

# High Power 12" UVC LED Module

(1.2 W<sub>opt</sub> Output)

Version 1.3

BOLB Inc.  
Livermore, California  
July 19, 2023

PLEASE OBSERVE UVC SAFETY PRECAUTIONS  
PROTECT YOUR EYES AND SKIN FROM UVC EXPOSURE  
ALL OPERATORS, OBSERVERS AND NEARBY PERSONNEL MUST BE PROTECTED

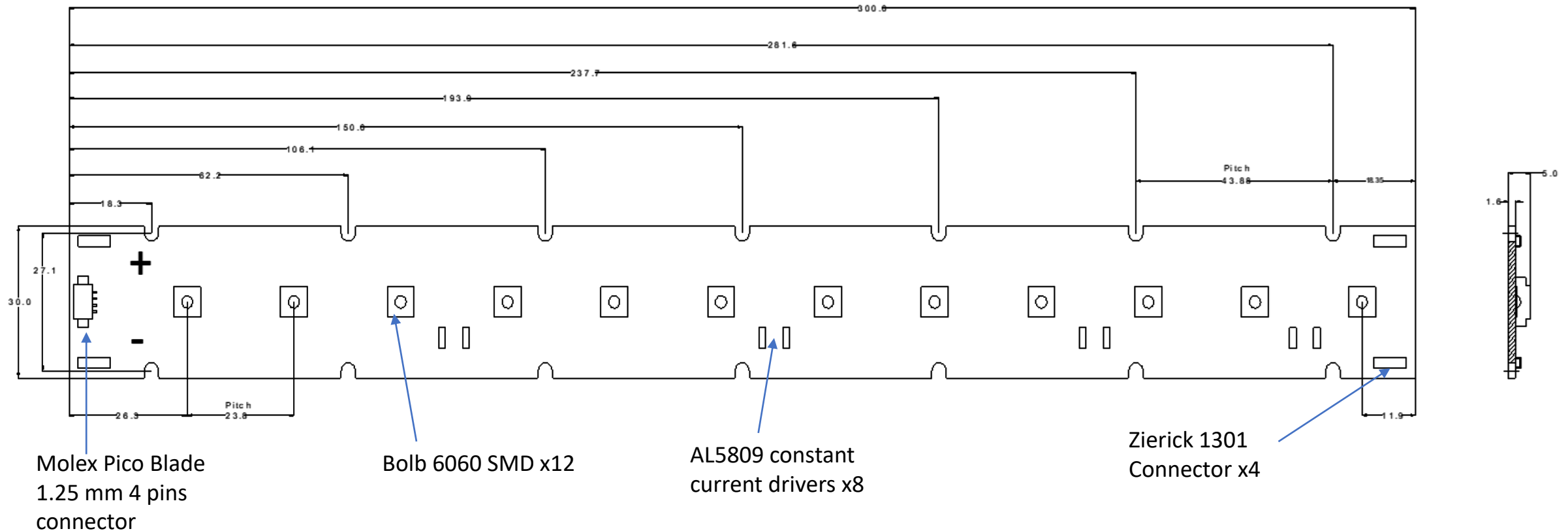


BOLB INC IS NOT RESPONSIBLE FOR ANY HARM CAUSED BY  
NEGLIGENCE IN SAFETY BY THE USERS

## 12" UVC module design data

Mounting on heat sink is required

Units in mm

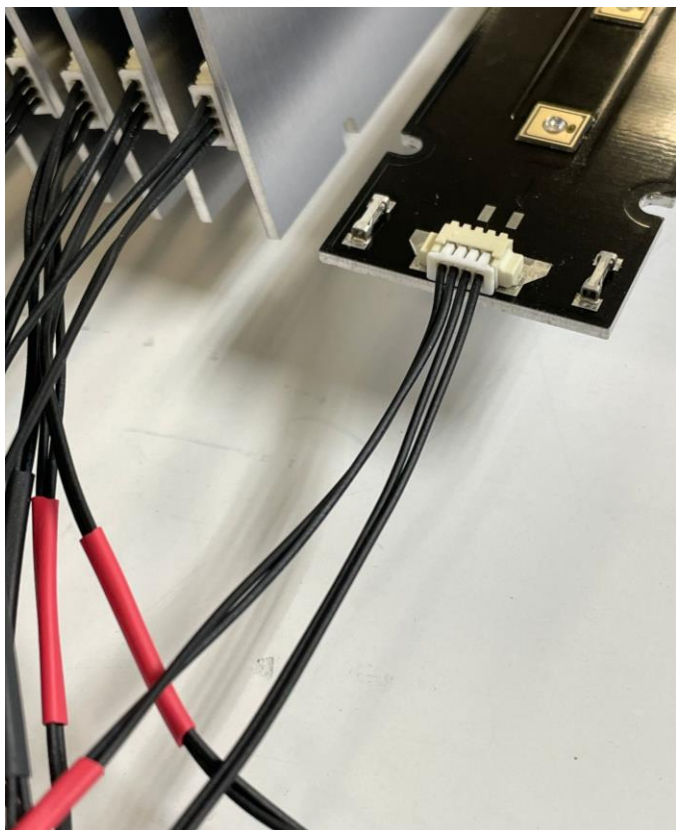


#### NOTE for connectors:



1. 284010-3 wire-to-board poke-in connector is required 20-24 AWG ( $\varnothing$  0.50 -0.80 mm) non- stranded copper wire.

(<https://www.digikey.com/en/products/detail/te-connectivity-amp-connectors/2834010-3/5766883>)



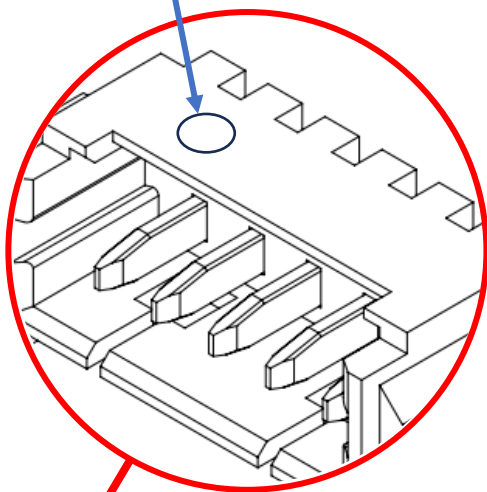
2. Molex Pico Blade 4-pin 1.25 mm connector

[0532610471 Molex | Connectors, Interconnects | DigiKey](#)

By combining two Pico Blade pins for anode/cathode, maximum drive current is 2A

The wires are color coded, wires with a **red band** are positive (+)

Pin#1, Anode Mark



### Polarity recognition:

Beside color-coded wires, all Pico Blade connectors have a circular mark above Pin #1 which is the **anode** for our board



12" (4P3S) Stripe module performance 24VDC, 1A at 25°C ambient  
and active cooling

Parameter	Symbol	Unit	Min.	Typ. 250mA/LED	Max
Peak Wavelength	$\lambda_p$	nm	265	275	278
Radiant Flux	$\phi_e$	$W_{opt}$	1.0	1.2	1.4
Forward Voltage (LED + Driver electronics)	$V_F$	V	22	24	26
Forward Current	$I_F$	A	0.9	1.0 <sup>i)</sup>	1.1
Spectrum Half Width	$\Delta\lambda$	nm	-	12	-
View Angle	$2\theta_{\frac{1}{2}}$	°	-	160	-
Thermal Resistance	RJ-b	°C/W	-	<10 (TBD)	-

<sup>i)</sup> Drive current - 250 mA per LED



## I-V data for 12" Stripe module

Current dimming range by supplied voltage- 14-20V  
Current stabilization range by drivers 21-26V

Requirement for power supply:

