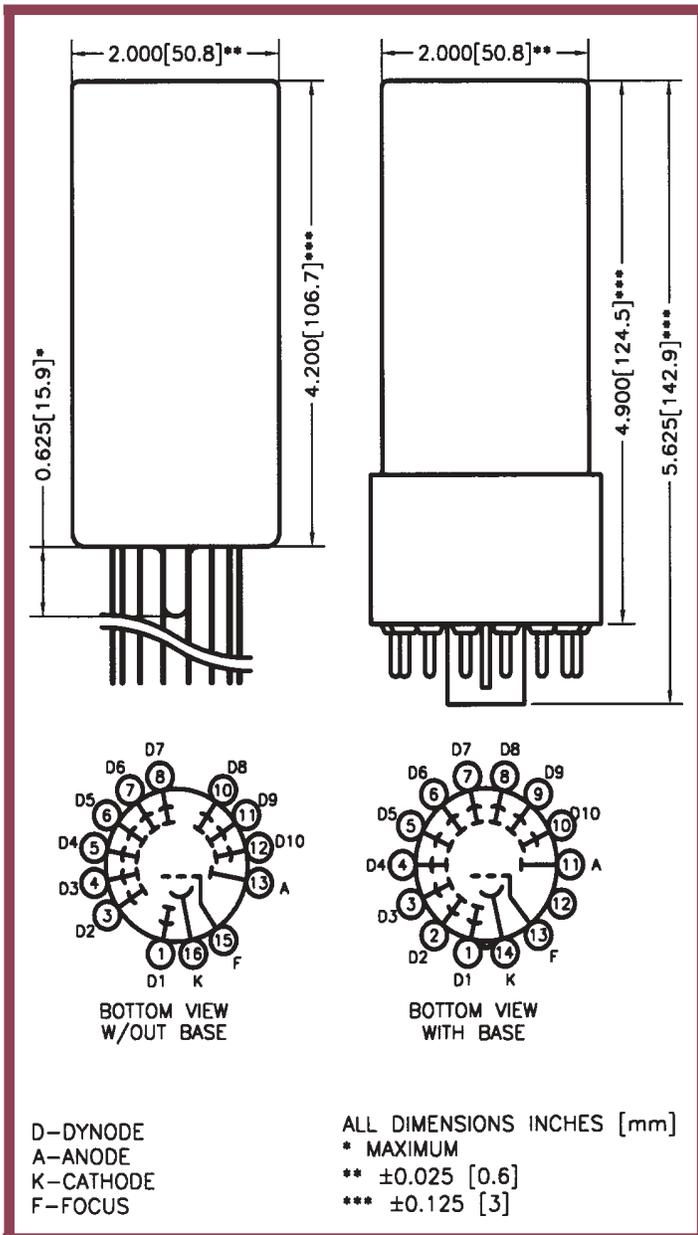


FIGURE 1

Photocathode:	Semitransparent Bialkali
Spectral Response	See Figure 1
Wavelength of maximum response	400 ± 50 nm
Window shape	plano-plano, circular
Window index of refraction @ 436 nm	1.523
Dynodes	SbCs Coated, Box & Grid
Capacitance (anode to all electrodes)	9.5 pF
Operating position	Any
Weight	170 grams

Rev. 01/04



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## ELECTRICAL OPERATING RATINGS

	MINIMUM	TYPICAL	MAXIMUM <sup>(5)</sup>	UNITS
Cathode to dynode No. 1 voltage	40	150	300	VDC
Cathode to anode voltage		700	1300	VDC
Voltage between consecutive dynodes			200	VDC
Ambient storage temperature		23	60	°C
Anode current, average over 30 sec.		10		μA
Cathode current		0.2		μA
Cathode luminous sensitivity: <sup>(1)</sup> With 2854° K tungsten source With blue light source <sup>(2)</sup> With red light source <sup>(3)</sup>		120 12 10		μA/lm μA/lm(B) μA/lm(R)
Quantum efficiency @ 420 nm		25		%
Cathode radiant sensitivity @ 420 nm @ 540 nm @ 600 nm @ 680 nm				mA/W
Anode luminous sensitivity 700VDC With 2854° K tungsten source of $1 \times 10^{-3}$ lm	3	20	50	A/lm
Current amplification @ 700VDC		$1 \times 10^6$		
Anode dark current <sup>(4)</sup> @ 22° C		<1.0		nA

(1) With 150 VDC between cathode and all other elements connected as anode.

(2) This measurement is made with a blue filter (Corning CS-5-58, 1/2 stock thickness) interposed between a calibrated 2854° K tungsten light source and the photocathode. The (B) appearing in the units signifies that the measurement is made with the blue filter in place.

(3) Measured at the supply voltage which gives an anode sensitivity of 20 A/lm.

(4) Recommended operating maximums.

**NOTE:** When ordering one of the following basing options must be added, i.e. B51B03S

**BASING OPTIONS:**      L - Long Base      S - Short Base      W - Wire Leads (No Base)

Voltage dividers available made to customer specifications.



P.O. Box 870 • 300 Crane • Sweetwater, Texas 79556  
800-399-4557 • 325-235-1418 • Fax: 325-235-2872 • E-mail: [adit@aditpmt.com](mailto:adit@aditpmt.com)      Website: [www.aditpmt.com](http://www.aditpmt.com)