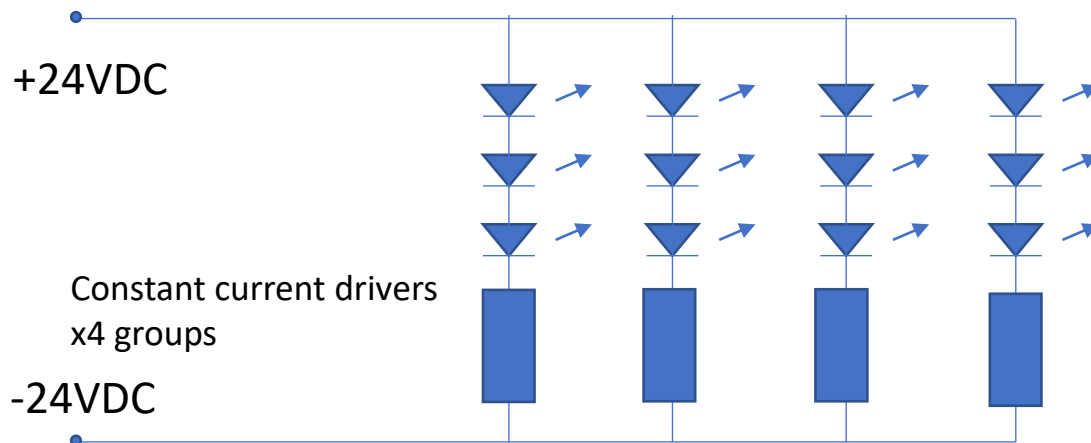
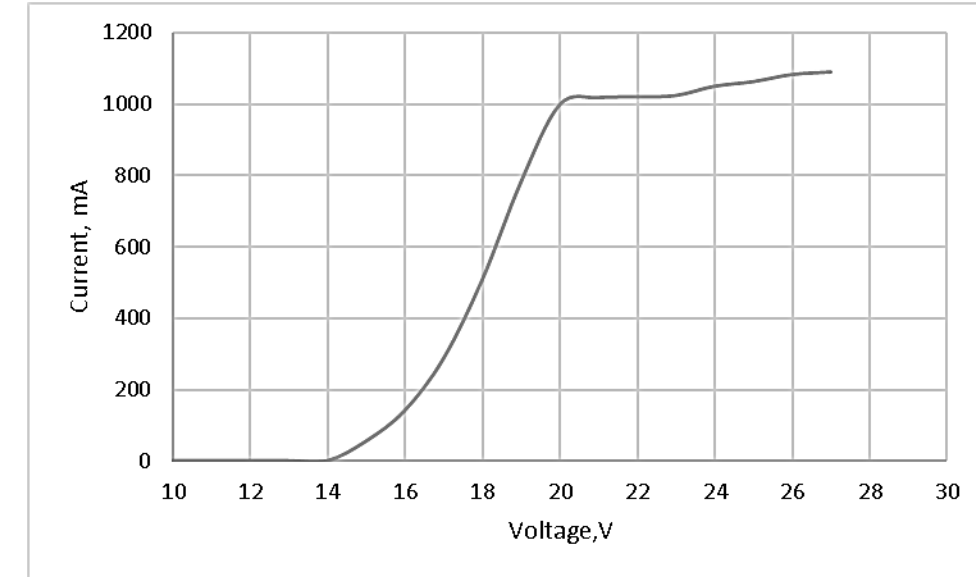
24 VDC, Drive current recommendation: 1.5A total or higher

Actual current draw:

1A for LEDs (250mA for each LED)

0.2A for optional cooling fan (when ordering module)

LEDs and cooling fan are connected in parallel



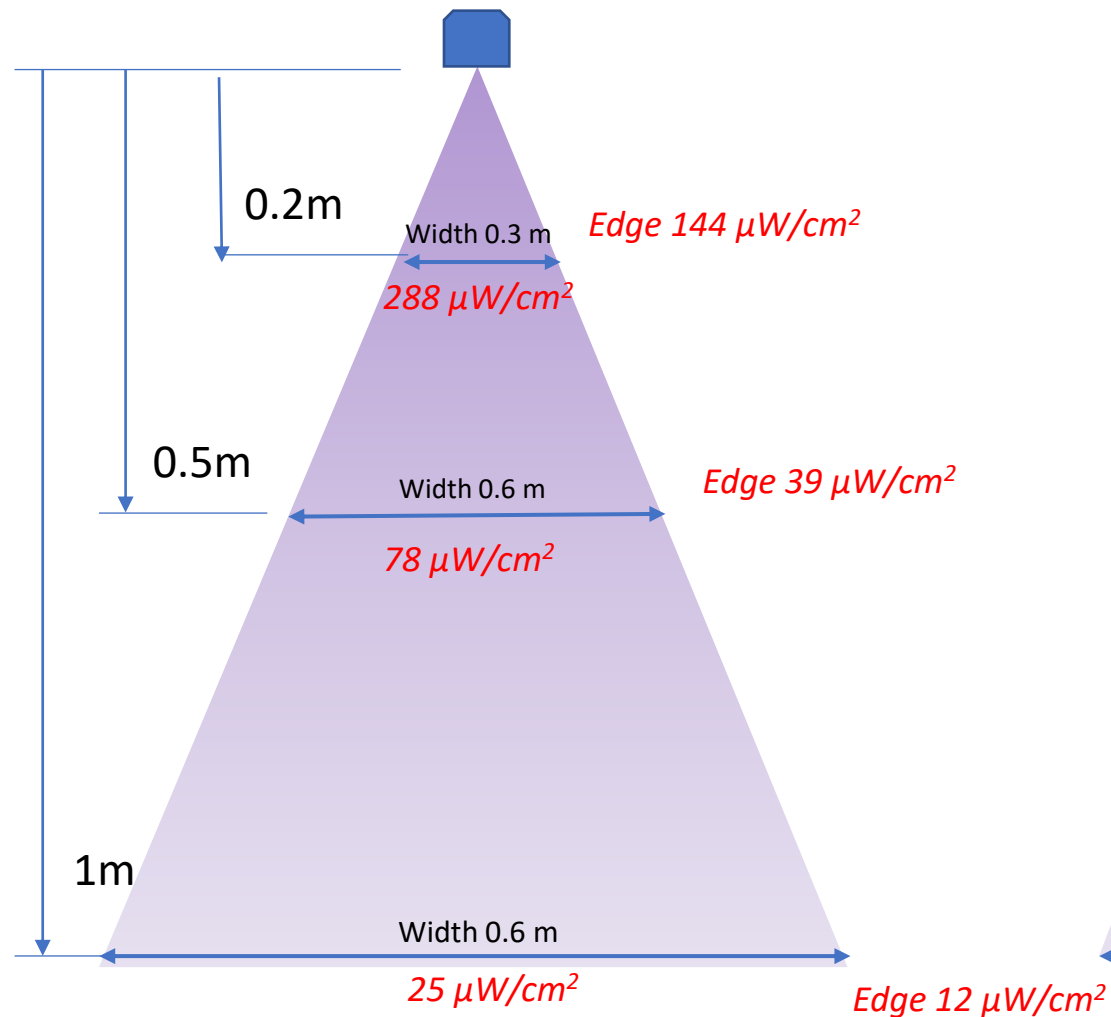
12" Stripe. Electrical connection- 4P3S (4 parallel branches, each branch has 3 LEDs in series) with serially connected current stabilization driver for each branch.

*Irradiance values are very calibration-sensitive  
It's not uncommon to see intensity meters  
calibrated for Mercury lamp provide wrong  
irradiance values by a factor of 2x-3x.*

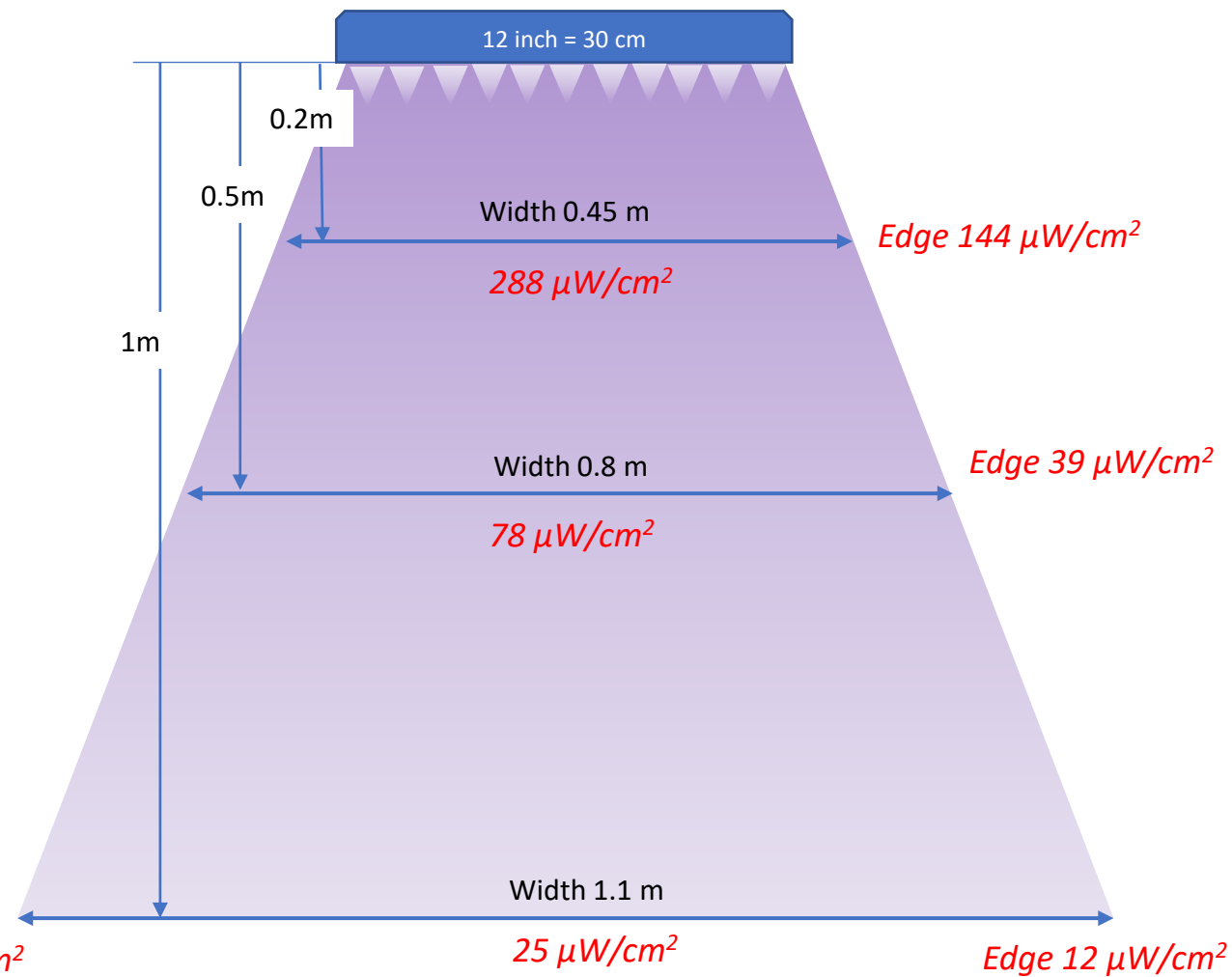
*Please contact Bolb for assistance.*

# Irradiance data for 12" Array 1.2W flux power (no reflector)

Beam spread profile looking from one end down the length of stripe



Lengthwise beam spread as viewed from the side of the stripe





# How to order 12" Module?

<http://YesLED.com> / [Info@YesLED.com](mailto:Info@YesLED.com)



UVC LED type package

Nominal drive current (A)

12"Module-DR1A-Wavelength--Power--Voltage

Emission Peak  
+/- 5 nm

mW @ 1 A stabilized  
+/- 10%

Voltage @ 1A stabilized  
+/- 1 V

**Example for order:**

12"Module -DR1A-W275-P1200-V24

**Interpretation:**

Device type :12" Module UVC

Nominal drive current 1.0 +/- 0.1 A

Peak wavelength = 275 +/- 5nm (or 265 +/- 5nm)

Power output @ 1A = 1200 mW (+/-15%)

Forward voltage @1A = 24V (+/- 1V)

## CAUTION: General Precautions and UVC Safety

UVC flipchip emits deep ultraviolet radiation, with extremely high intensity near its surface. This allows rapid disinfection but safety precautions must be observed during assembly and testing.

By purchasing the UVC LEDs from the manufacturer, the customer hereby agrees to absolve the manufacturer's responsibility of any bodily harm as a result of failure to observe the precautions, warnings and guidelines contained within this Specifications.

All assembly workers, observers and bystanders must wear eye and skin protection when the UVC LEDs are energized. Bare eye observation (including through microscopes) and bare-hand handling of a UVC LED in operation is PROHIBITED.

UVC light can be easily absorbed, so any oil or other absorbent liquid or solid substance must NOT be allowed to touch the sapphire side of the UVC chip, or the dome lens on a packaged LED.

Do not apply pressure to the dome lens on packaged LED.

